Skill Full

Integrating individualized feedback into teamwork

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Acknowledgments

"No matter what accomplishments you make, somebody helped you."

-Althea Gibson

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"Teamwork is the ability to work together toward a common vision. The ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results."

-Andrew Carnegie

Abstract

"Collaboration, it turns out, is not a gift from the gods but a skill that requires effort and practice."

-Douglas B. Reeves

With the growing complexity of problems in today's world, the presence of self-managing teams at school and in the workplace has become increasingly common. Although teams have great potential to achieve, they inevitably run into challenges related to ambiguous problems, conflicting team member opinions, and unclear ways to allocate the work. Thus, each team member must bring different soft skills to their projects through a variety of roles (e.g., strategist, idea generator, decision facilitator, etc.) in order for collaborations to be successful. This project explores various ways that individuals can receive feedback from their teammates in order to guide their personal development and help them become effective team contributors.

The research methods this project utilizes include a competitor assessment, literature review, and research conducted with participants (e.g., online surveys, in person interviews, and generative sessions). Findings reveal the need for a process that helps individuals perceive the feedback they receive as trusted, relevant, and meaningful. They also point to the need for flexibility in feedback tool options. Given that users often differ in their level of self-awareness, as well as the level of human interaction they desire when receiving feedback, a feedback system must support a variety of paths toward self-development.

The final design concept this project proposes is called SkillFull. It is a web platform that allows users to manage their own teamwork skill development through six available tool options. The platform guides users through a feedback process that emphasizes the selection of specific skill goals so as to better direct the user's practice and help ensure that peer feedback supports personal growth.

Introduction

"Feedback is the breakfast of champions."

-Ken Blanchard

WHY DESIGN FOR TEAM FEEDBACK?

Teams are groups of individuals who come together to achieve a common goal. While in the past, many jobs involved work that was done independently or within a hierarchical structure, the workplace is increasingly leveraging the power of teams. As problems become more complex and ambiguous, it is often collaborative, self-managing groups, rather than silos of individuals, who can rise to the challenge. This is because teams are able to pool together a diverse set of skills and can also adaptively organize themselves based on changing demands or stages of a difficult task. Teams have the power to answer questions like:

- "Given increasing competition, how will we provide unique value to our customers?"

- "What type of internal projects should our company be working on over the next year in order to achieve our targets?"

- "How do we develop greater transparency within our organization?"

There are no right or wrong answers to these questions. It takes a group of people with different perspectives to navigate the approach, discovery, and implementation of solutions related to unchartered territories.

Unfortunately, working in teams is not always easy. Teams must determine their own rules, work structure, roles and responsibilities, deadlines, etc., which requires a lot of leadership, communication, and resourcefulness. Self-managed teams inevitably face the need to resolve conflicting opinions, merge or blend different people's ideas together, and coordinate work across multiple team members. As a result, much of the success of a team will not depend upon the hard, technical skills of each team member (e.g., who can code or create robust Excel models), but rather upon the softer skills that allow the team to function well together. Examples of such soft skills include behaviors like:

- Jean facilitating a team decision regarding who should be interviewed in order to understand the identified problem space

- Eric providing feedback to his teammate Rick, who created a presentation that seems a bit confusing

- Martha generating a new idea for resolving a problem that the team identified through their research

Many soft skills are not taught in school because they are difficult to teach. They are behaviors that individuals must learn through practice, by observing others, and by receiving feedback from the people they interact with most.

While feedback is a terrific mechanism to help individuals understand how they are helping or hindering their team, giving and receiving feedback effectively is a whole other challenge in itself. Feedback is often difficult not only for the recipient, but also for the provider. From the recipient's perspective, feedback may feel ill timed, confusing, and judgmental. From the perspective of the feedback provider, giving feedback may feel time consuming, challenging, and awkward. Unfortunately, there is currently a lack of feedback tools/methods in the market that help individuals effectively deal with these challenges. For these reasons, this project explores ways to make peer feedback about soft teamwork skills more targeted, relevant, and meaningful. The goal is to improve the feedback experience in order to help each person develop as a team contributor. Ultimately, this can help teams to reach their goals of achieving solutions to some of the most complex problems.

WHO IS THE INTENDED AUDIENCE?

The main target audiences for this project are individuals who work on highly collaborative, self-managed team projects and who would like to receive feedback or advice from teammates to help them develop their soft teamwork skills. Rather than narrowing this group of individuals by age, occupation, discipline, or the types of teams such individuals work within, this project takes the approach of casting a wide net; considering different types of users. The reason for this approach is that teams rarely fall into a certain category and rarely include team members who are very similar to each other. Given that this project focuses on teams with diverse skill sets tackling complex problems, the target users likely come from different backgrounds, ages, and disciplines. If a feedback system is to help such diverse groups communicate with each other more effectively, the system must be equipped for different types of audiences.

This project also considers team members who are giving (not just receiving) the feedback as a main user group. Another important stakeholder is the organization within which teams are situated. For example, a team may be working on a project that is completed as part of a class, which is part of a program, department, and larger educational institution. Organizations often have a big interest in the development of their people. This project considers their needs and how such groups might benefit from an improved feedback system.

WHAT DOES THIS PROJECT SEEK TO ACHIEVE?

The main goal of this project is to create a positive experience for an individual when receiving feedback about their soft teamwork skills. A positive experience can be defined in a number of ways. Based on the research conducted throughout this project, a positive experience is defined as one in which recipients are getting feedback that:

- helps them to improve their performance on team projects

- gives them insight into their performance at a time when they are still able to act upon it

- matters to them based on their career goals and interests

- seems trustworthy

- creates lasting clarity and meaning

- minimizes discomfort that often comes with feedback (e.g., feeling judged, surprised, or powerless)

WHAT AREAS DOES THIS PROJECT INVESTIGATE?

The topic area of feedback is broad and spans numerous fields including psychology, business, organizational behavior, and education. To more effectively focus research activities, this project was scoped to include three specific areas: skills (what individuals seek to develop), feedback (what informs development), and learning (what enables development). The process of narrowing this project's scope happened throughout the course of the project, as participant's needs were

clarified and better understood. For example, the area of "personal informatics" was initially included within scope, but was later found to be less important after it was discovered that users would benefit more from an improved feedback process overall instead of a new way of interacting with their existing personal feedback information. The sections below explain each of the focal areas of this project in greater depth and also distinguish the areas that were considered outside of scope.

Skills (What Individuals Seek to Develop)

The first focal area of this project relates to the teamwork skills individuals seek to develop. The project purposefully did not focus on helping teams with challenges they often encounter as a group (e.g., problems in managing their work or handling team conflict). While helping teams in this way would support the greater goal of improving team effectiveness, this project assumes that by supporting the individual, the root causes of many team issues can be addressed. If each individual member is well equipped to function within a team, they are empowered to develop their own customized methods for managing the team's work and for navigating conflict between team members. For example, if a team has a good decision facilitator, it may prevent team members from feeling angry or hurt that their ideas are not being considered. As another example, if a team has a good coordinator who can effectively facilitate a discussion about the way tasks are delegated amongst team members, it may prevent individuals from feeling that there is an uneven distribution of work. Thus, this project aims to create effective teams by aiding the development of individual team members.

The skills targeted by this project include those that are less technical in nature and have shown to be important across a wide variety of projects and teams. This approach helps support the development of skills that are transferable across different team projects and situations. Given the broad range of soft skills that may be considered helpful to teamwork, this project takes the approach of presenting a list of team skills in the form of ten team roles (discussed in the Concept Development section of this document). The list was inspired by various sets of teamwork skills offered by four different sources. The final framework seeks to make teamwork skills both comprehensible and relatable.

Feedback (What Informs Development)

The second focal area this project investigates is the process of obtaining feedback in order to inform self-awareness and subsequently develop one's skills. Feedback is a loaded term, therefore it is important to understand what type of feedback is meant by this phrase and also who provides this feedback. The feedback this project targets are the impressions that peers have about their teammate's performance. More specifically, they are the perceptions an individual has regarding how much another's performance does or does not align to their goals. The forms of this feedback may include ratings, written comments, or verbal conversations. Other types of feedback not included as part of this project are less subjective forms of feedback (e.g., number of minutes an individual on a team talked during a meeting). The reason for focusing on subjective forms of feedback rather than more technical forms is that subjective feedback

provides rich insights that can provide great clarity if carefully crafted and shared. Although quantitative data would likely be more accurate and trusted by the recipient, the perceptions that team members have about someone are more significant. They not only help the feedback recipient develop, but they also serve as a way for teams to communicate their issues and to improve the team dynamic. Finally, people's careers are often based on other's subjective perceptions of them. It is helpful for individuals to understand such perceptions so as to better support career success and progression.

In terms of who provides the feedback, this project focuses specifically on peer feedback. Peers are individuals who are of a similar level or status within an organization. This makes them more likely to have the time to provide each other with feedback. They are also less likely to make each other feel threatened or inferior, as there is no power dynamic between them. Additionally, peers are often the ones who have the best insight into an individual's performance, as they work closely with them on a team project. Finally, peers who provide each other with feedback learn about themselves as well – the process forces them to practice observing and evaluating behavior. This project does not support feedback provided by individuals outside of the team (e.g., outside third party observers). While outside observers can have great insight into a person's behavior, rarely do organizations have the funds to hire them for each individual.

Learning (What Enables Development)

The final focal area this project investigates is the learning that takes place when individuals practice a skill and make new discoveries about the impacts of their behavior. Given that the ultimate goal of this project is to help individuals in teams to build their soft skills, this project touches upon the various ways in which people learn and how their learning may be supported through feedback. This project does not go into great depth regarding the more detailed trainings and professional development that could help individuals learn new soft skills. Instead, this project aims to direct and motivate individuals toward rich forms of education.

Project Scope

Skills

Feedback

Personal
Development
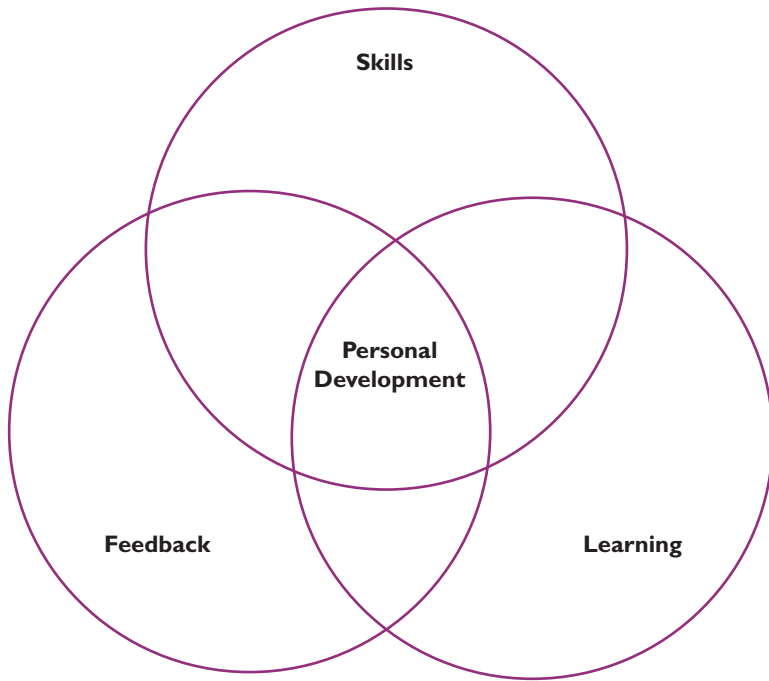
Learning

The diagram on the left shows the scope of this project. This project investigates the areas of skills (soft teamwork skills). feedback (subjective feedback from peers), and learning (gaining of knowledge and expertise), in order to support personal development.

Review of Relevant Literature / Projects

"Collaboration is important not just because it's a better way to learn. The spirit of collaboration is penetrating every institution and all of our lives. So learning to collaborate is part of equipping yourself for effectiveness, problem solving, innovation and life-long learning in an ever-changing networked economy."

-Don Tapscott

In order to explore the areas of skills, feedback, and learning, I conducted a review of relevant literature as well as an assessment of different feedback tools/methods currently available in the market. Over the course of this project, I was able to connect this research with other exploratory research I conducted with participations. Together, these findings pointed to the benefits of designing a feedback system that includes a number of different tools for developing teamwork skills. Additionally, the findings showed the importance of carefully determining the steps of a feedback process and presenting teamwork skills in a way that effectively facilitates feedback and development.

Ten design principles emerged through the research and were used to guide the final design developed for this project. The principles serve as a helpful way to organize the relevant literature and projects explored through this project and fall into four main categories: 1) how the system should be structured, 2) the visual form a feedback tool should take, 3) how a feedback process should function, and 4) how teamwork skills should be presented. This section discusses each of the four categories and presents the supporting research that informed the design principles.

HOW SHOULD A FEEDBACK SYSTEM BE STRUCTURED?

The overall system in which feedback lives makes a big difference. The context impacts whether or not individuals are motivated to participate in the act of giving and receiving feedback and also whether or not the feedback they receive is meaningful. For example, if a person is told that they must complete a peer evaluation at the end of a project in order to inform grading, they may not be motivated to provide rich, constructive feedback to their teammate within this context. They would likely fear negatively impacting their teammate's grade, or worry that their teammate won't even read the information. Likewise, the teammate receiving the evaluation may hesitate to trust it, as the feedback is given in the context of a grade. This example suggests the importance of considering the design of the overall feedback system. One must determine why the feedback is being provided, what will motivate the user to engage in the process, and what activities the system will support. There are five design principles related to the structure of the feedback system:

1. **Focus on development:** A feedback system is best equipped to support an individual's personal development if individual growth, rather than assessment, is its primary purpose.

2. **Make the process self-driven:** Individuals are more likely to feel engaged and motived in the act of giving and receiving feedback if they feel that they can shape the process, rather than the process being imposed upon them.

3. **Allow for customization:** Individuals have different tendencies and needs related to feedback and should therefore be able to use tools that are flexible and adjust to different situations.

4. **Make feedback relevant:** Many existing tools fail to present feedback information in a manner that allows individuals to relate the feedback to their goals and see progress over time. This makes feedback more valuable.

5. **Support collaboration:** It is important that a feedback system support a two-way learning conversation, rather than a one-sided evaluation.

The following sections discuss the research supporting the design principles.

Competitor Landscape

Collaborative

Opportunity Area

saba   worksimple

7Geese   SilkRoad WingSpan   salesforce work.com

Assessment Focused ← → Development Focused

Stir

Achievers   Qualtrics Survey Solutions for Success   teamly

Perfoquo

Cornerstone ON DEMAND Empowering People

Linked in

betterme

Si Small Improvements Performance Feedback. Simple and intuitive.   mozilla OpenBadges

echospan EMPLOYEE PERFORMANCE MANAGEMENT   SuccessFactors People Performance

HALOGEN SOFTWARE

Singular

Above is a competitor landscape showing which peer feedback tools currently offered in the market are primarily focused on assessment vs. individual development, and which ones are more collaborative vs. singular. Given the lack of tools that allow individuals to receive feedback for purely development purposes and also engage in two-way, collaborative dialogue about their feedback, there is a big opportunity in the top right portion of the matrix.

1. Focus on development

Feedback tools are very popular both in the workplace and across various educational institutions. Often times, feedback involving peer evaluation is called "multi-source feedback" or "360 degree feedback." In a 2001 paper, McCarthy and Garavan discuss the popularity of these tools. They state that while most traditional tools are focused on appraisal (i.e., to determine job compensation or grades), peer feedback tools have been increasingly used for development purposes (i.e., helping the user to improve their performance). McCarthy and Garavan argue that it is better to use peer feedback tools in this way. They point to studies suggesting that people tend to be less honest when they know that their feedback may negatively impact someone's career. McCarthy and Garavan propose the creation of a safe place for feedback providers where they can be open and honest without feeling that they may be harming the feedback recipient by doing so. It can be difficult, however, to make the case for companies to

use feedback tools only in this way. Organizations do need to make decisions about the performance of their students or employees, so they may need to be convinced that the additional overhead of a separate development-only system would in fact be worth the cost and effort.

In order to understand how existing peer feedback tools are primarily used, I conducted a competitor assessment of 18 tools currently available in the market. While it would be difficult to say for certain, a majority of tools appeared to be appraisal focused. Any time feedback is collected using software that is company owned, there is potential for that company to see what was written about an individual and utilize that information for appraisal decisions. The only tools identified that stepped outside of this model were LinkedIn, Mozilla Open Badges, SelfStir, and betterme. These tools do not provide peer feedback in the traditional sense. Instead they allow users to collect endorsements, badges, or feedback through a website that the individual, rather than an institution, manages and maintains. These tools are more directly used for development or self-promotion purposes, and pave the way for future tools following this model.

2. Make the process self-driven

In their 2006 book called *The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations*, Brafman and Beckstrom contend that decentralized organizations are much stronger and more flexible than those that are structured hierarchically. They present the example of AA (Alcoholics Anonymous), an organization for which no single person is in charge. Instead, participants are trained in the AA methodology, which includes only 12 guiding steps. Participants are then free to follow the process as they choose. The self-management of AA groups creates a sense of community and ownership. It also allows everyone access to information and the ability to make direct use of it so that intelligence can spread throughout the system. Brafman and Beckstrom's concept of decentralization can be applied to the area of peer feedback. While feedback processes utilized by organizations are often imposed upon individuals and typically involve the delivery of feedback by an individual higher in the hierarchy (e.g., teacher or manager), a decentralized approach in which everyone can give each other feedback according to simple guidelines can lead to a stronger, more resilient community. There is an opportunity to provide a set of shared norms and values related to feedback within an organization, and then allow everyone to help each other rather than only select "experts" playing this role.

Steven Johnson's 2002 book *Emergence: The Connected Lives of Ants, Brains, Cities, and Software* makes a similar argument. Johnson's concept of "emergence" is the idea that low-level rules can lead to higher-level sophistication. Rather than having an intelligent executive branch, problems can be solved by drawing on masses of relatively stupid elements following simple rules. Examples of this emergent behavior can be found in the activity of mold, ants, and cities. This concept yet again points to the idea that feedback is something that everyone can utilize amongst each other. Instead of having rigid, complex rules about how feedback should be provided, it may serve the community to allow for frequent peer feedback that provides a few set of simple norms and guidelines. With this freedom, there may be complex patterns that may emerge, revealing how individuals can best use the system to get the type of feedback they seek.

3. Allow for customization

When feedback is used for development, it is meant to facilitate learning. In Julie Dirksen's 2011 book *Design for How People Learn*, Dirksen argues that there are a number of different reasons why someone may struggle to learn. It might not just be a gap in knowledge, but rather a gap in skills, motivation, environment, or communication. Dirksen thinks that it is important to understand why there is a learning gap, as well as the size of this gap. Based on the answer to these questions, the individual likely requires a certain support mechanism to assist their learning. For example, a novice needs a lot of guidance and a structured experience with achievable goals, as it is important to build a novice's self-confidence. In contrast, a more proficient person requires much more autonomy, the opportunity to coach others, and the chance to request more help as they need it.

Overall, it becomes clear that individuals require different learning support based on the current stage in their development as well as the barriers they may be dealing with. For this reason, it is important for a feedback system to allow for flexibility and customization. For example, it may be helpful for users to indicate when they'd like feedback regarding a skill they find particularly challenging vs. one they feel confident about. This could signify to others whether or not they should build the individual's confidence or if they should instead provide the critical feedback or advice that the individual would find most useful.

4. Make feedback relevant

In the 1998 book *Design as a Catalyst for Learning*, Davis and Hauley contend that design (the process of making and doing) can help students learn. This is because design is not a process of only analysis, but also a process of synthesis. This active form of learning helps to foster long-term memory of ideas and concepts. Since understanding feedback is a learning process, it can be argued that more can be gained if individuals can actively engage with the information. By seeing feedback visualized or displayed over time, individuals can identify patterns and gain a longer lasting understanding of the feedback they obtain from others.

Don Norman makes a related point in his 1994 book *Things that Make us Smart: Defending Human Attributes In The Age Of The Machine*. He makes a distinction between experiential and reflective cognition. A person utilizes experiential cognition when they generate behavior without effort or delay - when they respond to things automatically. Reflective cognition, on the other hand, is utilized when a person follows a thought process that takes more time. Tools that are meant to help reflect, Norman argues, should make it easy to compare, evaluate, and explore alternatives. When individuals receive feedback about their skills, they see a representation of how others perceive their performance. It is important to present this representation in a way that allows individuals to make reflective, rather than mere experiential judgments. The representation should help them to answer their curiosities, such as learning how their feedback for one skill compares to another, or whether feedback from one project was similar to feedback received from another project. This type of connectedness and exploration is important in helping individuals be reflective and find feedback relevant.

5. Support collaboration

In the 2010 book *Difficult Conversations: How to Discuss What Matters Most*, Stone et al. discuss helpful tactics for having conversations that may be uncomfortable but are tremendously helpful in allowing both participants to learn and effectively communicate with one another. According to the authors, there are three types of conversations: 1) the "what happened?" conversation (a disagreement about what happened or should happen), 2) the feelings conversation (questions asked and answered about feelings), and 3) the identity conversation (a conversation we have with ourselves about what the situation means to us). This framework is helpful when applied to feedback, as often times discussing someone's performance can feel like a difficult conversation. This is especially true if the two people disagree about what happened, have feelings involved, or feel that the feedback impacts their identity.

Stone et al. contend that such difficult conversations are most effective when they are "learning conversations." Rather than one person giving feedback and the other person simply having to accept it, it is more effective if both parties approach feedback as an opportunity for mutual learning. For example, the feedback provider can seek to determine if their perception of their peer's performance matches the perception that their peer has of themselves. If the perception is not the same, they can seek to discover why this is the case. The feedback provider can also try to understand the type of feedback the recipient is currently looking for and how they may best provide that information. For these reasons, a feedback system should support two-directional, rather than one-directional feedback conversations.

WHAT VISUAL FORM SHOULD A FEEDBACK TOOL TAKE?

Visual form makes a big impact on the way individuals perceive and experience a tool. Given that feedback is a common term used in different ways, many individuals have preconceived notions about it. Based on their past experiences, they may associate feedback with negative feelings of judgment or vulnerability. For this reason, it is important to consider the appearance of a feedback tool. How can it communicate to users that it is not like the rest; that it seeks to make their experience feel more comfortable and empowering? Visual form can provide clues and indicators that help to tell the story of a feedback tool and why people should use it. It can also make interactions more enjoyable and efficient. There are two design principles related to the visual form a feedback tool should take:

1. **Make the tool friendly:** Many of the existing feedback tools in the market seem formal and distant, as they use muted colors and geometric shapes. Given that individuals often have strong visceral reactions to feedback, it is important to present a feedback system as friendly and inviting through bright colors, informal language, and organic shapes.

2. **Keep the tool simple:** Feedback is often perceived as a time consuming process, therefore it is important for a system to be quick and easy to use.

The following sections discuss the research supporting these two design principles.

Examples of Existing Tools

worksimple

Although WorkSimple was forced to close due to capital constraints, it aimed to make goals and performance a social experience. To this end, the company utilized a friendly, informal visual design. The image on the left shows a user's profile page, while the image on the right shows an interface for providing others with feedback.
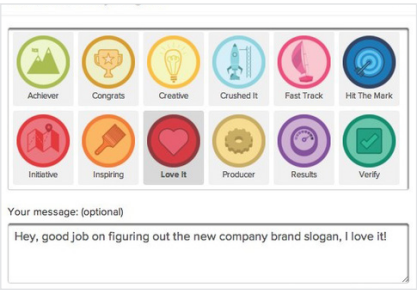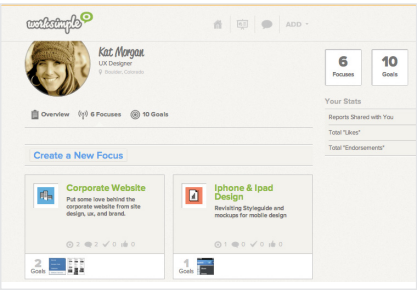

SelfStir

SelfStir is a free service allowing individuals to obtain feedback from their friends, peers, and family for strictly development purposes. Its language is friendly and the site provides visuals to support understanding. The image on the left is an example of a survey entry page, while the image on the right is an example of a feedback results page.
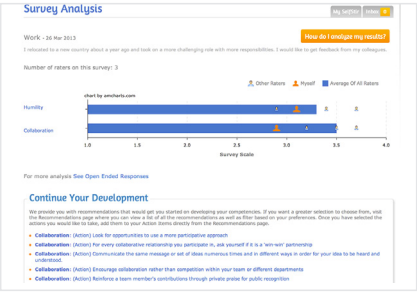

Saba

Saba offers a service that allows employees to recognize each other, earn badges, and leave private feedback on an ongoing basis. While the form of the tool helps make the experience highly visual, the overall style is quite formal. The image on the left is a dashboard view for tracking performance, while the image on the right shows an interface for providing others with feedback.
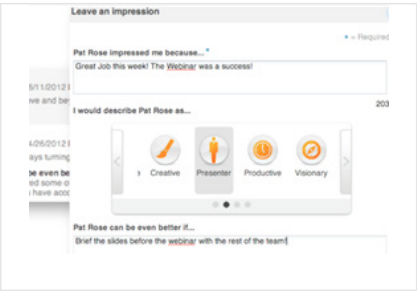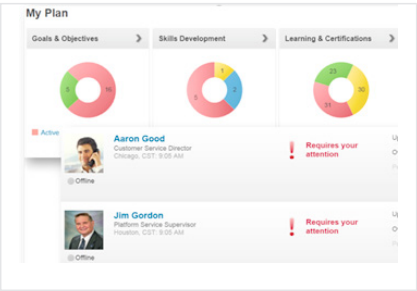
echospan

EchoSpan offers a 360-Degree feedback tool allowing employees to receive anonymous ratings from the colleagues who know them best. Although the visual form of this tool is clean and user friendly, it feels clinical and in-personal. The image on the left shows a view of feedback requests, while the image on the right shows a feedback survey.
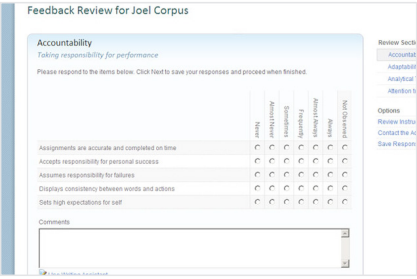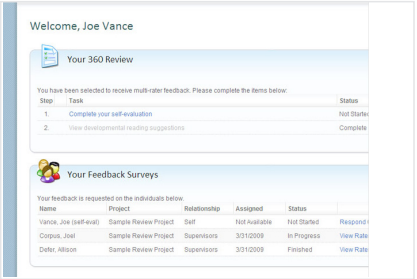
1. Make the tool friendly

In his 2005 book *Emotional Design: Why We Love (or Hate) Everyday Things*, Don Norman argues that there are three levels of design: visceral, behavioral, and reflective. Visceral design largely concerns itself with the natural reaction people have when they first experience something. These initial reactions are shaped by appearance (physical features such as look, feel, and sound). Behavioral design, on the other hand, concerns itself with use and whether or not someone is able to achieve a task. What matters most in this case are function, understandability, usability, and physical feel. Finally, reflective design concerns itself with the meaning that a user finds in a product or its use. This type of design largely concerns itself with evoking personal remembrances, one's self-image, or a message being sent. The measures of reflective design may be prestige, status, perceived rarity, and exclusiveness.

Norman's framework is helpful when considering the visual form that a feedback system should take. Given that many users may already be wired to react negatively to a feedback tool and/or process, it is important to consider ways of supporting a positive visceral response to a feedback system by carefully designing the look, feel, and sound. Since the goal is to make feedback feel safe and trustworthy, the appearance of a feedback system should express a friendly and lighthearted style that can be achieved through the use of inviting colors and text, as well as informal, organic shapes. Additionally, it is important to consider the behavioral and reflective design. For example, the feedback system should be very easy to use and understand. It should also help users feel as though they are building a positive self-image of themselves through the personal development they hope to achieve.

2. Keep the tool simple

In order to evaluate the visual form of existing peer feedback tools available in the market, I collected a number of examples of tools that reveal important commonalities. One of the main similarities was that many tools often require feedback providers to complete a long list of questions about an individual. Many times, they must read through very descriptive competencies and think deeply about the level at which the person they are reviewing is performing. An experience like this may be off-putting to many feedback providers because the process becomes time consuming and intensive. For this reason, a feedback process aimed at development should prioritize a shorter list of goals to evaluate an individual against, and also help to make the experience of giving feedback fast and easy.

HOW SHOULD A FEEDBACK PROCESS FUNCTION?

Feedback should not be a quick, one time occurrence. Instead, it should involve a set of steps that help prepare individuals to both give and receive feedback effectively. When feedback seems to come out of nowhere, individuals often find it surprising, judgmental, and uncomfortable. It is important that individuals participating in a feedback process know what to expect and that they see the linkages between various steps in the process. There are two design principles related to the way a feedback process should function:

1. **Ensure that feedback is goal-oriented:** It is helpful for feedback to pertain to a specific goal that both the feedback provider and recipient mutually understand.

2. **Make feedback an iterative process:** Feedback should be given in a timely manner so that the recipient has a chance to use the information in order to modify their behavior and see if it results in a positive change.

The following sections discuss the research that supports these design principles.

1. Ensure that feedback is goal-oriented

In the 2010 book *How Learning Works: Seven Research-Based Principles for Smart Teaching*, Ambrose et al. discuss the ways in which individuals best learn new skills and the role that feedback plays in this process. Based on their evaluation of existing research, the authors contend that learning and performance are best fostered when an individual's practice is focused a specific goal, targets an appropriate level of challenge based on the individual's current performance, and is of sufficient quality to meet the performance criteria. Ambrose et al. discuss the components of an effective feedback cycle:

*   **Goal:** The process begins by an individual setting a specific, realistic goal. They must then focus on this goal when practicing the skill in various situations.

*   **Observed Performance:** Another individual must then observe this performance and compare it to the goal.

*   **Targeted Feedback:** The observer is then able to provide targeted feedback, giving the recipient insight into whether their performance is going well or poorly and how they should direct their subsequent efforts. According to Ambrose et al., this targeted feedback is most valuable when individuals have the opportunity to incorporate the information into their future practice. For this reason, the authors propose a feedback loop, with the targeted feedback further informing future goals and practice.

This model suggests that a feedback process should emphasize an individual's selection of a focused goal area and that this goal should be shared and clearly understood by both the feedback provider and recipient in advance of feedback taking place.

In the 2003 book *The One Minute Manager,* Blanchard and Johnson make a similar argument about the importance of goals through a story they tell about a highly effective manager. The reason this manager is able to effectively direct his subordinates is because he asks them to clearly document their top 3-6 goals and ensures that they are limited to 250 words in length. He then sits down with his employees and checks that their goals are clearly understood and are well defined. Next, the manager will look to catch his employees "doing something right," so as to help them understand what they are doing well. Once these individuals are experts at a task, the manager will no longer give praise and instead gives short, direct reprimands when something is not done correctly. In either case, the feedback never comes as a surprise, because the goals were clearly stated and understood by both parties.

Overall, Blanchard and Johnson argue that feedback is most effective when it pertains to a small set of specific goals that are mutually understood by both the feedback provider and recipient. They also suggest the importance of the

feedback provider tailoring feedback depending on someone's level of proficiency. For example, when an individual communicates that they consider themselves to be relatively weak in idea generation, the feedback provider can ensure to give them positive feedback highlighting good behavior until the individual is ready for more critical feedback. A feedback process should not only be goal-driven, but also tailored based on an individual's proficiency with their goals.

2. Make feedback an iterative process

In addition to ensuring that feedback is goal-oriented, it is important that it be part of an iterative process. Similar to how Ambrose et al. argue that a recipient of feedback learns best when they have the chance to act upon the feedback they receive, Boud and Molloy argue for closing the feedback loop. In their 2013 book *Feedback in Higher and Professional Education: Understanding it and doing it well*, the authors caution against a culture in which individuals only give each other positive feedback, especially when some studies have indicated that it can actually result in decreased performance. Instead, they contend that communities should develop a shared mentality that critical feedback is helpful to individuals, and that each person should be given an opportunity to act upon the feedback they receive. Rather than getting feedback and shelving it in one's mind for later use, Boud and Molloy suggest that individuals should be given the opportunity to practice the same skill again and again in order to see whether or not their performance has improved. This not only leads to increased learning, but it also presents the opportunity for individuals to see the value in the feedback they have received.

While Boud and Molloy make a great point about the need for feedback to be an iterative process, they admit that providing the right opportunities to make this happen may be difficult. When thinking about how this concept may apply to feedback on team projects, it would mean that individuals must get feedback at a time when they are still able to practice a certain skill (such as decision facilitation) more than once. This can be a challenge when certain opportunities (such as critical decision points that happen in a project) only present themselves a small number of times. For this reason, it is important that feedback be provided in a timely fashion, so as to maximize the chances that an individual has in altering their behavior and seeing how it impacts future feedback.

HOW SHOULD TEAMWORK SKILLS BE PRESENTED?

Within the context of a feedback tool, the skills provided serve as both the goals that individuals set for themselves, as well as the criteria informing how a feedback provider should evaluate the individual's performance. The teamwork skills presented, therefore, play a large part in shaping the experience. The way the skills are communicated is important in ensuring that individuals find them compelling, aspirational, and easy to understand. There is only one design principle for how teamwork skills should be presented:

> **Present skills in an organized way:** Skills should be presented in a way that help individuals understand the different teamwork skills they can develop and how each skill contributes to the team as a whole.

The following section discusses the research supporting this design principle.

Present skills in an organized way

In the 2002 book *The Five Dysfunctions of a Team*, Patrick Lencioni tells the story of a fictional team of senior level professionals who struggle to work together to manage their start-up company. Throughout the story, Lencioni reveals the five dysfunctions of a team, which are 1) a lack of trust needed in order to be honest and vulnerable with each other, 2) a fear of healthy conflict and debate, 3) a lack of a commitment to team decisions, 4) an inability for the team to hold themselves accountable, and 5) an inattention to the team's desired results. Lencioni's description of team dysfunctions is helpful in determining the type of teamwork skills that should be included within a feedback tool. For example, they point to the importance of soft teamwork skills related to helping the team feel comfortable with each other and also helping to facilitate team decisions so as to gain commitment and buy-in. More pertinent, however, is Lencioni's use of a pyramid to organize these five team dysfunctions. This ability to organize team behaviors and provide audiences with a mental model for mapping different actions to the overall success of a team is helpful in gaining interest and understanding.

In the 2013 book *Designing Together: The Collaboration and Conflict Management Handbook for Creative Professionals*, Dan Brown also uses various ways to organize team behaviors. Brown explores the various aspects that shape and influence these behaviors. For example, Brown contends that a person's behaviors are highly linked to their mindset and values. A mindset is made up of a person's perception (how something is interpreted), attitude (how someone reacts to what is happening around them), and disposition (what course of action they decide to take). Brown also considers the different characteristics of behaviors. For example they can be specific or general, and unhealthy or healthy. Finally, Brown explores the different traits that good designers working on teams often possess. Here once again he considers these traits across a spectrum, arguing, for example, that it is important for someone to take on a good project load, but not too much or too little. Brown's exploration of various ways to look at behaviors influencing teamwork is helpful because it takes into account the various lenses through which team behaviors may be understood and examined. As will be discussed in greater detail later in this document, this project ultimately takes the approach of organizing teamwork skills into ten team roles and highlights how each role tends to think, how they behave, and what they create. This categorization was inspired by the approach Brown took in framing and organizing skills important to collaborative projects.

Exploratory Research Methods

"I think it's very important to have a feedback loop, where you're constantly thinking about what you've done and how you could be doing it better. I think that's the single best piece of advice: constantly think about how you could be doing things better and questioning yourself."

-Elon Musk

While the review of relevant literature informed this project in many ways, the exploratory research I obtained through my interactions with a variety of participants was just as valuable. In total, I utilized four primary research methods throughout the exploratory phase of this project: 1) a survey, 2) personal interviews, 3) expert interviews, and 4) a card sorting activity. The first method implemented was the survey. Through a short questionnaire, I asked participants about a variety of aspects (e.g., form, attention, self awareness, etc.) that may impact a person's experience with team feedback. Next, I conducted nine in-person interviews with individuals about their past experiences, perceptions, and needs related to feedback. These personal conversations afforded a more in depth discussion about the same aspects explored in the survey. To get a different perspective, I also interviewed four individuals who have relevant professional experience in the areas of feedback and teamwork. Finally, to understand feedback needs in the context of specific teamwork skills, I conducted a card sorting session with five individuals. The following sections provide more detail about each of these exploratory research methods.

SURVEY

The goal of developing a survey was to understand people's tendencies and needs related to teamwork feedback. To do this, I created an online questionnaire that touched on a variety of topic areas. In order to get a broad sample, I posted the survey to my Facebook account and also e-mailed it to friends within my network. In total, I received 35 responses.

The survey began by asking general demographic questions as well as questions about the type of experience respondents had with team feedback in the past. With an assumption that factors such as gender, age, professional/academic background, and the number of team projects someone completed in the past could all influence a person's experience with feedback, it was important to obtain this information. The next portion of the survey asked questions about 15 different aspects that may impact someone's experience with feedback (see table on page 29 for examples). Questions about aspects such as memory, attention, and understanding were asked to determine whether or not individuals currently find feedback engaging and meaningful. Other questions about form, timing, and activities, were more directly aimed at informing potential components of an improved feedback process or tool. The survey concluded with open-ended questions asking participants to describe any challenges they have experienced with feedback, as well as any ideas they may have for improving the process.

PERSONAL INTERVIEWS

To get deeper insight into the same 15 aspects covered in the survey, I interviewed nine individuals through 30 – 45 min face-to-face conversations. The individuals I met with were from different academic and professional backgrounds including business, design, the social sciences, and engineering. I solicited participants by making announcements in different classes at Carnegie Mellon and also by reaching out to friends within my network.

Questions for Participants

Form

What forms or channels (e.g., written, verbal, quantitative, etc.) do you most prefer for receiving feedback?

Type of Feedback

Do you most prefer feedback about your strengths, weaknesses, or opportunity areas?

Longevity

How much of the feedback you receive tends to remain in your memory a year after receiving it?

Attention

What level of attention do you typically invest into reading or viewing written feedback?

Trust

How much do you trust that the feedback you receive from your peers is accurate?

Timing

When do you typically receive feedback from your peers about your teamwork skills (e.g., before, during, or after a project)?

Understanding

How well do you typically understand the feedback you receive?

Self-awareness

How much does peer feedback tend to change the way you perceive your skill-set?

Emotions

What emotions do you most often experience when receiving feedback?

Activities

What self-driven activities do you typically do after receiving feedback?

Value

How valuable do you typically find the feedback you receive about your teamwork skills?

Content

What teamwork skills are you most interested in getting feedback about?

Application

How do you apply the feedback you receive from peers?

Anonymity

Do you prefer feedback to be anonymous or non-anonymous?

Purpose

What is the primary purpose of the feedback you receive? Growth or assessment?

At the beginning of each interview session, I asked participants to describe one of their most vivid memories of receiving feedback from a teammate about their soft skills. This helped each participant to imagine a real scenario and ground their answers to subsequent questions. When discussing each of the 15 aspects, I was able to ask each participant about the reasoning behind their perceptions. This often prompted stories and descriptive examples of good and bad experiences with feedback.

EXPERT INTERVIEWS

In addition to meeting with individuals to discuss their own personal experiences, I met with four individuals who have professional backgrounds relevant to the areas of teamwork and feedback. Through these conversations, I was able to obtain insights shaped by years of experience and research within the field. The following is a brief introduction to each expert I interviewed:

Donna Orf: Donna works for her own HR consultancy called St. Aubin, Haggerty, & Associates. She has experience conducting assessments of senior level professionals and helps her clients implement 360 degree feedback systems (also known as peer or multi-source feedback systems).

Hilary Schuldt: Hilary is the Associate Director of Carnegie Mellon's Eberly Center for Teaching Excellence and Educational Innovation. She received her Ph.D. in Rhetoric from Carnegie Mellon's English Department and has conducted seminars regarding the importance of effective feedback.

Laura Maxwell: Laura is a leadership coach at the Tepper School of Business at Carnegie Mellon. She assists business school students in developing their soft skills. She previously worked as a consultant at Development Dimensions International, a firm that provides numerous services related to talent management.

Peter Scupelli: Peter is an Assistant Professor at the Carnegie Mellon School of Design. He teaches courses for both undergraduate and graduate students. Many of the classes he teaches involve a heavy teamwork component.
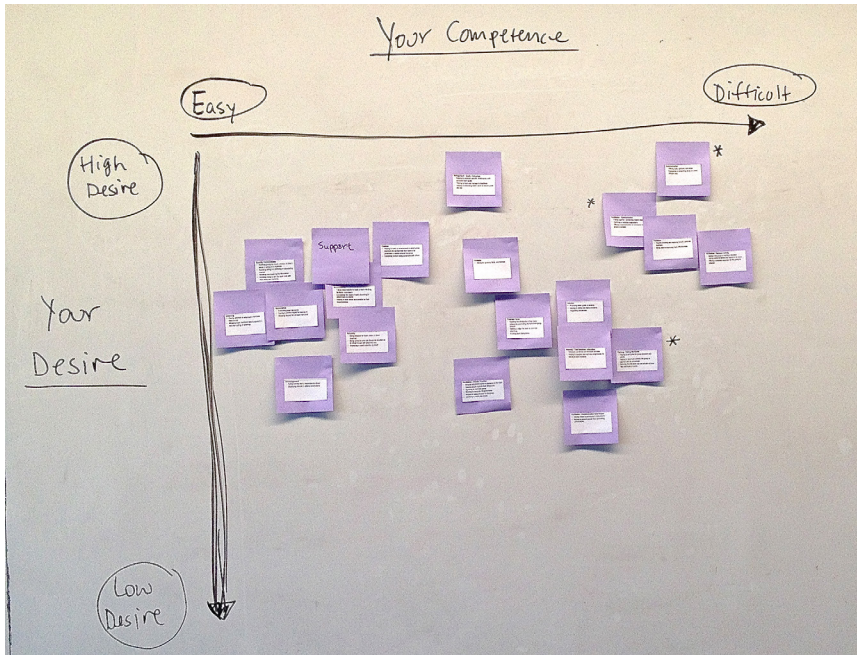
CARD SORTING

The final research method I used to explore the space of teamwork feedback was a card sorting activity. The goal of this generative research exercise was to learn about the feedback needs of individuals in the context of specific teamwork skills. Rather than participants discussing the type of feedback they would like to receive in an abstract sense, the goal was to present a number of different teamwork skills via a set of cards and use them to help participants communicate which skills they would most like to receive feedback about and why. I conducted this activity with five participants through separate 30 min sessions. Each participant was a graduate or undergraduate student within the Carnegie Mellon School of Design.

The card sorting research activity was inspired by one of the key discoveries I made through my review of relevant literature. According to Julie Dirksen, it is important to consider a learner's current level of skill competence and motivation when designing an educational experience. For example, someone who is new at facilitating a meeting may need feedback that emphasizes what they are doing right, rather than what they are doing wrong. This same person may also be motivated to develop certain aspects of meeting facilitation skills (e.g., the use of brainstorming methods) and not others (e.g., time management). The variety of motivations people have can greatly influence the type of feedback they would find most helpful.

Given the importance of considering a person's competence and motivation when giving feedback, I structured a card sorting activity in which participants were asked to consider how easy it is for them to exhibit various team skills, and also how much they desire to exhibit each of the skills. Participants were asked to take 19 post-it notes with teamwork skills and place them onto a matrix drawn on a white-board. The matrix included two dimensions: "Your Competence" and "Your Desire," with a continuum for each (easy vs. difficult for competence and high vs. low for desire). As the participants posted each skill, I asked them to think out loud and explain their reasoning.

As a last step in the activity, I asked each participant to pick the top three skills they would like to receive feedback about from team members on a project. I then asked who they would want to receive this feedback from, when they would like to receive it, how they would like it to be delivered, and what the desired feedback would sound like. The goal of these questions was to understand how much feedback needs vary from individual to individual.

On the left is a photo of the matrix that was drawn on a white-board for research participants to use during the card sorting activity (note: this photo shows a matrix that was already completed). Participants were asked to place each teamwork skill onto the matrix based on their competence with the skill and based on their level of desire to display the skill.
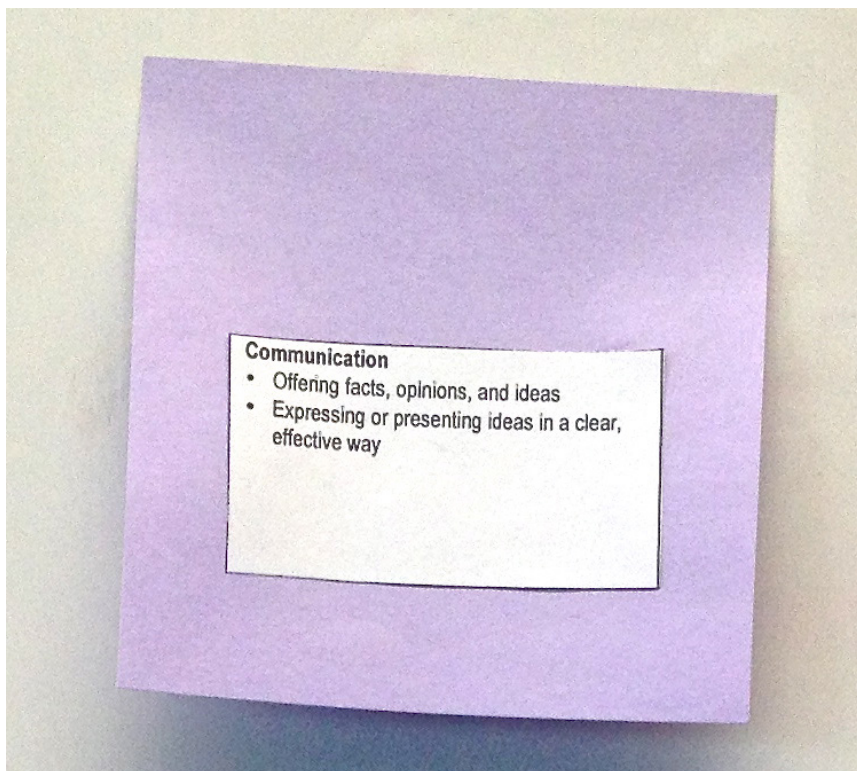
On the left is an example of one of the 19 teamwork skills used for the card sorting activity. For each skill, a few specific behaviors were listed to provide additional clarity for participants. Additionally, each teamwork skill was provided in the form of a post-it note in order to allow participants to change their mind about the placement of each skill on the matrix if necessary.

Exploratory Research Findings

"You make decisions, take actions, affect the world, receive feedback from the world, incorporate it into yourself, then the updated 'you' makes more decisions, and so forth, 'round and 'round."

-Douglas Hofstadter

Findings from the four exploratory research methods support many of the same design criteria outlined in the literature review section. Each method reveals a few powerful insights across topics such as form, trust, timing, emotions, process, and the need for customization. The findings ultimately helped to guide the design of a feedback system and process. The following sections go into greater depth about findings from each of the four exploratory research methods.

SURVEY FINDINGS

Findings from the survey shed light on respondent's tendencies and needs related to feedback. Three of the most interesting findings relate to form, trust, and timing. This section provides a summary of findings across these three aspects. A more detailed review of survey findings is located in the appendix of this document.

Form

When participants were asked how much they would appreciate receiving feedback across different channels such as face-to-face conversation, written comments, and numerical scores and graphs, a combined 76% of respondents said that they highly desire face-to-face conversation and written comments. These findings revealed that individuals value rich qualitative detail and explanation when receiving feedback. The finding also suggests that more information is needed to understand when face-to-face conversation is preferred to written comments and visa versa.

Trust

When participants were asked whether or not they tended to trust the feedback they received from peers, 71% said that they only somewhat trust the feedback. Respondent's comments help to explain why this is the case:

- *"Some people I get feedback from are not capable of clearly understanding the situation, and therefore give poor feedback which I completely disregard."*

- *"Some people are uncomfortable about giving honest feedback."*

- *"It gets questionable how your peers are grading you, especially if they know it will be compared. I've found that if it's more focused on your personal development, people are more genuine in helping you grow individually. Otherwise, I've found that people tend to give lower scores if they feel they will be getting lower scores in return (slightly spiteful)."*

As the comments suggest, feedback can be difficult to trust for a number of reasons. A few examples mentioned by survey respondents include scenarios in which the feedback provider is misinterpreting the situation, making assessments based on a different set of values, giving misleading information due to a fear of being honest, or giving unjust criticism due to spite. Overall, the findings suggest that individuals would benefit from a tool or process that helps them trust the feedback they receive and incorporate it into their own self-awareness.

Survey Findings

Positive Responses

Form
76% highly desire feedback via written comments and conversation

Participants prefer feedback rich in qualitative, rather than quantitative data.

Attention
65% give a high level of attention to the feedback they receive

Participants care about the way others perceive them and tend to pay close attention to feedback.

Understanding
62% have a good or very good understanding of the feedback they receive

Participants tend to understand the feedback they receive.

Activities
33% reflect upon feedback

Participants need time to reflect upon feedback and may need support to make this reflection actionable.

Application
28% use feedback to change their behavior

Participants apply the feedback they receive in different ways, with the largest percentage using it to change their behavior on future projects.

Mixed Responses

Type of Feedback
74% most prefer feedback about opportunities but also care about other feedback

Participants most desire feedback as a way to improve, but also want to understand their strengths and weaknesses.

Trust
71% only somewhat trust the feedback they receive

Participants struggle to trust the feedback they receive, which suggests that it is not always accepted and valued.

Self-awareness
71% think feedback only somewhat impacts how they perceive themselves

Participants rarely get feedback that greatly changes the way they perceive themselves.

Value
68% only somewhat value the feedback they receive from peers

Participants do not always perceive their feedback to be valuable, which shows room for opportunity in this area.

Anonymity
55% prefer a mixture of feedback that is and is not anonymous

Participants see pros and cons to anonymity.

Negative Responses

Longevity
62% will never revisit their feedback ever again

Participants rarely revisit their feedback, as they may not feel the need or cannot easily access it.

Timing
59% do not receive feedback until after a team project is over

Participants often receive feedback once it is too late for them to change their behavior on a project.

Emotions
55% only feel motivated after getting feedback some of the time

Participants rarely feel motivated and driven to improve their performance after receiving feedback.

Content
36% least desire feedback about their extroversion skills

Participants prefer feedback about leadership and problem solving rather than feedback about personality traits.

Purpose
30% receive feedback primarily when it impacts their grade or career

Participants often receive feedback that is given with the primary intention of assessment, rather than development.

Timing

Timing is the final aspect that stood out most amongst the survey findings, as 59% of respondents said that they tend to receive feedback only after their team project is over. Respondents shared informative comments about this as well:

- *"You receive your feedback after the project is done and you never get to talk to your teammates to improve."*
- *"Sometimes you need to find time to give feedback throughout the collaborative experience, so you can address issues before they get worse."*
- *"Feedback throughout the project would probably be more helpful than feedback just at the end."*

As the comments suggest, receiving feedback at the end of the project can feel frustrating because the recipient cannot apply the information immediately and within the same context. Receiving feedback more frequently would not only help individuals learn, but it may also improve relationships and performance within the team.

PERSONAL INTERVIEW FINDINGS

The findings from the personal interviews support many of the same conclusions derived from the survey findings, however with added nuance and clarity. Three of the most interesting findings from the interviews relate to form, emotions, and process. This section provides a summary of findings across these three aspects. A more detailed review of interview findings is presented along with survey findings in the appendix of this document.

Form

Similar to the survey findings, many of the interview participants discussed their preference for written comments and verbal conversation over scores and graphic representations when receiving feedback. To expand on the topic, participants described their challenges with formalized feedback documents. While many participants saw the benefit in capturing feedback in a document that is structured nicely and could be referenced in the future, they also expressed feeling anxious about feedback that becomes emotionally detached and that can be reviewed by individuals other than the recipient for assessment purposes. Overall, participants saw both pros and cons to documented forms of feedback as well as in-person conversations. Findings suggest that participants desire less formalized ways of supporting both documented and verbal feedback.

Emotions

While the survey showed that as a whole, respondents rarely feel negative emotions related to feedback, findings from in-person interviews suggested otherwise. Many participants admitted to feeling anxious and uncomfortable before, during, and after receiving feedback. For example, one participant mentioned that she will feel anxious before a feedback conversation if she knows that she hasn't performed as well as she would have liked.

Interview Findings

Form

"There are definitely benefits and draw-backs to a digital format. I like that digital has the longevity, but that takes away from the relationship aspect."

Type of Feedback

"Something that doesn't get shared enough is how other people do things. I really like suggestions for improvement."

Longevity

"If I get good results right away from applying the feedback, it will stick with me."

Attention

"If someone made time to give me feedback, I feel like I owe it to them to at least think about it."

Trust

"I take the feedback seriously if I trust the person. If I know that it's not coming from a place of insecurity, I take it into account."

Timing

"It lessens the cognitive load to get feedback often and on the spot. In class, you often get feedback all at once. In a work/lab setting, it is more ad hoc."

Understanding

"For the most part I understand the feedback, or at least I think I get it."

Self-awareness

"I feel I know my strong points, but I also feel that I have a lot of blind spots. It's better to know what is not working. It would be nice though, if it turns out that I am not as bad as I thought."

Emotions

"Feedback is a bit uncomfortable. It feels differently depending on who you are. Most people feel vulnerable."

Activities

"When I feel stuck I do a self check. I don't reflect on the feedback until I need it."

Value

"At some point the feedback I get is redundant. I am well aware of what I need to work on - if it's nothing new, I will forget it."

Content

"At the end of a project, feedback sounds too general. Often times the devil is in the details."

Application

"Sometimes I debate if I want to strengthen what I am good at, or improve what I am bad at. If there is always a deficiency, I will always need to improve."

Anonymity

"If I got anonymous feedback, I might question it more. I don't know if I would always trust it without knowing the context."

Purpose

"I have to know that feedback can't make me worse, only better. If something else is relying on it (e.g., a grade), the feedback is less safe."
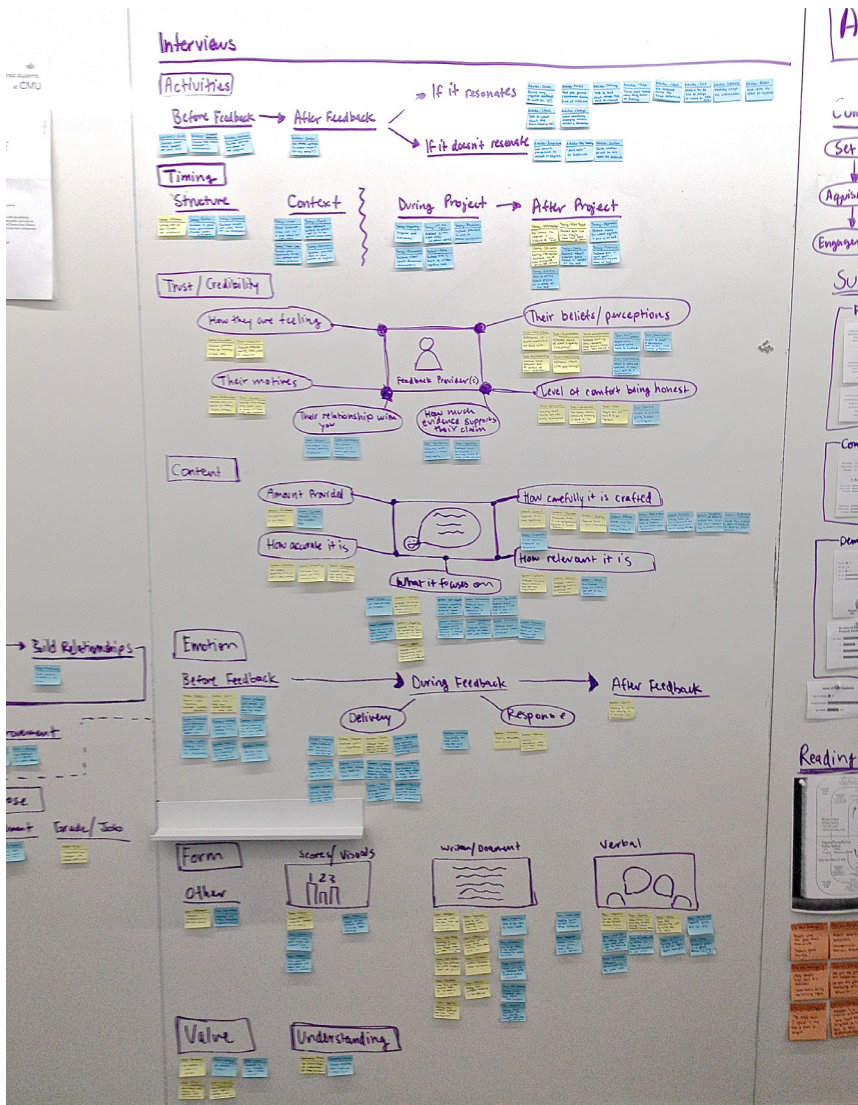
On the left is a photo of research findings from personal interviews posted onto a white-board. In order to synthesize findings and better understand participant's sentiments across a variety of aspects related to feedback, I used blue post-its to capture positive comments and yellow post-its to capture negative comments. This helped to show that participants struggle most with trusting the feedback they receive, the content of the feedback, and written feedback documentation.

Another participant mentioned feeling vulnerable during feedback conversations and then often defensive afterwards. Fortunately, participants suggested many ways that feedback can become a more comfortable experience. They expressed the desire for feedback to be a more light-hearted, informal conversation taking place at a bar or at a coffee shop. They also felt that a good relationship with the person providing the feedback would make a big difference. Finally, they proposed the idea of having group feedback discussions or conversations involving a mediator. Overall, findings suggest that feedback can often be uncomfortable and that participants would benefit from ways of making it more informal, relationship-based, and collaborative.

Process

The final topic that emerged through personal interviews relates to the process through which individuals give and receive feedback. This topic was not amongst the 15 aspects originally explored through survey and interview questions, but quickly came to the surface during in-person interviews. When participants described positive experiences with feedback, they typically involved a regular routine or ritual. For example, one participant mentioned talking with his partner on a regular basis after each client meeting to discuss what went well and what could have gone differently. Another participant said that he would only feel comfortable with feedback if it were to be part of a structured process that defines clear expectations and minimizes surprises. A third participant expressed the challenge in approaching someone to give them feedback, and the desire for it to be an accepted norm. Overall, it became clear that participants would benefit from a structured feedback process that still allows individuals the flexibility to establish their own rules.

EXPERT INTERVIEW FINDINGS

The four experts I interviewed offered valuable insights into elements of a successful feedback process. The main knowledge they imparted was related to the importance of creating well defined feedback criteria, ensuring that feedback is well structured, empowering individuals to manage their own development, and providing separate channels for less constructive forms of feedback such as venting about teammates. The following sections provide greater detail about lessons learned from each expert interviewed.

DONNA ORF

Through her consultancy, Donna has a breadth of experience helping her clients to develop their most senior leaders. Donna's company has assisted numerous clients with implementing multi-source feedback reviews. In the process, Donna found that it is often important for someone other than the feedback recipient to analyze feedback responses. There are many reasons for this. First, senior level executives do not always have the time to sift through feedback to try and derive meaning from it. Second, some people just want to use feedback as a way to vent their frustrations rather than provide constructive criticism. The third reason is that feedback providers do not always see the bigger picture. For example, a reviewer may be frustrated by some of the decisions a leader made, when in actuality the decisions were better for the company in the long term. As Donna puts it, "a good leader is not always well liked." Reviewers do not always have the experience and perspective to accurately assess an individual.

While it would be ideal if everyone could have a professional review and synthesize their feedback results, it is a luxury that a majority will never have. Donna's experience points to the importance of ensuring that feedback providers give constructive, rather than spiteful feedback. It is also important to have very clear assessment criteria so as to minimize confusion caused by people's different perspectives of how a great team member behaves.

HILARY SCHULDT

Through a seminar called "Providing Helpful Feedback," Hilary helps professors who often struggle because they provide either too much or too little feedback. Many times, professors notice that they are not seeing the impact they would like to see based on the feedback they are providing. The main point Hilary seeks to drive home about feedback is the need for it to be constructive, prioritized, actionable, and timely. She also highlights the difference between formative feedback (feedback for development purposes) vs. summative feedback (feedback utilized as a form of evaluation or assessment). Often times summative feedback is expected to serve the same purpose as formative feedback, however it is better to treat them differently because it impacts the way the feedback is perceived.

In order to make formative feedback constructive, prioritized, and timely, Hilary suggests frequently providing the information to individuals in a way that makes it easy to see which areas someone should develop first. Hilary also suggests making feedback actionable by providing advice for ways to improve. Finally, the biggest challenge Hilary sees in providing feedback is that professors rarely have the time to sit down with every student to talk through the feedback; an activity she believes would be immensely helpful. For this reason, it would benefit individuals to utilize a feedback system that allows them to reflect on their own or obtain feedback from peers who have greater availability.

LAURA MAXWELL

Laura Maxwell was invited to work with students at the Tepper School of Business after the administration noticed a skill gap amongst the student population. While Tepper students were often known for their strong analytical skills, they didn't always perform as well when it came to interpersonal skills. Laura's goal is to help Tepper students improve their soft skills through coaching, reflection, and feedback. She has found that many of the individuals she coaches are not used to giving and receiving critical feedback because no one ever taught them this very important skill. Additionally, Laura teaches students the importance of driving their own feedback process. She believes that people need to be open to feedback in order to accept it, and that feedback is most helpful to an individual if they take the initiative to request it from others. Finally, Laura thinks that feedback must be a conversation. She is not a proponent of using feedback tools that allow people to avoid healthy, honest dialogue.

Based on Laura's insights, it is important to teach individuals how to give and receive feedback. Additionally, a feedback system should empower individuals to take control of their own development and think carefully about the type of feedback they would like to receive. Finally, a feedback system should support conversation rather than eliminate it.

PETER SCUPELLI

Peter teaches various classes involving teamwork. One of the classes he teaches is a graduate design studio course in which teams must work together for an entire semester to design new experiences and systems. The work is highly ambiguous and each team must determine how best to coordinate their efforts and structure the work. Peter has seen many of the groups struggle

with internal conflict. Often times, this conflict is caused by differences in values and expectations among team members. Individuals working together may come from different cultures and disciplines and may also have conflicting personalities. Peter thinks there should be a way to help teams manage such situations and believes that regular self-reflection can be an important component. While Peter does have his class complete peer evaluations at the end of projects, he finds that the evaluations are cumbersome to create and utilize. Additionally, Peter thinks a main benefit of the evaluations is often to provide an outlet for individuals who feel frustrated with their team. Peter's perspective is valuable because it is grounded in the harsh realities that many teams face and the challenges of leading a class involving a heavy team component. Based on Peter's experiences, there would be great benefit to helping individuals develop their conflict management skills. Regular feedback between team members, as well as guided self-reflection may also prevent conflict from becoming a big issue on a team project. Finally, it is important to consider that some individuals need a channel for simply venting about a teammate's behavior. Given that venting is rarely productive for development purposes, there should be a separate outlet for this type of dialogue.

CARD SORTING FINDINGS

After collecting general themes from the survey and interviews, the card sorting activity revealed more concrete insights about the type of feedback individuals want and need when working on team projects. There are three main findings from this research method:

*   **Policing vs. coaching:** There is a difference between the type of feedback desired by participants for easy skills vs. difficult skills. While policing is preferred for easy skills, a more gentle coaching approach is preferred for difficult skills.

*   **Goals based on the team dynamic:** Deciding which skills someone most desires to display on a team is not only guided by development goals, but also by the existing team dynamic and the type of role that is lacking on the team.

*   **Desired feedback:** Each individual has unique preferences regarding how they would like to receive feedback.

Overall, the card sorting findings support the idea that a feedback system should allow for customization. Users should be able to pick the areas they want to receive feedback about and also be able to change this selection if the team project demands they step into a different type of role. Users should also be able to communicate to feedback providers whether they prefer policing or gentle coaching. The following sections describe the three findings achieved through this research in greater detail.

Policing vs. coaching

Based on where each participant placed teamwork skills across the competence continuum, I was able to determine which skills they found easiest and most difficult. Amongst the easiest skills are listening, appreciation, curiosity, encouragement, and reliability. Amongst the hardest skills are feedback, facilitation of debate/conflict, communication gate-keeper, planning – setting standards, and planning – task definition/allocation.

On the left is a photo of a research participant with a completed matrix showing which teamwork skills she found easy vs. difficult and also which skills she highly desires to display vs. skills that she finds less desirable. In this photo, the participant is pointing to the skill she would most like to receive feedback about.

The problem participants experience with easy skills is different from the problem they have with skills they consider to be more difficult. Skills like facilitating debate or helping to ensure that everyone on the team gets a chance to speak are considered more difficult because of the discomfort that may come with performing these skills. For this reason, participants need to feel confident and supported in their efforts. In contrast, participants prefer for their teammates to police them and hold them accountable for things that are easy but that they sometimes fail to do, such as being reliable. For example one participant said the following:

"I wish someone told me that I wasn't reliable. I would want them to mess with me and use reverse psychology. I would want to feel the pressure and get called out."

Goals based on the team dynamic

Similar to skill competence, I was able to determine which skills participants thought were most and least desirable to exhibit on team projects. Participants tend to make this decision based on their perceived value of certain roles. For example, skills like "progress focus" and "communication gatekeeper" are less desirable because participants feel unsure that teams truly need someone to exhibit such behaviors. Amongst the most desired skills are functions that participants find very important to projects; including feedback, displaying curiosity, being accountable, being a good communicator, and facilitating debate/conflict.

From this activity, it became clear that when picking development goals, participants not only consider which skills are most valuable to them, but they also consider the existing team situation. For example, some teams may already have a clear leader who can effectively manage the team's work and help to facilitate conversation. In such cases, participants feel that they would be happy letting someone else take on leadership skills. In contrast, if a team is missing a clear leader and it is causing problems, participants feel the need to step up and fill the missing role. These findings suggest that individuals need to be able to change their skill goals depending on the team dynamic.

Desired feedback

When participants were asked which three teamwork skills they would most like to receive feedback about on a project, they selected a wide variety of skills. Some wanted feedback about accountability and reliability. Others wanted feedback about their ability to initiate tasks and facilitate decision-making. This showed that participants have a wide variety of needs and interests related to feedback. Additionally, when participants were asked how they would like to receive the feedback about the skills they selected, they yet again had varied responses. Some participants expressed a desire for feedback right away, while others mentioned being more comfortable getting the feedback after the project is over. Overall, findings from this activity reveal the importance of allowing individuals to get feedback in various ways and to manage their own development based on their unique needs.

Generative Research

"One can choose to go back toward safety or forward toward growth. Growth must be chosen again and again; fear must be overcome again and again."

-Abraham Maslow

With the knowledge I obtained through exploratory research, I began conducting generative activities to help inform the concept development stage of this project. These activities included scenario development and a toolkit exploration. When developing the scenario, I outlined a story of a team utilizing various tools and activities throughout a feedback process. My next step was to practice divergent thinking in order to consider multiple types of tools to support each step of the scenario. These activities helped to inform my future concepts.

SCENARIO DEVELOPMENT

The first step I took in considering a new feedback tool and process was to create a scenario consisting of 12 steps. Using drawings, I told the story of a team assigned to work on a project together as part of a class in school. First I will describe the scenario and then I will explain the way it connects to previous research.

The Scenario

The scenario I developed starts with a team attending a workshop aimed at training individuals to give and receive feedback, identify positive teamwork behaviors, and understand a shared set of values and expectations. After the workshop, everyone conducts a self-assessment to understand their own strengths and opportunity areas related to soft teamwork skills. Each member uses post-it notes to share these skills on a white-board. Now, each person on the team is able to talk about their skills, and identify individuals who are similar to them or may be strong where they are weak. Based on this, each team member pairs up with another teammate for mentorship purposes. As this happens, each team member communicates their preferences related to feedback, including the type of feedback that is most helpful to them, and how they would like to receive it. The group as a whole determines a general rule for how often they will give each other feedback.

Throughout the ongoing feedback process, each teammate uses a digital tool to keep track of the progress their partner is making in developing their skills. In this way, they are able to collect observations over time. Team members do not provide each other with feedback until the other person sends them a request for the information. When this happens, partners meet up to discuss the feedback. They reference observations collected over the course of the project to support the conversation. Afterwards, the feedback recipient documents next steps within a reflection tool.

At the midpoint of a project, the team repeats the same assessment activity as was conducted in the beginning. This time, each team member is more familiar with each other so they use post-its to propose strengths and opportunity areas for each other, rather than for themselves. Based on this, each team member has the chance to switch up partners who can help them further develop. Finally, after the feedback process continues, the group meets to reflect together on their progress as a whole.
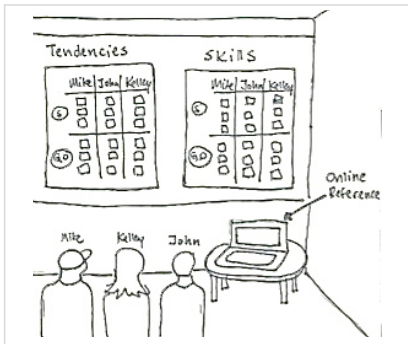
Storyboard of Scenario

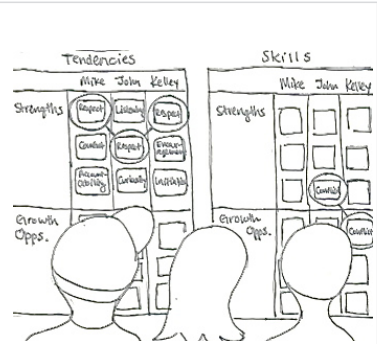### 1. Training Workshop
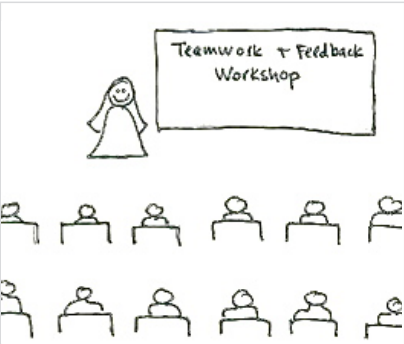
A training helps the team to understand teamwork skills and how to give and receive feedback effectively.

2. Self-assessment

At the start of the project, the team uses an online resource to help them talk about the strengths and weaknesses they each bring to the team. They then post these skills on a wall by using post-it notes.
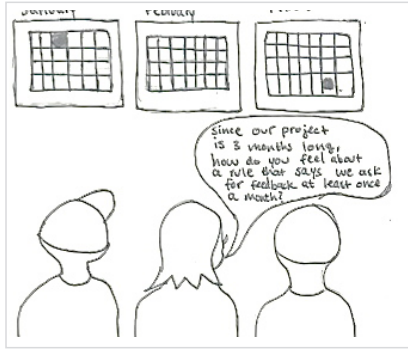
3. Team Comparisons

The team starts noticing where they are similar and where they complement each other across teamwork skills.

4. Preference Setting
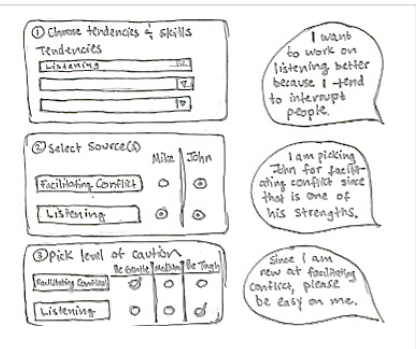
Each person on the team uses the online tool to pick which skill they want to receive feedback about, who on the team they want feedback from, and how critical the feedback should be.

5. Ground Rules

The team looks at a calendar to decide how often they want to set aside time for feedback.

6. Observations
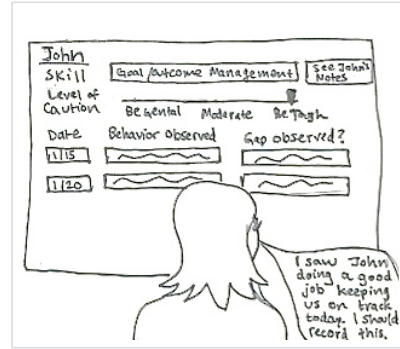
Since one teammate (Kelley) knows that her other teammate (John) is expecting feedback from her about his management skills, she uses the online tool to collect her observations as she makes them.
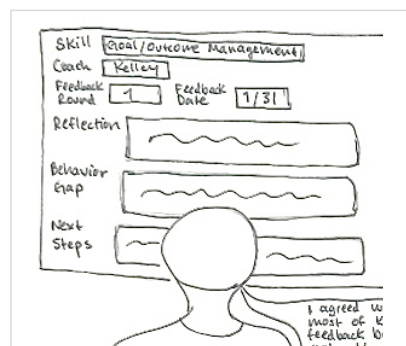
7. Feedback Request
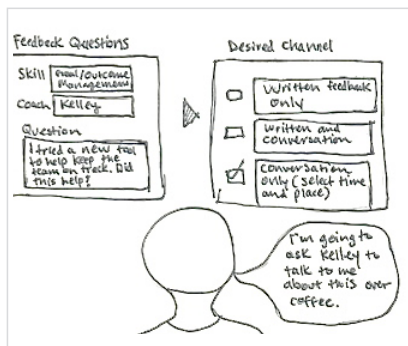
John decides it's time to ask Kelley for feedback. Since he's managing his own feedback, he sends Kelley a request to meet and talk about his management skills.

8. Feedback Conversation
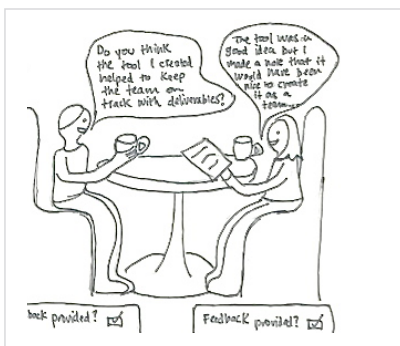
John and Kelley meet in person to talk about John's progress. They use their online tool to check this feedback conversation off the list.

9. Reflection

After the conversation, John uses the online tool to reflect about his next steps based on Kelley's feedback.

10. Midpoint Checkpoint

Now that the team has worked together for a while, they conduct a team activity similar to their self assessment. This time, they use post-its to pick strengths and opportunity areas for each other.

11. Preference Updates

Based on this activity, each teammate talks about changes they want to make to the type of feedback they'd like to receive going forward.

12. Final Team Reflection

At the end of the project, the team talks about their experience and what they've learned from the feedback they got from teammates.

Connections to Research

This scenario was primarily informed by findings from personal interviews showing that participants desire a structured feedback process that is understood by the entire team. I included the components of training and the team assessment activity to help team members develop shared values and expectations regarding team behaviors. I also included mentorship, as participants desire close relationships to help make feedback less uncomfortable emotionally. Mentorship also allows for more targeted observation, as each team member knows in advance what observations they should be making about someone's performance. Finally, I included the component of preference setting, given that card-sorting findings revealed that individuals have unique preferences and needs when it comes to the type of feedback they would like to receive and how they'd like to receive it. Having team members select their preferences and also request feedback from their team partners illustrates how the feedback process can be self-directed.

TOOLKIT EXPLORATION

The scenario was a good start for proposing a method for addressing individual's needs throughout the feedback process. It also incorporated initial ideas for designed artifacts, including a digital tool and workshop materials. In an effort to consider other potentially more effective ways of supporting the feedback process, I conducted a brainstorm activity. I started by listing a set of "How might we?" questions that related to the main goal of each step in the scenario. For example, the first step includes a training workshop, so I asked: "How might we build awareness and value of teamwork skills and behaviors?" This helped inspire other ways to educate individuals beyond a workshop. Additionally, for each "How might we?" question, I created one or two spectra (e.g., low-tech vs. high-tech) of solution possibilities. I then considered potential tool concepts that may fall at different ends of the spectra. This activity resulted in a new perspective on the types of tools that could support a feedback process.
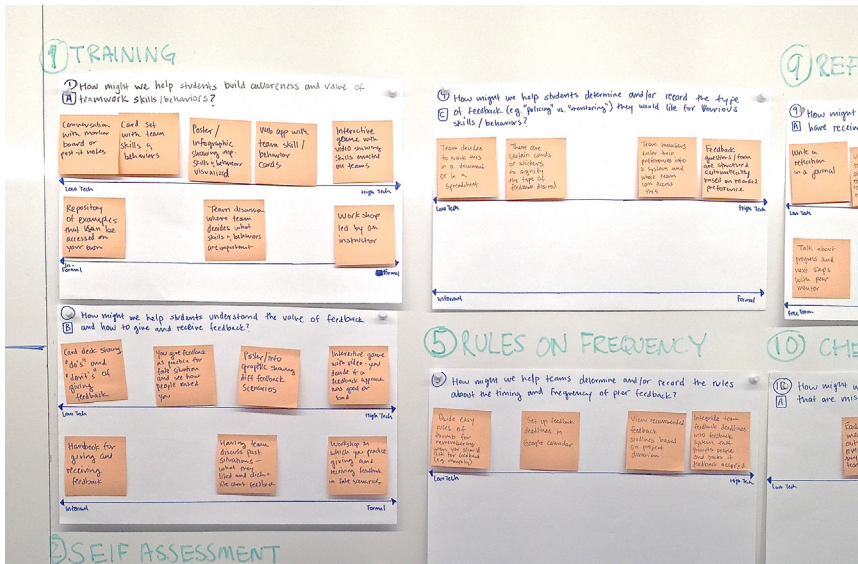
On the left is a photo of my brainstorm activity to explore various ways teams can be supported in giving each other feedback. I wrote "How might we?" questions on large sheets of paper and added spectra of possibility. I then used post-it notes to plot various concepts along these spectra. Examples of resulting concepts include a card deck for discussing team roles and a mobile app for capturing observations on a regular basis.

How might we help members of a team....

build awareness and value of teamwork skills and behaviors?
understand the value of feedback and how to give and receive feedback?
understand each other's strengths and growth opportunities?
find teammates with similar and/or complementary skills?
determine and record the type of feedback they would like for various skills?
determine and record the rules about the timing and frequency of peer feedback?
remember who they are providing feedback to and what type of feedback they are seeking?
structure their observations and thoughts about a peer before giving them feedback?
request feedback based on their preferred format?
be equipped for face-to-face feedback conversations?
discuss and record changes to feedback preferences?
reflect on their progress and goals for future team projects?

Spectra of possible solutions

Low tech   High tech

Informal   Formal

Public   Private

Free Form   Structured
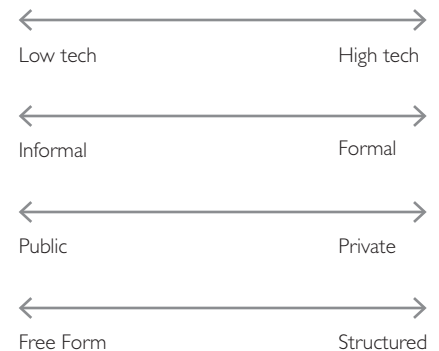
Concept Development

"The strength of the team is in each individual member. The strength of each member is in the team."

-Phil Jackson

After conducting generative activities to explore potential scenarios and design interventions related to teamwork feedback, it was time to begin developing more detailed concepts. There were four activities involved in this phase:

1. **Feedback Process and Toolkit:** Guided by research, I began by proposing a concept for a feedback process and toolkit. Although the process addressed many user needs, it provided only one path for all audience types.

2. **Specialized Feedback App Concepts:** With the goal of exploring more ways that an individual might experience the proposed process, I developed four separate concepts called Reactions, Idolize, Superpower Sidekick and Honest Kudos. Each concept was developed with different user needs and motivations in mind.

3. **Persona Development:** To reveal the different types of users who would use each of the four feedback apps, I mapped the concepts across a number of dimensions representing the ways individuals differ when it comes to feedback and development. This informed a set of four personas – each one aligning to one of the four concepts.

4. **Teamwork Skill Framework:** Finally, I leveraged four sources to inform a set of teamwork skills to be used as goals and evaluation criteria within the final design.

Together, these steps helped prepare for concept testing. The following sections provide more detail about each of the four activities.

FEEDBACK PROCESS AND TOOLKIT

To begin the concept development phase, I created a proposed feedback process and toolkit. I started by considering the overall structure of the process and exploring ways to ground it within an existing framework identified through relevant literature. Next, guided by exploratory research, I outlined activities that could take place throughout eight steps of a proposed feedback process. I also suggested the tools that could support each step. Finally, I reflected upon the process and considered ways that it could be improved. The following sections further describe the proposed feedback process and toolkit and also discuss the next steps that the concepts inspired.

Process Structure

After creating an initial scenario of a feedback process through generative research, the next step in developing a proposed concept was to further ground it in existing research. A framework that resonated most with exploratory research findings was the feedback loop presented in the 2010 book *How Learning Works: Seven Research-Based Principles for Smart Teaching* by Susan Ambrose et al. The framework communicates the importance of making feedback both goal-oriented and iterative. I chose to use this framework as the main structure for the feedback process and added the additional components of training, evaluation, preference setting, and reflection, as research pointed toward the importance of these steps as well.

On the right is a framework developed by Susan Ambrose et. al. within the 2010 book *How Learning Works: Seven Research-Based Principles for Smart Teaching.* The framework shows that individuals are most successful in learning a new skill when their goals direct their practice, help others evaluate performance, and shape targeted feedback. The next page shows how this research-based framework was modified with the inclusion of four additional steps (training, evaluation, preferences, and reflection) to form the feedback process proposed as part of concept development.

Research-based Framework
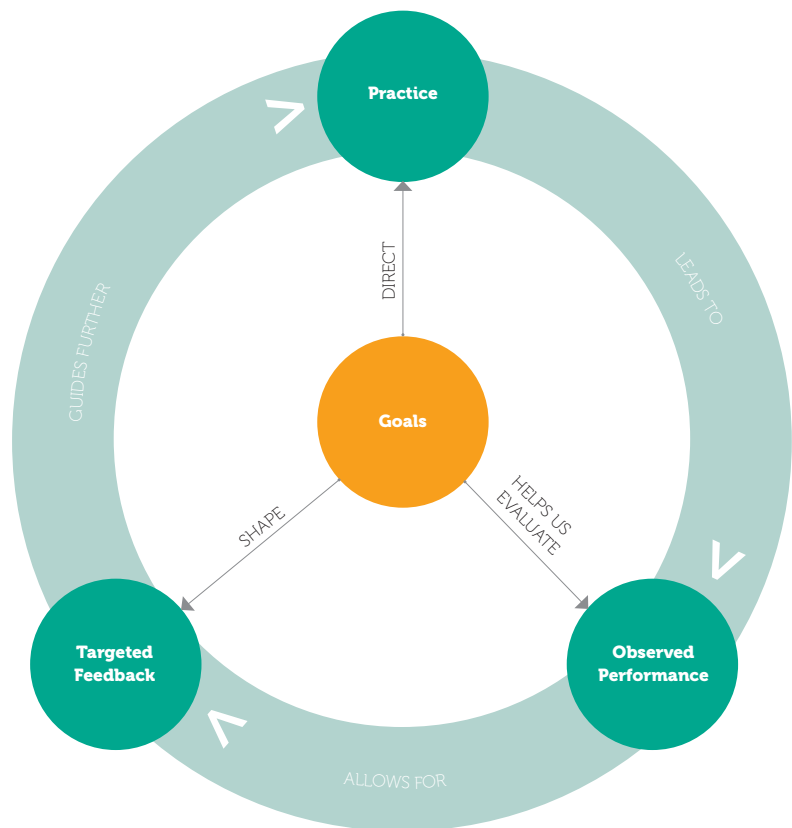
Process Steps

With a feedback structure in place, I began to consider the sequence of steps in the process and how they could be supported through the tools explored in the generative research phase. Overall, I proposed eight steps to the feedback process. The first four steps help to prepare an individual for giving and receiving feedback. These steps include:

1. **Training:** helping teams become familiarized with skills and feedback.

2. **Evaluation:** helping team members to determine their own strengths and opportunity areas.

3. **Goals:** helping team members select skills to develop over the course of the project.

4. **Preferences:** helping team members communicate how they want to receive feedback.

The second set of steps guide the individual through an iterative feedback loop.

Proposed Feedback Process
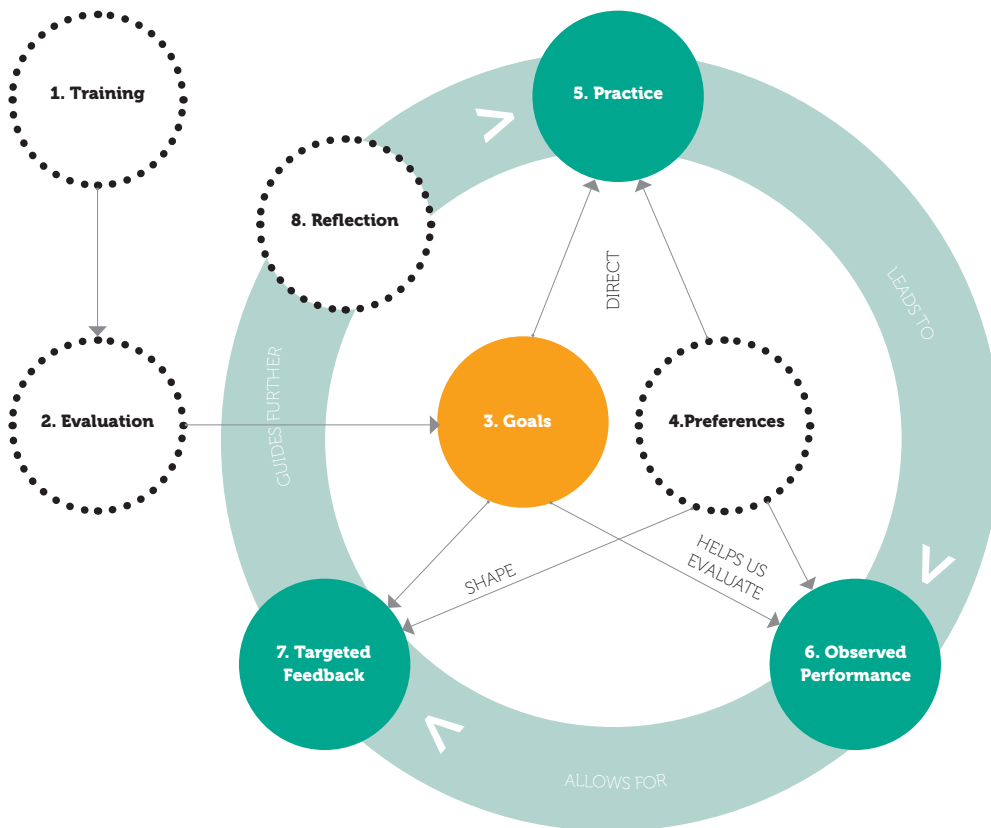
These steps include:

5. **Practice:** helping team members focus on exhibiting desired skills.

6. **Observed Performance:** helping observers determine if an individual's attempts at practicing desired skills are working.

7. **Targeted Feedback:** letting an individual know how they are performing.

8. **Reflection:** helping team members reflect upon the best ways to move forward based on feedback.

The following sections describe each of these steps in greater detail and also explain the tools proposed for supporting each step.

1. **Training:** To begin the process, teams utilize training cards that help them discuss ways to give feedback, team behaviors, and values and expectations. Based on research findings showing that individuals desire to understand the feedback process in advance and also feel that everyone on the team has a shared understanding, the goal of this step is to make each team member feel comfortable with the process and to prepare them for feedback.

2. **Evaluation:** The next step helps each individual consider his or her current teamwork skill-set, as well as the behaviors they would like to develop over the course of the project. There are three components to this step. The first component is a self-assessment that each team member completes via an online tool at the beginning of the project. This helps the individual understand their top strengths and opportunity areas. The next component is a second evaluation that takes place half way through the team project. This time, rather than performing a self assessment, each team member determines each other's strengths and opportunity areas. The assumption is that at this point, the team has worked together long enough to help each other identify skill areas to develop. Finally, the last component involves each team member evaluating the team as a whole. Based on findings from the card sorting activity, individuals often determine which skills they want to exhibit based on perceived gaps on the team. This type of team evaluation also happens at the midpoint of a project, and allows each individual to revise their skill goals if they choose to do so. Overall, this step helps inform each team member's skill goals for the project and gives them flexibility to alter these goals based on additional feedback and reflection later in the project.

3. **Goals:** The third step in the process involves each team member choosing up to three skill areas they would like to develop throughout the project. Each individual selects these goals from existing skill options made available through their mobile app. Individuals also have the option to customize or craft their own goals. The goals are meant to serve as criteria for evaluation. For example, an individual may have a goal that they want to become a better decision facilitator on their team. Based on this, the individual may choose criteria related to the behaviors a decision facilitator displays, such as helping to identify decision-points, proposing options for the team to consider, and implementing various methods for comparing options. The goals selected by each team member are accessible by the rest of the team through their mobile app. Based on research showing that individuals want feedback that is most relevant to them, this step aims to help the feedback provider and recipient develop a shared expectation.

4. **Preferences:** After each team member determines their main skill goals, they set additional preferences dictating how they would like to receive feedback throughout the project. Each individual chooses who on the team they'd like to receive feedback from, how often they'd like to the receive feedback, where they'd like to meet to discuss the feedback, what type of feedback they would like to receive (e.g., if the provider should be especially tough or provide more supportive coaching), and finally what form of feedback is preferred (e.g., ratings, conversation, written comments, etc.). All of these settings are saved within the mobile app. The purpose of this step is for feedback providers to be able to easily understand what type of feedback their teammate is looking for, and how they can best provide the feedback. This is based on research findings showing that individuals have unique preferences regarding feedback delivery.

5. **Practice:** Now that the team understands each other's goals and preferences, the project begins and each team member starts going about their work. As they do this, they think about the main goals they have set for themselves. If, for example, they are seeking to become a better decision facilitator on the team, they think about taking opportunities to practice that skill over the course of

the project. To help support their attempts at improvement, they use a mobile app that allows them to think about their own personal barriers to change and also reference various strategies and approaches for achieving their goal. Based on research findings showing that individuals must make conscious efforts to improve their behaviors, the main purpose of this step is to support individuals in their attempts at reaching their goals.

6. **Observed Performance:** While each team member is practicing their own skill, they are also observing each other's performance. Since they know what their teammate is trying to achieve, they can quickly use their mobile app to capture observations. This helps them to determine whether or not the team member appears to be meeting their goal. The observer can also use sliders to notate the level of impact their teammate's behavior seems to be having on the project. By capturing specific examples, the observer is better prepared for a feedback conversation. Based on research findings showing that individuals desire rich, qualitative feedback information, the main goal of this step is to help individuals collect the insights they need in order to provide high quality feedback content to their teammates.

7. **Targeted Feedback:** Now that each team member has observed each other's performance, they can give each other targeted feedback. Team members can request a meeting with their partner to discuss their progress. During this conversation, the feedback provider references the observations they have captured over time and also uses a quick conversation guide that helps ensure the conversation is a two-way learning conversation. Based on research findings showing that individuals desire feedback conversations to be informal and collaborative, the goal of this step is to make both the feedback provider and recipient comfortable and able to effectively communicate about feedback.

8. **Reflection:** After receiving feedback, each team member uses a digital journal to reflect upon the information. The tool helps them keep track of a to-do list of behaviors they want to try going forward. Based on research findings showing that individuals need to reflect upon feedback in order to make it actionable, the goal of this step is to support reflection and help individuals manage their next steps. After this point, the feedback loop continues. The individual attempts to change their behavior based on the feedback and then see if their teammates have perceived a positive change in their performance.

Toolkit

The various tools mentioned throughout the above process steps are part of a proposed toolkit. The toolkit has three main components: cards, a web tool, and a mobile app. Each tool has affordances that best support the various types of activities conducted throughout the feedback process.

1. **Cards:** The cards are utilized only for training purposes. They help individuals quickly reference tips for giving feedback as well as various teamwork skills. Given the affordances of the card deck, team members can easy use it for activities and discussion.

2. **Web Tool:** The web tool is utilized for evaluation, targeted feedback, and reflection. For each of these steps, the user needs to enter quite a bit of information, therefore a larger screen size and keyboard is most appropriate.

3. **Mobile App:** The mobile app is utilized for goals, preferences, practice, and observed performance. For example, during practice, the app serves as a quick reference, showing various strategies and potential barriers to change. During observed performance, the app helps a feedback provider to enter their observations about a teammate's performance in a quick fashion. Overall, the app supports activities that are meant to be simple and easy. Given that the main focus of a team project is the work itself, the app provides basic functionality to help individuals work on personal development in an efficient way.

Evaluating the Concept

After evaluating the proposed feedback process and toolkit, there were three areas of concern: 1) too many touch-points, 2) lack of consideration of different types of users, and 3) a strong negative, visceral reaction to the process. With regards to the first point, it became clear that while the proposed feedback process is robust and considers many needs, it tries to do too much. It is not realistic to assume that every team has the time and desire to conduct each step of the process. In terms of the audience, the process lacks flexibility for different types of users. While it does allow individuals to set their own goals and customized preferences related to feedback, all other steps are fixed and leave few options for individuals who may already be quite self reflective or have had a lot of experience working in teams. Finally, the third point relates to the strong, negative reaction individuals may have to feedback in general. Given that people often assume that feedback is a time consuming, uncomfortable process aimed at manipulating their behavior, the proposed process and toolkit does not take appropriate measures to change this mindset and induce a more positive visceral reaction. Overall, these areas of concern suggested the need for streamlining the process, considering how various types of users can experience the process differently, and creating an inviting, approachable identity.

SPECIALIZED FEEDBACK APP CONCEPTS

In order to address concerns regarding the proposed feedback process and toolkit, I began considering different types of individuals and how they may want to experience a feedback process in varying ways. I also imagined ways that feedback can feel more approachable and engaging through the use of characters and games. Ultimately, I arrived at four concepts called Reactions, Idolize, Superpower Sidekick, and Honest Kudos. In order to communicate these concepts and to later test them with participants, I developed storyboards showing scenarios of individuals using each feedback app in different contexts. The following sections provide additional detail and supporting research related to each concept.

1. Reactions

*Build a picture of your team skill-set through self reflection and ask others for their reactions.*

CONCEPT OVERVIEW

Reactions allows users to grow their skills through self refection. The user starts by creating a profile. After taking a self-assessment, the user determines

Overview of Feedback App Concepts

1. Reactions

Build a picture of your team skill-set through self reflection and ask others for their reactions.
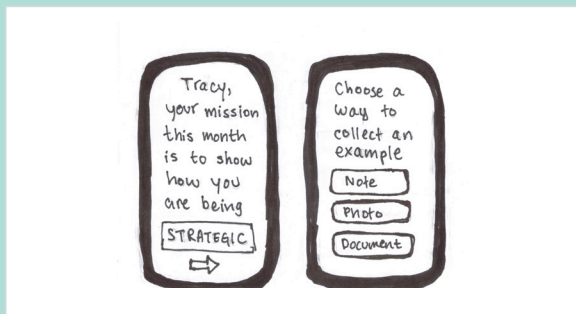
· **Profile:** Create a profile showing your strengths and opportunities
· **Missions:** Complete missions to collect examples of your skills
· **Reactions:** Ask others for their reactions to your profile

2. Idolize

*Collect strategies and feedback for achieving team skills from the people you idolize most.*

· **Recognition:** Recognize other's skills by idolizing them
· **Advice:** Receive advice from people you idolize
· **Community:** Explore other people to idolize or learn from other's advice

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Privately give and receive kudos for a job well done, so that you can visualize your teamwork skill-set.
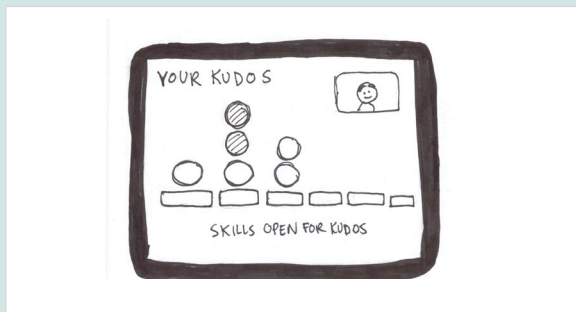
· **Private Observation:** Notice impressive behaviors
· **Positive Impressions:** Give and receive quick, anonymous positive impressions (kudos) about desired skills
· **Visualization:** See visual of kudos received over time

Hone or grow the superpowers you bring to team projects with the help of a trusty sidekick.
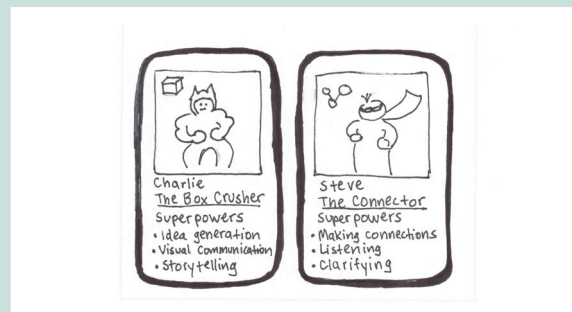
· **Mentorship:** Chose a teammate and agree to mentor each other
· **Ratings:** Rate each other on a regular basis against goals
· **Community:** Share superpower profile with team and poll entire group to discover top "powers" (teamwork skills)

4. Honest Kudos

3. Superpower Sidekick

their strengths and opportunity areas across different teamwork skills. Next, the user completes a variety of missions related to the teamwork skills they most want to develop. Every month, they must collect at least one example of a time when they exhibited a particular team skill. The example may be a photo (e.g., a white-board drawing), text, a document, or a video. Once the user has built a picture of their skill-set, they are able to send this to people they trust to ask for their reactions. These reviewers either agree with a skill by giving it a "Right On," or they suggest tweaks to the list of strengths and opportunity areas.

CONNECTIONS TO RESEARCH

Reactions was informed by research findings related to self-awareness, goal-oriented feedback, and collaborative feedback. In terms of self awareness, survey findings show that 37% of participants believe they have a very good understanding of their own strengths and weaknesses regarding their teamwork skills. This suggests that many individuals know what skills they need to develop, and can regularly evaluate their own performance in order to improve. Reactions supports individuals in this type of self reflection. Secondly, research findings showed that it is important to guide feedback through specific goals. Monthly missions within Reactions are intended to help individuals concentrate on one teamwork skill at a time to help them focus their practice. Finally, research findings showed that feedback is best delivered through a collaborative learning conversation. By having an individual ask others to review a list of their self-perceived strengths and weaknesses (along with examples of these skills), the individual is starting a two-way feedback conversation. Instead of the feedback provider structuring the conversation, this gives the feedback requester the opportunity to first present their existing understanding of their performance and then gain control over the discussion.

2. Idolize

Collect strategies and feedback for achieving team skills from the people you idolize most.

CONCEPT OVERVIEW

Idolize allows users to grow their teamwork skill-set through advice and inspiration from others. Users begin by creating a profile within the Idolize system. When they notice someone who is displaying a soft skill very well, they send this person an Idolize star to let them know that they are admired for this skill. In order for the person who is being idolized to receive a star on their profile, they must share some advice either through an in person conversation or via digital communication. Once this happens, the individual's idolize star gets verified and the community sees that this person was idolized. In addition, the advice achieved through this interaction can be shared with the rest of the Idolize network.

CONNECTIONS TO RESEARCH

Idolize was informed by research findings related to customization. According to Julie Dirksen, there are different types of learners. Some individuals need information to be pushed to them, and others, who are more advanced in learning a skill need the ability to pull the information they find most important for their development. Idolize uses a pull model in which the user is tasked with learning through observation and identifying opportunities to gain more insight and acquire the strategies they need for development.

3. Superpower Sidekick

Hone or grow the superpowers you bring to team projects with the help of a trusty sidekick.

CONCEPT OVERVIEW

Superpower Sidekick allows users to develop their teamwork skills through mentorship. Users begin by creating a profile and choosing a teammate who agrees to be their "sidekick" or partner. Together, they agree to give each other feedback through the duration of the team project. The users decide how frequently they would like to rate themselves and each other across customized goals they set for themselves in their "secret lab." As a form of additional motivation, both users receive a "trusty sidekick" score that is negatively impacted if they fail to complete their ratings on a regular basis. At the end of the project, users can poll their entire team to ask about the top three super-powers they brought to the team project. Whenever one of these superpowers matches a goal area, this is considered an accomplishment for both the individual and their sidekick.

CONNECTIONS TO RESEARCH

Superpower Sidekick was largely informed by research related to collaboration and emotion. Based on research regarding the importance of feedback being a learning conversation, Superpower Sidekick fosters the development of a supportive relationship with one teammate over time. By providing each other with regular ratings, the individuals can have two-way conversations about each other's goals and progress. In terms of emotion, research findings show that individuals like to have a relationship with the person giving them feedback and to discuss feedback in an informal way. For this reason, Superpower Sidekick supports not only mentorship but also uses the superheroes and superpowers to make the process feel lighthearted and informal.

4. Honest Kudos

Privately give and receive kudos for a job well done so that you can visualize your teamwork skill-set.

CONCEPT OVERVIEW

Honest Kudos helps individuals get insight into the ways others perceive their skills through private, anonymous feedback. Users begin by making a profile with up to ten teamwork skills that they would like to have open for "kudos" (virtual tokens that signify a job well done). Each team member observes each other and thinks about their skill goals. Whenever the user notices one of their teammates doing a great job with a skill that's been posted to their profile, they can anonymously give a kudo for this skill area. Kudos are in limited supply, so receiving a kudo is very meaningful. Additionally, if someone gets a kudo from an individual who has received many in the past, the kudo is displayed with a stron-ger color intensity to signify that it is from someone who is highly admired. Finally, users can see a private visual of all the kudos they have received. This view functions as a heat map. Users can see which skill areas are not as highly regarded as others.

1. Reactions

1. Having a Dream

Tracy works for IBM, where she divides her time across multiple team projects. In the next two years, she would love to get promoted to director.

2. Taking Initiative

In order to become a director, Tracy knows that she needs to start acting like one. She decides to try an app called "Reactions." It helps her build and grow a picture of her skill-set.

3. Building a Picture

Tracy starts building her skill-set picture by browsing different skills. She picks the ones where she thinks she most excels and also the ones she wants to develop. If she's not sure about something, she can create a quick poll to ask her close friends.

4. Collecting Examples
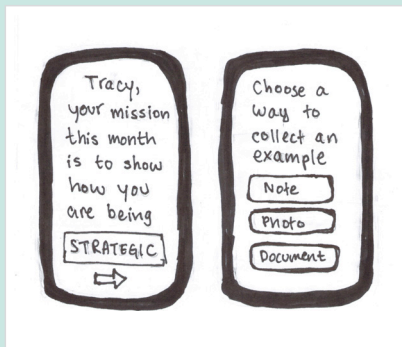
Every month, the "Reactions" app gives her a mission. This time, she has to collect at least one example of a time when she is being "strategic" on a team project. She's able to upload a description of a specific scenario, a photo, or a document. Not only does this help her add real examples to her skill-set picture, but it also motivates her to exhibit or practice certain skills.

5. Getting Reactions
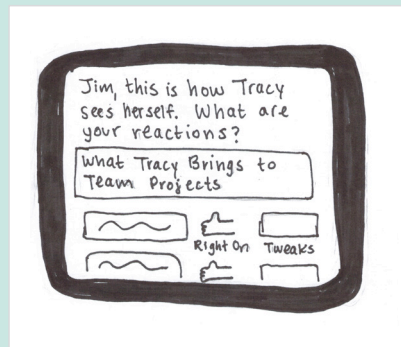
Tracy's doing a good job of self reflecting, but she's curious if others see her the way she does. She decides to send her skill-set picture to various people she's worked with. She includes some of the examples she's been collecting to help paint a better picture. For each strength and goal area, people can respond with "right on!" or give suggestions for what they would tweak.

6. Sharing with Manager

Shortly before annual review time at IBM, Tracy meets with her manager John. Before John gives her any feedback, she decides to walk him through the picture she built of herself and what she's doing to grow her skills. John is really impressed with Tracy's initiative. It makes it easier for John to picture Tracy on the director level.
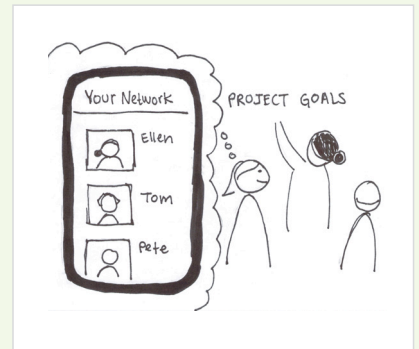
2. Idolize

1. Reflecting on Personal Goals

Ria wants to start a nonprofit one day. She knows that in order to do this, she needs to be a good team player. She wants to be able to interact well with others, contribute to her team's goal, and act like a leader. She gets interested in an app called "Idolize."

2. Taking a Self-Assessment

Ria takes a self-assessment to help her think about her current strengths and weaknesses when it comes to teamwork skills. She adds her strengths and top goals to her profile. She's hoping to become a better leader.

3. Idolizing Someone

Ria starts working on a project with Ellen, who seems like a really great team leader. Ria finds out that Ellen uses Idolize too. Since Ria admires Ellen, she decides to send her an Idolize star for her project management skill.

4. Receiving an Idolize Star
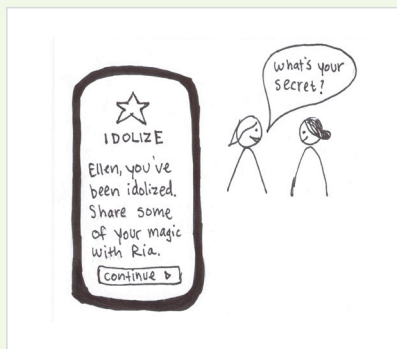
Ellen is really flattered that Ria idolizes her. She won't be able to keep the star she just received without sharing her magic with Ria. Ellen meets with Ria and gives her some great advice about leading teams.

5. Collecting Stars
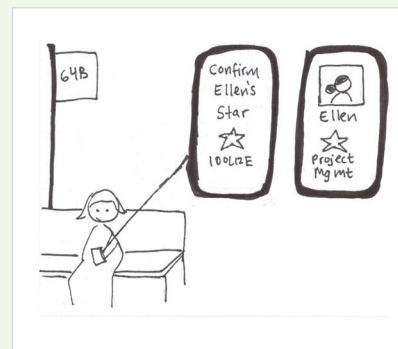
While Ria's waiting for the bus home, she confirms Ellen's pending Idolize star. Ellen's star now shows up on her profile. Other people seeking advice and inspiration will now be able to see that someone idolized Ellen for the skill of project management and can see key advice Ria gained from her.

6. Tracking Progress

Now that Ria has a better idea of what a good project leader does, she enters more specific goals for herself. She's able to track how she's doing and send quick polls to people she idolizes for feedback. Ria is really glad that she found Idolize because it's been a great inspiration.

## 3. Superpower Sidekick

1.Kicking off the Project

Charlie just got paired with 4 people on a project to help a nonprofit called "Grow Pittsburgh." It's a cool project but Charlie's a bit nervous about working with other people.

2. Making Superhero Profiles

Charlie's professor suggests an app called "Superpower Sidekick" because it helps people working in teams. He picks out a superhero avatar and calls himself "The Box Crusher" because he tends to think outside of the box. He then adds his top superpowers to his profile.

3. Picking a Sidekick
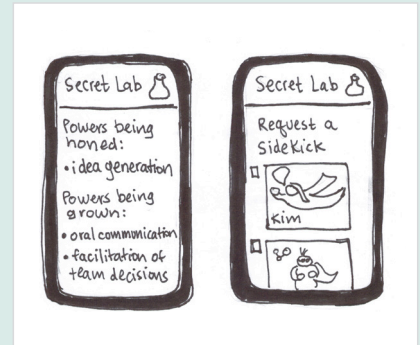
In the "secret lab" section of the app, Charlie can pick team powers that he wants to either grow or hone. He's hoping to get better at explaining and presenting his ideas. He asks his teammate Kim if she's up for being his sidekick throughout the project.

4. Visiting the Secret Lab
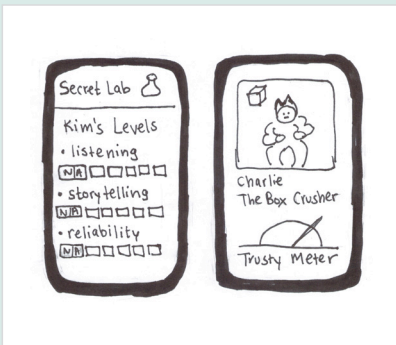
After 2 weeks, Charlie gets a notification reminding him to visit the secret lab. He uses sliders to say how well he thinks he's doing with his powers, and then does the same for Kim. Charlie's "trusty meter" stays high whenever he does this. It's an indicator of how good of a sidekick he is being, and can be seen by both himself and others who need a sidekick in the future. Charlie and Kim can instantly see if they're on the same page about how they're doing because they get a snapshot that comparisons their ratings.

5. Having a Sidekick
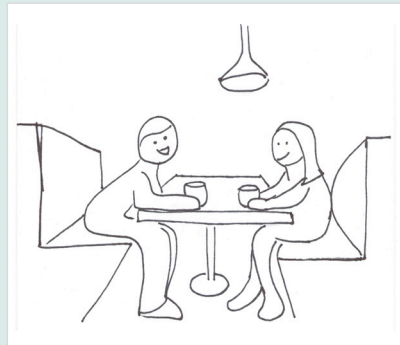
Another way Charlie and Kim can keep their "trusty sidekick" meters high is to have at least one "sidekick huddle" before their project is over. They decide to go get coffee to catch up about how they're both doing with their skills. Charlie gets some great advice from Kim about giving presentations.

6. Getting Team Input
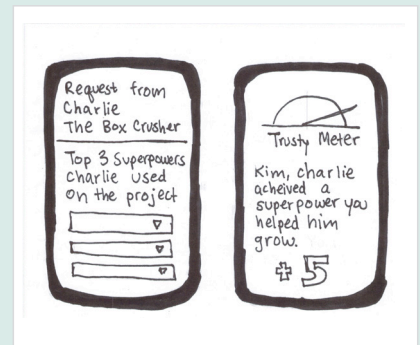
Toward the end of the project, Charlie decides to ask the rest of his teammates to pick the top 3 superpowers (out of 10) that they think he contributed to the team. He gets excited to see that one person picked "oral communication" from the list. Kim's "trusty meter" improves every time Charlie gets positive feedback about this power. She feels happy to have helped Charlie.
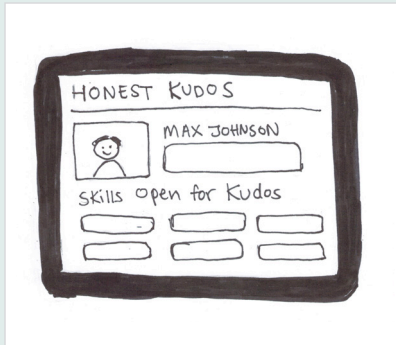
4. Honest Kudos

1. Starting an Internship

Max just started a summer internship at Google. He sees this as a chance to learn from his co-workers and also see how he does on teams in the workplace.

2. Picking Skills

A lot of people at Google use an app called "Honest Kudos" because it gives them more honest feedback than their formal performance reviews. Max makes a profile and picks the skills he'd like to be "open for kudos."

3. Learning about Kudos

Max is excited to learn about giving kudos. There are 3 main rules: 1) it has to be legit (they can only be granted if someone is truly impressed or notices great improvement), 2) it stays anonymous, and 3) it needs to be kept private - no bragging! Max starts off with 10 kudo tokens. He will only be granted new tokens to give out if people give him kudos. For this reason, Max knows its the nice thing to do to use his kudos. Since there is a limited supply of kudos in the system, it's better to give them out in case others are running low.

4. Giving a Kudo
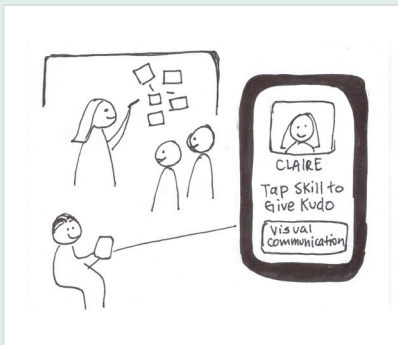
Max starts to pay close attention to his coworkers. He notices that Claire just did something really impressive – she's using a sketch on the white-board to explain something really complex to people from the marketing group. Max quickly taps the "visual communication" skill on her profile to give her an anonymous kudo - so easy! Max decides to add a short note that explains why Claire impressed him.

5. Viewing Kudos

When Claire receives the kudo, she reads the anonymous note. She's glad that someone thought her sketching was helpful. The more kudos Claire gets, the more kudos she is granted to give to others. Additionally, because she's so impressive, the kudos she gives out have a stronger color intensity. This helps others see when they are praised by someone who has received a lot of praise themselves.

6. Seeing Kudo Patterns
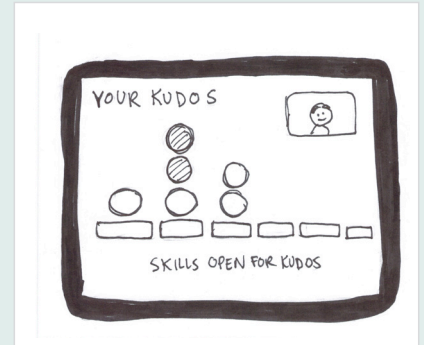
At the end of the summer, Max thinks back to how much he learned at Google by paying close attention to his coworkers. It also helps Max to see his kudos. He realizes that people are most impressed by his idea generation. Going forward, he wants to try and get more kudos for his strategy skills.
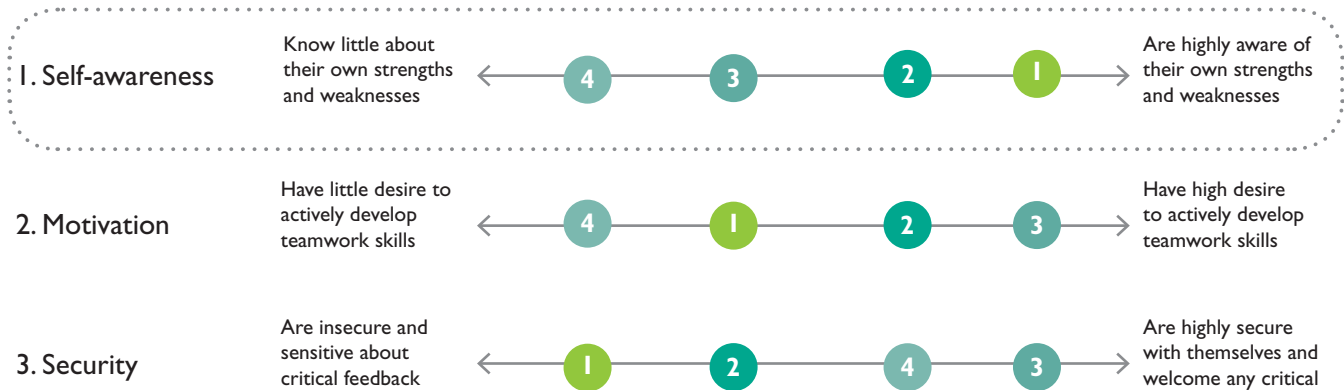
User Dimensions

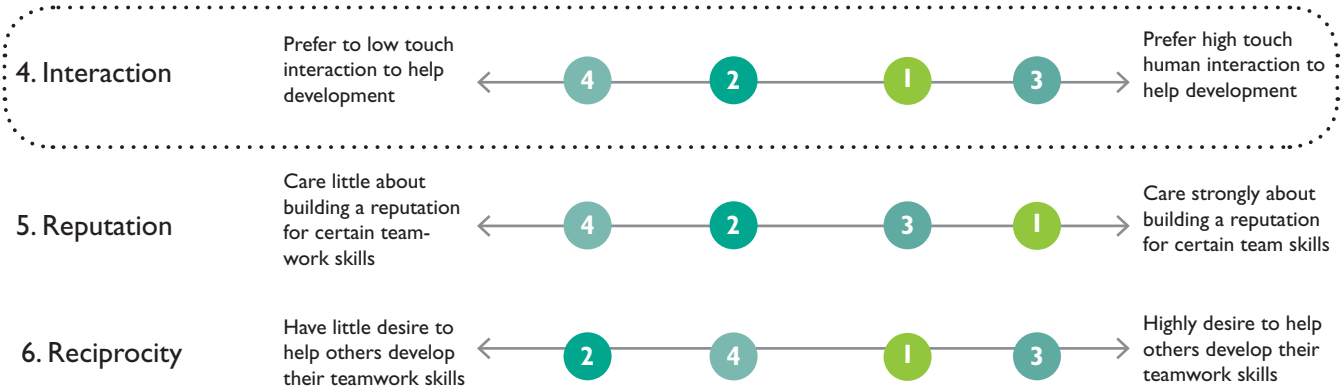What type of person would
use each feedback app?

FEEDBACK APPS

1 Idolize

2 Reactions

3 Superpower Sidekick

4 Honest Kudos

Internally Focused Dimensions

1. Self-awareness

Know little about their own strengths and weaknesses ← **4** **3** **2** **1** → Are highly aware of their own strengths and weaknesses

2. Motivation

Have little desire to actively develop teamwork skills ← **4** **1** **2** **3** → Have high desire to actively develop teamwork skills

3. Security

Are insecure and sensitive about critical feedback ← **1** **2** **4** **3** → Are highly secure with themselves and welcome any critical

Externally Focused Dimensions

4. Interaction

Prefer to low touch interaction to help development ← **4** **2** **1** **3** → Prefer high touch human interaction to help development

5. Reputation

Care little about building a reputation for certain team-work skills ← **4** **2** **3** **1** → Care strongly about building a reputation for certain team skills

6. Reciprocity

Have little desire to help others develop their teamwork skills ← **2** **4** **1** **3** → Highly desire to help others develop their teamwork skills

The two most important factors are self-awareness
and the level of human interaction desired to help development.

CONNECTIONS TO RESEARCH

Honest Kudos was largely informed by research related to development-focused feedback and trust. Based on research showing that the purpose of feedback makes a difference, Honest Kudos emphasizes the goal of keeping feedback development-focused by making it completely private and unavailable to others for assessment purposes. In this way, the tool creates a safe space for honest feedback and decreases user anxiety. Secondly, research related to trust shows that individuals struggle to trust the feedback they receive. Honest Kudos seeks to build credibility in a number of different ways. First, the feedback is private and less likely to be influenced by ulterior motives, such as boosting one's grade or career. Second, impressions are shared by multiple people, allowing the user to receive evidence that many people feel the same way, rather than only one misguided individual. Third, users know when kudos come from people who have received many kudos in the past, signifying that the feedback is coming from a highly reputable source. Finally, the feedback is provided anonymously, which decreases the perceived risk of being honest.

PERSONA DEVELOPMENT

Although the four specialized feedback concepts provided different ways to experience a feedback process, it was not explicitly clear what types of users would find each app most desirable. Given the importance of understanding specific user needs when developing concepts, I chose to explore this space further. I began by considering six dimensions across which users typically vary when it comes to experiencing feedback. After plotting each of the specialized feedback concepts across these dimensions, I selected the dimensions of self-awareness and desired level of interaction as the most relevant. These two dimensions served as the basis for the development of four user personas. Ultimately, the personas helped inform subsequent concept testing and the final concept design.

Exploration of User Dimensions

The six user dimensions explored fell into one of two categories: internally focused, or outwardly focused. Internally focused dimensions relate to one's level of self-awareness, motivation, and security. These dimensions are highly personal qualities that speak to how well someone understands their own strengths and weaknesses, how motivated they are to improve their soft skills, and how sensitive they tend to be to critical feedback.

The second set of dimensions is outwardly focused. These qualities relate to more socially focused preferences. They include the level of interaction someone finds most desirable when communicating about feedback, how much they care about building a publicly facing reputation regarding their soft skills, and how interested they are in reciprocity (not only receiving feedback, but also in providing it to others). The following sections provide more detail about each of the user dimensions and the rationale for the mapping of each feedback app to different ends of the dimensions.

INTERNALLY FOCUSED

1. **Self-awareness:** Research findings show that individuals vary in how much they understand their own strengths and weaknesses related to teamwork feedback. While some feel that they have a high understanding, others may have a hard time for a number of different reasons. For example, they may not have a lot of experience working in teams, and thus struggle to assess themselves. They may also be less self reflective in general, and tend to have blind spots about their behavior.

   - **High:** Highly self-aware individuals would find Reactions and Idolize most desirable, as both concepts require users to be self-reflective and know what type of feedback or information they are looking for.

   - **Low:** Less self-aware individuals would find Superpower Sidekick and Honest Kudos most desirable. This is because both concepts include a heavy feedback component. Someone with blind spots would likely find this information enlightening, while a more self-aware person may not be as surprised.

2. **Motivation:** Research shows that individuals have different reasons for wanting to receive feedback about their teamwork skills. Additionally, while some people have high self-efficacy and want to continuously improve, others may not see this as a priority and would be less willing to put a lot of time into feedback.

   - **High:** Highly motivated individuals would find Superpower Sidekick and Reactions most desirable. These tools involve a greater time commitment, as they require participation on a regular basis.

   - **Low:** Less motivated individuals would find Idolize and Honest Kudos most desirable. These tools involve flexibility, allowing users the ability to decide how often they want to use the features.

3. **Security:** Research shows that individuals tend to vary in how sensitive they are about the feedback they receive. While some individuals are highly secure and can easily handle constructive criticism, others tend to take things personally. This can also vary depending on the skill discussed. Someone may be very sensitive about a skill they are just developing or know that they struggle with.

   - **High:** Highly secure individuals would find Superpower Sidekick and Honest Kudos most desirable. This is because both tools involve a high level of feedback from peers.

   - **Low:** Less secure individuals would find Reactions and Idolize most desirable. This is because both tools support self-reflective and knowledge-seeking rather than obtaining outside feedback.

4. **Interaction:** Research shows that people tend to vary in terms of the level of interaction they like to have with others about their feedback. While many participants did like the idea of having conversations with others about their skills and performance, others mentioned this making them feel vulnerable and threatened.

   • **High:** Individuals who prefer high levels of interaction would find Superpower Sidekick and Idolize most desirable. Superpower Sidekick requires the most human interaction, as sidekicks must rate each other on a regular basis and have conversations about their progress. Idolize also involves quite a bit of interaction, as users must take the step to "idolize" someone and discuss strategies for exhibiting soft skills.

   • **Low:** Honest Kudos and Reactions are apps better suited for people who prefer limited amounts of interaction. Honest Kudos is highly private and anonymous, and Reactions is heavily focused on self-reflection.
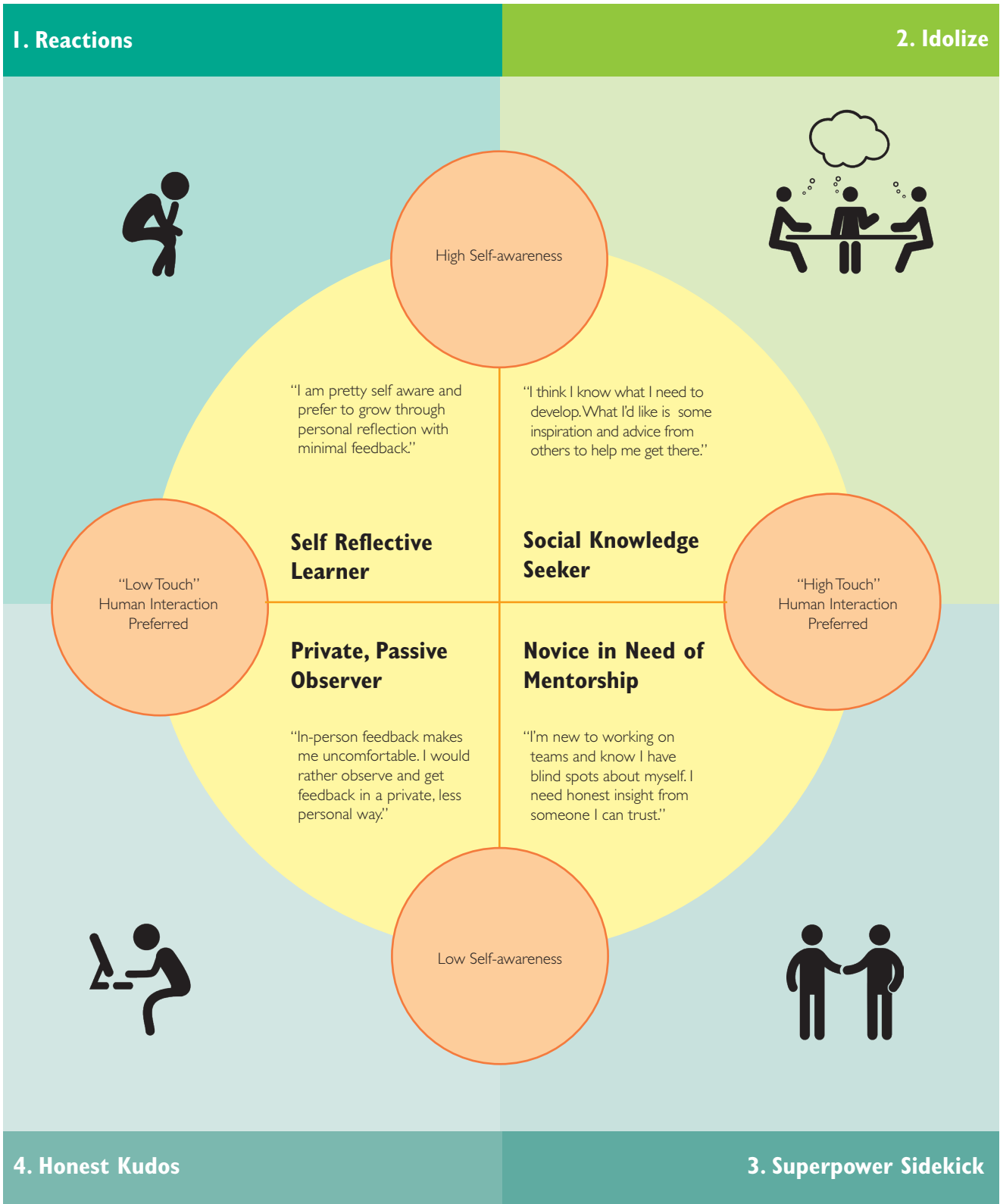
5. **Reputation:** Research shows that people tend to use feedback for different purposes. Survey findings indicate, for example, that many participants use feedback to inform their career path. This is because feedback can help to confirm someone's vision of their unique value and where they can make the most positive impact. Feedback can also help to build an individual's reputation externally. While some people care a lot about shaping the way others see them, others may feel less interested in building their reputation.

   • **High:** Individuals highly concerned with their reputation would find Idolize and Superpower Sidekick most desirable. With Idolize, there is incentive to collect "Idolize Stars" that can be shared on one's profile page. Similarly, Superpower Sidekick allows users to create avatars that help define the main "powers" they bring to team projects.

   • **Low:** Individuals less concerned with their reputation would find Reactions and Honest Kudos most desirable. These tools are private, and thus less directly help users build an online presence.

6. **Reciprocity:** In order to receive feedback, someone needs to be willing to provide it. Research shows that some people are more motivated in the act of giving feedback than others. Often times, the more confident someone feels with their own teamwork skills, the more willing they are to help others.

   • **High:** Individuals who are motivated to reciprocate feedback would find Superpower Sidekick, Idolize, and Honest Kudos most desirable. Given that Superpower Sidekick emphasizes mentorship, the tool demands a commitment to helping one or more individuals improve their performance. Idolize also requires reciprocity because individuals who are idolized must be willing to share their insights and advice. Finally, users of Honest Kudos must give each other kudos in order for the system to function.

   • **Low:** Individuals who are less motivated to reciprocate feedback would find Reactions most desirable, as it is a largely self-reflective process.

Personas

High Self-awareness

"I am pretty self aware and prefer to grow through personal reflection with minimal feedback."

"I think I know what I need to develop. What I'd like is some inspiration and advice from others to help me get there."

Self Reflective Learner

Social Knowledge Seeker

"Low Touch" Human Interaction Preferred

"High Touch" Human Interaction Preferred

Private, Passive Observer

Novice in Need of Mentorship

"In-person feedback makes me uncomfortable. I would rather observe and get feedback in a private, less personal way."

"I'm new to working on teams and know I have blind spots about myself. I need honest insight from someone I can trust."

Low Self-awareness

Persona Definition

Out of all the user dimensions explored, the most critical dimensions identified are self-awareness and the level of interaction individuals prefer to have with others regarding their development. Self-awareness stood out as important because highly self-aware individuals require different types of feedback than those who have very little insight into their own strengths and weaknesses. Similarly, someone who prefers to interact with others in a highly personal way requires a much different feedback experience than someone who prefers privacy and anonymity. With these two dimensions at the forefront, I developed a matrix to inform a set of four personas: 1) self-reflective learner, 2) social knowledge seeker, 3) novice in need of mentorship, and 4) the passive, private observer. The following sections go into greater detail about each of these four personas.

1. **Self-reflective Learner:** The self-reflective learner is someone who has a high level of self-awareness about their strengths and weaknesses and prefers low touch human interaction. They prefer to analyze and improve their performance on their own and find Reactions most helpful because it lets them observe their own behavior and then get minimal feedback through other's reactions to how they see themselves.

2. **Social Knowledge Seeker:** The social knowledge seeker is also highly self aware, but prefers high touch human interaction. Given that they already know what skills they need to develop and how they'd like to behave on teams, they are most in need of inspiration and advice for how to achieve their goals. Idolize is the tool they would find most helpful because it gives them access to people who they can learn from.

3. **Novice in Need of Mentorship:** The novice in need of mentorship has a relatively low level of self-awareness when it comes to understanding their own skill-set. Since they prefer high touch human interaction, they would like a mentor to work with them closely and help guide them through understanding their strengths and weaknesses. For this reason, Superpower Sidekick is a great tool for this persona.

4. **Passive, Private Observer:** The passive, private observer has a low level of self-awareness and prefers low touch human interaction. They are curious to know what others think of their skill-set, but they don't want to have a lot of conversations about it. They prefer to see how a majority of people think about them in an indirect way. For this reason, Honest Kudos is a good option for them – it helps them get feedback in a passive way that requires low interaction.

Team Skill Framework

As a final activity within the concept development phase, I aimed to define an organized framework for the team skills that individuals could select as skill goals and reference as criteria for evaluation and feedback. Based on research findings, it is clear that users need a way to develop a shared understanding of team skills and see how they fit into the bigger picture of effective teamwork.

To accomplish this task, I referenced four sources providing different teamwork skills: 1) Halfhill and Nielsen's 2007 article "Quantifying the 'softer side' of management education," 2) Loughry, Ohland, and Moore's 2007 article "Development of a theory-based assessment of team member effectiveness," 3) The University of Kent website, and 4) Medical University of South Carolina's teamwork competencies developed by the "Creating Collaborative Care" inter-professional educational initiative. Through various synthesis methods, I consolidated the 220 teamwork skills provided by these sources into ten team roles. I then determined which skills represented activities (what each team role does), outcomes (what they create), and mentalities (how they think). This spread presents the final team roles and skills that were incorporated into the final design for this project.

Strategist
What do we want to accomplish?

What they do

- **Plan:** help plan different activities

What they create

- **Vision:** a mission of what the team wants to accomplish
- **Goals:** goals that are clear and specific

How they think

- **Structured:** provide a structured approach to achieve goals

Uplifter
How can I boost the team's morale?

What they do

- **Make Others Comfortable:** make others feel comfortable
- **Build Relationships:** build relationships with teammates
- **Show Respect:** show others respect
- **Motivate:** keep teammates motivated
- **Break Tension:** break tension through humor or encouragement
- **Give Praise:** offer praise and encouragement
- **Express Enthusiasm:** express enthusiasm for project work and working collaboratively

How they think

- **Positive:** see the good in others

Idea Generator
What is a good opportunity or solution?

What they do

- **Problem Solve:** think of new ways to look at or resolve a problem
- **Connect Ideas:** pull together various ideas

What they create

- **Questions:** questions that help to achieve greater clarity or understanding
- **Story:** a story that ties ideas together to make them understandable

How they think

- **Original:** come up with ideas that are new or inventive
- **Big Picture:** think on a big picture level
- **Thorough:** take a step back to ensure careful consideration

Team Player
How can I show that I really care about this project?

What they do

- **Fulfill Responsibilities:** fulfill responsibilities to the team
- **Follow Through:** do what was promised
- **Prepare:** come to meetings or activities prepared with ideas or completed work
- **Arrive Punctually:** arrive on time for meetings and activities
- **Meet Deadlines:** complete work by agreed upon deadlines

What they create

- **Standards:** high standards for the team

How they think

- **Persistent:** keep trying even when faced with obstacles
- **Calm:** remain calm under pressure
- **Confident:** believe that the team can achieve goals

Improver

How can we all improve so that our team does a better job?

What they do

- **Accept Feedback:** graciously accept constructive criticism from others
- **Develop Upon Feedback:** act upon feedback to develop personally
- **Notice Performance:** notice how teammates are performing
- **Give Feedback:** provide teammates with constructive feedback
- **Support Teammates:** help build confidence in teammates and give them advice for improvement
- **Reflect:** reflect upon what is and is not working for the team overall
- **Suggest Improvements:** suggest ways that the team can improve

What they create

- **Updates:** revisions to work based on feedback

Decision Facilitator

How do we want to proceed going forward?

What they do

- **Encourage Debate:** encourages healthy conflict or debate
- **Mediate:** help teammates express their different opinions
- **Seek Input:** seek team input when driving toward decisions
- **Evaluate:** help evaluate different decision options

What they create

- **Compromises:** proposed win-win strategies
- **Decisions:** proposed decisions

Coordinator

Who's going to do what?

What they do

- **Balance Workload:** balance workload across the team
- **Rotate Tasks:** rotate tasks on the team so that everyone gets a chance
- **Encourage:** encourage team members
- **Bring out Strengths:** recognize teammate's strengths and brings them out for the benefit of the team
- **Give and Receive Help:** gives others help and asks for help
- **Include Others:** tries not to dominate meetings or activities

What they create

- **Roles & Responsibilities:** suggested roles and responsibilities for members of the team

Manager

Are we on track?

What they do

- **Check for Understanding:** ensure that everyone on the team understands
- **Check for Agreement:** ensure everyone agrees on next steps
- **Keep Focus:** help the team stay focused on the task at hand
- **Manage Time:** helps keep track of time in order to use it wisely

What they create

- **Risks:** factors that may impact goals
- **Documentation:** a record of what was accomplished or determined in order to help the team remember

Communicator

How do I best express ideas and understand others?

What they do

- **Explain Clearly:** explain ideas in a clear, specific way
- **Listen:** pay attention to others
- **Interpret:** seek to interpret and understand other's communication
- **Validate:** validate and respond to teammate's ideas
- **Balance:** help keep conversation balanced across team members
- **Share Info:** openly share pertinent information with teammates

What they create

- **Comments:** Facts, ideas or opinions
- **Communication:** Visual or written communications

Producer

How can I contribute to the team's deliverables?

What they do

- **Display Talents:** display technical abilities or talents through work
- **Help Others:** offer to help others
- **Volunteer:** volunteer to perform various tasks
- **Surpass Expectations:** do more than what is expected
- **Do Their Fair Share:** completes work that makes up a fair share of total effort

What they create

- **Detail-oriented Work:** work that is meticulous and detail-oriented
- **High Quality Work:** work that is a complete, accurate contribution

Concept Testing & Revisions

"The road to self-insight runs through other people."

-David Dunning

After developing four specialized feedback concepts aimed at meeting the needs of various user personas, it was time to see if individuals would find the concepts useful, usable, and desirable. To do this, I utilized a concept speed dating methodology. Through a survey and four in person sessions, I shared the storyboards for each concept to obtain feedback from participants. Findings provided rich insights that I subsequently used to revise each of the concepts. As a final step, I considered how the revised concepts relate back to the original proposed feedback process. The following sections further describe the concept testing methodology, findings, and resulting revisions.

CONCEPT TESTING METHODOLOGY

Survey

The first method utilized to test each of the four feedback app concepts was an online survey. The survey was shared with individuals in my network and received 25 responses. After viewing links to each storyboard, participants were asked to indicate on a scale of 1-5 how likely they would be to use each feedback app. The survey then asked participants to explain why they would/ wouldn't use the app, and what they would add, remove, or alter to the concepts. To conclude the survey, participants were asked to rank each of the app concepts from best to worst and to explain their reasoning.

In Person Sessions

In addition to the survey, I conducted in-person seed dating sessions in order to obtain richer forms of feedback from participants. I met with four students from the Carnegie Mellon School of Design for separate one-on-one 30 min sessions. During these sessions, I described each storyboard and asked participants to share their thoughts about each concept. I also gave them pink and blue post-it notes that they used in order to communicate which frames within the story-board they liked (pink post-it) or didn't like (blue post-it).

FINDINGS & REVISIONS

Research findings revealed that overall, participants most liked Honest Kudos, followed by Reactions. Both of these concepts involve lower amounts of human interaction, which may have made them more attractive to participants. While these app ideas were the most popular, findings also showed that participants were drawn to different tools for different reasons. This suggested that individuals have unique needs, and that it is beneficial to consider including each concept, rather than just one, for the final design. The following sessions provide a description of key findings related to each of the four feedback app concepts, as well as the concept revisions that the findings helped to inform.

Reactions *revised to* Skill Folio

POSITIVE FINDINGS

The most liked aspects of Reactions were: 1) the collection of skills examples, 2) ability to support discussion, and 3) the ability to build a case for career

On the right is a photo of a research participant using pink and blue post-its to communicate her likes and dislikes related to the four concepts tested during a speed dating session. This activity helped her to point to vary specific parts of each concepts that did or did not resonate with her.

advancement. Participants thought that providing them with a way to document their soft skills through engaging examples was novel and would help support discussions. Participants also responded well to a scenario in which the collection of skill examples and the accumulation of "Right On" feedback from others supported career advancement.

NEGATIVE FINDINGS

The most disliked aspects of Reactions were: 1) the awkwardness of asking others for feedback, 2) the lack of incentive for others to provide feedback, and 3) the large time investment needed to collect skill examples on a regular basis. While participants liked the idea of collecting skill examples, they suggested wanting to do this on their own time, rather than getting monthly missions. Additionally, participants were most interested in ways that the tool could help them showcase their work rather than receive critical feedback.

CONCEPT REVISIONS

Based on the feedback, I made three main revisions to this concept. The first revision was to focus on the skill collection component, rather than the feedback aspect. To emphasize this, I changed the app's name to Skill Folio. This way, the tool primarily acts as a portfolio for collecting examples of one's soft skills. The next revision was to support methods of more informal feedback. Given that participants felt too awkward asking for critical feedback, Skill Folio allows individuals to comment encouragingly on each other's skill examples whenever they like. Finally, to add a component of community, a new feature was added allowing individuals to follow each other's skill examples. I saw the potential for users to be educated and inspired by each other's teamwork skills.

Idolize *revised to* **Skill Fill**

POSITIVE FINDINGS

The most liked aspects of Idolize were: 1) the opportunity to learn through others, and 2) the opportunity to build a personal network. Participants liked that Idolize is complimentary to others and helps them gain valuable insights regarding skill development.

NEGATIVE FINDINGS

The most disliked aspects of Idolize were: 1) the questionable quality of the advice provided by individuals idolized, 2) difficulty in building a large enough network within the system, and 3) the power dynamic it creates between users. Participants weren't sure that the insights they would get from others would be as valuable as other sources such as articles and trainings. They also thought the social situation was a bit awkward and time consuming.

CONCEPT REVISIONS

Based on the feedback, I made one main revision to the concept. Instead of the app helping people navigate the social interaction of asking admired individuals for advice about soft skills, I developed an idea for a general resource that helps individuals learn about relevant articles, trainings, and events. This way, users could still obtain the knowledge and social connections they want, without as much restriction. I changed the name to Skill Fill, as it serves as a way for anyone to get their fill of relevant information and resources.

Superpower Sidekick *revised to* **Sync Step**

POSITIVE FINDINGS

The most liked aspects of Superpower Sidekick were: 1) the comparisons between team member ratings, 2) the playfulness, and 3) the mentorship. Participants liked the idea of quick ratings as a form of feedback. They especially liked the potential to see how their self-ratings compared to the way others rated them. Some participants also appreciated the fun, informal theme of the app, and the ability to support mentorship.

NEGATIVE FINDINGS

The most disliked aspects of Superpower Sidekick were: 1) the forced nature of in-person interactions that should happen naturally, 2) the juvenile theme, and 3) the distraction from project work. Participants felt that while the ratings were helpful, there was no need for an app to force in-person meetings about feedback. Many participants also felt that the theme of superheros was too childish for higher education or professional environments. Finally, some partici-pants thought the concept seemed time consuming and distracting.

CONCEPT REVISIONS

Based on the feedback, I made three main changes to this concept. The first was to eliminate the superhero theme, as many participants found it to be too juvenile. The second was to focus on supporting regular ratings rather than in-person conversations between partners. For this reason, I retitled the concept

to be called Sync Step, emphasizing the ability for users to see whether or not they are "in sync" with their teammates in terms of how they perceive their performance. The third revision was to provide users with recommended individuals to include in their "Sync Circle." Rather than team members having to awkwardly decide who they should partner with, the revised concept recommends individuals to partner with based on shared skill interests. Finally, users can select more than one person to include in their Sync Circle, as some participants mentioned wanting to view ratings from more people.

Honest Kudos *revised to* Glimpse

POSITIVE FINDINGS

The most liked aspects of Honest Kudos were: 1) the anonymity, 2) the limited number of kudos, and 3) the stronger color intensity of kudos from highly respected individuals. Participants like the rules associated with Honest Kudos. They also liked that it was highly private and discouraged actions typically associated with other feedback tools, such as dishonesty, giving too much praise, and trying to show off.

NEGATIVE FINDINGS

The most disliked aspects of Honest Kudos were: 1) the lack of reminders nudging users to give out kudos, 2) the fact that it only supports positive and not critical feedback, and 3) they way it fails to support conversation. Many participants felt that they would forget to give kudos, and that they would need some sort of reminder related to the action. They also worried that the tool was too constraining by only being anonymous and by only supporting positive impressions (rather than providing helpful feedback about areas for improvement).

CONCEPT REVISIONS

Based on the feedback, I made three main revisions to this concept. The first revision was to allow individuals to create multiple "walls" where they can post the skills they would like feedback about. This way, users can select who they want to invite to their wall(s), and also prompt invitees to provide their impressions. The second revision was to allow users to customize each wall. Rather than receiving only anonymous positive impressions, users can choose whether or not they would like to know who is providing them with the feedback and whether or not they also want to accept more critical feedback through "ideas for improvement." The final revision was to allow users to share as many impressions as they want, rather than limiting the amount. The revised concept is called "Glimpse" because it allows users to get a glimpse into the way others perceive their skills.

Feedback System

After revising each of the concepts based on speed dating findings, it was important to consider how each of the feedback apps would now function together within a system. To do this, I revisited the original feedback process I proposed initially, and determined how each of the revised apps would map to the steps within the process.

Connecting the New with the Old

Revised feedback apps that map to different parts of the first feedback process proposed during concept development.

5. Practice
Skill Folio, Sync Step, Glimpse: user practices exhibiting a skill

1. Training
Skill Fill: user gains access to resources that provide support for skill development

2. Evaluation
Skill Set: user takes a quiz that helps them evaluate their current skill-set

7. Targeted Feedback
Skill Folio: user receives comments about skill examples
Sync Step: user receives ratings from mentors
Glimpse: user receives impressions about their skills

3. Goals
Skill Focus: user picks their main goal area and keeps track of the behaviors they want to display

6. Observed Performance
Skill Folio: user reflects upon their own performance
Sync Step: one or more mentors observe the user
Glimpse: multiple people who are invited to a Glimpse Wall observe the user

This activity showed that the apps Skill Folio, Sync Step, and Glimpse each follow the steps within the originally proposed feedback loop (including practice, observed performance, and targeted feedback). Users could choose to use one or more of these tools to develop their skills. Additionally, Skill Fill plays a similar function as the original step for training. It also serves as a resource to support users throughout the entire process.

The steps that were not addressed through the concept revisions were evaluation, goal setting, and reflection. To fill this void, I developed the concepts Skill Set and Skill Focus. Skill Set helps users evaluate their skill-set. The second concept, Skill Focus, allows users to pick their goal by choosing a skill area to focus on over the course of their team project. The tool also helps users to reflect upon the behaviors they want to display. With these additions, I created a flexible system that serves many of the same needs as the original feedback process that I proposed earlier in the project. I called this system "SkillFull," as it helps individuals to follow a full feedback cycle to improve their skills.

Final Design

"Ask for feedback from people with diverse backgrounds. Each one will tell you one useful thing. If you're at the top of the chain, sometimes people won't give you honest feedback because they're afraid. In this case, disguise yourself, or get feedback from other sources."

- Steve Jobs

The final design resulting from this project is a website called SkillFull. It is a platform that individuals can utilize in order to develop their individual teamwork skills. The platform offers a "Full Circle Toolkit" consisting of six tools. Three of the tools (Skill Focus, Skill Set, and Skill Fill) prepare and support individuals for development, while the other three tools (Skill Folio, Sync Step, and Glimpse) serve as learning tools, allowing users to develop through practice, observed performance, and targeted feedback. This section provides an overview of the SkillFull system and then presents detail about each individual tool within the system.

SYSTEM OVERVIEW

The Full Circle Toolkit provides users with tools that can help them develop their teamwork skill-set, even if they are new to teamwork and don't quite know where to start.

1. **Skill Set:** For users who aren't sure which skills they need to develop in the first place, they can begin by using "Skill Set" to get a better grasp of their strengths, opportunities, and desired skill-set.

2. **Skill Focus:** Now that a user knows more about themselves and about team roles in general, they can choose a specific skill area to develop within "Skill Focus." This lightweight tool helps the user prioritize which area is most important to them and gives them a "to-do list" of value to deliver on their project through specific behaviors.

For users who already know which skills they want to develop, they can choose to use one or more of the three learning tools (Skill Folio, Sync Step, or Glimpse). Each tool is guided by goals, observation, and targeted feedback. Skill Fill gives users support along the way.

3. **Skill Folio:** For users who prefer to learn by observing themselves, they can use Skill Folio to collect examples of team situations in which they brought value.

   Sync Step: For users who like mentorship, Sync Step helps them partner with others to give and receive quick, frequent feedback.

   Glimpse: For users who want a lot of feedback without much interaction with others, they can create customized "Glimpse Walls" with self-selected skills that others can see and evaluate when providing quick impressions.

4. **Skill Fill:** Finally, users can choose to use Skill Fill. This is a resource suggesting relevant articles, events, and people. Its purpose is to give the user knowledge and inspiration that supports their development goals.

INDIVIDUAL TOOLS

1. Skill Set

Helps you discover the skills you bring to team projects and help you see where you'd really like to shine.

The primary feature offered by Skill Set is a quiz that users take in order to understand which team roles they tend to play most often and which roles they

Full Circle Toolkit
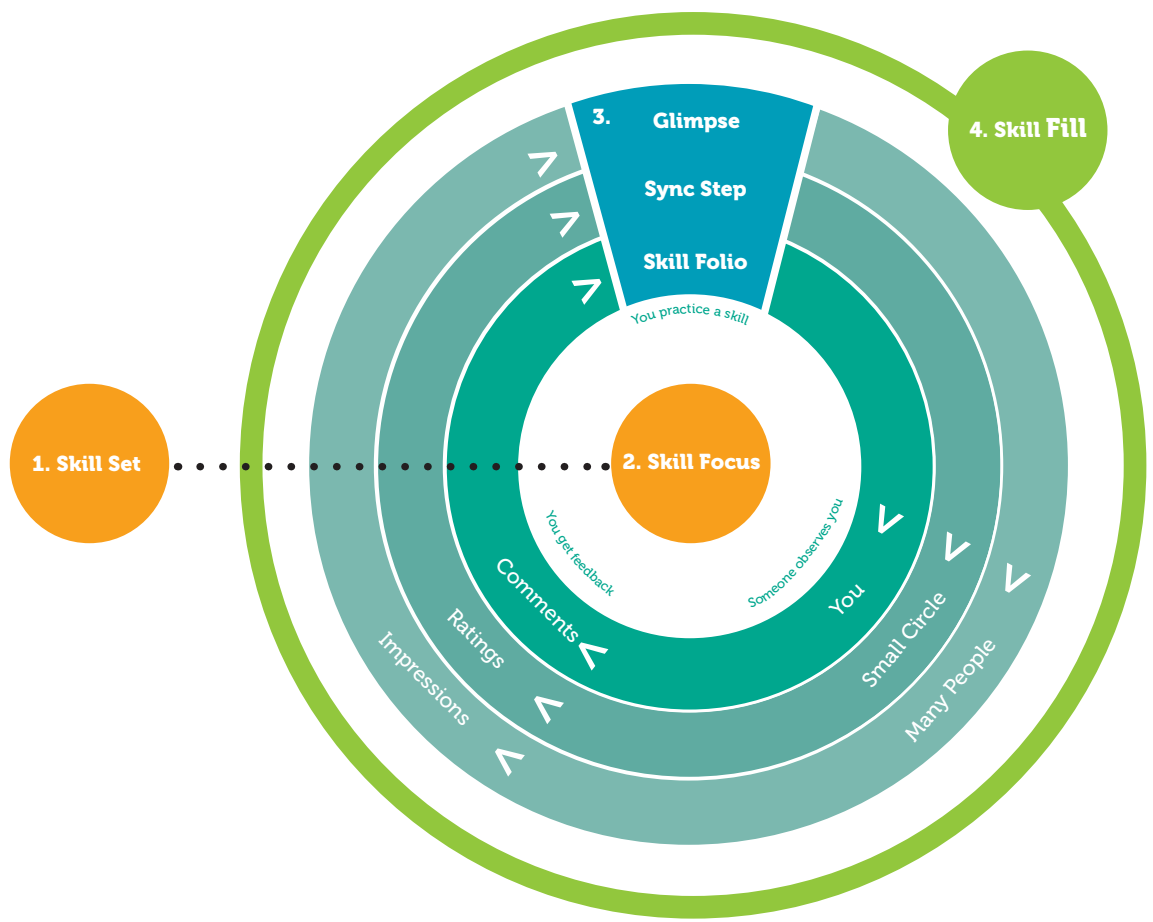
find most challenging. The quiz is meant to be fun for users; it provides them with different hypothetical situations that may happen during a team project and asks them how they'd most likely behave in each case. The results of the quiz include a list of team roles and the percentage amount that someone matches each role. For example, someone may get a result that they are 90% a strategist and only 30% a decision facilitator. This helps the user to consider which team roles they would like to further develop or strengthen.

The final step within Skill Set is for users to consider the team roles they would most like to be known for. To help them decide, users can click on each of the ten roles presented within the tool to obtain more detail and examples highlighting what each role does, what they tend to create, and how they think. Overall, Skill Set helps the user become acquainted with team roles and helps inform what skills they would like to or should develop.

2. Skill Focus

Helps you choose and track the area that you're most interested in developing.

The main purpose of Skill Focus is to help users pick one team role that they would most like to develop over the course of their team project. This helps individuals prioritize and focus their development. Users can update their selection at any time, as their goals may change depending on their feedback or team situation. Additionally, users can choose to have their main skill focus displayed publicly within their network, supporting a sense of community. The selection of a skill focus also helps the system provide recommendations across the other tools within the system. For example, if someone has indicated that they are focused on developing as a decision facilitator, they may see articles related to decision facilitation in their Skill Fill tool.

The other main feature offered by Skill Focus is a to-do list. This feature helps individuals think about the behaviors they can exhibit in order to practice the team role they are seeking to develop. The behaviors can be the selected from those recommended by the tool, or ones that the user would like to add to the list. As individuals exhibit a skill, they can check it off their list and provide a quick note to help them remember how they exhibited the skill. The note feature can be especially valuable for users who also choose to utilize Skill Folio, as it can remind them which skill examples to post. Finally, Skill Focus displays a progress bar that updates whenever accomplishments are checked off of the user's list.

3A. Skill Folio

Helps you collect and share examples of skills you've exhibited on team projects.

The primary goal of Skill Folio is to help users self-reflect about the soft skills they exhibit during team projects. Users can upload examples of their soft skills by including a photo, text, or video. The Skill Folio functions as a publicly facing portfolio of an individual's skills. Users can customize who has access to their Skill Folio depending on their motivation. For example, they may choose to share their Skill Folio with potential employers and managers for career purposes, or they may choose to share with friends and colleagues as a way to create dialogue about soft skill strategies and methods.

While users would likely want to use Skill Folio for sharing and self-promotion purposes, a byproduct of utilizing the tool is learning. As users attempt to communicate skills that are typically intangible in nature, it forces them to observe their own performance and think critically about their behavior and its outcomes. For example, users may decide to include a photo of a white-board to show their contribution as a strategist. Having to explain what they did and why it was valuable to others is an opportunity to reflect and grow.

3B. Sync Step

Helps you partner with one or more teammates to see if you're in sync about your skill growth.

The main goal of Sync Step is to help users receive feedback frequently from one or more individuals they work with on a regular basis (ideally people on their team). This way, feedback is informal and can be quickly implemented and tested. Users can form a "Sync Circle" (a group of two or more people who have agreed to give each other feedback on a regular basis) based on conversations with teammates, or through a list of people the tool recommends for them. When users initially set up their account, they provide the names of individuals on their team projects. Based on this information, Sync Step knows to check the skill profile of these individuals and recommend people with complementary skills who would make good partners within a Sync Circle.

One of the benefits of Sync Step is that it allows each Sync Circle to customize their own experience in a number of ways. First, each of the individuals in a Sync Circle vote on the frequency with which they would like to enter ratings of their own performance and of the performance of others in their Sync Circle. This frequency may be every week, every few weeks, every month, or even once a year. Second, each individual decides what three goals they would like to be evaluated against. These criteria can be updated at any time. Additionally, the criteria can either be selected from the options available within the Sync Step system, or the user can customize them based on their unique needs.

Whenever the individuals in a Sync Circle rate each other and themselves against the goals provided, the Sync Circle receives an overall "sync score," signifying the level of similarity in the group's perception of their performance. For example, if someone thought they performed poorly, while their teammate thought they performed very well, the pair would receive a low sync score. This percentage provides a quick way to show inconsistencies and to spark conversation amongst teammates. Additionally, the group shares an overall goal of getting a high sync score, which serves as a motivation to help each other understand the reasoning behind ratings. Finally, each person can track their ratings over time and review the data in the future to see trends and patterns.

3C. Glimpse

Gives you a private view into other people's impressions of your skills.

The primary goal of Glimpse is to help users obtain feedback in a way that makes it easy for both the feedback recipient and the provider. Rather than receiving a feedback request that includes an overwhelming number of questions, feedback providers are invited to visit a teammate's Glimpse wall. Here, they see up to ten specific teamwork behaviors that an individual has posted onto their wall. The presence of these skills signifies that the skills are "open for feedback."

Depending on the customizable settings an individual has selected across each of the skills posted to their wall, feedback providers can tag any one of the skills with a quick positive impression (through a star or through a comment) or add an idea for improvement. Additionally, the owner of the Glimpse Wall

decides whether or not they would like to receive anonymous feedback, or if they would prefer to always know who is providing the feedback. Overall, this creates a highly tailored experience for the feedback recipient. It also helps the feedback provider because they can feel confident that they are giving someone exactly the type of feedback they are looking for. The feedback provider experiences the freedom to share their impressions at any point during the project and can give feedback by skill area rather than being forced to complete an entire survey.

Another feature offered by Glimpse is the ability for users to see their feedback results visualized. For example, users can see a heat map showing which of their skills received the most positive impressions over time. This can serve as an engaging way for an individual to view their strengths or become motivated to improve their performance in areas where they are not getting as many positive impressions. Glimpse is a great way for users to get a sense of how others are thinking about their skills in a way that is both tailored and efficient.

4. Skill Fill

Gives you your fill of information to help you with your skill focus area.

The main purpose of Skill Fill is to provide users with a resource that supports them in improving their performance. Skill Fill provides recommended articles, events, and people based on a user's Skill Focus or other identified areas of interest. For example, if a user is interested in building their decision facilitation skills, Skill Fill may suggest an article discussing ways to help teams evaluate various options when making big decisions. Skill Fill may also suggest a prioritization training that is taking place at a local community event. Lastly, Skill Fill may suggest that the user reach out to Tim Jones, a colleague who used SkillFull to develop the same skill-set and recently posted relevant examples to his Skill Folio.

To provide such information, Skill Fill is connected to other data sources. Relevant articles are sourced from publications such as The Wall Street Journal or Fast Company Magazine. Events are sourced from participating organizations; ideally the user's employer or school as well as other nearby organizations. Finally, people are sourced from the Skill Full website as well as other social networks such as LinkedIn. Overall, Skill Fill does the work of aggregating relevant information to make it easily accessible and to motivate individuals to seek help and advice.

SkillFull Home Page

NAVIGATION

The top navigation includes five elements:
Toolkit: clicking here displays a drop-down menu of all six tools.
About: clicking here takes the user to a page describing the main goals of SkillFull and how it differs from other feedback tools.
SkillFull: clicking here always takes the user back to the homepage.
Organizations: clicking here gives organizations information about subscriptions to SkillFull.
Sign In: clicking here leads users to a page to register and create a profile, or sign in if they are returning users.

SIGN UP

Signing up for SkillFull is free. In order for users to register, they must create a profile. Additionally, if they are part of an organization that subscribes to SkillFull, they can register as members of the organization to enlarge their network and receive relevant updates about trainings and events offered through their organization via the Skill Fill tool. When users register, they are also asked to include the name of the latest team project(s) they are working on and to tag the people on their team(s). This way, SkillFull can recommend people who can provide them with feedback.

TOOLKIT

The user can interact with the Full Circle Toolkit diagram on the right of the homepage. By hovering over each tool, they can see changing tool descriptions in the bottom left of the page. Additionally, they can click on each step in the diagram to be taken to the landing page for that tool and begin exploring.

1. Skill Set - First Time User

Toolkit | About | **Skill Full** | Organizations | Your Account

Search

Toolkit > Skill Set

helps you discover the skills you currently bring to team projects and see where you're really like to shine.

Discovering your skill-set is fun and easy:

1. What team roles do you play most often?

2. What roles do you find the most challenging?

3. Going forward, what roles would you like to be known for?
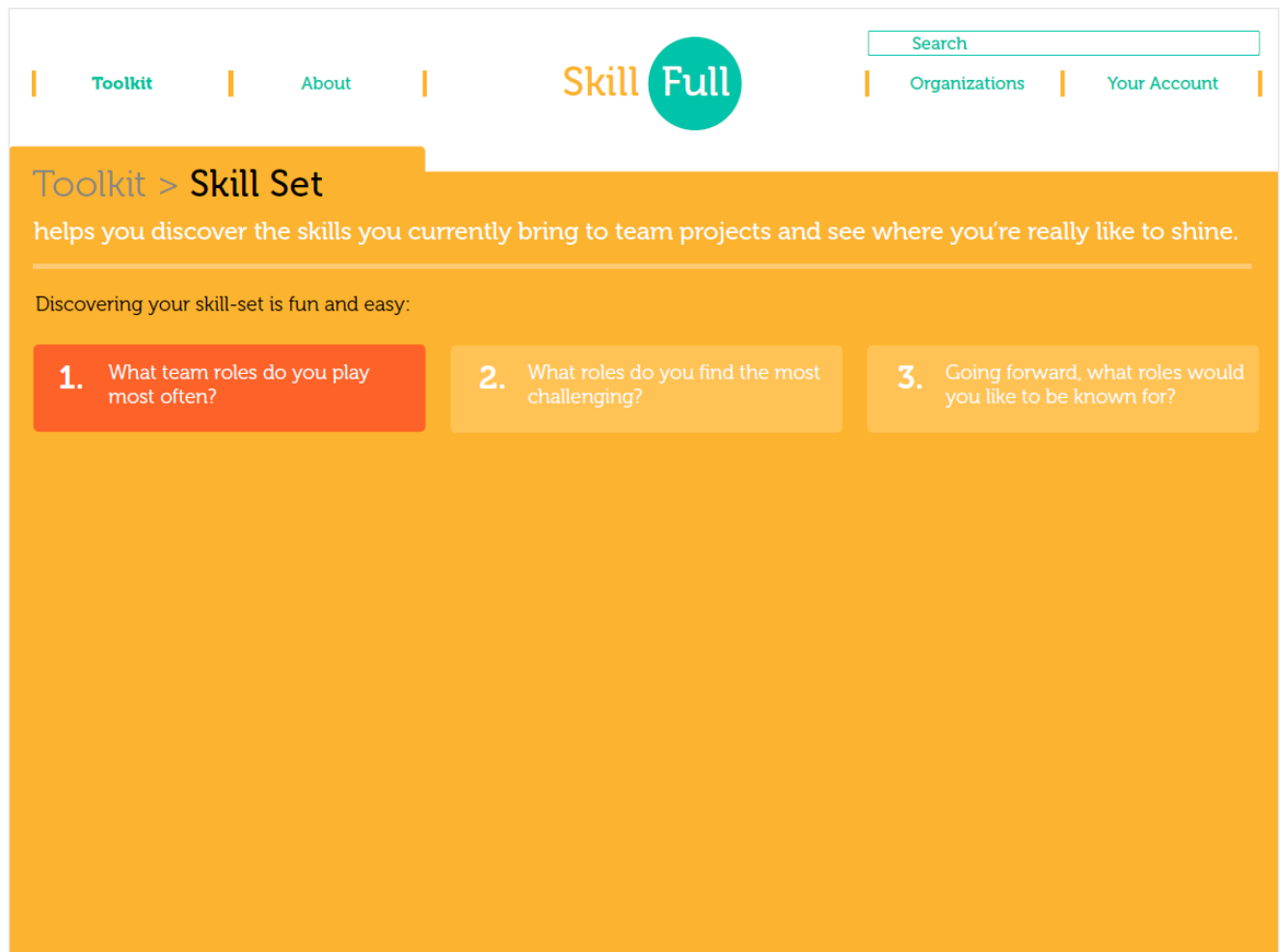
FIRST TIME USER

A first time user would see this page after navigating to the Skill Set tool from the home-page or via the top navigation menu. This page provides an overview of the steps needed to begin using Skill Set.

STEPS

The user can begin using Skill Set by clicking on the first step. They are unable to click on the following steps until they complete the first step.

CONSISTENCY

The landing page of each tool in the SkillFull toolkit follows the same structure as displayed above in order to create a sense of consistency.

1. Skill Set - First Time User
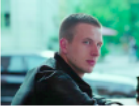
1. STRENGTHS QUIZ

The first step users take within Skill Set is to answer questions about how they would act in a variety of hypothetical team situations. This helps users get a sense for the behaviors they likely display most on a team project and thus come to them most naturally.

2. OPPORTUNITY QUIZ

The next step (not shown above) is for the user to take a second quiz that is similar to the strengths quiz, but focused on the behaviors that users find most challenging. Seeing the results of this quiz helps the user prioritize the skills they can develop over the course of their next project.

3. DESIRED ROLE SELECTION

The final step (not shown above) is for users to look through the SkillFull team roles library and select the top three roles they want to be most known for. This is an important step, as users may desire to practice roles outside of their strengths or opportunity areas.

1. Skill Set - Returning User

Toolkit   About   Skill Full   Search   Organizations   Your Account

Toolkit > Skill Set

helps you discover the skills you currently bring to team projects and see where you're really like to shine.

1. What team roles do you play most often?

2. What roles do you find the most challenging?

3. Going forward, what roles would you like to be known for?

Your Strengths

- 95% **Idea Generator** — "What might be a good opportunity or solution?"
- 89% **Strategist** — "What do we want to accomplish?"
- 85% **Communicator** — "How do I best express my ideas and understand those of others?"

Your Opportunities

- 25% **Uplifter** — "How can I boost the team's morale?"
- 38% **Manager** — "Are we on track?"
- 41% **Decision Facilitator** — "How do we want to proceed going forward?"

Your Vision

- A **Strategist** — "What do we want to accomplish?"
- B **Idea Generator** — "What might be a good opportunity or solution?"
- C **Decision Facilitator** — "How do we want to proceed going forward?"

1. YOUR STRENGTHS

When visiting the Skill Set tool, a returning user sees their most recent results. In this case, the user sees that they most frequently act as an idea generator, strategist, and communicator on their team projects.

2. YOUR OPPORTUNITIES

Similarly, a returning user sees their biggest opportunity areas (skills they display least frequently). In this case, the user most struggles to be an uplifter, manager, and decision facilitator during team projects.

3. YOUR VISION

Finally, a returning user sees the team roles they would most like to be known for. In this case, the user wants to be known as a strategist, idea generator, and a decision facilitator on team projects.

2. Skill Focus - First Time User

Skill Full

Search

Toolkit | About | Organizations | Your Account

Toolkit > Skill Focus

helps you choose and track the skill area you're most interested in developing.

Focusing your skill growth is fun and easy:

1. What team role would you most like to develop?

2. What value would you like to bring through your behaviors?

3. Have you exhibited the behaviors you were aiming for?

So many to choose from...

Based on your Skill Set, we've organized your options in case it helps you make a decision.

Pick a role you'd love to hone, or be brave and work on a skill you know you struggle with.

Your Strengths

- Idea Generator
- Strategist
- Communicator

Your Opportunities

- Uplifter
- Manager
- Decision Facilitator

Your Vision

- Strategist
- Idea Generator
- Decision Facilitator

Other Team Roles

- Producer
- Improver
- Coordinator
- Team Player

1. FOCUS SELECTION

The first step a user takes within Skill Focus is to select a single team role to focus on developing. The user is presented with an organized set of options based on their selections within the Skill Set tool. A user's skill focus is shared with other people in their network (if the user agrees to this within their privacy settings) and also helps the Skill Fill tool provide recommended articles, events, and people. Users are able to set a time-frame for their Skill Focus and also connect the focus to a specific team project.

2. VALUE SELECTION

The next step (not shown above) is for the user to select the specific behaviors they would like to display in order to bring value to their team. The user can choose between suggested behaviors provided by the system, or they can write their own list of behaviors.

3. CHECKLIST ENTRY

In the final step (not shown above), the user can choose to keep track of the behaviors they would like to display as part of their skill focus.

2. Skill Focus - Returning User

Toolkit | **About** | Skill Full | Search | **Organizations** | **Your Account**

Toolkit > Skill Focus
helps you choose and track the skill area you're most interested in developing.

1. What team role would you most like to develop?

2. What value would you like to bring through your behaviors?

3. Have you exhibited the behaviors you were aiming for?

Role You're Developing	Value You're Brining	Progress You're Making

⇄ Decision Facilitator
"How do we want to proceed going forward?"

When You'll Develop
Team Project: Public School Revamp
Time Frame: 2/11/13 - 4/27/13

Overall Progress

You brought 75% of the value to your team project that you set out to bring

Healthy Debate
Encouraged healthy debate by facilitating discussion: "Are we all really sure we want to go this route? Does anyone think there might be a different way?"

Decision Point
Proposed decision point by suggesting to team: "It seems like we need to decide at this point which direction we're headed. Perhaps we should discuss."

Evaluation of Options
Encouraged careful evaluation by facilitating discussion: "What are the pros and cons of the various options when looking through these different lenses?"

Mediation
Served as a mediator by suggesting to your team: "Lets listen to both sides being argued and try to make a compromise together."

✓ No progress recorded yet - Can you think of a time you brought this value to your team?

✓ **3/10/13:** Noticed that the team need to decide who our main audience was going to be for our presentation and suggested it as key decision point.

✓ **2/28/13:** Helped the team evaluate the pros and cons of selecting parent/teacher relationships as an area to investigate further.

✓ **1/12/13:** Helped two team members who had a disagreement to talk things through and compromise about who would do which part of the project.

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1. ROLE YOU'RE DEVELOPING

When visiting the Skill Focus tool, a returning user sees their skill focus area, the time-frame they have set for themselves, and their overall progress. The progress shows what percentage of behaviors the user has exhibited out of the total they were targeting.

2. VALUE YOU'RE BRINGING

A returning user is also reminded of the behaviors they want to exhibit and the value they want to bring to their team.

3. PROGRESS YOU'RE MAKING

Finally, a returning user can click a check mark next to a value to indicate that they exhibited the behavior on their team project. The user can also add notes to help them remember when they displayed the skill. This gives the user a sense of accomplishment. They can also reference all of the examples they noted in the future when discussing their skill-set with others, or when they want to add skill examples to their Skill Folio.

3A. Skill Folio - First Time User

1. TEAM ROLE SELECTION

The first step a user takes within Skill Folio is to pick a team role that they recently played. The tool organizes team roles by the user's strengths, opportunities, and their vision (each pulled from the Skill Set tool). A user can choose if they only want to use Skill Folio to showcase their strengths, or include examples of team skills they are still developing.

2. EXAMPLE UPLOAD

The next step (not shown above) is for the user to upload an example of a time they enacted a team role. This can be a photo, document, text, or video. The user can be creative and think of interesting ways to showcase a soft, intangible skill. As users upload examples through a template, they can also choose to see examples of ways that other users have displayed their soft teamwork skills for the same team role.

3. COMMUNITY SELECTION

The final step (not shown above) is for the user to search within their network for individuals they want to follow. They can also indicate who they are open to being followed by. Following someone simply means being able to see the latest skill examples that certain individuals have posted for team roles of interest. It also means that these people can comment on each other's skill examples.

3A. Skill Folio - Returning User

1. YOUR TEAM ROLES

When visiting the Skill Folio tool, a returning user sees each of the team roles to which they have uploaded skill examples as rows on the left side of their screen. For each role, the user sees a summary of the number of examples they have uploaded to that team role. They also see how many team projects have been included within the examples. Both the number of examples and the number of projects are click-able links that help the user quickly access various entires.

2. YOUR EXAMPLES

A returning user can also see the latest example they uploaded for each team role. Clicking on the example shows additional detail included by the user as well as any comments that other people left about the example.

3. YOUR COMMUNITY

A returning user can see the number of people following each of their team roles. They can also see a list of the people they have chosen to follow for the same team role. These numbers are click-able so that a user can see more detail about the individuals and their skill examples.

3B. Sync Step - First Time User

Search

Toolkit | About | **Skill Full** | Organizations | Your Account

Toolkit > Sync Step

helps you partner with one or more teammates to see if you're in sync about your skill growth.

Starting a Sync Circle is fun and easy:

1. Who do you want to invite to your Sync Circle?

2. What team role and behaviors do you want to develop?

3. How often would you like to test your progress?

Good Sync Circles include people who work together often and trust each other.

We've perused your connections and have recommended certain individuals who we think you may want to consider having in your Sync Circle.

We think that the people you interact with most will have the best insight into your skills.

Recommended

Mike Woo
Current Skill Focus: ✋ Team Player
Your Connection: Teammate

Jessica Rodriguez
Current Skill Focus: 💬 Communicator
Your Connection: Teammate

Caitlin Michaels
Current Skill Focus: ↑ Improver
Your Connection: Teammate

See All Recommended Friends

Other Friends

Stephen Elliot
Current Skill Focus: ♟ Strategist

Marcus Jones
Current Skill Focus: ✋ Team Player

Tom Johnson
Current Skill Focus: 💡 Idea Generator

See All Friends

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1. SYNC CIRCLE SELECTION

The first step a user takes within Sync Step is to pick who they want to invite to their Sync Circle. A Sync Circle can be made up of two or more people. The system recommends individuals to include within a Sync Circle based on their focus areas and whether or not they have indicated they are on the same team or work together. When a user selects the individuals, they can include a template message explaining what Sync Step is and what they're hoping to achieve. Individuals can choose to accept the invitation or respectfully decline.

2. CRITERIA SELECTION

The next step (not shown above) is for users to pick the team role and behaviors they would like to develop through Sync Step. These can be the same as those entered into Skill Focus, or they can be a new team role and set of behaviors. This narrow set of skills will serve as the criteria by which others will evaluate the user. For this reason, the user can choose to add a customized set of behaviors or additional notes detailing specific things for their Sync Circle to observe or watch out for.

3. SYNC CIRCLE RULES SELECTION

The final step (not shown above) is for the Sync Circle to agree as a group on the frequency of their ratings. Each person in the Sync Circle must rate their own skills and the skills of others on a regular basis so that they can get a score indicating how in sync they are with their ratings. The team votes on a frequency that works for them - every week, every other week, every month, or bi-monthly.

3B. Sync Step - Returning User

1. YOUR SYNC CIRCLES

When visiting the Sync Step tool, a returning user sees each of their Sync Circles across the left side of the screen. This is because a user may be part of more than one Sync Circles at a time. Each Sync Circle listed includes the name of the team project (if each Sync Circle member is part of the same team), pictures of the members of the Sync Circle, and the latest Sync Score that the group has a achieved. If a score is high, it means that the group rates each other very similarly and thus are on the same page about their performance.

2. YOUR GOALS

In addition to seeing their Sync Circle, a returning user is also reminded of the team role they are looking to develop, as well as the specific behaviors that serve as their goals and feedback criteria.

3. YOUR RATINGS

Finally, the user is reminded how many days until the next deadline for rating themselves and other individuals within their Sync Circle. They can click on a link to enter the latest ratings. Additionally, they can see their latest set of ratings for each of their goals. There is a different color triangle to represent them and their teammates. This allows users to quickly compare different viewpoints regarding how well they recently did performing a skill.

3C. Glimpse - First Time User

1. WALL INVITEE SELECTION

The first step a user takes within Glimpse is to pick the individuals they would like to receive impressions from (i.e. individuals they would like to invite to their Glimpse Wall). The system recommends individuals who are working on the same team project(s) or other people with similar skill interests. When a user clicks to see all friends, they are also given the option to invite someone who does not have a SkillFull profile by providing their email address.

2. BEHAVIORS SELECTION

The next step (not shown above) is for users to select up to 10 skills they would like to post on their Glimpse Wall for others to evaluate via impressions. These skills can be as detailed and as granular as the user would like. For example, they may want to get impressions about their communication skill-set overall, or they may want to know specifically how they are doing with their ability to make client presentations. Users are limited in the number of skills they can post on their wall so as not to overwhelm feedback providers and to stay relatively focused with their development.

3. CUSTOMIZATION

The final step (not shown above) is for users to customize their Glimpse Wall. For each skill on their wall, users have the option to keep the default settings (dictating that all feedback is anonymous and positive), or change these settings. For example, users can require feedback providers to make their identity know when giving feedback. They may also ask feedback providers to give advice for improvement. Finally, users could write notes asking for the specific type of feedback they are seeking. This customization allows users to get feedback the way they want it.

3C. Glimpse - Returning User

Toolkit > Glimpse

gives you a private view into other people's impressions of your skills.

1. Who do you want to exchange impressions with?

2. Which of your skills would you like to get a glimpse into?

3. What type of impressions are you open to receiving?

Glimpse Walls

Skills You Posted

Impressions Received

Return the favor...
10 of your friends have invited you to their Glimpse Walls because they want your impressions.

See Other's Glimpse Walls

Consider this...
2 of your friends recommended new skills to post to your Glimpse Wall.

See Suggested Skills

See your recent activity...
3 new impressions were shared about your posted skills.

See All Activity

Glimpse Wall 1: "Public School Revamp Project"

Description
This Glimpse wall is specific to my work for the Public School Revamp Project conducted for the Chicago Public School system.

Status

Project Start 1/15/13   Project Finish 5/15/13

Participants
10 people were invited to your wall
7 of them have shared their impressions

Communicator: Explains clearly
Explains ideas in a clear, specific way.
Creates verbal, written, and visual communications that effectively get the idea across.

Decision Facilitator: Encourages debate
Encourages healthy debate by facilitating discussion: "Are we all really sure we want to go this route? Does anyone think there might be a different way?"

Strategist: Creates a vision
Creates a vision of what the team wants to accomplish

15 positive impressions recevied
2 ideas for improvement

5 positive impressions received

1 idea for improvement

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1. GLIMPSE WALLS

When visiting the Glimpse tool, a returning user sees their Glimpse Wall(s) on the left side of their screen. First, they are reminded to visit the Glimpse Walls of their friends in order to return the favor of feedback. Next, the user can glance at the status of their different Glimpse Wall(s). In the example above, the user created a Glimpse Wall for a specific team project, which is displayed in this view as well.

2. SKILLS YOU POSTED

Users can scroll through the skills they added to each of their Glimpse Walls in the middle column of the page. On the top, users can also see if any of their friends have recommended a new skill for them to add to their Glimpse Wall. This is an added feature that users can choose to utilize. It helps others tell the user that they may be missing an opportunity to grow or hone certain skill areas.

3. IMPRESSIONS RECEIVED

Finally, users see recent activity related to their Glimpse Walls on the right side of the page. At the top, they see their latest wall activity (i.e., impressions shared with them). Below, they also see any positive impressions or ideas for improvement related to each of the skills on their Glimpse Wall. The user can click on these numbers to see the full impression detail. From the detail page, the user can also view various visuals showing the impressions they have received over time.

4. Skill Fill - First Time User

1. ARTICLE PREFERENCES

The first step a user takes within Skill Fill is to pick the team role(s) they find most interesting. This helps Skill Fill to present articles only about skill areas that the user will find relevant.

2. EVENT PREFERENCES

The next step (not shown above) is for the user to set preferences related to the types of events they want to know about. Here, a user can choose to learn only about events (e.g., workshops or trainings) in their area or only events that are offered by their organization. Users can also indicate whether or not they want to learn about online seminars or lectures.

3. PEOPLE PREFERENCES

The final step (not shown above) is for the user to provide preferences about the type of people they would like to connect with. For example, the user may only want to see updates about people within their organization, or they may be interested in expanding their network to all individuals within their field or discipline.

4. Skill Fill - Returning User

Search

Toolkit   About   **Skill Full**   Organizations   Your Account

Toolkit > Skill Fill
gives you a private view into other people's impressions of your skills.

1. What type of articles are you interested in reading?

2. What events would you like to know about?

3. What type of people would you like to connect with?

Articles	Events	People

U.S.News
Date: 3/14/13
Team Role: Communicator

15 Strategies for Giving Oral Presentations
Most college students will need to bolster their public speaking skills at some point.

MindTools
Date: 3/14/13
Team Role: Communicator

Avoiding Groupthink
Avoiding Fatal Flaws in Group Decision Making

KSL Training
Date: 3/11/13
Team Role: Decision Facilitator

Group facilitation techniques and methods

BMGI Problem Solved.
Date: 3/18/13
Team Role: Idea Generator

Better Brainstorming Workshop
Tools to Produce the Ideas that Actually Solve the Problem at Hand

Event Logistics
Date: 2/28/13
Time: 3:00 - 5:00 PM
Location: 28th Floor of John Hancock Building in downtown Chicago

Google
Date: 3/15/13
Team Role: Communicator

Presentation Training
Learn the 5 secrets to giving a successful presentation to senior stakeholders at the company

Linked in
Date: 2/18/13
Team Role: Idea Generator

Mike Anderson
Recently endorsed for his brainstorming skills

Skill Full
Date: 2/18/13
Team Role: Communicator

Jessica Rodriguez
Started a discussion about visual communication

1. ARTICLES

When visiting the Skill Fill tool, a returning user sees the latest articles about the skills they are most interested in developing. By clicking on the "Articles" button, they can see all articles in a scrollable, filterable list. Users can also go there to update their article preferences. The articles are made available through a variety of free online sources as well as partnerships with magazines and publications.

2. EVENTS

Users can see all of the latest events in the middle column of the page. By clicking on the "Events" button, users can see a calendar view of all events and can register for them. Additionally, users are able to update their event preferences at any time.

3. PEOPLE

Finally, users see the most recent activity related to the people they would like to connect with about skill development. Updates may be related to relevant changes within other social networks (e.g., LinkedIn) or activity within the SkillFull system. When users click on the "People" button, they can send messages, start conversations, or join discussions.

Conclusion

"If you don't get feedback from your performers and your audience, you're going to be working in a vacuum."

- Peter Maxwell Davies

This project takes an important step toward proposing a set of tools that makes feedback more targeted, relevant, and meaningful. Going forward, there are a few areas for additional consideration, including: 1) further testing of the prototype, 2) potentially changing the scope of the final design, 3) determining if SkillFull should be customized for various types of organizations, and 4) creating the business model for making SkillFull a financially sustainable service. The following sections discuss each of these four areas of consideration.

Further Testing

While SkillFull is a concept that is grounded in a significant amount of research, more testing is needed in order to determine whether or not the current design is useful, usable, and desirable. More wireframes should be developed to help users experience the full capabilities that SkillFull offers. Testing should inform additional iterations of the tool's design and higher fidelity prototypes. In addition to testing the prototypes themselves, it would be helpful to test different contextual aspects related to the tool. For example, would individuals feel motivated to use SkillFull on their own? Or would it be more beneficial for organizations to recommend the website as a development tool for everyone within their organization? Aspects like this deserve more consideration as they may change participant's desire to use the system.

Scope

SkillFull takes the approach of providing a system of different tools, allowing users to choose the development path that works best for them. While research shows that this flexibility is required (as individuals have different preferences and needs related to feedback) offering so many tools within one website may be overwhelming. It may be discovered through more rounds of testing that users prefer separate apps and websites for different purposes, so as to streamline the experience. For example, Skill Folio might be better as an entirely separate website focusing only on the sharing of less tangible skills. By allowing Skill Folio to stand as its own tool, it may also serve a greater set of needs, such as being able to showcase skills beyond just the ones related to teamwork skills. Additionally, testing may reveal an opportunity to create mobile app versions of some or all of the tools within SkillFull to supplement the website versions.

Audience

While SkillFull was developed for a broad range of audiences that work on self-managed teams and tackle complex problems, it may be useful to narrow this audience group for additional testing and concept refinement purposes. It may be found, for example, that the type of organization an individual works within significantly changes the way they would like to give and receive feedback. For example, individuals working in a start-up may be more interested in tools that support frequent conversation and a fun, informal approach to feedback. In contrast, individuals working in a large corporation may be more traditional and prefer ways to share feedback digitally, as they may be dispersed geographically and experience challenges setting time aside for feedback. Finally, the school setting may also be quite different. School is the best time to develop skills in a safe environment with less career risk. Different versions of SkillFull may be developed for each type of organization.

Business Model

To make SkillFull financially sustainable, I have developed an initial business model that requires further exploration. The initial business model proposes that Skill-Full is a free website for users, with the ability for organizations to become paid subscribers. Subscribing organizations receive many benefits, including access to aggregated data about the skills their employees or students are seeking to develop, as well as the ability for organizations to advertise their trainings to users. The reason the data provided to organizations is aggregated is because one of the primary benefits of SkillFull is the way it supports privacy and the ability for users to manage their own development across different organizations. For this reason, organizations are not allowed to see the detailed feedback provided to users. This not only creates a better experience for the user, but it also reduces any liability on the part of the organization. As a next step in the process, more consideration should be given to SkillFull's business model and how to benefit multiple stakeholders.

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"Contrary to popular belief, there most certainly is an 'I' in 'team.' It is the same 'I' that appears three times in 'responsibility.'"

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Appendix

"The most difficult thing in life is to know yourself."

-Thales

SURVEY AND PERSONAL INTERVIEW FINDINGS

Demographics & Level of Experience

SURVEY FINDINGS

A total of 35 individuals responded to the survey. It is important to note that while the survey findings were very informative, the demographics of the participants were skewed across a variety of categories. For example, a majority of respondents were female (74%) and between the ages of 26-35 (68%). Additionally, most of the respondents indicated that they are employed (56%), but many indicated that they are currently students.

Many of the survey respondents (85%) have experience working on more than three team projects that involved a feedback component, which is a sign that participants were able to draw upon a number of feedback experiences. It also showed how common it is to receive feedback about teamwork skills when working on a project. Interestingly, most of the respondents had experience with teamwork feedback in the areas of business (26%) and design (50%). This is likely influenced by the make-up of my network, but it could also point to the likelihood that these two fields have a strong need for a peer feedback system, as feedback about soft skills is important across business and design.

Aspects Impacting the Feedback Experience

1. Form
According to survey findings, the most desired forms of feedback are in-person conversation and written feedback. Discussions with interview participants revealed the benefits and challenges with different forms of feedback. While documented feedback can feel as though it lacks emotion and seem too formal, it allows for a potentially more honest, structured form of assessment. In contrast, in-person conversation can feel more empathetic and can help to resolve misunderstandings. It can, however, be dishonest, less structured, and more difficult to record for the future. These findings point to the need for a combination of different forms of feedback.

SURVEY FINDINGS

Respondents least desire to receive feedback in the form of audio or video recording (65%) and numerical scores/graphs (45%). Respondents most desire feedback via written comments (76%) or in-person conversations (53%). When participants were asked to describe any challenges they experienced with feedback, one participant indicated that feedback is typically not delivered the preferred channel:

> *My preferred feedback channel vs. the preference of the recipient*

When participants were asked to describe ideas for improving the feedback experience, they had various ideas for ways that feedback can be structured:

> *Rubrics are good tools*

> *I think comments, rather than simple rating questions, might provide the best feedback.*

> *Peer feedback works best when you have a relationship with your peers and can simply talk about it without feelings getting hurt for too long. Feedback from practical strangers is a lot harder to swallow.*

I think doing visual feedback that scores people on specific criteria is a good idea so that it is clear what you're good at as compared to the others in your group. I don't think people put a lot of thought into what they write about other people and it came come across as empty or mean if people don't take the time to be thoughtful with their feedback. Doing a visual-quantitative piece could be good and could be used to spark conversations about why the score was what it was.

INTERVIEW FINDINGS

Negative Characteristics: Interview participants discussed a number of challenges with various forms of feedback. The biggest area of challenge relates to written documentation. Participants felt that often times, antique tools are used for collecting feedback, which leads to a clumsy user experience. Additionally, one participant mentioned his struggle with using so many different feedback tools that all utilize different rubrics. Another problem area interview participants mentioned was a fear that written feedback is too formal and that there may be a backlash resulting from being honest about one's thoughts. Currently, formal documents feel too official and unsafe. Finally, written feedback can often lack emotion and may cause people to over-think what is written. In terms of verbal feedback, the participants feel that discussion can be very unstructured and also be less honest. People may forget to mention certain things or not feel comfortable revealing certain truths. Another challenge is that the verbal conversations do not get recorded and cannot be referenced later.

Positive Characteristics: Interview participants saw many benefits to different forms of feedback including quantitative graphs, one-on-one feedback, group discussions, and moderated feedback discussions. Some participants mentioned their desire to receive a mixture of various forms of feedback, so as to get the benefits of their different affordances.

2. Type of Feedback

Based on survey findings, the feedback that participants most desire is feedback about areas of opportunity. Many participants, however, also want feedback about their strengths and weaknesses. These findings point to the need for individuals to receive different types of feedback based on their specific needs.

SURVEY FINDINGS

Most respondents (74%) highly desire feedback regarding areas of opportunity. Large portions of respondents also highly desired feedback about strengths (56%) and weaknesses (44%). Participants provide ideas for improving feedback relating to desired content:

I've heard that feedback is taken better when there are positives found in the negatives—and I find it true. When someone compliments something but then tells me I can improve elsewhere, I'm more likely to appreciate this feedback.

Make them score-neutral (i.e. instead of you got a 3/5 on X, a 1/5 on Y, and a 5/5 on Z, list the top 3 best/worst attributes and consistency of those results - so there is less of a temptation to compare, and more of a drive to work on those weak attributes.

3. Longevity

Based on survey findings, a majority of people remember only some of the feedback they have received after a year passes. Interview participants mentioned that feedback can be more memorable if it is linked to a specific example and if it connects to a larger pattern or trend in behavior.

Most of the respondents (65%) only remember some of the feedback they have received after a year of receiving it.

INTERVIEW FINDINGS

Negative Characteristics: Interview participants mentioned being unable to remember specific words used when receiving feedback. They also struggle to remember feedback if it is not part of a larger trend, but rather a "one time" situation. **Positive Characteristics:** Interview participants indicated that concrete examples help them to remember feedback much more than feedback that is provided in a general way. One person mentioned that she experienced a few big shifts in her mental model after certain experiences with feedback. The fact that she recognized a behavioral pattern in herself made the feedback memorable. Other ways participants remember feedback is by noticing results achieved after applying the feedback. Finally, participants mentioned finding feedback more memorable if it somehow impacts their identity and if t suggests a significantly large change in their behavior.

4. Attention

According to survey findings, respondents tend to give either a medium or high level of attention to the feedback they receive. Some interview participants mentioned that they often delay opening the written feedback they receive because it makes them anxious. Eventually, however, they decide to read it because they are curious to know what someone else thought of them.

SURVEY FINDINGS

A majority of respondents (65%) give a high level of attention to any documented feedback they receive.

5. Trust

Based on survey and interview findings, people are often skeptical about the feedback they receive. One of the biggest reasons is that they do not always agree with someone's judgment due to differences in values and expectations. Interview participants found it to be important for everyone to have a shared understanding of what good behavior looks like. Additionally, they believe that feedback providers must feel comfortable with giving honest, critical feedback.

SURVEY FINDINGS

A majority of respondents (71%) only somewhat trust the feedback that they receive. Trust was one of the most frequently mention topics when participants were asked to describe the challenges they experience with feedback. Below are comments related to honesty and accuracy, which impact trust.

Honesty

Difficulties in truly make feedback anonymous can be damaging to a project. Removing people's names from comments doesn't remove their personalities and verbal skills, and just providing raw numerical data isn't very helpful to personal development. It's almost always possible for me to figure out who wrote comments, and I think people writing comments also know they will be identified. This tends to shape what they are willing to share. The end result is a warped half-truth that tries feebly to stay neutral. At the end of a project, this might not matter so much, but when feedback is delivered over the course of a project, it can hugely impact the dynamic of a team.

It gets questionable how your peers are grading you, especially if they know it will be compared. I've found that if it's more focused on your personal development, people are more genuine in helping you grow individually. Otherwise, I've found that people tend to give lower scores if they feel they will be getting lower scores in return (slightly spiteful).

Sometimes I doubt that people are being honest.

People are not comfortable about giving honest feedback.

Accuracy

Sometimes I feel like people's perspective is biased or skewed.

One critical consideration is the credibility of the person giving the feedback. Some people I get feedback from are not capable of clearly understanding the situation, and therefore give poor feedback which I completely disregard. Some people truly understand my performance in the context of the team and give great feedback, which I take to heart. Some people give the same feedback to everyone, while other people take the time to think hard to give valuable feedback. In short, the person giving the feedback is critical.

There are plenty of people who we work on projects with that aren't good at understanding people and aren't self aware so getting feedback from someone who isn't sensitive or skilled at understanding people's talents and skills, especially if they're totally different than their own, can make me feel really under appreciated. Like if my group is full of people who like to be behind the computer screen and designing/coding, and I'm a people person and really good at that – I don't think the introverts will understand my skills and I'll end up undervalued on the team.

INTERVIEW FINDINGS

Negative Characteristics: Interview participants had a number of reasons for not trusting the feedback they receive. The first reason is that the person giving feedback may have different beliefs and perceptions. Secondly, it can be hard to believe that someone else is being honest when providing feedback. Not only do people fear being honest because they don't want to be perceived as mean or judgmental, but they may also fear that the feedback can negatively impact someone's grade or career. Finally, feedback is not always trusted because it might be given in the heat of the moment.

Positive Characteristics: Interview participants believe there are multiple ways that feedback can be more trusted and credible. The first is to establish shared values and beliefs. Everyone should have a clear understanding of what good team performance looks like, so that judgments can be made against this common understanding rather than someone's personal option. Other methods include helping people feel comfortable with honesty, providing feedback in the context of the recipient, and forming a relationship between both parties involved.

6. Timing

According to survey findings, it is most common for individuals to receive feedback about their teamwork skills only after a project ends, rather than throughout the duration of the project. Many participants mentioned that this is an issue. They would prefer to receive feedback immediately when their teammate notices something, or at the very least on a more frequent basis.

SURVEY FINDINGS

A majority of the feedback received (59%) was after a project was already over. When respondents were asked about challenges they have experienced with feedback, two of them mentioned issues with timing:

Doesn't happen often enough. I usually initiate it.

You receive your feedback after the project is done and you never get to talk to your teammates to improve

When respondents were asked for ideas regarding how to improve their experience with feedback, many indicated that they would like to get feedback more regularly throughout their project, rather than at the end:

In school work I often think that feedback is given too late to be meaningful for that particular assignment or group. I think feedback should be more ongoing (though this may be challenging if it's a very small group).

Sometimes you need to find time to give feedback throughout the collaborative experience, so you can address issues before they get worse. I don't feel like doing it as an after thought and having it impact your grade is always the best form. It often ends the project on a negative note and may cause people to get a lower grade from something they didn't realize they were doing wrong.

Feedback throughout the project would probably be more helpful than feedback just at the end.

Make capturing observations easier. Maybe an email that comes in that asks for one thing I did well and one where I could improve. Series of those mini-observations could be telling of where I need to improve and what I'm doing well.

Provide feedback throughout the project, and not just at the end

INTERVIEW FINDINGS

Negative Characteristics: Interview participants expressed frustration about getting feedback at the end of a project, once it is too late to change behavior. They also felt that at this point, feedback is more of an after-thought, rather than part of the team project. Some participants expressed a fear that if they do not receive feedback earlier in a project, they could end up going off-course. Lastly, participants felt that the reason they often receive feedback only at the end of a project is because their teammates lack the initiative to give them feedback more regularly.

Positive Characteristics: Participants expressed an interest in feedback that is delivered on a routine basis. They suggested having regular checkpoints, or conversations after key milestones (e.g., client meeting or deliverable).

7. Understanding

Based on findings, a majority of participants experience some confusion when receiving feedback. This is caused by feedback that seems inconsistent, contradictory, or vague. Participants expressed an interest in receiving feedback that includes specific examples and advice for how to improve. They also think it is helpful to have discussions about feedback to ensure mutual understanding.

SURVEY FINDINGS

Most respondents (62%) have a good or very good understanding of the feedback they receive. When respondents were asked about challenges they have experienced with feedback, many mentioned the poor quality as an issue:

Inconsistent or contradictory

Sometimes feedback is unclear and vague (especially when it's based on a numerical scale). Would often help to get additional clarification or examples.

Occasionally poorly worded criteria/areas can lead to confusion on what the deficiency/strength really means

Lack of any actual effort and thought put into my peer feedback.

Sometimes, the feedback is rude. I think people need to learn what a good feedback is- to be able to appreciate good and point weaknesses with suggestions.

Sometimes it's hard to take a piece of feedback and turn it into an actionable goal for improvement.

8. Self-awareness

According to survey findings, most respondents believe they have some blind spots about their teamwork skill-set, and a majority experience some change in their self-perception upon receiving feedback. It is interesting to see that respondents varied in their levels of self-awareness, with a significant portion claiming they have "very good" self awareness. This may point to the need for a feedback system that can accommodate people who are more seasoned and self aware vs. people who are new to feedback or tend to have a hard time understanding how others perceive them.

SURVEY FINDINGS

Most respondents (60%) believe that they have a fairly good understanding of their teamwork skills, but that they likely have some blind spots about themselves. A majority (71%) believes that feedback only sometimes impacts how they perceive themselves.

9. Emotions

Based on survey and interview findings, participants experience a number of different emotions related to feedback. Overall, participants tended to mark the more negative emotions as occurring much more rarely than the positive emotions. Interviewees expressed the need for feedback to be delivered in a caring way by mentors or coaches for it to feel most comfortable and motivational. Feedback makes participants feel vulnerable or insecure if it feels judgmental or if it is framed in a way that lacks empathy and respect.

SURVEY FINDINGS

A majority of the respondents (58%) never felt bored or distracted upon receiving feedback. Half of the respondents (50%) rarely feel skeptical or as though they do not trust the feedback. A majority of participants only some-times feeling motivated / driven (55%). A large portion of respondents (44%) often feel valued / appreciated, and informed / enlightened upon receiving feedback. Most of the time, about a quarter of respondents (24%) feel thankful / grateful, reflective / thoughtful, and valued / appreciated after receiving feedback. When participants were asked to describe any challenges they experienced with feedback, one mentioned the emotional toll feedback can take:

Honesty hurts

The area of giving and receiving feedback is very touchy because one's sense of self and one's identity is often tied up in one's work - so criticism of one's work can seem like a personal attack.

INTERVIEW FINDINGS

Negative Characteristics: Interview participants mentioned negative emotions related to feedback. Before receiving feedback, one participant mentioned that she feels anxiety and guilt, especially if she knows that the feedback may not be positive. During feedback, participants mentioned feed judged and vulnerable, especially if the feedback is delivered in a tone that does not signify respect, empathy, and kindness. Finally, some participants mentioned feeling in denial after receiving feedback because they don't want to accept the negative criticism.

Positive Characteristics: Interview participants provided a number of sugges-tions for making feedback experiences more comfortable. Before receiving

feedback, it feels better to experience a few initial "wins" so as to build confidence. It also helps to build a relationship with the feedback provider. Finally, it's better when the feedback situation feels controllable. It is helpful if the person giving feedback frames things in a nice way by saying things like "here are things you might fall prey to" rather than "I think these are your weaknesses."

10. Activities

Based on survey and interview findings, the most common activity that participants do when they receive feedback is to reflect upon the information. Often times, participants must make a judgment as to whether or not they agree with the feedback they receive. If they do agree, they often find it helpful to create lists for themselves to keep track of next steps. If they don't agree, they either choose to ignore the information or seek out other evidence or opinions.

SURVEY FINDINGS

Respondents perform many self-driven activities, but the most common is simply reflecting upon the feedback (33%).

INTERVIEW FINDINGS

Negative Characteristics: Participants did not raise many negative characteristics regarding the self-driven activities they conduct. The only challenges they encounter are some difficulties in keeping track of feedback received.
Positive Characteristics: Interview participants shared a number of different activities they do before and after they receive feedback. When a project begins, some participants have conversations with their teammates in order to make the project go smoother. They decide which roles they will play on the team (based on goals and skills) and discuss each other's existing strengths and weaknesses. This type of discussion gives the team a mutual understanding and helps to inform future feedback. After receiving feedback, participants often reflect upon it. They consider whether or not the feedback makes sense and how it aligns with their goals or the way they perceive themselves. Participants behave in different ways depending on whether or not the feedback resonates. If it resonates, they try to mentally internalize the information or jot it down on a to-do list. If the feedback does not resonate, participants seek the perspective of other people or try to decide on their own whether or not it makes sense to act upon the feedback. A few participants mentioned that it would be nice if they had a more organized way to keep track of actionable feedback.

11. Value

Based on survey and interview findings, participants have different perspectives about the value of feedback. For example, only 26% of respondents thought that feedback is "very valuable." A majority thought that feedback is only "somewhat valuable." Interviewees explained that people's perspectives about feedback differ depending upon whether or not someone is outcome focused, or if they care about the process that goes into an effective outcome.

SURVEY FINDINGS

A majority of respondents (68%) only somewhat value the feedback they receive from peers.

Negative Characteristics: Some participants expressed their dislike of feedback that seems redundant. They also think that feedback can seem like a time consuming process because it can feel distracting from focusing on the outcome.
Positive Characteristics: Other participants expressed their strong interest in receiving feedback because they know how valuable it can be to their growth and personal development. They mentioned that there are individuals who do not share this perspective because they are too focused on project deliverables rather than the process that is needed to achieve them.

12. Content

According to the survey findings, participants are most interested in getting feedback about skills such as leadership, communication, and collaborative problem solving. They are less interested in skills that are more personality focused, such as extroversion and agreeableness. Interview participants desire feedback that is tied to specific examples and crafted in a structured way (e.g., showing the level of frequency of a behavior) to make it meaningful.

SURVEY FINDINGS

Respondents least desire to receive feedback regarding their level of extroversion (36%) and agreeableness (21%), which fall more into the category of personality traits or mindset than the others. Respondents only somewhat desire feedback about many different teamwork skills, but the most common are extroversion (35%) and summarization / clarification skills (35%). Respondents most desire feedback regarding their leadership (94%), communication (88%), collaborative problem solving (88%), and facilitation skills (80%).

INTERVIEW FINDINGS

Negative Characteristics: Interview participants struggle when they did not receive any feedback, or feedback that is incorrect, poorly crafted, or irrelevant. It is frustrating when feedback is misleading or negatively impacts the recipient's self-confidence rather than focus upon areas that can be more easily improved.
Positive Characteristics: Interview participants expressed their desire to receive feedback about relationship skills, communication, social etiquette, navigating a new field, and process execution. Participants want feedback to be carefully crafted with plenty of concrete examples of behaviors. Additionally, providing structure to feedback is helpful. Finally, interview participants like to learn about the top 1-2 things they should develop, rather than receive a long list. It is helpful for feedback to be prioritized for the recipient.

13. Application

Based on survey findings, participants use feedback for a number of different purposes - the biggest being changing their future behavior on team projects. Given that respondents also use feedback in other ways (e.g., informing their career direction or how they should talk about themselves to others), it is important to design a feedback system supporting a variety of uses.

Respondents use feedback for many different purposes, the biggest being to change their behavior on future team projects (28%).

14. Anonymity

Based on survey findings, it is unclear whether or not respondents prefer feedback to be anonymous. This is likely because there are both benefits and drawbacks to anonymous feedback. These findings point to a need for individuals to be able to decide when they want anonymous feedback and when they don't.

SURVEY FINDINGS

Most respondents (55%) prefer a mixture of feedback that is anonymous and feedback that has been provided by a known source.

15. Purpose

According to survey responses, a majority of individuals believe that they tend to receive feedback from teammates for the purposes of their personal development and performance improvement. Based on in-person interviews, participants prefer when feedback is given for these purposes. This is because feedback feels most safe and honest when it cannot negatively impact one's grade or career progression.

SURVEY FINDINGS

Most of the peer feedback received is meant to improve performance (35%) or personal development (29%). When respondents were asked about ideas for improving feedback, one individual mentioned the conflict between using feedback as a success metric rather than a tool for improvement:

Be flexible but very hard to do in large schools and organizations if it is used as a success metric vs. a tool for the individuals completing and receiving the feedback to improve

INTERVIEW FINDINGS

Negative Characteristics: Interview participants expressed discomfort with the risk they perceive in giving or receiving feedback when it can impact one's grades or career progression. On the other hand, participants also mentioned a fear in feedback that is only meant to help individuals improve. One interviewee mentioned that feedback focused only on improvement may create a constant feeling of inadequacy. The participant suggested that feedback should also help to celebrate accomplishments and a job well done so that people feel encouraged rather than regularly diminished.
Positive Characteristics: Interview participants had good experiences with feedback when they felt that it was given in a safe way. They preferred knowing that the feedback could only help them and not hurt them. One participant also mentioned that feedback should be given with the intention of helping someone hone their strengths, rather than improve weaknesses that would be very difficult to change.