Digitally Replicating Post-it Notes: A study in preserving and replacing the traditional design material

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Introduction

Over the last two decades, there have been few human experiences untouched by the increasing ability - and decreasing cost - of computing. Despite the pervasiveness of digital solutions replacing traditional tools, Post-it® Notes have generally remained unaltered. This report is an investigation into the current and future use of sticky paper squares as a design tool.

As every traditional human process is at risk of virtual intervention (and even disruption) this pen and paper medium has avoided change. To study Post-its I needed to understand the contextual use of the medium via the extreme users – designers, to get insight into their potential role in the current and future landscape of connected devices. What do we preserve or lose when we move from physical stickies to virtual ones? How can we develop a tool to digitize them, but more importantly, should we? Scanning the productivity app sphere, many digital alternatives to Post-its exist that attempt to replicate physical paper notes. When designers choose to use Post-its instead of these alternatives, what value exists in the physical medium that isn't available to them in the digital one? As innovators, where are we failing to provide an experience that is as good or better? This question is the subject of exploration for my first design sprint as a REAPster. Together with a prototype and an existing app, I want to investigate how specific technology in the lab can be used to replace or replicate the Post-it experience.

A sufficient solution must satisfy three criteria in terms of viability, feasibility, and desirability. The focus of this study is on market desirability, specifically:

App opportunity – What are the strengths and weaknesses of features in the tester app?
Context and process – How do sticky notes fit into broader design goals?
Capturing more – How can a digital solution help read, transfer, and store knowledge?

Throughout the research phase, I looked for similarities and differences between activities which led me to develop a conceptual framework to distinguish exercise characteristics and outcomes. It became clear that various activities have separate goals, and thus require separate features from a solution. In my recommendations section I suggest two ways to proceed from these outcomes, addressing two directions a future REAP design sprint could take.

Background

Post-its can be used to bring out - and give structure to - ideas. When it comes to generating those ideas, the two most important elements are design materials and sources of inspiration [1]. A popular aid in the design process, the small paper documents help lay out concepts, highlight characteristics, and express constraints.

Post-it notes are one popular option in a designer's toolkit to bring out information from participants. Others include questionnaires, journey mapping, interviewing, and creating personas, etc. As Bill Buxton, chief researcher at Microsoft puts it, a tool is essentially a way to "recast the problem in a different representation" [2]. As well as bringing data out of participants, Post-its can bring structure to information. We extract knowledge into a physical space, visually assess it, and edit accordingly. This becomes a cycle of extraction, learning, and editing to create knowledge.

Most people associate Post-its with early design stages, suggesting that a solution is still open to change and improvement. Parallels can be drawn between Post-its and sketches as both media inherently communicate that the problem is open to criticism and new ideas. This is essential to effective participant contribution since a refined picture can suggest to contributors that ideas have been narrowed down, presenting more constraints and closed avenues.

An outstanding feature of Post-its is their suitability for collaboration. The medium can easily facilitate co-creation where the participant can be a partner or co-author to a solution[3]. This encourages participants to influence the direction of questions and outcomes. Post-its are versatile and can be used to describe products, services, apps, and allow you to keep your end goal unconstrained.

The stickies offer a unique mix of advantages:

- Start with a single idea - one idea contained on a single piece of paper
- Express a relationship - ability to add structure to related data
- Collaborate - sketching the collective intelligence
- Non-linear communication - unlike written or spoken sentences, two ideas can be expressed simultaneously on a wall
- Multiple ideas - count, contrast, and compare ideas next to each other
- Bring assumptions into the light - by discussing different characteristics, it's possible to probe participants about deeper, possibly unspoken preconceptions about a problem or idea
- Make an idea tangible – enables participants to point to an object and start a discussion
- Non-verbal participation – those who tend to be quieter are given the opportunity to contribute by writing instead of speaking
- Disposable and repositionable- allows participants to make mistakes and start over easily

- Evens the playing field - someone in a senior position and an entry level employee both express their ideas through the same medium
- Detaches the idea (or opinion) from the individual person – can allow participants to more easily express negative or unpopular views

Some of the disadvantages or limitations of Post-its:

- Preconception about the tool – participants might associate the non-traditional medium as unsophisticated or outside of their comfort zone
- Only partially anonymous - paper colour and handwriting can indicate a note's author or quantity of ideas an individual contributed. This may make participants feel self-conscious
- Literacy assumptions - when dealing with sensitive or vulnerable populations, it's important to consider the group's reading and writing level
- Small size – the small physical space allotted to users forces content to be contained within a 3"x3" space. From afar, Post its can be difficult to read even for those who don't have a visual impairment
- There's no guarantee the activity will be successful – unlike other activities with clear instructions, Post-it exercises can be ambiguous in the type of data required of the participants. It's up to the facilitator to act as a guide to make sure the activity stays on task
- Need to be captured to be analyzed – Post-its use temporary adhesive and require a large working area, so when the time comes to consolidate findings, the final boards must somehow be documented. This can be through photo capture, note taking, or some combination of both

Activities

This study addresses the type of exercises used by design practitioners. These are activities with an intended goal and normally involve more than one person, characterised by participants writing on blank Post-its which are then stuck on a bare surface. The participants might be from within the designer's organization, like an activity to determine user interface elements amongst the design team at a digital-focused agency. Alternatively, participants can be anyone from outside of the industry, like members of the general public. Activities vary from brainstorming ideas to developing complex systems. Other uses[4] of Post-its are excluded from our conversation, such as using a Post-it as a bookmark.

The activities share some similarities, but Post-its are used for a range of information needs. Finding generalizations or threads that unite the activities is one of my primary areas of sense-making. Two things remain common about the medium regardless of the activity: Post-its can be used to represent both data and structure. The data can be simple - like yes/no voting or elements of a website - or complex - like opinions or experiences. Structures can also be simple - like a linear structure of a timeline - or complex - like the hierarchy of a family tree.

These characteristics are addressed later. Often times, there is a designated note-taker to keep supplementary contextual information as support to designers synthesizing Post-it note activity outputs. The descriptions of activities are generalizations and actual activities vary in their scope and goals.

Why designers?

Designers both facilitate activities and perform the related analysis. They're familiar with the tool and employ the exercises regularly, making them the target group to benefit from an app. This could be to improve their current process, invent a new different process, or capture another layer of knowledge.

In this study, the term "designer" is loosely defined as someone who works in a design position in an agency. This can include graphic design, digital design, user experience design, strategic design, design researcher, service design, interaction design, information design, etc.

Post-it® Plus and Configuration 1.0

To digitize a Post-it board, the initial configuration needed to do two things: capture the data of the square's contents and its position in relation to other notes. I looked at different ways devices could accomplish this.

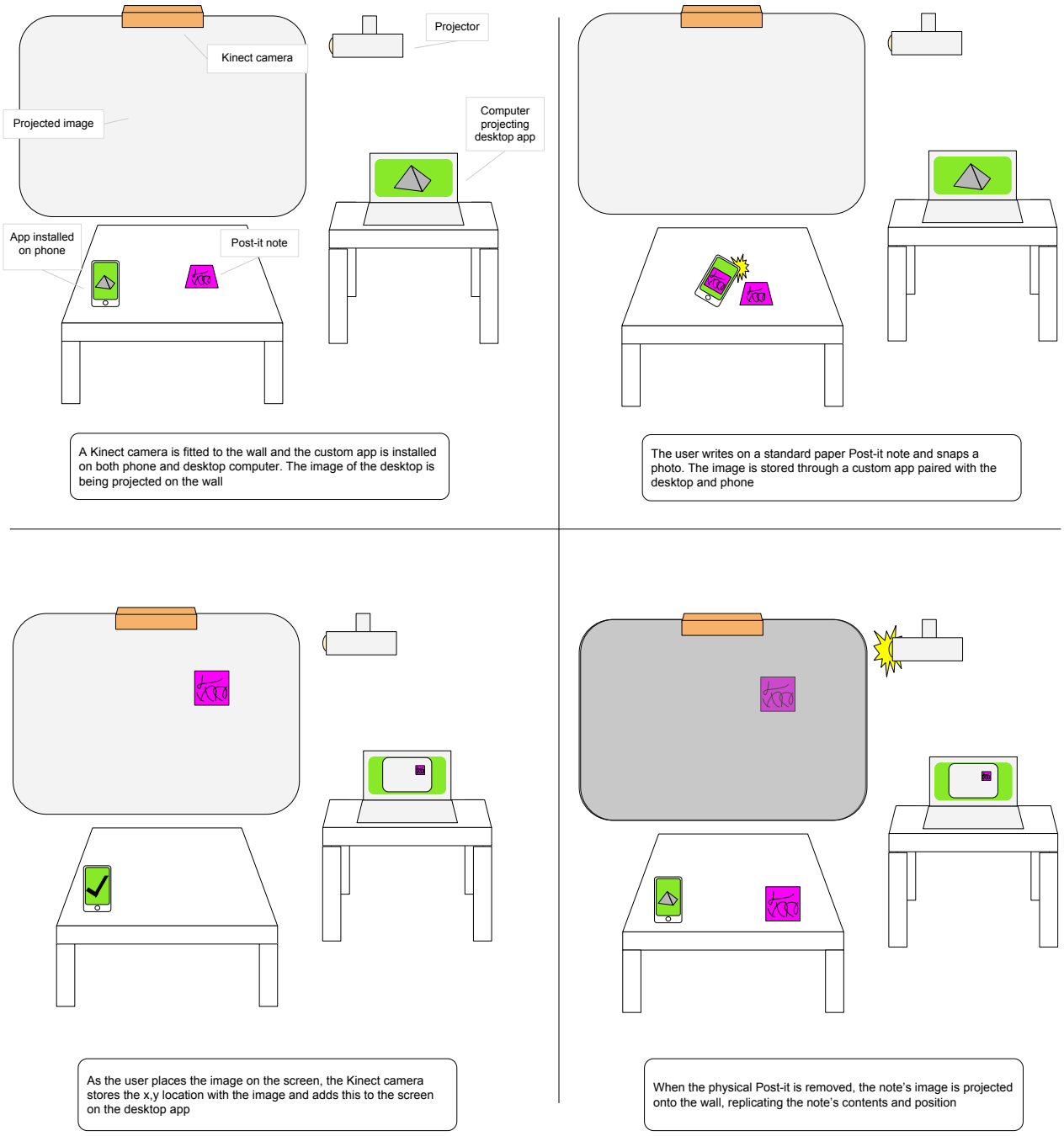


Fig 1. Original prototype

The first task could easily be done using a smartphone camera. Figure 1.0 displays my idea to capture the placement of the Post-it using a Microsoft Kinect camera fitted to a wall. The Kinect camera is a motion sensing input device originally used for gesture control in game play. It would sense the x,y position of a Post-it placed on a wall. It would store this information with the photo and replicate it on a screen. As more Post-its are photographed and placed, the program would continue to store and render them on the screen. When the session was done, the program would display a digital copy of the final board of stickies.

After familiarizing myself with the interactive whiteboard and productivity app landscape, I discovering the Post-it® Plus app developed by 3M. The app takes a picture of a final board of stickies and renders digital versions of each individual Post-it note. This is a much simpler alternative to my initial configuration. I have used this app to my advantage to explore market desirability, particularly app opportunity.

Specific testing goals

The purpose of this study is to investigate how Post-its create value in real human experiences, to gain insight into ways the paper product can be digitally reimagined. The first two goals have to do with the Post-it process in the engagement session. The last goal has to do with how data are synthesized and analysed after the session is over.

The first focus is on app features. The Post-it Plus app is a convenient prototype to test features that are essential versus nice-to-have.

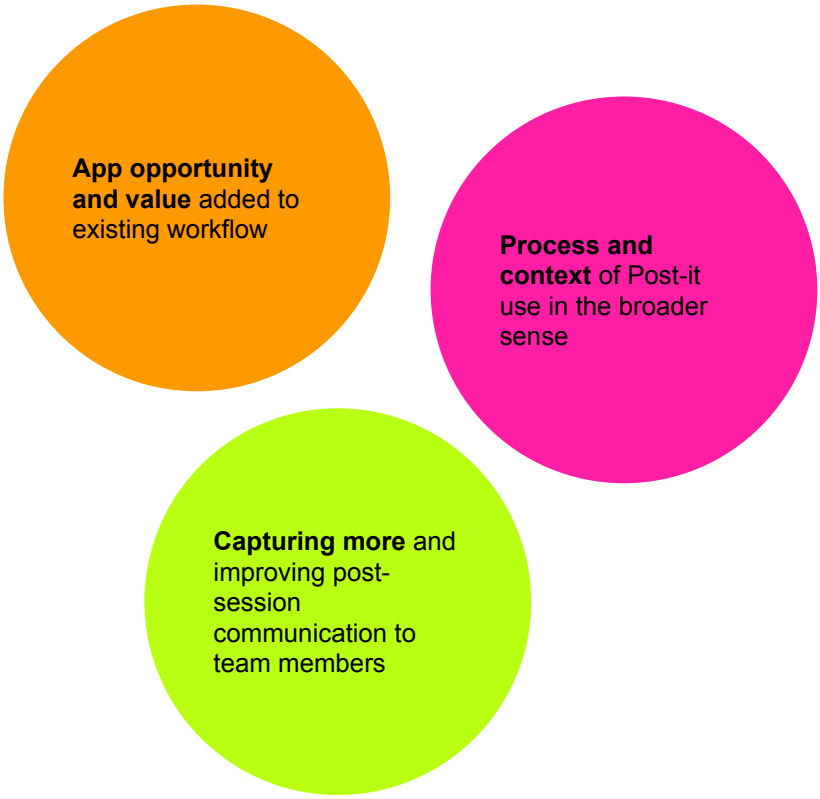
The second focus is a broader look at how Post-its are a tool that serves a purpose to reach a goal. This investigation will help open up the conversation around Post-its and designers' process, hopefully shedding light on other opportunities.

The last focus is on knowledge capture. After taking a detailed and broad look at Post-it use, the final test goal examines specifically what happens to the output of a session. This includes analysing, synthesising, and communicating processes across the various stakeholders who may or may not have been present for the activity. Figure 2.0 explains in more detail.

Structure of Report

First, a conceptual framework is introduced to think critically about and asses the range of activities. The framework stems from readings, research, and design experience to make sense of how Post-its are used. This is followed by a summary of findings relating back to the specific test goals. Together, the research outcomes and conceptual framework are used to produce the recommendations. Here I give two clear actionable suggestions.

Figure 2. Specific testing goals



App opportunity and value - In the existing process of designers, how can the app be used to simplify the note-taking/photo-taking process?

Opportunities: *The app enables designers to take high quality photos of Post-its, but doesn't transfer the written text to typed text. Does the current Post-it app offer enough value to become a commonly used tool in the designer's process?*

Process and context - What are the underlying reasons that Post-its are so useful and how are they used by designers? A bottom up investigation - starting with the tool, then the process, then the schema.

Opportunities: *How can the app be improved as a tool to assist designers in their broader goal of extracting knowledge from participants?*

Capturing more - How can an app be used to preserve knowledge shared within ideation sessions? How can these insights be communicated to team members in a way that is easy to understand and synthesize?

Opportunities: *Are some insights lost from engagement sessions? Can an app be used to improve insights capture?*

Methodology

Designers fit into many domains, each with their separate tools and working styles. In order to develop an application that can assist design practitioners who use stickies for ideation, there must be a deep understanding of Post-it note activities and the users who engage with them. To make sense of various opinions and preferences, the research conducted employs a soft systems methodology.

Soft systems methodology (SSM) is a creative, iterative, flexible way of researching real world problems[5]. It is an action-oriented approach, developed to study a complex situation and then act purposefully to improve it. SSM is based on the premise that the people involved will adopt many different worldviews—different ways of perceiving the situation based on internalized assumptions formed from previous experience. SSM promotes structured thought and discussion by making these worldviews explicit. The discussion enables us to answer questions about the situation and propose changes that all parties involved will be able to accept. This fits well into the REAP's research sprint theme, encouraging agile iteration.

Engagement

Five designers participated in this study, conducted face-to-face in their office or professional environment. Over the course of one hour, users engaged in 2 scenarios, followed by a question period. The scenarios lasted approximately 15 minutes, split up into two parts. The first part is brainstorming via Post-its. The second part is using the Post-it Plus app to capture the resulting Post-it board, followed by a few tasks within the app to familiarize the designers with the app's capabilities. The final question period allowed designers to reflect on the session. Using a semi-structured approach, participants offered insights by responding with long answers.

Each participant brought their iOS device with the Post-it Plus app installed. These interviews were audio recorded, which were then transcribed for comparison and analysis.

Test Procedure

For a complete description of the scenarios, tasks, and interview, refer to the Test Plan[6] linked in the references section.

Table 1.0 compares the two categories of designers, from here on called Group A and Group B

Participant Profile

Table 1. Two participant groups explained

	Designers A	Designer B
Company size	15-25 employees	approx. 100 employees
Similarities	Location	
	Design agencies	
	High technical literacy	
Differences	All designers	Some designers
	Junior - Intermediate level	Senior level
	1-3 years design experience	9+ years design experience
Post-it activities commonly used	Client engagement	Information architecture
	Internal planning	
Examples	• What are the company's strategic goals over the next 5 years?	• How should we organize the sections and subsections of the website?
Who is involved in the Post-it activities?	Predominantly external: clients, members of the public Often internal: co-workers	Predominantly internal: co-workers Rarely external: clients
Frequency of use	Daily: Post-its always on hand	Casually: weekly
Specialization	Strategic design	Marketing & digital design
Main use	Pulling out different perspectives, opinions, assumptions; clustering, affinity mapping Gaining new knowledge	Refining category types, structuring concrete data; linear structure, or structure-focused Structuring existing knowledge
Tested with	iPhone	iPad
Preferred capture method	Take picture, always take notes	Take picture, sometimes take notes

Results

Conceptual Framework for Activities

Domain specific knowledge (referred to as **DSK)** is the knowledge and understanding of organization, processes, problems, people, culture, and standards particular to that industry or domain. This includes domain specific conventions or terminology. For example, a web designer and a user experience designer both understand interface elements like “hamburger menu”, and “bread crumbs”.

Post-its can be used to answer two questions: what is the data, and how can we arrange or structure that data? If you want to gather new ideas from participants (**data-focused** activity), it’s best to use a simple data structure. An example is brainstorming, where the focus is on generating many ideas instead of how to arrange them. If the exercise is **structure-focused**, it’s best to keep the data simple. This is true for wireframes, where the parts of the data might already be known or obvious, and the purpose of the exercise is to arrange that data.

Generally, to use an activity that demands abstract data and complex structure, it’s important that facilitator and participants share common **domain-specific knowledge**. For example, with an impact-effort matrix – which deals with industry specific actions and determines their impact and required effort on two axes – it may be difficult to later recall the reasons for a note’s placement on the matrix if the facilitator is unfamiliar with their participants’ domain. In this situation, it is important to annotate the session for both the facilitator and any subsequent stakeholder responsible for communicating findings from the exercise.

The characteristics and the two ends of their spectrum:
Data: definite vs. abstract
Structure: simple vs. complex
Domain specific knowledge (DSK): shared vs. uncommon

An activity will inherently determine the data and structure. By selecting participants, facilitators determine the DSK.

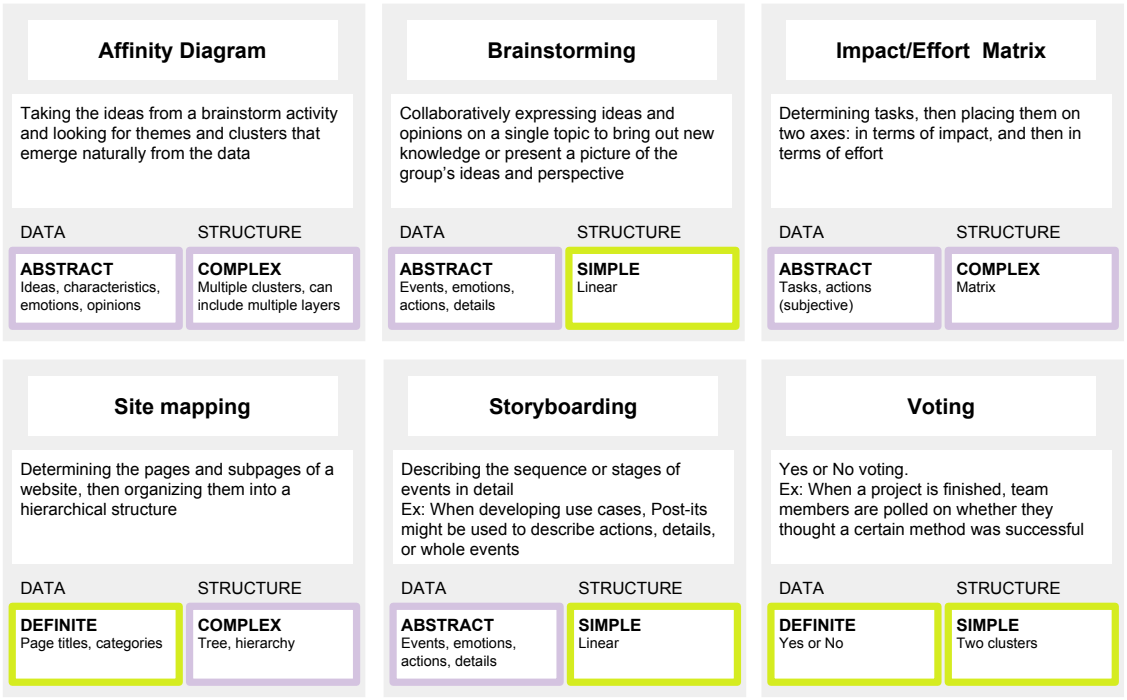
Capturing Knowledge

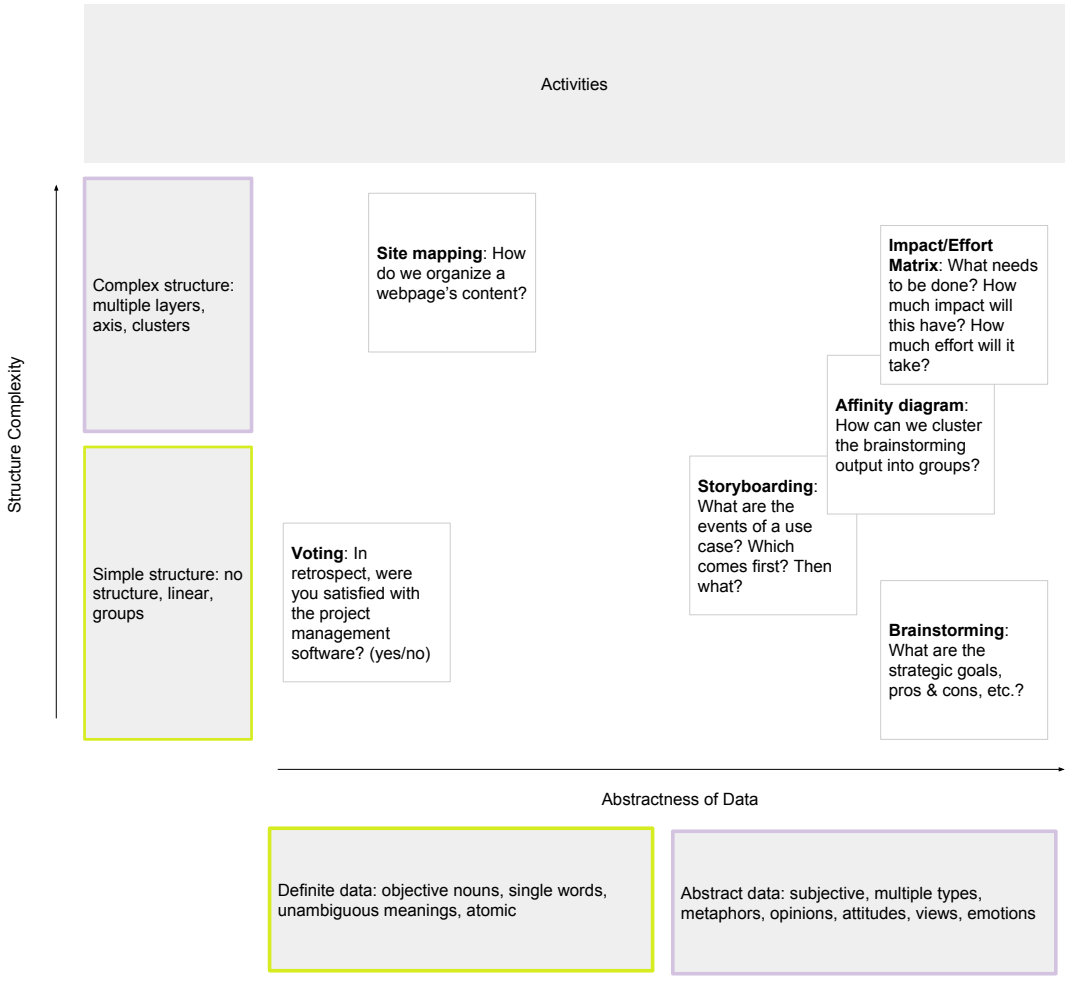
Together, these three attributes are useful in determining a very important facet of a Post-it session: the supplementary context needed to make sense of a board of stickies for stakeholders. In other words, how easy is it for someone to “read” the final output of the activity and understand the knowledge gained? Both data and structure complexity play a role in the ability to interpret final boards. This helps us identify activities where knowledge capture is key. The more difficult the final output is to read, the more annotation and note taking capabilities a suitable application would have to support.

Diagrams

Figure 3 shows examples of Post-it activities and their characteristics in terms of data and structure, highlighting what kind of context is needed based on shared or uncommon DSK.

Figure 3. Activities with brief description and examples of data and structure, graphed by data and structure type





Difficulty in “reading” the final output of an activity

The following tables show how combinations of different data, structure, and DSK can alter how easy it is to look at the final output and understand what it means. The more difficult to read, the higher the need for contextual information to make sense of the final board.

Table 2. Shared domain specific knowledge

Data	Structure	Need for contextual information
Abstract	Complex	High
Abstract	Simple	Med
Definite	Complex	Low
Definite	Simple	Low

Table 3. Uncommon domain specific knowledge

Data	Structure	Need for contextual information
Abstract	Complex	High
Abstract	Simple	High
Definite	Complex	Med
Definite	Simple	Low

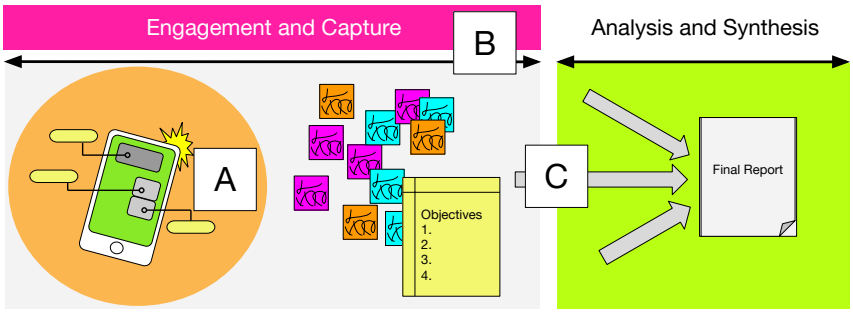
Abstract data, simple structures, and structure layers

When the data is abstract, it is generally advised that there is a note taker to make sense of any ambiguous terms. Many exercises tend to be data-focused and the small 3 x 3 notes don’t leave room for details. One example provided by a participant was a sticky reading “killing the sacred cow”. Though perhaps a common metaphor in one industry, this could leave anyone outside of that domain scratching their head.

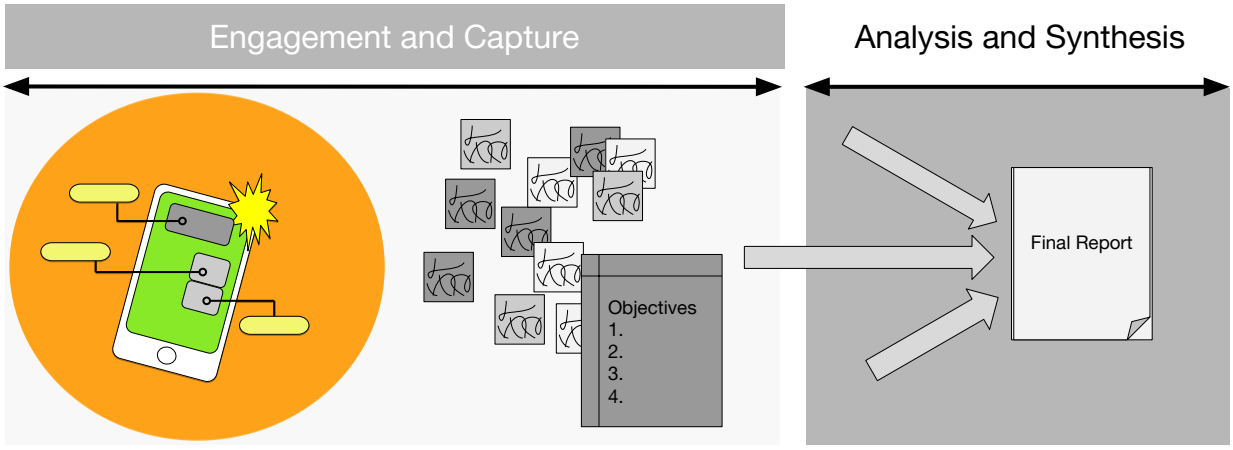
Even if the structure is complex the final board should be easy to interpret. A “complex structure” in this discussion is still relatively simple (such as groups, layers, matrices). More complex structures usually involve an added layer of other media, such as a whiteboard drawing or graphic (ex. placing favourite restaurants on a map). For these structures, it’s extremely important that the supporting layer is captured. In the current Post-it Plus app, only the individual stickies are digitally rendered. This means that the supporting layer is lost, a huge drawback to the app and suggests that an app needs to do more than render individual notes.

Specific Findings

Referring back to the three focus areas –
A: App opportunity,
B: Process and context, and
C: Capturing more



A: App opportunity



Annotation and OCR

Group A designers would be interested in a tool to help Post-it capture. They use Post-it notes daily, especially with the intent of pulling out knowledge from clients. Annotation happens manually, and preferred note-taking programs differ between designers. Some activities move at a fast pace with many layers. For these activities, it's impossible to annotate on the go, and a picture must be taken during the session along with written notes.

The most obvious disappointment within Group A was the app's missing OCR (optical character recognition). If the app had the ability to recognize handwriting and convert it to text, it would be substantially more valuable to Group A.

The designer from Group B mentioned that one individual's contributions are often sacrificed for the sake of capturing notes. It would also be valuable to this organization to have something to capture more spoken opinions during the sessions.

Rendering and output

Group A found it frustrating adding each individual note that failed to be automatically rendered. This is a concern because they often engage with members of the general public and Post-its can be placed haphazardly or handwriting can be hard to read. Rendering needs to be capable of capturing notes on the first try, else too much time is wasted manually adding missed notes. When asked if the participants would actually use this app for static capture, the answer was no. They need a quick, unobtrusive means of capture, an area where the Post-it Plus app fails.

The current output of the app - a PDF - is nicer than a simple photo, but not refined enough to present directly to a client. The app doesn't provide a deliverable on its own. When asked about using the output of the app, all agreed they would rather just take a photo.

Missing layers

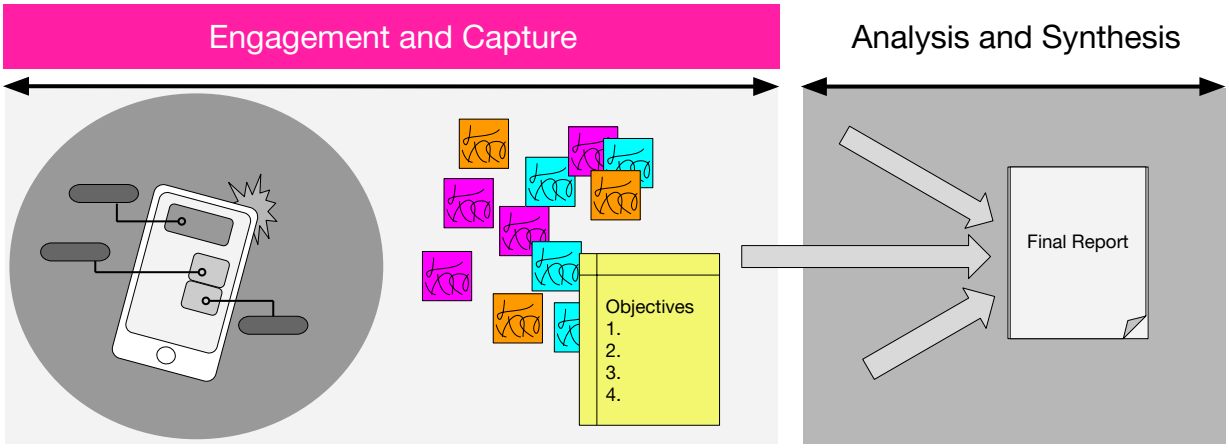
Group A uses mixed media engagements, where Post-it notes might be placed onto a whiteboard. The app fails to capture what's drawn or written on the whiteboard, meaning this extra layer of data is lost. Without this layer, the Post-it layout is more difficult to interpret and lacks complete data about the structure or meaning of placement.

Since Group B mainly uses Post-its within their organization for information architecture-type activities like wireframing and sitemapping, missing structure layers poses an issue as well.

Pixels vs. Paper

During the session, one participant actually saved a board from the Post-it Plus app as a PDF, then printed it out using the office printer. I found this interesting as we came full circle - paper to virtual, back to paper again - and making me wonder still, what is it about a paper document that is preferable?

B: Process and context



Capturing and recapturing – Less time wasted

Since Group A uses a lot of Post-its, they spent a lot of time typing them up. If they could find a tool to lessen the time spent capturing stickies, it would be extremely valuable. OCR came up over and over again; signifying the frustration with the amount of time spent typing up Post-its. Even OCR that isn't perfect would add a lot of value for Group A.

Anonymity – Bringing out more ideas

Design can be intimidating and people can be self-conscious about the volume and quality of their ideas; the ownership and anonymity. This is one pitfall of the medium that digitization could help solve. It could be easier for people to express negative opinions if there's no way for it to be traced back to them. When the goal of using Post-its is to bring out ideas, if participants are reluctant to contribute for fear of criticism, making ideas anonymous could greatly improve the objectives of the exercise.

Reality vs. Ideal – Design for the device that will actually be used

The iPad app seemed to render more Post-it notes on the first try compared to the iPhone app. This is unfortunate because the iPhone is much more likely to be used in a real situation. When designing a solution, even if the app itself is going to be more effective on an iPad, users are likely going to choose what's on hand and in their pocket – their phone.

Note metadata – Easily organizing materials

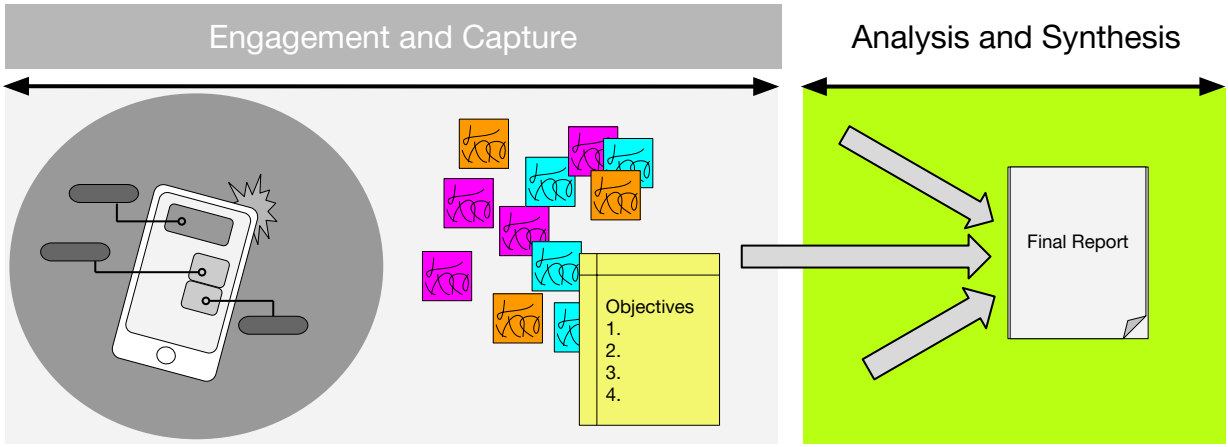
Group A liked that the app would track where and when boards were captured. Keeping their documents and materials organized should make finding the right photos easier when the time comes to consolidate results.

Though useful for Group A, metadata wouldn't be useful for Group B since Post-it use isn't as frequent and finding photos from a session shouldn't be as difficult.

Post-session editing – Continuing after the session is over

A feature that stood out was the ability to continue to collaborate on boards with co-workers who have the Post-it Plus app installed. This happens through a custom file type in the Post-it Plus app. It's useful since "the problem isn't always solved in that session", and this feature allows designers to share boards and continue to work on them.

C : Capturing more



Supplementary context and the analysis phase

Designer B isn't worried about the loss of knowledge from activities, especially in comparison to Group A. This could be due to the fact that Group B mostly uses atomic, definite data; like website sections or interface elements. Group B has shared DSK so misinterpretations aren't a significant problem. The focus of the activity is on structure, making it simpler to understand Post-it boards without considerable supplementary explanation. Thus, it is easy for someone to "read" the final output from one of these sessions on their own. These are the major differences between Group A and Group B.

When the engagement session is over, the gathered data undergoes an analysis phase. Sometimes this is unnecessary and the data remains unchanged (such as in the case of site mapping). Sometimes the synthesis is very simple, such as counting the amount of "Yes" votes and the amount of "No" votes. Other times, the analysis and synthesis is complex. For Group A this process is often intense, where data is synthesized with other research sources into recommendations and findings. In contrast, data from activities used by Group B are often already in its final form.

When the Post-it data will be transformed into information, capturing and preserving knowledge is even more important. Since this is not an issue concerning definite data-type activities, the rest of this section focuses on exercises dealing with subjective, abstract data.

Breadth, not depth

Knowledge transfer presents a problem across all design materials. Post-its activities are especially at risk of knowledge loss, since participants are given such a small area to communicate their ideas.

A lot of valuable information is concentrated in *why* someone contributed an idea. With Post-its, we're only given a 3-5 word summary of the idea, but not the reasoning for it. This is a hard

problem to tackle, because the paper squares allow a good visual overview of atomic items and breadth of a topic. The trade-off lies in the lack of depth provided for each individual note.

Minimizing the loss

With multiple groups, activities, and layers to each session, it's possible that there's still valuable information that isn't captured. Having the Post-its themselves and an event brief explaining the activities is still not enough to put together exactly which Post-its go where. This can cause a problem for the person typing up the notes, or anyone making an effort to interpret the final output.

Group A agreed that knowledge transfer was a problem on many levels, and could use help navigating through the issue. They take steps to minimize the effect of lost knowledge or misinterpreted Post-its by making it the facilitator's role to ensure that ambiguous Post-its are explained in the session. After that, it's the responsibility of the person typing up the Post-its to ask for clarification regarding unclear notes or structure. It's common to have someone who was not in the original session typing up the Post-its. The person who analyzes the data for a report is always someone who was in the session, often the facilitator or note-taker.

Recommendations

As demonstrated through the findings of this study, different activities need dedicated capabilities. For Group A designers, my first recommendation is an app similar to the Post-it Plus app but with a focus on features that capture more knowledge and reduce time spent typing notes. Though designed for subjective data, this app could be useful for definite data activities too.

The second recommendation is a revised version of Configuration 1.0, focused on internal ideation. Both groups expressed interest in a real-time collaborative tool. Requiring users with high technical literacy, this app is a complete digitization of Post-it notes. With the findings of this study, the Prototype 1.0 is revised and reimagined.

1. OCRAL – OCR, Annotation, & Layers

The Post-it Plus app is best suited to activities with shared DSK between facilitator and participants, and simple, definite data. Otherwise, notes and annotation are necessary. This is especially true if the data will be analysed and used in a report. With abstract data, a tool with more annotation capabilities is necessary.

How annotating and grouping can help

Designers often annotate on the go. If an app had a grouping feature, it could help explain relationships between notes; something not always explicit in the final board. Sometimes these relationships are stated during the session and are forgotten over time. The ability to annotate groups adds even more detail. This added layer could consist of a feature to highlight a group of stickies and name them, with the option to add a description. This could be a hidden layer or tab in the app viewable when necessary. This preserves the connection between the notes, not just the contents of the notes. After a session is finished, a designer could snap a photo of the final board and use a desktop application to complete the annotation. An app confined to mobile would be ideal, but perhaps unrealistic for the volume of details necessary. A desktop app also avoids confining users to a small smartphone keyboard and screen.

Smart OCR

OCR would undoubtedly save valuable time. OCRAL needs to have excellent OCR capabilities. With the introduction of the aforementioned grouping feature, it would be easy for the app to organize the connected notes into a document.

Designers would view a final board, select group headings either written on a sticky within the board or typed manually. They would be able to circle together (lasso-style) members of that group. When the handwriting is converted to text, the program would generate the category name as a heading and the related items listed underneath. Multiple connections could be captured in endless hidden layers.

2. Real-time Collaboration App – Configuration 2.0

Throughout the study, designers became familiar with the Post-it Plus app and used it as a jumping-off point to discuss what their ideal digital solution would look like. Designers from Group A and Group B both came to a real-time collaboration idea, similar to Prototype 1.0

Configuration

The big difference between the improved configuration and the original is that Configuration 2.0 doesn't actually use traditional, physical Post-it notes. The setup leaves out the Kinect camera as well. A smartphone takes the place of paper, acting as a surface to either draw or type answers into a phone. When ready, an idea square is submitted to the board, which will be rendered in real time as a digital square.

Drag and Drop

The live board would be viewable via a desktop computer which could easily be projected onto a wall. It's important that each participant can see the live board for the following reason. In order to place the square, after an idea is successfully submitted users will use their phone as a mouse to drag and drop the note on the live board. Instead of looking at their phone while they do this, they look at the projected image to watch their square move as they drag and adjust the placement as they please. Hopefully by encouraging participants to focus on the board rather than their device, the app will preserve engagement.

The app would include the annotation, grouping and layering capabilities described in recommendation 1. The main focus of this solution is less about post-session knowledge capture and more about session collaboration both in and outside of the physical boardroom.

Beyond the boardroom

This option presents the perfect opportunity to collaborate with participants set up anywhere in the world. By supporting audio calling, out-of-office stakeholder can contribute to the conversation and the contents of a board. This is different from other audio conferencing programs since the focus remains on the activity and the immediacy of creating a board together. The off-site participant would use their device in the same way as those in the boardroom. Whether they are projecting the image or viewing it on a desktop, they use their smartphone to submit ideas and drag and drop them for everyone to view.

To make notes more organized, facilitators could have the option to pre-load a board with potential categories. This can help the session move smoothly and make sure all objectives are met during the meeting.

Anonymity

The app could have an option to tag the author of each idea, which could be turned on or off. If this option were on, an author could be indicated by note colour. If turned off, note colour could be randomized or set to one neutral option. By allowing the stickies to be anonymous, handwriting and note colour are difficult to track and could make participants less critical of their own ideas. To avoid visibly dragging and dropping a submitted note, the activity could start with all participants collectively preparing their notes, and then submitting them at the same time. This way, participants will be placing simultaneously and it will be difficult to determine the owner of each individual note.

Progression of Notes

Since all notes are digitally submitted, they could be time stamped to allow a replay of how the session unfolded. This could be useful for designers consolidating findings to look back and make sense of how the conversation evolved. This is a nice feature to have, but not an integral part of my recommendation.

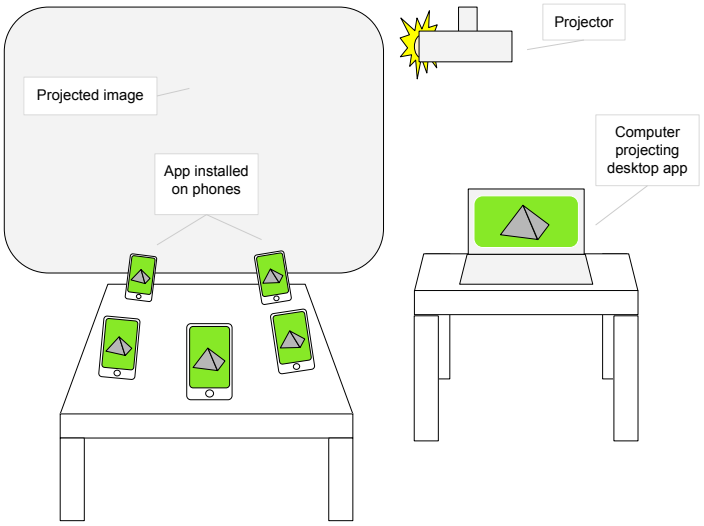
Obvious Constraints

The configuration sounds interesting in theory, but when evaluating its use in real situations, in order to have a successful session facilitators need to take precautions. The app needs to be available for each operating system represented in the company. This means different versions of the app needs to be developed and working.

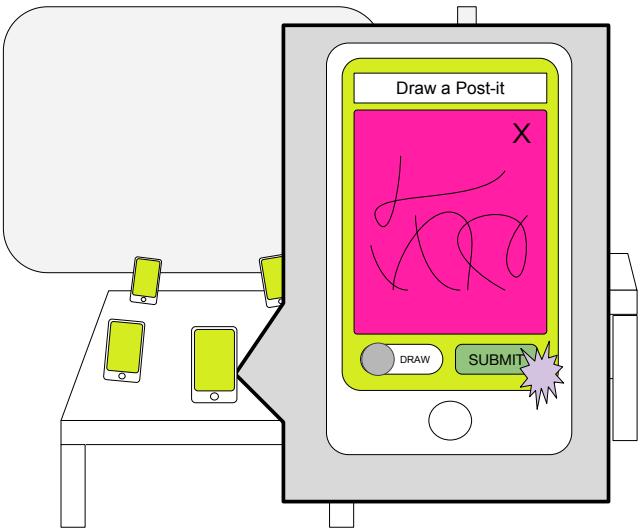
Before a session can start, participants would need to have the app installed on their phone which should be charged and functional. Next, it is imperative that users have a high technical literacy and are comfortable operating their device. If even one device is not in functioning, it would be enough of a barrier to default back to pen and paper. Network and connectivity problems for any device could cause the activity to be unsuccessful.

The configuration would be best suited to internal activities and meetings. Client engagement would not be an ideal scenario for the app since the set up and configuration time could be lengthy. Also, the risk of technical complications increases with the participants and devices involved.

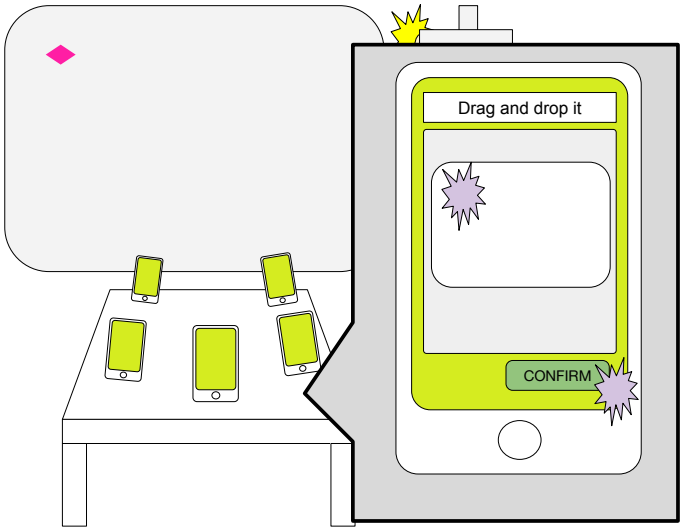
Prototype 2.0



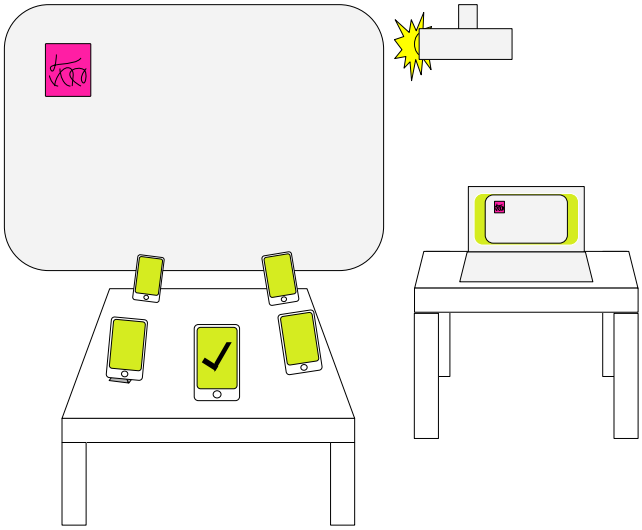
Participants open up the app on their smartphones. Their personal devices become their working area, replacing traditional Post-it notes



The user draws or types a note on their smartphone. When they're ready, they click submit to place the note on the board



To place the note, the user clicks on the area of the screen where they want the note to appear. They see a point on the screen which they can drag to a different spot by using their touch screen as a trackpad



When the user confirms the placement, the note appears

Conclusion

Post-its are used extensively to draw out assumptions, opinions, ideas, and structures. Depending on the shared domain specific knowledge between participants and analysts, an activity might need supplementary notes to make sense of the resulting board. Subjective, abstract data will almost always need extra context to understand, and if you want to use a complex structure it is best paired with simple data. Examining these characteristics shows how different app features can serve different activities and goals.

Recommendation 1

Groups A designers regularly have uncommon DSK with participants. Exercise output gets synthesized and included in a final report. The main goal is to collect data that is usually abstract and requires added context to understand. For this reason, they would benefit from an app that could allow for more annotation to capture what happens during the sessions, and accurate optical character recognition.

OCRAL preserves the physical nature of Post-its along with the other advantages and limitations of the medium. OCR improves the designer's process by saving time, and annotation and layering features improve knowledge preservation. OCR research is still ongoing and is not yet a perfect technology. The next steps for a REAP design sprint could be researching software that is both accurate and affordable. For the future of this project, it would be interesting to build a prototype and test how the refined configuration holds up in actual use.

Recommendation 2

One of the biggest draws of Post-its is how simple they are to use. A device to completely digitize the medium would have to be just as simple, elegant, and usable. The second recommendation would take considerable time to develop. Luckily, another company is working on a similar solution

Nureva™[7] is a Canadian tech company that has created a business and education tool similar to Configuration 2.0. The next steps for a REAP sprint could be to investigate the specific traits of a Nureva system. The most interesting aspect of Configuration 2.0 is using a phone as a track pad to move objects. Another design sprint could be spent researching and developing this single feature. Considering cost, risk, and return, Recommendation 1 takes a more viable, feasible, and desirable direction.

Post-its have earned their spot in the history of design materials. The medium is versatile and invites collaboration. As co-creation and human-centred design techniques and tools develop, so do device capabilities and ubiquitous services. Digitizing Post-its is just one example of new ways that designers could invent to facilitate users to communicate and create.

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