
The Box Exercise: A Collaborative Design Tool for Digital Product Designers

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Abstract

A digital product designer is often thrown into a compromising situation with co-workers, trying to unpack the complexity of a design problem while simultaneously facilitating meaningful collaboration that produces good design. This practice study describes a specific method for achieving good design using a lightweight and expedient process, known as The Box Exercise. Leveraging past experience within enterprise and consumer domains, this paper shows how The Box Exercise deftly blends traditional layout sketching with card sorting in a collaborative design session. Various examples show The Box Exercise as a proven method for starting the design of any digital product collaboratively, thus preventing the tendency for designers to act alone committing an effort akin to throwing darts at the wall in a dark room.

Keywords

Interface design, collaborative design, participatory design, multidisciplinary collaboration, UCD methodology

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Problem statement

Typically at the start of a design project there are early rounds of user research and discovery to learn about the context, tasks, goals and specific interaction problems of the product. This all becomes condensed into various summaries and reports. In parallel, a product manager will have a highly detailed requirements document outlining all the features for the release, sometimes dotted with screenshots suggesting the design — much to the chagrin of the designer! Too often designers begin on the wrong footing because such research and requirements documents can be so tightly defined by other stakeholders, often dictating the design direction before the designer has even attempted initial pen-on-paper sketches. After absorbing these stakeholder inputs, the designer then applies various design-driven approaches, like creating wireframes, workflow diagrams or rough mockups with periodic reviews to ensure progress according to project milestones. While this process above is very popular and can be effective for certain contexts, it does not ensure an ongoing collaborative ethos with key stakeholders whereby those who hold a deep knowledge of the product and market are encouraged to propose ideas to the team effectively.

The basic problem at the start of a design process breaks down into the following:

1. Unpacking the complexity of the feature definition and content organization: The key interface details may be written in a requirements document but are often buried in obtuse formatting or shrouded within marketing-driven language.

2. Enabling team collaboration useful to the design process: It is incumbent on designers to find a means to allow critical stakeholders to suggest their ideas in a safe, useful forum while forcing difficult discussions about conflicts, priorities, and requirements.

3. Generating lots of ideas quickly and easily in a lightweight manner: Reduce the dependency on technology and management or procedural details to allow for rapid yet informed exploration based upon stakeholder participation.

4. Sketching ideas and stimulating innovation among those usually not considered "idea people": In addition to discussion, actually sketching out ideas can foster a sense of teamwork while arriving at new solutions.

The fundamental principle underlying these issues can be encapsulated as the following: Stakeholders must engage in idea generation in a manner that is useful to the overall design process. In so doing, a significant burden is relieved from the lone designer. He or she is no longer pressured to create the right design solution in an ad-hoc fashion with random check-ins, paradoxically led by pre-defined documents. Instead what's needed is a truly collaborative design method that leverages both the knowledge of stakeholders and the abilities of a designer towards mutual understanding and inspiration.

Tapping that relationship is the next step, as The Box Exercise demonstrates.

Background

Andrei Herasimchuk, design principal of Involution Studios, invented The Box Exercise as a collaborative method for kick-starting the design for any digital product. This method was originally born as a deeply personal, internal way of breaking apart a complex problem and generating multiple layouts for content organization. The Box Exercise has matured into an explicit collaboration tool for starting the design process with stakeholders not trained in the craft of digital product design.

The connection between traditional graphic design layout composition — drawn as boxes just as magazine art directors typically do with pencil and paper — and a usability-driven card sort was made at Adobe Systems. Grace Kim, research lead for what became Adobe Lightroom, a professional photography workflow tool, introduced Herasimchuk to the card sort method [1]. This qualitative method essentially aims to understand users' mental model for finding system functionality. Later at Involution, The Box Exercise evolved with increased client involvement as appropriate.

This exercise has become a valuable part of the Involution toolkit for clients, adapting and improving it as needed with every new situation. It manifests one of the core philosophies of the company of "deep involvement" with the firm's clients, encouraging the use of their ideas in the process. The Box Exercise has been used successfully with a variety of clients, spanning enterprise software to consumer web applications:

- Shutterfly Studio, a consumer desktop photo management application.
- Agile Software, an enterprise software vendor of product lifecycle management (PLM) software.
- Faculte, a consumer online platform for learning and education.

Challenge

One of the biggest challenges in pursuing a social collaboration method is time and participation. For positive results, a significant up-front time commitment must be made and planned within the overall project, anywhere from a few days to a few weeks, depending on the complexity of the project's features or content.

A secondary challenge is that the key stakeholders of the project must be involved and wholly present at the activity to ensure adequate results. Depending on corporate cultures, some teams may not be as amenable to open face-to-face conversations and ideation. We live in a world of email, instant messaging and discussion boards with intermittent attention spans all fueled by corporate wireless networking. Perhaps more serious is enabling and supporting open, safe, comfortable discussion among people not used to it. The fact is, true interdisciplinary collaboration is very difficult work: issues of ego, pride, politics and even physical space limitations can easily derail The Box Exercise. Each client has to be handled differently per their culture and so forth, but in successfully doing so, the proper foundation will have been cemented for how the team can collaborate going forward. This is perhaps

the driving challenge in conducting an effective box exercise session.

Another challenge is the temptation to turn participation into committee-based discussions which only delays the inevitable slide into poor design decision-making processes. Again, depending on corporate culture some clients are prone to heavy bureaucracy which can also adversely impact a good design session. One of the goals of The Box Exercise is to allow for quick idea generation while also making decisions efficiently with pertinent stakeholders all in the room together.

Technology issues are not a concern. The Box Exercise is inherently technology agnostic, requiring only the simplest of supplies and materials to work: pen, paper, whiteboard and sticky notes or note cards. A camera is useful to capture photos of the results but no computer or software needed, reinforcing the lightweight nature of the activity.

Solution

The Box Exercise is foremost a collaborative method of distilling and organizing information into potential layouts that serve as a baseline for wireframe or visual design mockups. This method connects two traditional but typically separate activities: card sorting and magazine layout. The exercise is best done up-front in the design cycle, typically after getting a general understanding of the market, product, users and context of use. To work effectively, you must have:

1. All key decision-makers and stakeholders able to participate. This includes people from marketing,

engineering, business development, quality control and members of the design team.

2. Markers, a large whiteboard, sticky notes or index cards.

3. Several continuous hours blocked out for the seamless flow of ideas and discussion.

Process

1. First unpack all the contents and features of the product by writing them on sticky notes or index cards. Every piece of functionality must be written on its own card. Do not allow participants to take shortcuts by using single index cards for features they assume go together. For example, if unpacking a navigation bar, write down all the menu items, tabs, search fields and so forth that constitute that area of the product.

2. Often times during phase 1, people will feel the tendency to skip or not write down a feature or function. Do not let them do this. Encourage them to write down everything they can think of or that they know. Make sure no one censors themselves or others. The purpose here is to write down everything. Index cards are cheap. It's a simple matter to throw away cards that might not get used later.

3. Gather the cards and have the team form groupings that make sense semantically or conceptually. For example, they might cluster all items that refer to administration, setup, preferences, or user configuration conceptually into a single cluster of functionality. Make sure people discuss why they want to organize the features in the manner they are

choosing. Also make sure no single participant is driving an organizational model that the group does not accept.



Figure 1. An example of using index cards to write down functionality and then organizing the cards into logical groups.

4. Iterate successively on those groupings, constantly questioning why the groups are what they are. Gradually move towards smaller, meaningful groups of functionality. This is why stakeholders from engineering and product marketing are critical. The act of iterating on these groups forces open difficult questions about long-held assumptions, implicit features and hidden relationships held by different team members. In fact it is quite common to hear "Why is that feature there anyway?" or similar questions from team members.

5. After grouping, assign a simple, meaningful label for each group that captures the gist of the functionality.

Naturally there will be changes and debates, but it is best to pick something quickly and move on. Avoid marketing terms. Just get to the heart of what the group is about functionally or semantically. Use industry jargon only if it is appropriate for the product audience, based upon earlier research or discovery findings.

6. Once a set of groups is reasonably agreed upon, assign an approximate percentage of importance for each group. For example, File Transfer might be 75% of the navigation bar because the product is a data transfer utility, while Preferences might only be 5% since it is used infrequently. These relative percentages will be useful for the next step of The Box Exercise.

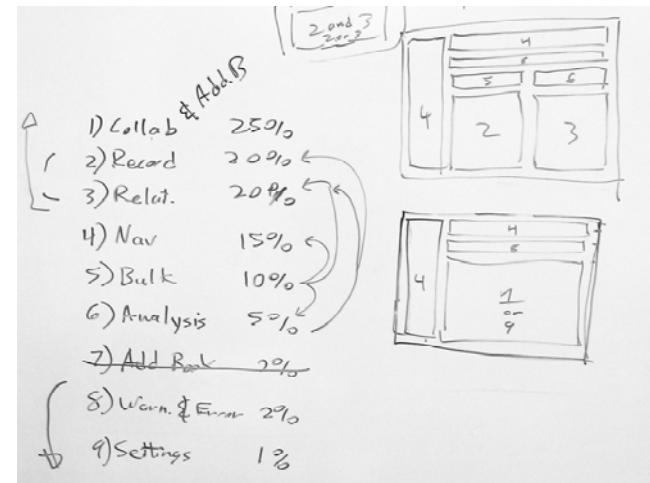


Figure 2. Assign percentage values as an approximation to measure the level of importance of various functional groups.

This constitutes the card sort portion of the exercise. Typically, this can take a few days — even a week or two — depending on the size of the product. Usability purists will note that a true card sort activity is conducted with pre-fabricated cards that users organize or modify. Also that process can last as long or sometimes longer, usually involving hours spent with one domain expert at a time, not multiple people simultaneously in a collaborative fashion. Plus, of course, a detailed report suggesting recommendations emerges from that activity.

However, the goal here is more practical. This card sort portion of The Box Exercise is done to make sure all functionality is recorded in a manner that is explicit in its communication, deliberated in a manner that ensures everyone is speaking a common language, while serving as a record for what the product actually needs to do. Furthermore, the exercise does so in a manner that requires collaboration, creating a means for different co-workers to communicate with each other on the design of the product.

Now we enter the graphic design portion of the process.

7. Take the groups created in the card sort part of The Box Exercise and organize them into a single application screen or into multiple screens of functionality. A screen can be a web page, a dialog box, a window layout of functionality, whatever constitutes distinct task areas of a product. For example, Home, Account, Browse and Search Results could all be considered screens.

8. Using the groups and their respective percentages of importance created from the card sort, have people

begin to draw a layout for a chosen screen on the whiteboard using simply boxes to represent each group.

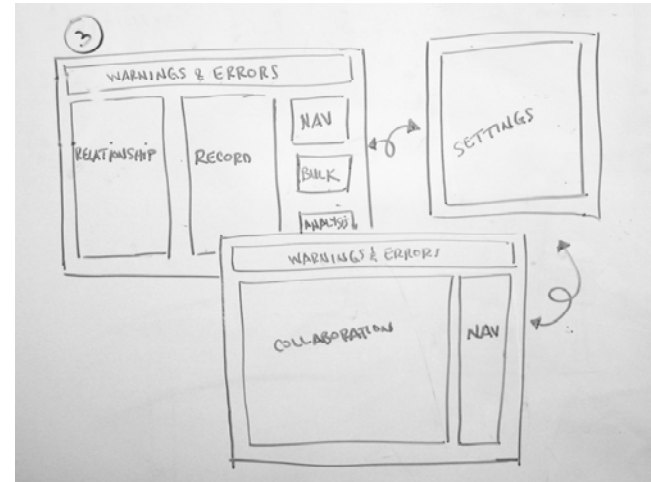


Figure 3. An example of screen layouts drawn with nothing more than boxes for speed.

Boxes create layouts, not interface controls or detailed widgets. The idea is simple: Drawing boxes keeps the exercise lightweight and fluid, allowing anyone that might lack design training a means to participate. Boxes are the ultimate equalizer as anyone can draw them; in other words, no one can ever get shut out of the design process. Once someone starts to draw detailed interface widgets, that person is shutting out others from contributing and potentially showing-off. The result essentially closes down the design conversation. Therefore, it is critical to not allow anyone to attempt to derail The Box Exercise by

drawing something other than boxes on the whiteboard.

9. Drawing at the whiteboard should be done fairly quickly, spending no more than a few minutes per layout. The goal here is to generate three to four sketches per person, and more if anyone is feeling inspired. And yes, encourage those product managers and engineers to draw! Indeed, often someone will walk up to the board and stop cold. They'll begin to think about what to draw. Do not let them do this! Just tell them to draw; it doesn't matter if it makes sense. What they will soon discover is that the act of drawing is what generates ideas, not the act of thinking. This is the most basic lesson taught to all designers: just draw and keep drawing. It is the core reason why designers carry around notebooks. This is simply fundamental to their being, always drawing constantly.

10. After everyone has drawn some layouts, step back and have the group discuss each layout, the rationale behind the composition and any issues without getting into specific interface details or style concerns. This sparks useful and insightful conversation about people's assumptions and desires, as well as new ways of looking at the data and features. Finally vote successively on which layout sketch approximates the ultimate ideal. Repeat this process for each screen needed.

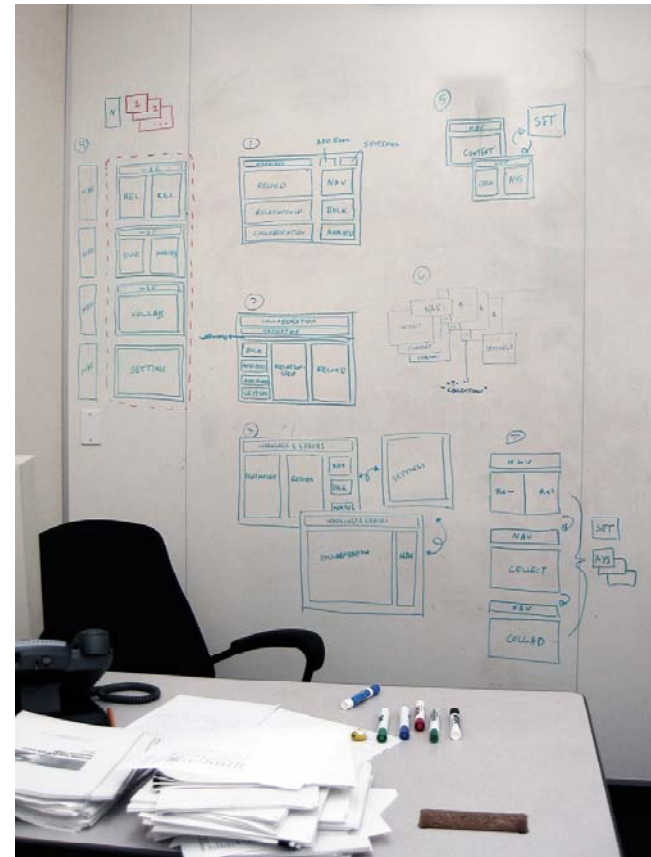


Figure 4. The Box Exercise in action.

Now suitably armed with drawings and groupings, the team is ready to proceed to the next phase of the design. This may include visual design explorations in Photoshop or wireframes in Visio or Illustrator with an informed perspective. The designer is no longer burdened with the "blank page syndrome" but in fact

has engaged the team and tapped their latent thoughts, ideas and desires for novel design solutions.

Results

To summarize, the benefits of the box exercise include:

- Cross-disciplinary collaboration in understanding the functions and generating improved alternatives.
- Connecting a common usability activity with a common design activity that moves the overall design process forward.
- Involves non-design members to contribute ideas in a meaningful fashion.
- Leverages a simple drawing scheme: Boxes! Anybody can draw a box.
- Encourages critical thinking about the content and functionality before entering the more expensive prototyping and mockups stages.

Thus, The Box Exercise is a method that enables true collaborative design with key stakeholders, facilitates ideation of possible layouts and organizes features and content with a rapid decision-making process. It is a way to attack a design problem, decomposing the heavy details from the requirements document into a modular mode of thinking — boxes. Furthermore, boxes are easy to draw for anyone, which opens up the process of design to non-design stakeholders, allowing them to participate and pitch their ideas.

This process also forces vital and often difficult conversations about features and content while giving a sense of pride for inclusion in contributing ideas. The process fosters deep engagement and collaboration, sets a solid foundation for going to the next phase of design and blends the best of classic traditional design and usability methods in a lightweight, expedient manner.

However, it is wise to note that this activity is not without some flaws as it continues to evolve. As mentioned earlier, the primary challenge in any collaborative method is getting past any social barriers or company culture issues for those that are resistant to such deep team exercises. A strong facilitator is needed to ensure forward progress, preventing the participants from getting bogged down in arguments about ancillary issues. Because of the duration and intensely social nature of the activity, facilitating is frankly exhausting and must be prepared for diligently. Having a weak or ineffective facilitator can easily derail the activity and nullify its value.

Also, it's important to note that The Box Exercise is not a substitute for discussions about usability, workflow, product strategy or other facets of digital product design. Those conversations must still happen, but in a different forum. Finally, The Box Exercise to date is often easier with product redesigns rather than trying to answer the question of "What should we invent?" However, given sufficient research into new products or markets, The Box Exercise will serve as a great starting point to kick off any new product design effort.

While this method has been used successfully with various clients, there is ongoing adaptation to new situations as needed. In general, if you are not surprised by the various solutions that come out of The Box Exercise, then you are most likely not conducting it

properly. The power of the activity is found in its deeply social, participatory nature, taking advantage of the diverse knowledge and experiences of the team.

References

- [1] Kim, Grace. Early Research Strategies in Context: Adobe Photoshop Lightroom. Experience Report. Proceedings of CHI 2007 (San Jose, April 2007), ACM Digital Library.

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