Let's Make Squares Great Again: Attempts At A Simplistic Design Problem

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Abstract

UPDATED—20 January 2017. This paper expresses abstract concepts through simplistic design methods. The four-squares activity is used to express "order", "isolation" and "calmness". I go over the problem, my solutions, the process details and toward the end, share my reflections.

Author Keywords

Wicked Problems; Design; Prototyping; Four Squares

Introduction

As a design activity for "IMT 540: HCI Foundations for Interactive Systems", I was given a design activity called the "Four Squares Problem". This required expressing concepts such as "order", "isolation" and "calmness" with 4 black squares. I could play around with the size, alignment, and positioning to create 8 prototypes of each concept. From these, I had to choose the prototype that best expressed the concept.

Design Process

The first step that I took when I was given this problem was to get more details about the question prompt.

- i. Do you mean strictly 4 squares?
- ii. Can they be of any shape and size?
- iii. Can I play around with the alignments?

- iv. Can the squares overlap?
- v. Can I add some text content, or draw around or over the squares?
- vi. Does it have to evoke the feeling for each grid square independently, or as a whole?

Given the ambiguity of the question prompt, my first step helped me gather the design constraints within which I needed to solve this problem. I decided to create a solution that uses only squares and expresses the concept independently in each grid.

After this step, I tried to visualize my solutions. How can I possibly evoke "order", "isolation" or "calmness" with four black squares? I thought in terms of alignment, size, symmetry, grouping and progressions. These variables could be played around with to create an infinite amount of combinations.

The next step involved drawing ideas on paper as seen in Figure 1. Here I tried to sketch out various ideas and chose the best ones.

After drawing, I cut squares from the card paper and tried out the ideas and assessed the design. If it didn't match my original expectations, I played around with the squares till I got it right. The results of this prototyping process follow this section.



Figure 1: Brainstorming on paper

Similarity. The squares followed similarity in alignment



Order

The meaning of order I tried to express through my design was "a number of persons or things following one another in order or sequence".

I tried expressing the idea of order using the following concepts:

Progression. The squares were placed to emphasize a Linearity. Most of the designs had a linear element to emphasize upon order.

and positioning.

Linearity. I preferred linearity in direction to denote the concept of order.

The best design in my consideration strongly emphasizes progression, linearity, and similarity. It shows a steady increase in size indicating an orderly change.

Order: Best choice





Isolation: Best choice

Isolation

The concept of Isolation was expressed by grouping entities and having an outlier outside the group or creating a sort of "barrier" for the 4th square.

I used the concepts of distance and grouping to effectively indicate isolation. I also tried to achieve separation of areas within the grid or cornering one square with the other three to indicate isolation. The best design to the left effectively captures the squares into two distinct entities – one on the upper left and a single square on the lower right. Despite being equal, the square on the lower right is left alone by the largest distance possible within a square grid, i.e. the diagonal, hence effectively conveying isolation.





Calmness: Best choice

Calmness

Calmness was expressed through images of trees, stars, the sun and so on. The idea was that these objects would evoke a sense of calmness.

From top left the square grids are representative of

- 1. A tree and two stars, or birds
- 2. A chandelier and a table
- 3. A dog (note, only picture in my solutions that has a non-square entity, i.e. a tail)
- 4. Two trees in the wilderness

- 5. A tree and the sun
- 6. A cake
- 7. A cup of tea or coffee
- 8. A constellation in the night sky

Hence here, an attempt was made to convey calmness through artifacts representative of calmness.

The best image shows the sun and a single tree at possibly an idyllic location. I chose this to be the best as it depicts a circle (sun) as an overlap of two squares and tries to express calmness through natural scenery.

Reflection

This problem of expressing ideas through four black squares, and then assessing the best solution, took the shape of a `wicked problem' (Rittel & Webber, 1973). I hold this view because this problem possesses some qualities of a wicked problem as defined by Rittel & Webber. Let me go over the ones that distinguish this problem as a wicked one:

- `There is no definitive formulation' In trying to formulate this problem, one might wonder, can I have only 4 squares? Can I include other shapes? Can they overlap? Can I draw inside the grid? I tried to define the problem more definitively through my initial information gathering attempt, but it was all left to me to decide. Hence, I could not use an Engineering approach towards solving this problem and had to think in terms of constraints more broadly.
- Solutions to wicked problems are not true-orfalse but good-or-bad' – I couldn't objectively decide if a certain prototype was representative of the concept to be expressed in binary terms. I had to work with my judgment or other people's judgments and then make a choice to include or delete the idea in the design.
- `Every wicked problem is essentially unique' Each new solution tried to address the unique problem of expressing an abstract concept in a unique way. Hence, work on each grid started as an `essentially unique' problem.
- There is no immediate and no ultimate test of a solution to a wicked problem' – There is no way to test whether the selected "best arrangement" from the 8 grids. Is actually the

best. The best is chosen based on subjectivity and would differ from person to person.

 `Wicked problems have no stopping rule' – When do I stop prototyping? I couldn't tell if the problem had been solved. I stopped when I thought the solution was good enough.

The point about 'Every wicked problem can be considered to be a symptom of another problem' might apply to urban planning, but this doesn't apply in our situation.

A personal example of a wicked problem is my internship search experience. Some of the ways in which I have to think about it is `Is my resume polished enough to send to recruiters?', `Which skill will match best a certain position?', `Which companies would best be suited to apply to, based on my job skills?', `Which platform would be the best platform to apply on? LinkedIn, Indeed?'. Such questions are inherently wicked and there is no way of definitively formulating this problem. There are numerous variables involved and it becomes difficult to model this problem based on those variables. Just like in the four squares problem as I start creating a design for each grid, each internship application that I submit requires a fresh approach. The application that I submit also cannot be judged in a binary manner and there is no way to objectively tell if I have submitted a good application. Further, I stop working on my application based on when I feel my material is good enough. Thus, the internship application process seems to possess the qualities of a wicked problem.

A definitive feedback on the solution to these wicked problems will only become clear after this assignment is graded, or after I have got an internship offer as to how good the solution was, just as it becomes clear when a good painting wins an art award. Perhaps the only way to work with wicked problems is to keep trying solutions till you get objective feedback after a number of iterations. Ways of evaluating solutions to wicked problems in the design context could be further explored.

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References

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