

EXAMINING REFLEXIVITY: QUESTIONING VALUES THROUGH VISUAL-VERBAL DESIGN MODELS

Asa R JACKSON¹ and Henry P LEE²

¹North Carolina State University, United States of America

²Parsons School of Design, United States of America

ABSTRACT

Design models have been a foundational method to properly understand design praxis and theory, while also perpetuating priorities and knowledge for the discipline. These models, both visual and verbal in nature, embody design values and serve as an important medium for collaboration and setting expectations among designers and non-designers. Indeed, designers of all experience levels use these models to understand and enact the design process. This study assesses the visual and verbal characteristics of 38 design process models to better understand the projection of traditional pragmatism versus more reflexive elements in design process dissemination. The findings of this study demonstrate that there is a myopic history of prevailing design models, even amidst the presence of evolving methodological and theoretical exploration within the design discipline. This is indicated through pragmatic language, single-outcome orientations, and narrow perspectives on the design process. Through this study it is revealed that prevailing design models contain verbal patterns and visual cues that focus primarily on pragmatic processes and outcomes and generally omit reflexive and pluralistic practices that could place the designer amidst their work, their users, and the larger development of designed knowledge. Here, researchers suggest creating and testing alternative models that challenge existing model structures and languages in favour of more contemporary paradigms, such as reflexive practice and pluriversal design. This research also prompts further inquiry into model usage in education and practice, including their function, development, and interpretation in the academic space for design students.

Keywords: Design models, reflexivity, design education, design process, design methodologies

1 INTRODUCTION

Visual design models have been a foundational method to properly understand design praxis and theory. Not only do these widespread models embody values, as discussed by Wynn and Clarkson [1], but they serve as an important medium for collaboration and setting expectations for designers [2]. Designers are typically familiar with a multitude of models, such as the Double Diamond (Fig. 1) and its variants. The importance of design models cannot be overstated, as designers of all experience levels use them to understand their work and processes. However, modern and historical models tend to contain visual cues and verbal language that focus primarily on pragmatic processes and outcomes [3][4], and omit reflexive practices, among other omissions. Indeed, the purpose of design models in recent decades has focused primarily on “assuring a re-usable and transparent road from A to B in a given process” [2][5]. Reflexivity, on the other hand, encourages self-positioning within design praxis and theory, seeks to address power imbalances within the complex systems a designer works within [6], and encourages social change [7][8]. This study gathers, codes, and visually analyses widely-applied design models, with a focus on reflexivity, as opposed to pragmatism, and addresses what is broadly omitted from these models. For example, we find that design models omit reflexivity for process linearity, resulting in models that are difficult for design students to decipher and apply effectively without context and further explanation. Additionally, this article suggests that there is an opportunity for design models to adopt pluriversal design practices [9], even within the most abstracted models. Finally, this article suggests that further research should consist of the creation and application of new, alternative design models that embrace reflexivity and plural outcomes.

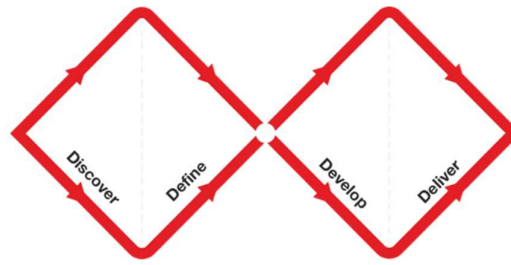


Figure 1. Double Diamond Model [10]

2 METHOD

The study was conducted using a basic sequence of defining, gathering, coding, and analysing various design process models. This section will dive briefly into each of these steps, articulating what was involved, why decisions were made, and what the limitations might have been. Finally, this section will include some examples of the models that were assessed, although not all could be efficiently displayed or referenced due to the nature of the submission.

2.1 Defining

There were a number of terms that needed to be defined for the sake of coding, interpreting, and communicating data. Primarily, reflexivity was defined as the act of consciously positioning oneself in the design process, in addition to also recognising and addressing power imbalances [6], user realities, and inequality in hopes of social change [7][8]. Consequently, reflexive actions were defined as encouraging these ends through deliberate reflection, communication, and recognition of plural realities. Complementarily, pragmatism was defined alongside Dalsgaard as a perspective centred on changing situations through intervention, then determining design value by the ability to further those changes [11]. Actions and concepts associated with this perspective lead to more product focused models, which emphasise testing, single-solution outcomes, convergence, and clear input-output relationships. Lastly, the models of interest were defined as visual-verbal representations of the design process applicable to existing disciplinary design practice.

2.2 Gathering

70 models were initially gathered as an exploratory sampling, which was later refined to 38. Models that were task specific, incomplete processes, or lacking visuals were omitted and deemed outliers from the interest sample. Researchers worked together to develop the list and agreed on the remaining 38 models that would be assessed.

2.3 Coding & Analysis

Each model was assessed on the surface using a number of basic characteristics. These attributes included: visual features, type of outcome (plural, singular, or hybrid), human-centred or not, more visual or verbal, and explicit communication or feedback. Each of these was selected because of their relation to the definitions of reflexivity, pragmatism, and process models previously discussed. Each of the models was then assessed by both researchers in a few ways, responding to the following questions: 1) What were explicit and implicit directions within the model? 2) what was omitted or missing from the model? and 3) where could reflexivity have been implied or even implemented within the model? These questions were meant to spark the results and discussion that conclude this study, leading to correlations that inspire additional questions for later research.

3 RESULTS

3.1 Visual vs Verbal & Visual Features

21 of the models communicated the process more visually than verbally. Conversely, 17 used words as the primary means of communication. The 38 models that were assessed were diverse in many respects, but retained an element of consistency in some areas of visual language. For instance, 31 of the 38 included arrows of some sort, while even more included lines if not explicitly arrows. Additionally, 22 used explicit shapes (rectangles, squares, circles, etc.) as indicators of various steps or actions in the

design process. Outliers that only appeared 1-3 times in the assessment included illustrations, spirals, and symbols (e.g. gears, wheel, etc.).

3.2 Outcome Types

27 models depicted a single, defined outcome as part of the design process. 11 models reflected plural outcomes, meaning multiple outcomes from a single process, or circular and hybrid outcomes, meaning ongoing iteration based on continual outcomes. Out of the 27 single outcome models, 7 included visually or verbally repeatable steps.

3.3 Human-centred or Empathy

6 models included explicit steps including phrases like “human-centred” or “empathy”.

3.4 Reflexive Communication and Documentation

Actions that explicitly involve reflexivity generally revolve around communicating and/or documenting designer and user positions throughout the process. 4 of the 38 models included conclusive elements, language, or steps that contained reflexive underpinnings. More on this will be included in the discussion.

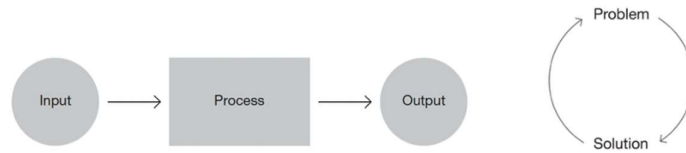
3.5 Model Patterns

The majority of the qualitative discussion will be included in the following section, but for the sake of clarification a few major patterns are worth mentioning. The first topic is the perspective of the model, whether that be product-focused, research-centred, or something more abstract. There were no explicit predefined perspectives for this section, as it was an exploratory space for assessing the models; however, it was chosen as a topic because of its potential relationship to the other basic assessment characteristics. In essence, the perspective of the model seemed to influence visual and verbal elements, and ultimately, its communication. Second, models were dissected into implied and explicit elements. For instance, some visual elements were interpreted alongside verbal elements to create implied meanings, which were included in the final dataset. Lastly, models were evaluated partially on their overall direction, whether they be more linear, circular, or something in-between. This aligns partially with the outcome metric, but was expounded upon as an essential element of visual communication.

4 DISCUSSIONS

4.1 Graphical Elements and Linearity

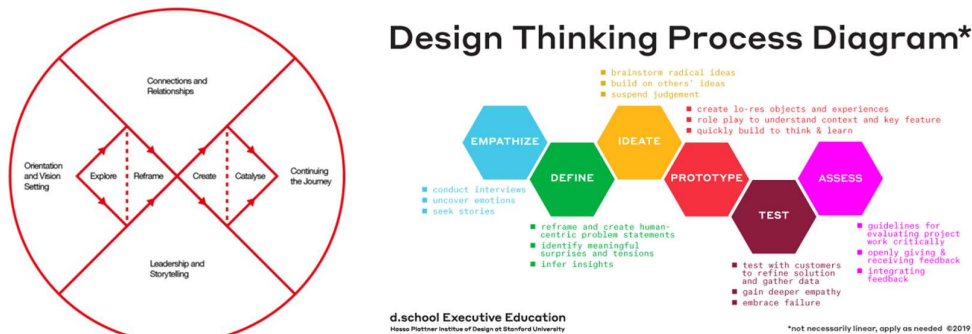
Throughout the models assessed, there were graphics, patterns, symbols, and shapes that were used across most of them. The most prominent of these are the line and the arrow. Lines and arrows can reflect a variety of basic linear movements – a step-to-step process, the passing of time, progression, and more. Although a line represents movement, an arrow is even more direct in its exclamation of moving forward to the next step, typically without retracing in the case of most of the models. Typically, linearity implies a simple, pragmatic process that begins and ends. Model 3 (Fig. 2) is perhaps the simplest representation of the design process in its linear, pragmatic sense. It lays out a line from left to right that begins with a single input and ends with a single output. The single output owes itself to an ambiguous, abstracted, and non-repeating “process.” However, we observed that there are 3 main movements across the design models assessed. Some models were explicitly linear, with an input, process, and output format. Others were semi-circular in their retracing and reconsidering of previous steps, and others were fully circular. Semi-circular and circular models allow for repeatable processes, including forms of reflexivity, but often end in singular outputs, such as model 15 (Fig. 3). More precisely, almost all of the design models visualised a singular design outcome, even in the circular or semi-circular visual. Overall, graphical elements generally favour pragmatic sequences and steps, such as prototyping, testing, and defining. While there are certainly areas where reflexivity may be implemented or explicitly advocated, particularly in areas of circularity or during steps of evaluation [12], there are few models in the design field that explicitly or implicitly outline steps that focus on the positionality or reflexive activities of the designer in relation to their users, context, or process.



Figures 2. & 3. Simple Design Process Models [13]

4.2 Model Perspectives and Subjects

Models use both verbal and visual languages to illustrate an abstraction of a point, and in doing so, generally imply a dominant perspective [14]. For instance, in comparing the Design Council's model (Fig. 4) with IDEO or Stanford's models (Fig. 5), the language alone indicates priorities through a simple fill in the blank exercise. IDEO's model predominantly uses words like synthesise, ideate, prototype, test, and deliver, which all can be followed by the phrase "the product" or "the solution". Conversely, the Design Society's includes words like relationships, storytelling, and reframe, each of which can be followed up by phrases like "with people" or "the question". This is notable not because one is better, but because it reveals that even through individual words values shine through. In most cases with design models these values are pragmatic and solution focused, which is also aligned with most of historical design as well as epistemological perspectives on design research [15][16]. If designers want to change what values their products project and perpetuate, it seems logical that the language that guides them could also be shifted [17].

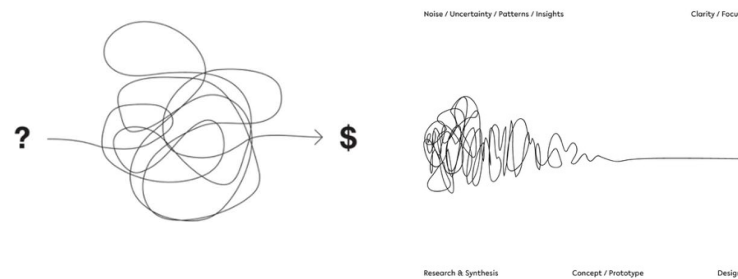


Figures 4. & 5. Models from Design Council and d School [18][19]

If you take the same models and assess the visuals, it is clear that although they all have linear elements, model 23 has a divided circle encompassing the smaller steps, hinting at holistic and almost timeless elements to the process. In fact, the right portion of the model indicates an ongoing journey, one beyond the final product or system. Conversely, most other models share a primarily linear series of shapes and steps, which is incongruent with the actual reality of the process [20]. While most conventional models are product or outcome centred, some deliberately focus on other elements with both their visual and verbal elements. As methodological and theoretical knowledge evolves in the design field, models that reflect traditional pragmatic values will likely not be enough to adequately inform designers who want to expand their priorities and emphases during the design process. There is a disconnect between recent developments in design perspectives, including pluriversal, transition, and more-than-human centred approaches, and the models that are perpetuated through modern design practice and education. Anne-Marie Willis addresses some of the weaknesses of conventional design education, stating that, "conventional discipline-based design education cannot contribute to substantial change unless students are inducted into understanding theories of power, social structure and social change, and the like," [21]. Our analysis demonstrates that conventional design models, and their accompanying educational context, do not address plural perspectives adequately, including theories of power and social change. For instance, if a designer hopes to value multiple concurrent outcomes and an overall plural perspective, including their positionality and reflexivity in general, are the existing models the best tools for helping that designer or student succeed? In the simplest of terms, the tool needs to match the job, and designers are more than capable of creating new tools to work with to respond to ever-changing social needs.

4.3 Using Design Models

As stated above, design models are an abstraction of real-world events or processes. Because of this abstraction design students are more likely to miss the events or processes that are implied or even omitted from models, while experienced designers may be more capable of inferring what isn't directly represented in a model [22]. This leads us to the discussion of how to educate designers using design models. How much is up for interpretation and influence, and how much is prescribed by the model itself? What is the role of the model maker, the user, and the third-party observer in evolving model usage to fit new paradigms and contexts? As an example, consider the most abstract models, 2 and 40 (Fig. 6 & 7). These models are simplified to the point that it can be hard to infer that design is even being referred to, let alone the events and processes that design consists of. A lot is assumed and much is left for the user and third party to fill in. Many models embrace ambiguity, as it is a core tenet of design [4]. However, consistent analogous omission may cause students and early designers to assume that all the gaps between steps are also identical. Future design models should therefore be presented alongside context and explained in more detail, particularly within educational settings, to help differentiate themselves from other paradigms. Although it is not possible, nor helpful, to design a visual model of design at a 1:1 scale, it could be helpful to include more details in model development and dissemination according to the level of education, interest, and experience that the audience possesses.



Figures 6. & 7. Squiggle Design Models [13][23]

4.4 Plurality in Design Models

We found that linear models were inherently pragmatic, leaving little room for reflexivity. Semi-circular and circular models did allow space for reflexivity, but it was rarely explicit, either visually or verbally. Despite there being room for multiple cycles in semi-circular and circular models, there was typically a singular output among all models. This ignores the reality that design outcomes are often pluralistic. For example, we might perceive the outcome of a particular design model to be a product or monetary gain, but other outcomes exist, such as any knowledge that is created throughout the design process, or specific and reflexive lessons learned by the designer. Indeed, in educational settings it is not typically the end product that is primarily valued; the output in educational settings is the experience gained by the design practitioner themselves [24]. This leads us to consider if design models could represent a plurality of outcomes, including not only products, but new knowledge created, experience gained by the designer, and even relationships and behaviours. Both new knowledge and designer experience is valuable, particularly in semi-circular or circular models where the designer is repeating the design process. Would it be possible to apply this pluralistic approach to industry settings, improving the rate and depth of a designer's learning curve? Perhaps revisiting the outlined outcomes of the design process via models could reduce the gap between academic and industry processes, expanding the way design can impact commercial and social spheres.

5 CONCLUSIONS

The study demonstrates that there is a myopic history of prevailing design models, even amidst the presence of ongoing methodological and theoretical exploration within the design discipline. This is indicated through pragmatic language, single-outcome orientations, and narrow perspective on the design process. These findings lead to two possible subsequent layers of investigation for the research area of design models. The first is to begin creating and testing alternative models that challenge existing model structures and languages using more contemporary paradigms, such as reflexivity and positionality. Secondly, this research prompts further inquiry into model usage in education and practice.

Students may be able to learn model interpretation and creation earlier in design curriculums to help assist in responsive and reflexive design methods later on. The model has a consistent but underexplored narrative in design practice, and further research could help bolster future models and applications.

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