

Visual Thinking in Life Design: A conceptual framework of visual tools and templates

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Abstract—This paper sheds light on the role of visual thinking tools within the process of designing your life, the application of design thinking to life design. It provides a conceptual framework showing illustrative examples of visual templates for each phase indicating its functions and benefits. Based on a thorough understanding of the functions and benefits of knowledge visualization in general, this paper sets out to provide a first overview of the use of visual thinking tools in designing your life informing and supporting practitioners and researcher for more conscious selections of visualization methods in their life design efforts.

Keywords—visual thinking, templates, knowledge visualization, design thinking, life design, designing your life, visual artifacts, conceptual framework

I. INTRODUCTION

Designing your life is the application of design thinking and designer's tools, processes and mind-sets to non-design domains such as career development, talent development or life in general to tackle wicked problems [1]. At the forefront of the development of designing your life were the two Stanford Professors Bill Burnett and Dave Evans who developed the concept at the Stanford Hasso Plattner Institute of Design, also known as d.school, where design thinking was introduced originally to deal with business problems but also to problems of the society at large, e.g. blood donation [2]. Recently, designing your life has become very popular at Stanford, seemingly even the most popular course and is slowly getting attention from organizations and universities around the world.

In designing your life, inter-disciplinary life design teams work on their design challenges in which they aim to identify where the problem is by empathizing with themselves through interventions such as visual mapping, role play, interviewing and others. Based on this understanding, they aim to define a problem statement that inspires and guides solution finding which is also known as “point of view” (POV). Based on this problem statement, ideas on how to find solutions to that problem are created, firstly by thinking divergently about possible solutions and then choosing converging the best possible solution. Based on these ideas, prototypes are created in the form of interviews such as a life design

interview or experiences such as voluntary work, mini internships or sabbaticals that help life designers to replace assumptions with actual experiences and using these experiences to test their assumptions and see what they can learn from the experiences and refine the solutions [3].

The use of visual thinking tools in designing your life is fundamental as it helps to share and communicate ideas, create common understanding, speeds up the process for more and faster innovation cycles, and enables insights leading to action [4]. Tools such as PowerPoint are rarely used in life design because of their constraints [5, 6] but ‘being visual’ is hugely emphasized, however, the use of visual thinking tools in designing your life remains largely applied without neither reflection nor academic investigation, with some exceptions in the work on diagrams in design thinking [7] and the role of visual support for group facilitation [8]. Therefore, a better understanding is necessary of the different forms of visual templates, their use in specific phases within designing your life, what principles they convey and how they affect the cognitive, emotional and social dimensions of life design work.

This paper aims to contribute to the body of research on life design [reference handbook of life design] by establishing a conceptual framework of visual thinking tools within the designing your life process. In this first modest attempt, we aim to map key visual templates into the different stages of the designing your life process and describe their functions and benefits. In addition, we will provide an overview of future research avenues to inform and motivate future empirical research.

II. RELATED WORK IN VISUAL THINKING

The application and benefits of knowledge visualization have been widely discussed in fields such as strategy [9], knowledge management [10] and psychology [11]. However, the paramount role of visual reasoning in many instances of problem solving such as in life design has not been recognized yet [12].

In order to fully understand how life design teams can benefit from using visual thinking, we need to understand the role of visual thinking through different theoretical lenses. The human brain processes visual information more efficiently compared to written

information: when the same information is provided both in written and visual form (such as with a key-word and a corresponding icon), performances are enhanced. According to Dual Coding Theory [13], this effect is because our brain processes visual information and verbal/textual information in two different areas of the brain. Visually displaying ideas through a visualization offers the benefits to enable participants to externalize thoughts and their connections [14] using both their verbal and visual channel [15], thus making it easier for the discussants to build on each other's ideas [16] and to remember the discussed topics better [17]. Mapping the dialogue visually can help overcome cognitive constraints, such as information overload [18] and the finite amount of working memory claimed by cognitive load theory and thus visualizations help to unload our working memory to have more capacity for sense making [19].

In addition, visual thinking tools have the following cognitive, emotional and social functions in collaboration, which life design teams can benefit from [20]:

- Cognitive functions
 - o Facilitating elicitation and synthesis
 - o Enabling new perspectives
 - o More exhaustive comparisons
 - o Easier recall
- Emotional functions
 - o Creating involvement and engagement
 - o Providing inspiration
 - o Providing convincing communication
- Social functions
 - o Integrating different perspectives
 - o Assisting mutual understanding
 - o Showing interdependencies

Based on this generic understanding of the value of visual thinking, we aim to showcase its functions more specifically within the context of designing your life. Therefore, the next section shows the conceptual framework and one visualization method for each of the life design process steps together with its functions and benefits.

III. VISUAL THINKING IN LIFE DESIGN

When and how can visual thinking support life design activities? Based on the suggested benefits of visual thinking in the previous section, we explore more closely at which points of the life design process what type of visual thinking tool can be most effectively employed.

We start by taking the life design process established at Stanford d.school which is characterised by six stages – accept, empathize, define, ideate, prototype and test, and, by synthesising the results of the related work in visual thinking presented above, considering how visual thinking tools can support the main function at each stage. We must, however, recognize that the steps – offered here in a sequential logic for the clarity of the argumentation – are often cyclical in reality [21].

This synthesis aims to address the following questions for each stage of the design thinking process:

- What type of content needs to be represented? (content);
- What are the expected advantages of using visualization for life design? (benefits); and
- What are the appropriate visual thinking tools and that can be used? (visual thinking tools).

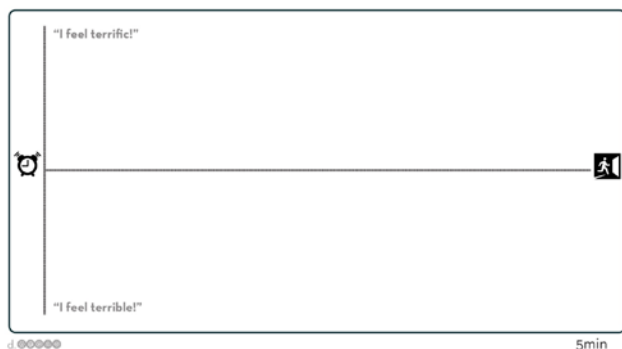
TABLE I. CONCEPTUAL FRAMEWORK OF VISUAL THINKING TOOLS IN LIFE DESIGN

Life Design phase	<i>Empathize</i>	<i>Define</i>	<i>Ideate</i>	<i>Prototype</i>	<i>Test</i>
<i>Main function</i>	Identify your own needs, uncover interests, skills, values, discover emotions	Unpack and synthesize findings into needs and insights, scope a meaningful and actionable problem statement	Idea generation (diverging), idea selection (converging)	Translate ideas into interviews and experiences, create actionable steps toward goals	Refine the solution, enable user and team to give feedback, learn more about the user
<i>Content view</i>	Needs, interests, skills, values, emotions	Findings, needs, insights	Ideas	Application of ideas	Opinions
<i>Benefits view</i>	Associate lateral thinking, configuration, perspective and level switches	Aggregation of data, facilitate elicitation and synthesis, insight enabler	Compilation space, associate thinking, enabling new perspectives, more exhaustive comparisons	Creating involvement and engagement, provide inspiration, tracking and showing interdependencies	Filter function, showing missing information, conflict mediator, documentation
<i>Visual Thinking Tool view</i>	Timeline, mind map, empathy map, conceptual map of gathered data, laddering interview maps	Opportunity bingo, concept maps, matrix, Venn diagram, Sankey diagram	Diverging: Odyssey plans, collaborative sketches, duo mind map, brain writing Converging: Diagrams, matrix	Stairway to heaven, sketches, journey mapping (e.g. morning routine), Sankey diagram	Plus-delta feedback grid, feedback capture grid, PPCO feedback form

These three levels or perspectives, when mapped with the stages of life design, build our framework for visual thinking tools in designing your life (Table 1). This framework is in line with the suggestions of MacInnis, as we propose a conceptual framework with the goal of explicating and delineating the role of visual thinking in the life design process [22]. The framework contains various indicators for the practice of life design: in the content view, the framework shows the information that should be visualized based on the main function of that particular phase, in the benefit view it emphasizes the benefit to be achieved by applying visual thinking while the visual thinking tools view indicates which tools and methods should be used.

A. Empathize

The main function of this phase is for the life designer and to engage with her- or himself and use the life design team as resonating board to observe and immerse with other life design team members. It is about learning to see things with “a fresh set of eyes”. At the core of this phase is the uncovering the needs of the individual life designer and discovering the emotions which will later guide all innovation efforts. In order to engage with oneself and others with regards to life design, methods are used to identify interests, values and skills and ways to redesign existing habits and routines. One famous example of this being the redesign of the morning routine.



(Source: Stanford d.school)

Fig. 1. Morning Routine Redesign Mapping

Main function: Identify the emotional high energy activities and low energy activities during the morning routine

What is represented: The activities (e.g. shower, toilet, looking at smartphone) and the corresponding states of energy (e.g. low energy, high energy)

How it is visualized: with a timeline diagram using horizontal position for time and vertical position for state of energy

Medium: paper, whiteboard, flipchart with post-it-notes, software (e.g. PowerPoint)

In this phase of divergent thinking, it is important for the life designer to visualize all activities and the energy state,

in order to make the context of the morning routine more tangible and to clarify it, but not prematurely commit to any solution design.

While verbal and textual information is abstract, visualization makes concepts more concrete and thus manageable. Visualizing the morning routine with all activities is also useful for discussing it with other life design team members, coaches and even friends who can more easily “see” the activities and the state of energy and give feedback or contributions. In particular sketching a morning routine on paper allows for easy modifications and additions, and this in a collaborative mode; it allows rapid changes and facilitates the emergence of ideas or options.

B. Define

The main function of this phase is to unpack and synthesize findings into needs and insights to scope a specific and meaningful life design challenge. This includes to develop a deep understanding of the life designer and coming up with an actionable problem statement, also known as “point of view” (POV). The POV is a guiding statement based on specific needs and insights of the life designer and acts as a unique design vision. A good POV frames the problem, captures the heart and mind of the life designer, inspires the life design team and acts as a reference for ideas.

Time	Type of food	Health	Money
1 min.	Fruit salad	Super healthy	< 5 EUR
5 min.	Bread + Cheese	Healthy	< 10 EUR
10 min.	Omelette	Not so healthy	< 20 EUR
15 min.	Yoghurt	Unhealthy	< 50 EUR

(Source: Sebastian Kernbach)

Fig. 2. Problem-feature bingo

Main function: Synthesizing findings into needs and insights to scope the design challenge

What is represented: The needs and insights of the life designer with regards to the current problem (e.g. food consumption during morning routine) in four categories which are important to the life designer (e.g. time, type of food, level of health, and money)

How it is visualized: with a table

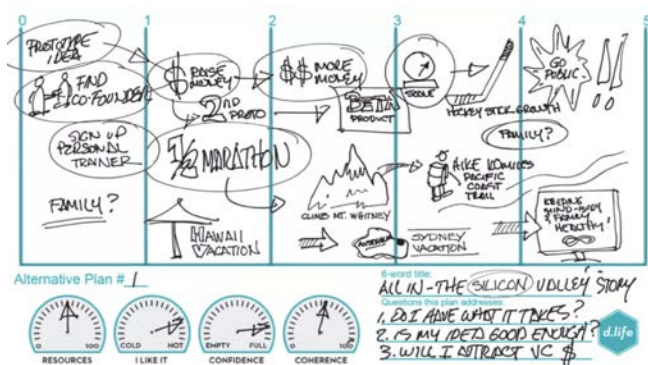
Medium: pen and paper, computer software

Conceptual templates such as a table or also Matrix and Venn diagram help to synthesize and analyze the findings. The dimensions of the templates typically derive from the data about the life designer, in the example, the four

categories around food consumptions. The visual templates can be used on a normal paper, as large scale poster with post-its, and occasionally also with a software application.

C. Ideate

The main function of the “Ideate” phase is idea generation which includes exploring wide solution spaces and focusing on the quantity and diversity of ideas before evaluating and choosing ideas. The distinction of diverging phases (creating options) and converging phases (choosing options) is critical to the quantity, originality and feasibility of ideas. In the convergent phase, evaluation, voting and synthesizing of ideas is critical for the later phases. This phase represents the transition from identifying problems to exploring solutions for life designers. The example shows one of three Odyssey plans life designers do to visualize ideas for their future.



Source: Designing Your Life, by Burnett & Evans (2016)

Fig. 3. Odyssey Plan for ideation of activities at work and in life in the next 5 years

Main function: Enabling free visualization of ideas for activities in life for the next five years

What is represented: Activities in life such as running a half-marathon or doing a vacation on Hawaii and a check of resources, likeability, confidence and coherence of the plan with before identified needs and emotions

How it is visualized: with conceptual and metaphoric hand drawings and possibly also post-it-notes

Medium: whiteboard, paper, or flipchart

In this phase, life designers can rely on simple visualizations such a noting ideas on post-it-notes to impactful visualizations such as visual metaphors.

Metaphors offer the advantage that they “convey an insight about the represented information through the key characteristic of the metaphor that is employed” [23]. Metaphors attract attention and foster visual memory in the viewers, compared to text, because they leverage emotional reactions, and familiarity of (Western) audiences. The range of possible visual metaphors that can be deployed is vast, from iceberg, to roadmaps, and from mountain paths to sailing or racing. In comparison to analytical visualization, such as the timeline in Figure 1, visual metaphors prompt

emotional response from the audience and are remembered better.

D. Prototype

The main function of the “Prototype” phase is to translate big ideas or visions into concrete experiences and interviews one could start today in order to reach the vision. Prototypes help to further gain empathy, explore and test ideas and get inspiration in order to learn, solve disagreements, start conversations and fail quickly and cheaply which can be summarized as the solution-building process. In the following example, the stairway to heaven template, life designers visualize their big dreams first and further away from themselves in order to map prototype experience between them now and their big dreams later.



(Source: Sebastian Kernbach)

Fig. 4. Stairway to heaven: Mapping of prototypes

Main function: Making the big dreams explicit and mapping ideas for prototyping experiences to reach the dreams, to have a strategy in place and in order to invite feedback from life design team members

What is represented: The big dreams of a life designer and prototypes of experiences to reach that goal

How it is visualized: with abstract and pictorial hand drawings

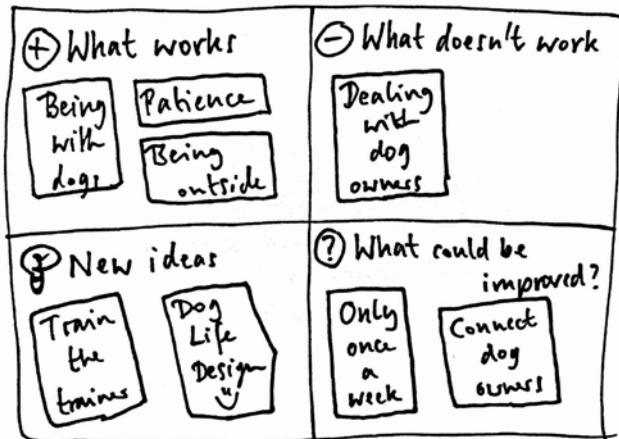
Medium: whiteboard, paper, room/space with post-it-notes, or flipchart

Prototypes can be broadly distinguished in experiences and interviews. Experiences such a volunteering, internships or doing sabbaticals trying to test assumptions and learn from these mini experiences before making (bigger) decisions. Interviews can be used to talk to people who have a particular job, life style or position that the life designer admires or aims for to find out what this type of job really is about including the pros and cons.

E. Test

The main function of the “test” phase is to refine the solution by actually doing the prototypes. By testing and

refining the prototypes, life designers can learn about what they liked and disliked and might even refine their problem statement aka “point of view” (POV).



(Source: Sebastian Kernbach)

Fig. 5. Feedback grid about prototyping the experience of being a dog trainer

Main function: Organizing the feedback into four pre-defined categories: what works, what does not work, new ideas, and what could be improved

What is represented: Feedback of the life designer about the experience, gathered by her- or himself and also through interview by life design team members

How it is visualized: conceptual hand drawing

Medium: whiteboard, paper, or flipchart with post-it-notes

In opposition to classic career counselling or career development, life designers seek to build prototypes early and test them in order to replace assumptions with experiences and see what they can learn from these (mini) experiences, to refine their solutions and build new prototypes. For this reason, prototyping and testing should be done rapidly to fail early and cheaply. Visual thinking tools have the power to quickly generate a tangible output by sketching and using post-it's, easily attract attention and trigger emotional response in the audience and make it easy for them to give feedback as the prototypes are signaling “work in progress” [24].

Having described the main functions of each phase of designing your life and given an example of a visual thinking tool to support life design teams in their efforts in each phase, the remaining part of this paper covers the limitations and implications and finished with the conclusion.

IV. LIMITATIONS AND IMPLICATIONS

This paper has been a first attempt to describe visual thinking tools used in the phases of life design with the aim to inform and support reflection of practitioners and researchers about the role of visual thinking in life design.

Limitations arise from the set of examples that were present to the author, there are many more visual thinking tools in other life design teams. We further want to make explicit that those visual thinking tools act as illustrative examples and not as the “standard”. We also acknowledge that all phases include divergent and convergent parts and that the visual thinking tools covered in this article cover only one of those two phases.

It became apparent that visual templates were especially present in diverging phases such as “Empathize” and “Ideate” while converging phases such as “Define” and “Prototype” as well as “Test” did not have many visual templates in place. This is also true for design thinking I general [25]. It could therefore be interesting to build new visual templates for these phases supporting life designers to articulate a problem statement in the phase “Define” or helping life designers to build prototypes as well as learning from testing their prototypes through visual templates.

We hope that by making the functions of visual thinking tools explicit in general and showcasing examples for each of the life design phases, life design practitioners and researchers are inspired to think of and make use of visual thinking tools more consciously in the future. We also hope to create a more sophisticated overview of the current use of visual thinking tools within life design in the future and add new forms of visuals for life design teams, such as the Confluence Dynagram to design thinking teams [26].

Future research might investigate the enactment of visual thinking tools in depths through an ethnographic approach observing and interviewing life design practitioners. Quantitative investigation could compare different kind of visual thinking tools in an experimental setup. In addition, the use of new visual thinking tools, such as Navicons [27], digital knowledge mapping techniques [28], Dynagrams [29] or the Storytelling Canvas [30], could explore further enhancement of life design teams. One should also not forget the communication between life designers and their environment, e.g. spouse, friends, which might require transparent communication of processes and decisions that have been made as well as their value to the life designer and his/her environment. This aspects warrants careful study in the future to better understand the impact of life design to individuals, their environment and, ultimately, the world.

V. CONCLUSION

Designing your life is providing a new approach to career and life development using creativity and innovation from design thinking that is human-centred, integrating the notion of prototyping and iterating as well as having a life design team as resonating board. It is currently very popular among students and slowly but surely getting attention from organizations and other individuals.

It provides a new approach including a process, methods and mind-set. A central piece of designing your life in terms of the methods (e.g. be visual) but also in bringing the mind-sets alive (e.g. bias-to-action) is the use of visual thinking tools. It is therefore not surprising that the first course of

design thinking, even long before d.school at Stanford had started, was on visual thinking and its importance for design.

Despite this importance, the use of visual thinking tools in designing your life happens with little reflection and knowledge about its functions, benefits and suitability to the situation and goals at hand. This might even hinder or ruin the effectiveness and development of life design teams and their solution to the identified problems.

Therefore, this paper is a first attempt to shed light on the use of visual thinking tools in designing your life by suggesting the conceptual framework and illustrative examples. We hope to inspire both practitioners as well as researchers to be more conscious in using visual thinking tools and better understand how it affects the creativity, effectiveness and efficiency of life design (teams).

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