Time Management Practice in educational Design Thinking Projects

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Abstract

Design Thinking has become widely accepted as an innovation method and is being applied in various industries. Therefore, it becomes important to understand how projects applying Design Thinking can be successfully managed. An important aspect of project management is time management. With this paper we investigate the current time management practices of Design Thinking teams in educational settings through a series of expert interviews at the Hasso Plattner Institute. The paper presents findings from our initial evaluation of these interviews.

Keywords: Time Management, Design Thinking, Education

1   Introduction

Over the last decade Design Thinking has become a globally accepted innovation method. Schools and companies worldwide are teaching, using and promoting Design Thinking in different flavours, e.g. the growing network of D.Schools including locations in Stanford and Potsdam, the network of Design Factories with locations in Aalto, Swinburn and Tongji or companies such as SAP (Savvas, 2012), Microsoft (Lund, 2011) or Apple (Thomke and Feinberg, 2010).

With the integration of Design Thinking into companies the question of how to successfully manage Design Thinking projects arises. Time management is an important aspect of project management. Thus it is also important for managing Design Thinking projects. However, to the authors' knowledge the literature and research on time management in Design Thinking is scarce. Existing literature suggests time boxing as time management strategy for Design Thinking activities (Hiremath & Sathiyam, 2013), (Thoring & Müller, 2011), (Efeoglu et.al., 2013). However, beyond that recommendation we could not find a discussion of further tools or methods. More general research on time management and creativity suggests that time management can have a positive effect on creativity and project outcomes if done "right" (Amabile, 1998 & Amabile et. al., 2002), (Baer and Oldham, 2006), (Zampetakis et. al., 2010).

With this research we aim to find out how time management is currently practiced in educational Design Thinking projects and activities and what participants of educational Design Thinking projects consider to be the "right" time management. Therefore, we undertake a series of expert interviews with experienced Design Thinking practitioners and coaches from education. We are interested in the tools and methods they use when managing time as well as problems they see with existing techniques and obstacles for planning activities in Design Thinking teams. The evaluation of the information gained in these interviews helps to identify common practices for time management in educational Design Thinking projects and uncovers some interesting findings.

The rest of this paper is structured as follows. Section 2 briefly presents literature related to our research, followed by a description of our method in section 3. Section 4 presents the findings from our research which are discussed in Section 5. Section 6 concludes the paper.

2 Related Work

Design Thinking is an innovation methodology that was originally introduced by the design consultancy IDEO (Kelley and Littman, 2001). A definition of Design Thinking is provided by Brown (Brown, 2008): "Design thinking can be described as a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity." As our research was conducted at the Hasso Plattner Institute (HPI) the workshops and projects follow the process taught at the HPI as depicted in Figure 2.1. The process consists of the phases: Understand, Observe, Synthesize, Ideate, Prototype and Test. The process is iterative and the phases can be repeated and combined as necessary for the project and the project team.

To the authors knowledge the literature on time management in Design Thinking teams is scarce. We could not find any literature that investigates the current practices or the effects of time management on Design Thinking projects. The existing literature, we found, provides glimpses into current practices by giving instructions on timing for certain methods or activities. Additionally to the literature focused on Design Thinking, we looked for literature that investigates the correlation of time pressure and creativity in general.
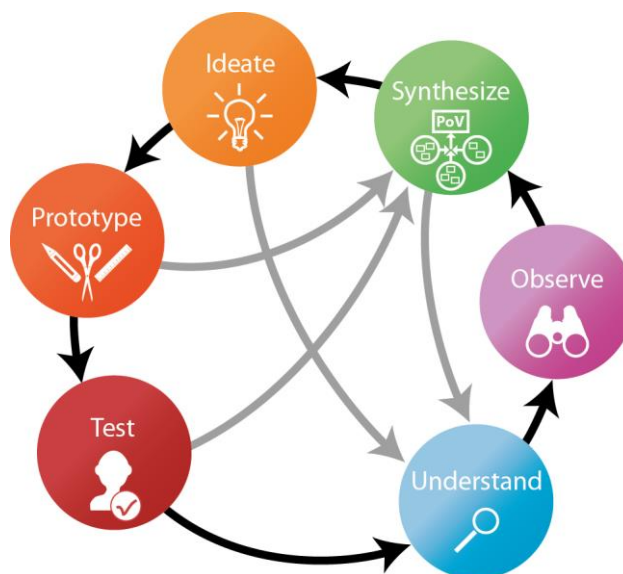

Figure 2.1: Design Thinking Process as taught at HPI

Hiremath and Sathiyam created a coaching guide for the application of Design Thinking in the software industry. While their guide is not focused on time management it includes time related hints for every phase of their Design Thinking process (Hiremath & Sathiyam, 2013). This includes hints to plan ahead on interviews and testing, time box prototyping and ideation or taking 30 min at the end of the day to reflect and plan the next day. Thoring and Müller see the Time Timer^{TM} as an ambiguous tool. On one side it holds the capability to activate a creative "flow" through a strict sequence of focused cycles and relaxation time while on the other hand ideas sometimes need to grow and often come outside of the project e.g. during vacation. They believe that a better understanding of time management in Design Thinking is needed to apply the Time Timer^{TM} more purposefully (Thoring & Müller, 2011).

Efeoglu et.al. analysed different Design Thinking methods to identify common patterns. They identify time boxing as a characteristic of the Design Thinking method. They also note that time framing a task is crucial as participants otherwise forget the time and the following tasks and that time awareness minimizes lasting discussions (Efeoglu et.al., 2013). Tollestrup describes how the introduction of time boxing in a design project course sets a fast pace that enables the students to get further in the development process (Tollestrup, 2015)

Amabile et al. found that time pressure and creativity have a curvilinear relationship, which means no time pressure or too much time pressure seem to hinder creativity, while a medium amount of experienced time pressure has a positive effect on creativity (Amabile, 1998 & Amabile et. al., 2002). Baer and Oldham found that the same holds true for creativity and the experienced time pressure if there is a high support for creativity (Baer and Oldham, 2006). Britton and Glynn describe a general model for time management focused on intellectually productive people (Britton and Glynn, 1989). Zampetakis et al. found that creativity positively relates to daily planning and perceived control of time while it negatively relates to a preference for disorganization (Zampetakis et. al., 2010).

3 Method

For our research we were interested in how teams involved with Design Thinking actually practice time management. As a first step, we concentrated on interviewing people that are involved with Design Thinking education at the HPI in Potsdam Germany. Here we were looking for interview partners that had recent experiences as coach or team member of a Design Thinking team, because they have hands on experience with time management and Design Thinking. Additionally, we wanted to speak to program organizers that plan the courses and contents because they have an overview of the course and decide what is actually taught to the teams.

3.1 Data Collection

Four different bodies inside the HPI offer programs related to Design Thinking. The HPI School of Design Thinking offers their Basic and the Advanced Track to students from all over the world. The Enterprise Platform and Integration Concepts Chair is part of the ME310 / SUGAR network and offers the respective nine-month project course (Carleton & Leifer, 2009). The HPI Academy offers Design Thinking Education to Companies, mostly in form of workshops and sometimes as project consultants. Table 2.1 is giving an overview of the different programs and the interviewees.

Table 2.1: Overview of the HPI courses and interview partners

Program / Course	Short Description	Interviewees
HPI School of Design Thinking - Basic Track	Several short and one 6 week projects	Coaches, students and track manager
HPI School of Design Thinking - Advanced Track	12 week project	Coaches and students
ME310 / SUGAR	9 month project	Coaches and students
HPI Academy	Mostly WS sometimes projects	Program manager and coaches

Overall we conducted 20 semi structured interviews with people involved in these programs between January and February 2016. Ten of them are members of a Design Thinking team, seven are coaches and three are program managers. Team members as well as coaches are commonly part of more than one of the courses, e.g. a student might take the basic track and the ME310 / SUGAR course or a coach can be coaching for the HPI Academy and the basic and advanced track.

3.1.1   Interview guide

The Interview guide contains 3 sections. The first section covers facts about the interviewee, especially their experience in Design Thinking, another section asks about their personal time management and the main section is about time management in Design Thinking projects. This section included the following main questions:

1. How is time managed by teams?
2. Are there factors outside of a team's project that influence their time management?
3. How does the team's time management influence the project, the team and the participants?
4. Which time management tools or methods are introduced to / used by DT Teams?
5. Please tell us about a point in your project were the time management was really great or really bad.

3.2   Evaluation

The interviews were transcribed and the transcripts anonymized with a code stating the body and role of the interviewee and a number for later reference, e.g. DSchoolCoach1. The transcripts were then coded according to our original research questions including tools or methods mentioned, people and roles mentioned, factors with an impact on the time management, influences of the time management, problems and solutions mentioned. With this initial coding we could already make a couple of interesting findings which will be presented in the following section. More coding to uncover further findings with methods from grounded theory research is still to be done.

4   Interview Findings

Overall people in our interviews agreed that time management is helpful and necessary in Design Thinking projects. Our interviewees described saving time, getting more things done

in the same time, being saved from endless discussion and feeling motivated or keeping up the teams' motivation as benefits of good time management practices. None of the people we interviewed felt „overmanaged", which means they were either satisfied with their time management or found they should have improved time management.

4.1 Tools and Methods used for Time management in Design Thinking Teams

In terms of long-term planning, interviewees specifically mentioned the Graphic Gameplan developed by David Sibbet / The Grove Consultancy (Sibbet, 2012). This tool is usually filled out with the whole team in the beginning of a project and it helps the team to establish expectancies and a general way to go. However, interviewees mentioned that it is out of date very fast and usually not updated during the course of a project. Another long-term plan mentioned is a form of absence calendar for the team over the course of a project. This helps align vacations and other projects with important deadlines for this project and to know when someone will be missing from the team.

The most-mentioned tool during this study is the daily agenda or day plan. Almost every team uses it. It is usually filled out at the beginning of a working day or at the end of the previous working day. As the game plan, the daily agenda is often created with the whole team. However usually one person takes the lead and creates a rough agenda to discuss on and refine. This tool helps to set goals for the day and to see how much is already achieved, or at which point the team is currently working. With some Teams the agenda gets updated, e.g. after the lunch break in a short reflection session the afternoon is planned. With other teams the agenda is done and stays as is. For the few teams that are not using an agenda a to-do-list serves roughly the same purpose. This is not actually a time management tool, more of a task management tool but is used very similar to the daily agenda. It is created with the whole team, sets the goals for the day and motivates the team by showing what was already achieved, or when things can be crossed off.

The Time Timer^{TM} is probably the time management tool most associated with Design Thinking. All interviewees agreed that this tool produces a „wow"-effect when you first experience its use. However, this effect seems to get lost for some people, leading to them not using the timer anymore. For example, one interviewee mentioned that during the Basic Track (as a Design Thinking beginner) the last running minutes of the Time Timer^{TM} equalled high pressure and forced the team to a decision. In contrast, during the Advanced Track the same person explained how the team would keep on discussing after the Time Timer^{TM} had run out until a decision is made. In the interviewees opinion the longer discussion time did not lead to a better and more reflected decision, it simply took longer. Overall, interviewees that make use of the timer experience it as helpful in phases were time boxing and time pressure are experienced as good, e.g. in a brainstorming to cover many different methods with a fast pace or in prototyping to build several prototypes. However, all interviewees reported, that someone has to take over the responsibility for setting the Time Timer^{TM}, either because the team member is a structured person and prone to feel responsible or because he is responsible according to a role applied by the team.

Many of the interviewees mentioned the use of such roles for a variety of tasks in a Design Thinking team. The roles are usually rotating, which means, every team member acts in every role at some point. The role most important to time management is the time keeper role already mentioned. This role is usually responsible for creating a rough daily agenda and lead

the discussion about it, setting the Time Timer^{TM}, and remind the team for the time and deadlines.

Two other roles have an impact on the teams' time management the moderator and the decision roles. The moderator is responsible for leading discussion and ensuring everybody gets heard without discussing endlessly and the Decision role is allowed to either force a decision if necessary or decide in case of a tie. Both of these roles aim at avoiding or shortening endless discussions around decisions to be made. A topic that will be discussed more in section 4.3.1.

The last time management tool mentioned in almost every interview are breaks. Surprisingly, breaks serve very different purposes for one and the same team. We found three dimensions that can help classify breaks:

1. Spending the break as a team breaks or alone.
2. Spending a break explicitly on the project, e.g. discussing during lunch or off the project, e.g. play a game not mentioning the project at all
3. Spending a break actively, e.g. doing a warm up or taking a run or spending the time more passively, e.g. relaxing on the couch.

All of these dimensions are important and usually a team takes a break if one member asks for it, however some breaks such as lunch are usually already planned in the daily agenda.

4.2 Factors influencing time management

The most obvious factor are existing timelines, milestones or deadlines. They are usually provided by the teaching team and serve as an orientation or frame for the teams' work. Another factor is the teams' mood and motivation.

These two are intertwined with the teams' time management. If the mood is bad and the motivation low, the team will struggle with creating and keeping up with an agenda. On the other hand, the experience of a well-timed agenda that enables the team to get everything they wanted done can boost the mood and the motivation.

Several people have a big influence on the teams' time management. The coach can motivate or demotivate the team through feedback and support, taking an indirect influence on the time management. Additionally, coaches often act as a time keeper for beginner teams, thus actively taking part in the teams' time management. The project or industry partners who gave the challenge to the team also take inactive influence by motivating or demotivating the team with their feedback. Furthermore, they can speed up or hinder the project, e.g. by providing or forbidding access to interview and test partners. Especially if a challenge requires very special interview partners, e.g. for a narrow group of end users, it may take very long to reach the people necessary. Last but not least the team members can have a negative influence of time management through their absence or unpunctuality. On one hand the team is missing man power while on the other hand it takes a lot of time to bring people up-to date. Some interviewees even mentioned that the remaining team would refrain from making a decision with too many people missing or that people who were missing for some part of the project did not like the decisions taken by the team.

4.3 Additional findings

Apart from the methods and tools by the team and the influencing factor on time management that we were looking for we also noticed four interesting findings. Related to the time management practices in educational Design Thinking projects.

4.3.1 *To discuss or not to discuss, that is the question.*

The problem of endless discussion as well as the need to have enough time for discussions was mentioned in all interviews. While both types of discussions can happen everywhere in the project interviewees generally seemed to think that discussions leading to a common point of view for the team, e.g. when evaluating interview results, are "good" discussions. For these discussion interviewees are willing to take additional time if necessary to ensure the whole team is on the same page. On the other hand, discussions about decisions, e.g. which ideas to follow and prototype are seen as "bad" and interviewees agreed on keeping these discussions short or avoid them completely.

4.3.2 *Tell me how you coach and I tell you who you are.*

Interestingly, all coaches personal time management reflected in how they coach time management to their team. For example, coaches that are more chaotic in their personal time management will care less about the time management of their team. While coaches that are very structured in their personal time management expect their team to be as structured and time them very strictly.

4.3.3 *Different process phases – different time management*

Throughout all interviews different phases of the Design Thinking process were associated with different timing behaviour. As mentioned in section 4.1, interviewees agreed that brainstorming and prototyping activities are easy to time-box with the Time Timer^{TM} and can be kept rather short. According to the interviewees interview and test sessions need to be well planned upfront in order to acquire people and give them a heads up how long you need them and to make appointments with them. The synthesis activities, e.g. storytelling and clustering after interviews or testing and evaluating these further simply take time, but interviewees agreed that the time is well invested in a common understanding for the team.
The duration of other process phases seems to depend on the topic and the focus intended by the industry partner and teaching team. For example, a very specific challenge might need much more time in the research phase to grasp the challenge. Similarly, a short project or workshop might be specifically designed to teach prototyping methods and therefore spends more time on that phase.

4.3.4 *What if daily agendas could be as tangible as the Time Timer^{TM}?*

Three out of the 20 interviewees used their spare time to create their own time management tools. Interestingly, all three projects aimed at making the daily agenda more tangible and were inspired by the ease of use and tangibility of the Time Timer^{TM}.

5 Discussion and Outlook

The two biggest negative influences on a teams' time management mentioned in our interviews are a bad team motivation and the absence and unpunctuality of team members. The motivation of the team is influenced by the motivation of each team member as well as through feedback the team received on its work. If the teams' motivation is low, it is unable to perform according to their daily agenda as team members get more easily distracted and discussion feel less fruitful. The fact that large parts of Design Thinking activities are team

activities and require the whole team to work well together makes the teams motivation especially important. Common practices like a team check-in help to identify low motivation and active team activities such as warm ups can help to overcome them.

As described in section 4.2 the absence and unpunctuality leads to the team making less progress, avoiding decisions or to team members feeling unsatisfied with the decision that the team made. This is probably due to the fact that design teams are usually not hierarchically structured and decisions are made in agreement or as a result of a democratic vote. People who are absent during the discussion and decision process do not understand and might not be willing to follow the decision. An interesting solution could be the decision role described by some interviewees, that has the power to decide without a majority vote and without introducing hierarchy into the team. It would be interesting to see if the use of such a role decreases the problems around team absences and decisions. Furthermore, the absence plan that most teams use is a good way of foreseeing problems with absences in cases were the absence is known before hand, e.g. vacations, or obligations for other projects.

The element of discussion is inherent with Design Thinking because of the team activities as well. The interviewees wish to avoid getting lost in endless discussions reflects one of the "rules" from the Design Thinking mind set: the bias towards action. Especially in Design Thinking projects it is often preferred to come to a decision and test its implications rather than trying to play everything through in the teams' heads and discuss every possible outcome. As described in the section roles some teams already implement roles like the moderator or the decision role to handle endless discussions. However, the team member acting in these roles must detect that a discussion is fruitless and running in circles. Especially for beginners this isn't always easy and should be supported by the coach. But even for an experienced coach it might be hard to access whether a discussion is helpful or not. Apart from the notion of decision discussion being less helpful and synthesis discussions being more helpful it would be interesting to look into actual team discussion and identify possible signs for classification.

One of the most surprising insights was, that the coaches personal time management style is reflected in his coaching practice with regards to time management and time management education. As the coach should support the team his coaching practice should actually reflect the team needs and therefore the teams' time management style. With regards to this finding it would be interesting to further research whether it has a negative effect on the teams' time management, if the teams' time management needs and the coaches style differ. Furthermore, it might be interesting to look into how aware coaches are of this fact and whether that holds true for other personality traits as well. If yes, a match of coach and team personality styles might be interesting to look into.

Another really surprising insight were the tools created by three of our interviewees and the fact that they all aim at creating a more tangible daily agenda. This fact is especially interesting because only one of our interviewees mentioned a problem with the daily agenda, namely that it is not as tangible and can't be carried around. However, three different people worked on projects that aim at solving this need. It would be interesting to further analyse this problem and the provided solutions by testing them with Design Thinking teams and evaluating their use.

Our research so far has been restricted to educational settings at the HPI in Potsdam Germany. However, our findings support the bits and pieces of related work we could find in the

literature and add additional findings to them. Furthermore, the data has only been coded on a first level and a further coding according to grounded theory will follow next. Additionally, further interviews with companies employing Design Thinking are planned. It will be interesting to identify common practices as well as differences in education and industry. For example, the importance of the daily agenda, might not be the same in an industry setting were people are not working two complete days of the week on their Design Thinking projects. After those further interviews and a deeper evaluation of all the data a questionnaire within several Design Thinking communities will help to quantitatively verify the findings from this research.

6 Summary

This paper presents initial research insides from 20 interviews with coaches and students of Design Thinking courses offered at the HPI in Potsdam Germany. The presented findings include methods used by Design Thinking teams, such as the daily agenda and the Time Timer^{TM}, factors influencing the teams time management, e.g. team absences or external deadlines, the area of conflict between ending a useless discussion and giving more time to a useful discussion, and the correlation between personal time management style of coaches and their coaching practice. Implications and possible solutions of the findings are discussed and further research directions are presented briefly.

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