

Considering architects and clients' interactions through the Design Thinking framework

Audrey Mertens, Yaprak Hamarat and Catherine Elsen

Université de Liège, audrey.mertens@uliege.be, yaprak.hamarat@uliege.be,
catherine.elsen@uliege.be

Abstract. As the quality of the relationship between designers and users highly contributes to the success of the design process, involving users in the design process is more than ever crucial to the project. This paper argues that Design Thinking could help architectural routines evolve regarding the interactions between end-users and architects. Though the Design Thinking principles may serve as an inspirational framework, we claim they still need to be adapted to architects' needs and fields' constraints. This paper focusses on the Belgian housing design field, specifically questioning the posture architects tend to have towards their end-users through 5 narratives collected from on-field practitioners. The aim is to establish a parallel between day-to-day architectural practice and Design Thinking as a mindset and as a process, as to delineate the essential points architects might benefit from and as to question the role that end-users could furthermore play throughout housing design processes.

Keywords: architectural practice, Design Thinking principles, housing design, user involvement

1 Context of the research project

1.1 Background of the research project

This research is part of a wider research project aiming to provide a better understanding of how architects and end-users interact nowadays, and to suggest ways to renew these interactional models. As the intertwined relationship between designers and end-users constitutes a crucial part of the design process, involving users in the design process is more than ever essential to the project success (Lawson, 2005; Esteyez & Léglise, 2015; Sarkar & Gero, 2017; Arboleda, 2020). Recently researchers have put into question the traditional model of architectural design, seen as the result of a sole Master's artful persuasion (Prost & Chaslin, 2014). This model has been said to be completely outdated and no longer practicable (Siva & London, 2011; Albrecht, 1988; Macaire, 2009; McDonnell & Lloyd, 2014). As an alternative, this paper leans towards the Design Thinking framework as an inspiration to help architectural routines evolve when it comes to users and architects' interactions, while still being adapted to architects' needs and field constraints.

1.2 Belgian context

Considering the architectural practice, we specifically focus on housing in Belgium (in Wallonia & Brussels), where any construction work affecting the envelope or structure of a building requires an architect in charge. In the process of digging into existing interactional models, one of the first steps consists of getting a better grasp of architects' actual organizations and current practices.

One of the most well-known Belgian association for consumer protection ("Test-Achats") has shown that amongst 1330 respondents who built their personal homes between 2000 and 2013, only half felt satisfied with their architect(s) at the end of the process. Almost half of the participants moreover

expressed having experienced stress and 27% confessed having suffered from irritability and anxiety throughout the process (Nauwelaers & Rossini, 2014). Another questionnaire broadcasted in Belgium showed that the client is among the « top 5 factors » that make architects' jobs more difficult on an everyday basis (Stals *et al.*, 2018). This friction occurring in the housing design process between architects and end-users highlights the need to further question the social interactions underlying the design process, as these interactions seem to be a source of dissatisfaction.

2 Architectural design through the design thinking framework (a thematic literature review)

End-user low satisfaction levels constitute a key issue nowadays in architectural design (Siva & London, 2011). Discounting the importance of alarming reports, architectural design indeed missed several opportunities to systematize user-centered and participatory approaches, therefore lagging behind other design fields (Bacqué *et al.*, 2011; Van der Linden *et al.*, 2019a). If housing architecture is a branch of the design practices, we question the influx of Design Thinking in that scale of practice. We will develop this connection through two levels: conceptual and pragmatic. Firstly, we touch upon the principles of Design Thinking as a reflective approach (section 2.1.). Secondly, we tackle its use as a process and a set of tools for architects (section 2.2). This framework will be used as a lens to look into our empirical data, as to later frame how it might support user centeredness in architectural practice.

2.1 Might design thinking be a mindset... for architects?

As Brenner and Uebernickel put it, “innovation is made by humans for humans” (2016, p.8). This human-centered premise is presented as one of the fundamentals triggering all Design Thinking principles. Another fundamental aspect would be combining both divergent thinking – following unconventional paths – and convergent thinking to eventually grasp the details and stakes of the most promising path (Cooper, 2008; Brenner & Uebernickel, 2016). Those lines of thinking, by nature, require experimenting and iterating, prototyping, failing, implementing and enhancing prototypes, looping with this process until the output meets most expectations in a satisfactory manner. Of course, some architects can already be referred to as *design thinkers* in that regard, but one has to observe that most of those concepts are not systematically and/or explicitly taught in architecture schools, nor implemented in most architectural offices (Nishimura *et al.*, 2017). Looking into architectural practices, another question arises: whose insights and user-centered data might drive such iterative processes in architecture, be they applied? Architectural offices functioning with design teams (instead of an individual architect working on his/her own project) might already be closer to the Design Thinking mindset, in the sense that during collective ideation, processes get challenged by other designers, all of them working together with creative confidence and optimism (Brown, 2009). Nevertheless, in the architectural field, more often than not we see architects operating in the close, tiny, mono-disciplinary microcosms of their firms. This is especially true in Belgium, where research has shown that most architects work in structures of less than 10 employees, 42,7% of surveyed architects (N=572) even working alone, or with just one colleague (Stals *et al.*, 2017). Historically and structurally speaking, architects thus do not tend to exit their microcosms and cultivate empathy towards end-users, at least not as often as designers from other design disciplines. Attention has been brought to this issue repeatedly (Tribout, 2012; McDonnell & Lloyd, 2014) and, as a consequence, participatory practices slowly gained more interest from architects, especially in public spaces' design or building projects driven by the public sector (Biau *et al.*, 2012; Zetlaoui-Léger, 2013). If such citizens' input, needs and expectations are nowadays considered as enriching these divergent-

convergent processes, it is not clear if such participatory practices might also percolate smaller scale projects, such as housing projects.

2.2 Might design thinking act as a process, a toolbox... for architects?

The fragmented nature of the architectural design field, as underlined by Jacob (2016), can be challenging to analyze. Based on Lawson (2005), Jacob provides a brief model of the architectural process, arguing that during the first step called “formulating”, architects have to define, identify, understand, frame and explore highly complex, intricate and ill-structured design problems. Emphasis is put on the fact that architects, while navigating such problem space, should generate stories to reframe the issues from different points of view and perspectives. In this case, we argue that being in contact with the key actors eventually populating the artefact being designed, e.g., the future end-users, might help open up some relevant perspectives, that architects while working between themselves might otherwise not open to. From where we stand, this first phase might well be the cornerstone, with the involvement of end-users profoundly changing the whole story. This aspect of Jacob’s model that we defend is closer to matching Brenner and Uebernickel’s (2016) “need finding” step (Figure 1).

In his second step, Jacob (2016) delineates the “representation phase”, when architects externalize their ideas and thoughts to represent the problematic through models or drawings, among other visual supports depending on the nature of the outcome. If we compare Jacob’s model to Brenner and Uebernickel’s (2016), this step also overlaps the “need finding” step mentioned earlier (Figure 1). This is the moment where architects create externalized, mediating supports and could further include other actors into the architectural conversation. In Jacob’s third and final step, architects come up with one or more solutions - also referred to as “moving” by Lawson (2005) - in a form of divergent/convergent process, which connects well with design thinking principles of ideating, prototyping and testing (Figure 1). Still according to Jacob (2016), designers should integrate objective/technical and subjective/aesthetic judgments in making choices and be able to reflect in action, and also be able to reflect on how they go about the design process itself, for example by keeping sketchbooks or collecting artifacts reflecting what they consider to be good design to learn from when considering future designs. Reflecting on Lawson and Jacobs’s process descriptions, we realize those do not fall very far from Brenner and Uebernickel’s Design Thinking description (2016). For both authors, the sequence of steps from “formulating” to “moving” rarely follows a linear logic (Lawson, 2005), but is rather continuous and iterative. However, whilst keeping Lawson’s and Jacob’s hypothesis and developments in mind, we will base our comparative analyze on Brenner and Uebernickel’s model (Figure 1).

If the five steps forecasted in Figure 1 are typically implemented to aim for judicious innovation through Design Thinking, it is still unclear at this point how (or if) those five steps might be transposed or interpreted in the small scale of housing architecture practices, or if any of the tools Brenner and Uebernickel have popularized with their 2016 book – i.e. Stakeholder Maps, Empathy Maps, 5-whys, AEIOU-Method, Personas, Observation and Storytelling – are taken upon by architects in the Belgium housing context. Several researches have indeed shown that, in small scale architectural practices, most architects rarely go beyond early conversational interactions to reach out to users’ needs and expectations (Norouzi et al., 2015; Van der Linden et al., 2017).

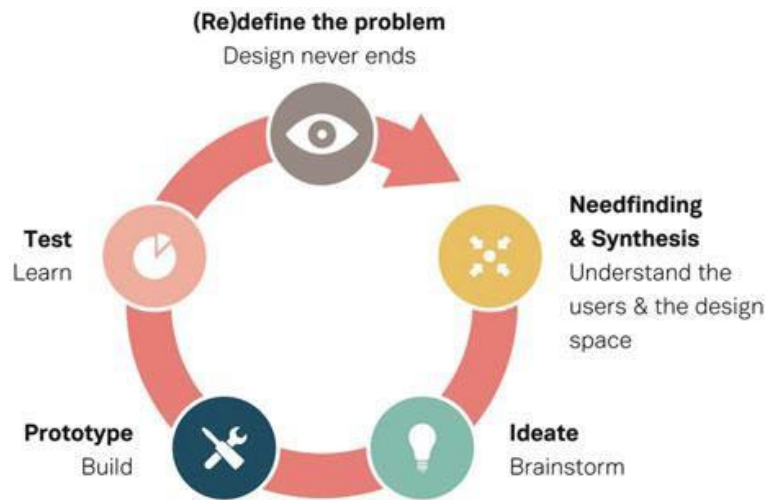


Figure 1. The Design-Thinking-micro process, in Brenner & Uebernickel (2016, p.11)

2.3 Focus

In this paper, we specifically question the posture architects tend to have towards their end-users and we use Design Thinking as a framework through which we study these architectural practices. We first want to summarize the process and meeting points of architects and end-users during small-scale housing projects. We question the architects' postures toward the end-users and look for success stories in these relationships. Finally, we look for the patterns depicted by the interviewed architects in regard of the Design Thinking principles, steps and tools raised here above.

3 Research methodology

After building a theoretical understanding of our use of the Design Thinking model through international scientific literature, we put our focus on Belgian practices through empirical inquiry. We broadcasted a questionnaire through the Belgian Architects' Association, as to invite all Walloon and Brussels architects affiliated to this Association to take part in this study. We then conducted five semi-structured, in-depth interviews.

On that basis, we consider the data through the lens of abductive analysis (Timmermans & Tavory, 2012): with Brenner and Uebernickel's principles as a comparative model, we analyze and compare the phenomenon described by architects in terms of design methods and we let the data express unexpected trends, adding specific and original depth to the model regarding our field (e.g., housing architecture in the Walloon Context).

3.1 Online survey and profile of the participants

The recruitment questionnaire, aiming to profile different significant groups of architects active in the housing sector, got 96 respondents. Questions touched upon their location in Belgium, their experience, education, the scale of their agency, their level of responsibility, the percentage of housing projects overall, the type of clients they usually deal with (private individuals and families/investors...), if they feel impacted in their daily practice by their relationships with their clients, and eventually how often they interact with them. We grouped the respondents in view of their answers, and we selected an architect amongst each main group to conduct an in-depth interview and collect qualitative data on the actual day-to-day practices regarding the interactions with their clients. We

added the profile of another architect who had not participated in the survey but was interviewed in the same conditions than the others. This last profile was a pragmatic choice yielded by an opportunity: a senior architect in contact with our research lab agreed to participate in the interviews even though he had not responded to the questionnaire. This allowed us to include the profile of someone who was not amongst the architects innately drawn to this problematic (and spontaneously taking part in the survey), i.e., someone who was not necessarily predisposed to volunteer and participate in our research, but rather did it give favorable circumstances.

In this paper, we thus focus and analyze interviews of five architects (two female, three male), situated in three different provinces (Brussel [2], Liege [2], Luxembourg [1]) and who mainly practice residential architecture. Only one is fully dedicated to individual clients with a single-family housing project, while others also work for residential projects carried by institutions (e.g., social housing and co-op housing), self-builders or real estate's investors. They have various professional experiences (less than six years [1], between 10-14 years [2], more than 25 years [2]). Only one of the participants is trained as an architectural engineer and four others are architects, one with a collective housing specialty. On a daily basis, they work in an environment welcoming between 3 and 14 collaborators, except for one of them who works alone. All of them hold leadership positions, three for their own companies and two for third parties. With the exception of one of them (for whom we could not collect data through the survey), the others declared that the relation with the client influences a lot their motivation and the quality of their daily life at work. To conclude, we identified that the way these architects meet their clients during the early design phases of architectural project is quite different, notably in terms of frequency. While one of them declares meeting the client only twice, others meet between three and five times, and another can meet with them up to eight times before reaching the building permit phase.

3.2 Semi-structured in-depth interview & analysis

These interviews aim to collect rich qualitative data on architects' relations with their clients, who are also the end-users of the building being designed, since we are here looking at housing projects cases. The objective is to understand multiple interactions that intertwine different issues related to communication, architectural culture, money management and time, among others. This complex situation, called a "wicked problem" by Horst W. J. Rittel (see [Buchanan, 1992] for a genealogy of the concept of design thinking), requires a global understanding of the phenomenon and a co-construction of some shared sense between the researcher and the interviewee (Imbert, 2010; Denzin & Lincoln, 2011). Therefore, a conversational place is necessary for architects to develop their point of view when it comes to the role given to the end-users throughout the architectural practice.

Semi-structured interviews are nowadays recognized for their added value when researching architectural or design processes. For example, four Japan-based designers were interviewed to study "their perception of Western and Japanese people's behavior in co-design workshops" (Taoka et al., 2021, p.2), while 20 interviews were realized to identify "perceptions, sources and tools, as well as perceived barriers and motivations for inclusive design" in Flemish architectural practice (Van der Linden et al., 2016, p.33). Holopainen (2010) studied a service design project in order to understand how designers and architects design their services, with which particularities. Part of a broader ethnographic approach, they conducted eight scheduled, semi-structured interviews to "provide[d] a more structured way of discovering the opinions of the informants" (Holopainen, 2010, p.602). As we see in these examples, even though such interviews should be completed with other methodological approaches to deeply understand architects' practices (see 5. Limits and Perspectives), semi-structured interviews allow to reveal architects' perspectives, at least in an exploratory approach.

Through general and specific questions, both on residential architecture and relations with clients, the semi-structured interviews created a reflexive conversation and revealed the experiences, opinions, feelings, and particular situations experienced by the architects during their careers. A set of 20 questions organized into six thematic categories thus guided the conversation on the specific topic of interactions between architects and end-users, while leaving the possibility for the participants to explore other subjects more freely when relevant and when the allocated time allowed. In brief, five one-to-one recorded semi-structured interviews were realized through Zoom (3), in the interviewee house (1), or hosted at a university office (1) and lasted between one and two hours. We focused only on discursive content on basis of a written transcription of all of the audio recordings (h=8:58:57). After such a transcription, we did a comparative analysis of the interview data, using an abductive approach. To do so, we used our research topics operationalized through the questions asked to interviewees. We annotated common and singular patterns meaningful to our research object, i.e., interactions between architects and end-users. We aim to reveal the plurality of the data without generalizing it (Beaud & Weber, 2010; Dodier & Baszanger, 1997). To this end, we differentiate the interviewees from one another using pseudonyms to preserve their anonymity. We compared these results to the Design Thinking framework, thus revealing similarities and differences between architectural practices and design thinking and discussing the added aspects of the architect's narrative to enrich the reference model. Firstly, we conduct analysis using a collective lens, pointing out the big overlaps in the interviewees' narratives that echo the Design Thinking model. Then we zoom into an individual lens and match specific excerpts corresponding or diverging from the model to illustrate differences and surprising specificities as expressed through our interviews.

4 Findings & discussion

Looking into the data, we first focus on some insightful practices and comments raised during the interviews. Then, we delineate the similarities and gaps between the Design Thinking framework and the practices depicted by the interviewed practitioners.

In most narratives, we tried to grasp the elements that caused frictions, or on the opposite were actually working really well. Thus, we acknowledge that the following anecdotes are not representative of all interactions that may occur between end-users and architects, but these examples can serve as a basis for further reflection on the variety of practices. We also want to drive the reader's attention to the fact that some of these short stories are anecdotal in the interviewee's practice, whilst some other narratives are more customary and thus representative of this single interviewee's routines.

4.1 Overlapping positions

The five interviewed architects told us stories about their practices when encountering clients that would reach out to them for their housing project. These narratives allow us to create a summary timeline on the most frequent meeting points occurring between architects and clients throughout the design phase of the project (at least in their contexts). This sequence of steps is a compilation of the main steps described by these five participants, practicing architecture in Belgium in offices employing less than 20 collaborators. The process described includes a first contact phase between the user and the architect, when they both "test each other" in order to decide whether or not they are going to be working together. The second phase, sometimes already forming in parallel with the first phase, is about creating or adjusting a brief, firstly through physical or virtual meetings and conversations, secondly by presenting reference images and/or bringing along the first sketches and drafts of the architect's ideas ("sketch", "*esquisse*" in French). When the architects sense there is a

good enough grasp on the user's needs and expectations, they define and detail the layouts and enter the phase they call preliminary project or pre-project ("*avant-projet*" in French). Finally, when the architects consider all the variables as set, they undertake the building permit documentation, which is mandatory for any work on the building's envelope or structure, delineating a rather fixed version of the project ("*dossier de permis*" in French). Of course, this sequence appears as rarely linear, and does not do justice to the messiness and the complexity of an actual design process. This simplification is displayed as a support for the reader's comprehension of the main steps that are discussed in the rest of this paper.

One of the main strains mentioned by every interviewed architect, apart from the usually tight budget to hold, is the little time they have for all day-to-day responsibilities. They are in charge of usually small teams of co-workers, and do not have all the support staff they would dream of as to make more time for meta-cognitive thinking. This could be an explanation for the architects' lack of hindsight on their practices and lack of reflection when it comes to enhancing their interactions with their clients in general. This is a key point that has to be kept in mind for any future recommendations.

Another explanation that could be explored is also brought up by several interviewees. Indeed, Ken, Charly and Richard raise the question of the architectural educational background compared to the actual practice. Whereas handling these complex social interactions require huge amounts of social skills from the architect's part, all three of them mention that being an architect sometimes feels like having to be a psychologist, while never receiving any training in such matter. Architectural training often focuses on the form, function and techniques of the end-product design (e.g., the building, the public space...) but lacks coaching on the overall process of designing, especially in terms of social interactions with colleagues (Calixte, 2021) but also with clients. If empathy is often presented as key to a relevant design (Heylighen & Dong, 2019), these architects regret not having an actual psychology course. Whether this might have been recently implemented in architectural trainings around Belgium should be looked into; yet we wonder: would it be possible to accompany senior architects with further continued training to bridge this gap, in order to enhance their current practices, whilst still fitting their tight schedule? As the leader of his architectural firm, Ken does mention that he called an expert in psychology to give all of his associates a course on collaborating and working as a team. This kind of courses could be a great inspiration to adapt a format of classes tackling the psychology behind interactions with users.

Overall, they all seem to be generally in favor of user-centered design in their discourse, but still often depict a vision of the "wise" architect facing the "naive" end-users. Richard, while emphasizing the importance of being at the user's service, still adopts a paternalistic position, explicitly saying he knows what to do for the good of the occupants, that he "offers" his high-quality viewpoints and "help them take a step back to re-examine their needs". Whilst this hindsight coaching is non-rebuttably welcome and rich, we advocate that any user should be considered as the main "expert" when it comes to their needs, desires and uses.

Richard does mention the difference between designing for private mono-family housing (with very specific, individual choices), and larger scale housing when the design is thought to be suiting "everyone". In that regard, he says he enjoys larger projects, public housing for instance, but still designs some residential projects from time to time. Lola also expresses her preference for clients who let themselves be taken by the hand, who listen to what she suggests, without challenging her too much. Still regarding user expertise, Charly addresses the difference of confidence she might put in a user, depending on whether such a user holds certain skills, background or knowledge in construction-related topics. She values clients that come with certain craftsmanship skills and show themselves to be open to debate and exchange with her. This again expresses a certain reluctance to seriously considering every single end-user's input as expertise. All five of the interviewees state that they refuse clients who arrive with ready-made plans to be signed, but we were not able to collect

information on whether those layouts were copied or stolen from another project, or if some or all of the mentioned cases might have actually been drafted by the clients themselves. However, this still highlights the reluctance these architects express about not being the initiator of the design process and design concept.

4.2 Individual excerpts and anecdotes

Another possible explanation for this reluctance to accept ready-made layouts is brought up by Ken during his interview:

“You don't expect to get the gift [of recognition] but to get it, to feel a real thank you and that your work was appreciated, that is clearly the reason I'm in this business. (...) I could earn more, and stress less [in another job] but I would like it less because I wouldn't have the fulfillment that my job brings me. Recognition is part of that. The fulfillment is to be able to please, to bring projects to life for the people trusting us, bringing our touch to it for people to live in”.

From his point of view, the actual passion in his job comes from the fact that he is able to create and gift the project and get full recognition for it; in that regard, we can understand the reluctance he shows when it comes to sharing credit on any design ideation process. However, couldn't he get the recognition he craves by including the end-users more and thus co-creating together with them an even more relevant project, fitting their wishes and needs? The shift in authorship touches a delicate cultural preconception, stating that only the artist is the creator of an art piece he/she offers to the world.

For Leo, the ideal mission for an architect could be summarized as designing living spaces that allow people to blossom. In contrast with this utopia, he says, is the reality of the architect's task: to respect and apply norms, regulations and to take responsibility when things go wrong. On the one hand, he puts the user's wellbeing as the main target, but then on the other hand, it seems like the practice and real-life constraints keep him from actually fulfilling this goal. He also mentions the complexity of communicating with people who do not have an architectural background nor sensitivity to the design culture. According to him, people do not have sufficient general skills in terms of reading a blueprint or harmonizing elements and materials. Again, the architect is placed as *the* expert.

When specifically asked about their thoughts on participation practices, in general, all the interviewees pause for a short while. Whilst Ken is not quite sure what participation means, and while Lola shuts down the conversation saying firmly “it's good to listen to all the people whose lives will be impacted by the project”, Richard praises it for public projects, but would not go there for smaller scale houses. However, he does detail a participation process he was involved in, in the context of a school project, where all the potential future users were invited to a consultation committee and were invited to speak. They visited the site, room by room, noting down everything that was said, listening to and reframing the debates between stakeholders. He also mentions some work groups with teachers and maintenance staff, of children needs being collected, and even the presentation of a model to the children as to get feedback in an iterative process. The design was then presented to the parents and another feedback loop was implemented to take into account their comments and opinions.

His enthusiasm in narrating this memorable project surely contrasts with his reluctance in including the end-user in the very first steps of the design process when it comes to private housing for instance. Once again, the cultural architectural background of these architects does not include any sort of training in participatory approaches and co-creation methods, which might explain such reluctance.

Regarding Lola's case, even though she did not manifest a particular interest in per-say participation, she does have an interesting posture when it comes to client-communication. She qualifies her mission *prima facie* as to have to put all of what she has learned to ensure the comfort and wellbeing

of the occupants. She prefers private housing projects and puts a great emphasis on a human connection with her clients, introducing herself not only as an architect but reminding that she is a human being, a woman, a mother too. She wants her clients to be able to empathize with her and tells them "We are going to live together for a few months" before signing the contract. She also mentions what she calls her "feedback methods":

"I sent a card every year (...) I take a picture of one of the year's projects and send it as a postcard to each client at the end of the year, to tell them 'Hi, I'm still here. I hope all is well' (...) I'll publish out images from previous projects. I make a post on Instagram, (...) saying: Here it's already been that many months since the project was finished, or things like that. And [feedback] works through replies to those kinds of posts or replies to stories for me. (...) I've also had clients call me (...) they give me a nice little comment. Or a client who was pregnant at the same time as me, who wrote to me when her baby was born. Yes, little things like that, but always positive (...) without wanting to sound pretentious. And I also think it is because I'm filtering my clients."

However, she still admits that two of her stories are not that easygoing. She addresses her vision on what went wrong in these relationships:

"It happened two times, and the two times the clients were people who came to me, not because they were convinced that what I was doing was great, or that it was what they wanted. No, they came because they needed an architect, already had been kicked out by another one. And because somebody had told them that they knew somebody... that was me. And I was kind of as a last resort."

Leo also has a success story hidden in an anecdote recalled in his interview, that could be taken as an inspiration for similar cases. In this project, he was in charge of redesigning a small house where his clients experienced difficulties in the daily use. He suggested setting up a small "simple" solution, like a prototype, to test what it could be like to partition the living room, and thus created a small entrance hall with a wardrobe. Eventually, the prototype met the expectations of the end-users so well that it was sustained, and the project did not need to be taken further since the issue had been solved. This can be seen as a smart and effective application of the prototyping principle in a small-scale housing architecture context.

Another isolated success story happened in Richard's career, about 20 years ago. He could not recall who initiated this method, but for a specific client, he had to narrate the space. He did have blueprints and sketches but did not take them out at first. Instead, he did some storytelling, he interpreted a daily journey taking place in the designed spaces. This scenario of life, staging the space in the tale while involving the listener, was a success says Richard, a great moment shared with his client, who then became and has since stayed a friend of his. The project did not evolve much afterwards, from what he recalls, as if this was a crucial step when the end-user could project himself into the immaterial design at this time and was content with what he heard. Unfortunately, this was a one-time experience for Richard, thus nothing indicates that this could be an unfailing method to follow. However, the fact that this experience had a positive outcome can be interpreted as a positive signal to test this method further.

4.3 Patterns of design thinking in architectural practices

Putting together these five narratives and all of the stories of project within, we delineate the practices that can be considered as complete or incomplete steps of a Design Thinking-like process, discussing potential add-ons specific to our field (e.g., housing architectural practices in Wallonia).

4.3.1 Need finding & synthesizing. The collection of user data is very variable, and as mentioned earlier, can even vary for a same architect depending on the client he/she meets. As harsh as this elitist way of doing may seem, some architects did confess this practice: depending on the budget of the

client and the scale of the project, the architect will bring a different approach to the user's needs, such as higher attention to detail, visiting their homes and ensuring a better client support overall.

Every architect interviewed did use reference images, most of them with a procedure encouraging clients to come up with images they really like and images they dislike and having them explain why. This photo elicitation-like technique (Clark et al., 2013) has proven to be really effective in bringing up reactions and insightful information about the wishes of the client.

Ken also has an original method for collecting precious information. He asks the clients to have a notebook or a large piece of paper that will lie on the kitchen counter or anywhere in the current living space to note down whatever comes to their minds regarding the project, even the smallest thing, even if they think it might seem ridiculous or irrelevant. This allows him to collect some more detailed and intimate information, but also trains the clients to actually think and write down what they really need. Although this method sounds really promising, it relies first on the discipline and rigorousness that the clients put into writing things down, but also on their ability to reflect on what they do and what they need. Although this method might miss the actual information that could be observed in action (Zahle, 2012), it still can be a great start to collect further information on uses, expectations, needs and desires of the clients.

Charlie's method is more conventional and consists of a questionnaire of preferences that she sends to her new clients to collect broad information for the project.

Lola had the opportunity to meet with clients initiating new ways of presenting themselves. In one case, it was a family and they had prepared a slide presentation to present all the members of the family, their usages of the rooms, their needs and expectations. "They premade the job for me", she recalls. In the second case, a couple handed her a mood board for the project, which she also welcomed warmly. Although these two cases could be a coincidence, they might also be evidence that the sense of humanity she brings to her communication practices is paying off, as the clients feel freer to share intimate information with her. On another level, this could be another thread to pull on for a shift in the relationship: a thread that could not be pulled by architects, but for once could be pulled by the clients; a way to empower and encourage them to take the lead on unraveling their habits and uses to their architect. As we see it, we conclude that there is no apparent consensus on the methods or tools to collect user data, nor to constitute a brief in small scale housing projects. Everyone seems to do things in their own way.

4.3.2 Ideating. Sometimes, it seems that the architects will skip right to the ideation step, collecting only some basic information on the brief and then hurtling to come up with sketches and drafts already. We might want to hear the user's side of this story in order to frame if this might be perceived as an issue.

This ideation step is not so well documented in the interviewees' narrative and still seems to be cultivated as the mystery of artistic creation. Ken does mention that he often goes to reference books for inspirational images, that can also serve later on to communicate with the client.

Only one thing appears quite clearly in the architects' narratives, and somehow goes against the conclusions of our thematic literature review: none of them mention ideas brought by the users when it comes to the design of volumes, layouts, organization, light... Sometimes, they mention that the clients should choose some of the materials, at best, or sometimes just the interior finishing or some of the equipment, but do not really seem ready to let go with, nor share their creative processes.

4.3.3 Prototyping. As previously mentioned, some actual tools come in handy when it comes to giving end-users a sense of the future project. Mood boards are often brought up as a useful way to "draft a vision of the space" quite early in the design process. Leo preaches for physical scale-models but recognizes that it is slowly fading out of the architects' common practices, as they have less and less time and budget to work with nowadays. He also mentions Virtual Reality (VR) headsets that can allow end-users to virtually move around a model of the project. However, this kind of technology is

not supported by Richard. These are interesting tools, he says, but the time to invest in regard to what we want to show is not yet profitable for small projects. If the model is there and well-built for construction or design purposes, it is a blessing to be able to show it to the client as a plus. But if the model is not accomplished enough, it can be detrimental to the project. Building the model is very time consuming and not every architect is trained to model virtually their drawings. Richard and Charlie agree that to be able to showcase a sensory aspect of the chosen materiality, it is easier to work with a still image of an outlook that can be further worked with rendering mode. Lola also creates these kinds of sensory previews but uses a *collage* method to style her prospective views on the project. She adds a layer to the use of these images by suggesting taking the end-users to the room or place that is modelled, in order to better visualize the changes and discuss the designs on actual site.

She also did once some “*prototyping*” with tape and cardboard on site to help end-users get a better sense of the spaces delineated in the project. She is also interested in VR and augmented reality, which would allow clients to virtually walk through the project but insists, just as Richard, on the lack of time to make such models, as well as the lack of funds for this kind of equipment. She also worries that it might lead people to think that you can “easily” move an element while not realizing all of the consequences implied by small changes and thus not realizing how long it can take to actually implement these small kinds of changes.

4.3.4 Testing & redefining. All of the techniques described here above are supposed to be implemented at some point between the “sketch” phase and the end of the “preliminary project” phase. As a design project is rarely a linear process but rather an iterative, messy process (Brenner & Uebernickel, 2016; Jacob, 2016), often when the client is consulted, there is an update and a change to apply. In this case, it might be important to highlight the fact that it is often not *per se* a test, but rather the architect reaching out to ask for some validation from their clients.

Architects are inclined to accept the changes requested by their clients up to a certain point. Indeed, one of the interviewees insists on the fact that challenging the first drafts is common and clients are welcomed to do so. But as the architect’s time is very precious and counted, the interviewed architects have a policy of accepting up to 4 or 5 modifications throughout the “sketch” and “preliminary project” phases and will often even try to aim for a maximum of 3 major modifications.

To that end, Ken and Richard for instance present 2 rough sketches at the very beginning of the project, in order to rule out the unfollowed paths without having to explore them further. This resonates with Brenner’s “fail often and early” principle (2016, p.8).

4.3.5 Issues with feedbacks. The first four design thinking steps can be somehow referred to, or at least reinterpreted through the architects’ narratives. Commonly emphasizing the importance of empathy and pointing to the iterative process of working through variants of the project, the definition and ideation steps yet vary the most from one profile to the other.

The fifth step however seems to be the most critical. While listening to architects depicting their practices, what stood out the most is the limited feedback of the user on the project being designed, and even more the lack of user’s feedback on the overall collaboration process. Indeed, none of the interviewed profiles had an actual feedback method in place to grasp the possible difficulties or dissatisfactions their clients might have experienced during the design and construction process. This particular issue resonates with the Design Thinking framework, where feedback is an essential step to understand and improve both the output and the process.

In the architectural field, the post occupancy evaluation (POE) literature generally tackles this feedback issue. While indeed being addressed (see for instance: Love, 2000; Ng et al., 2011), this study sheds light on the fact that evaluation still appears to be rarely applied in practice, thus revealing a gap between the scientific and the architects’ worlds, at least in view of the cases studied. Furthermore, we argue that POE methods undertake the satisfaction issue behind time, after the harm

is already done. Even if it brings valuable information for architects to enhance their ongoing practices, the unsatisfied end-users are left with their frustrations and maintenance issues. We advocate in favor of a shift in architectural practice, and for an evaluation and feedback loop as soon as in the early phases of the design process, to aim for better end-user's satisfaction upstream rather than downstream. In that regard, we also want to drive the attention on the loop of “*sketch*” (“*esquisse*” in French), “*preliminary project*” (“*avant-projet*”) and “*consultation of the clients/end-user*” described by the interviewed architects in regard of their design processes and emphasize the need for an actual user input during these phases, rather than just allowing them a light comment or validation.

5 Limitations and future research

If the research points out possibilities for improvement when it comes to architects and end-users' interactions, five qualitative in-depth interviews cannot lead to generalities nor imply representativeness of all Belgian architects. However, the paper still highlights that Design Thinking seems to be hardly diffusing in housing architectural practices, which raises the question of how architectural practices could benefit from broader inspiration from other design practices.

Even though interviews are limited to the “self-reporting issue” (Van der Linden *et al.*, 2016); are restrained to the gap between reflexivity and practice (Boltanski & Thevenot, 1991); remain limited to what architects say they are doing or think they are doing and are influenced by what architects are open to share with the researcher vs. what they really do in practice, they remain a powerful exploratory method to study a professional community. Interviews reveal “the shared vocabulary, attitudes, and values of architects”, as well as their relations to users (Van der Linden *et al.*, 2016).

Worth to mention, this study is part of a broader set of interviews (n=15) which will be soon completed and will be nurtured by observations conducted with an ethnographic approach. Therefore, such interviews constitute an excellent basis to build a solid step-by-step research method to tackle this complex topic of users' place in architectural practice. The complementarity between exploratory questionnaires, interviews and observations in the field is crucial to understand this specific research object (Van der Linden *et al.*, 2016). Moreover, this research is part of a broader research program, including a study on participatory approaches developed in the design field (service, social, graphic, product). The aim is to understand contemporary architectural practices while identifying and adapting strategies developed in design to improve interactions between architects and end-users.

During autumn 2021, we conduct interviews with designers, begin observations with architects, and design upcoming workshops. Then, in winter 2022, we shift to participatory activities through workshops, develop prototypes and probes, and experiment deeply the levers and obstacles for a more collaborative approach between architects and end-users.

6 Conclusions

Through in-depth interviews, we addressed the main social encounters architects describe when describing the design phases of some of their small-scale housing projects. Then this paper outlined some pain points and success stories extracted from those processes. Finally, we delineated and discussed some patterns depicted by the interviewed architects in regard of the Design Thinking principles, steps and tools raised here above, highlighting the (lack of) feedback processes at stake in these narratives. We advocate that an improvement in the interactions between end-users and architects is possible and argue for an architectural practice learning further from the Design Thinking principles. Moreover, we stand in favor of further involving users into the design process, the quality of the relationship between designers and users still constituting a key issue in architecture. Such an

involvement and such a shift in the architect's posture towards the end-user seems to be encountering resistances in the architects' practices and has to be tackled keeping in mind the architects' real-life constraints such as budgets and timing. It nevertheless remains more than ever crucial to the success of any architectural project.

References

- Albrecht, J. (1988). Towards a theory of participation in architecture: An examination of humanistic planning theories. *Journal of Architectural Education*, 42(1), 24-31.
- Arboleda, G. (2020). Beyond participation: Rethinking social design. *Journal of Architectural Education*, 74, 15-25.
- Bacqué, M., & Gauthier, M. (2011). Participation, urbanisme et études urbaines: Quatre décennies de débats et d'expériences depuis « A ladder of citizen participation » de S. R. Arnstein. *Participations*, 1, 36-66.
- Beaud, S., & Weber, F. (2010). *Guide de l'enquête de terrain: Produire et analyser des données ethnographiques*. (4th ed.). Paris: La Découverte.
- Biau, V., Fenker, M., & Macaire, E. (2012). Les métiers de l'architecture et de l'urbanisme à l'épreuve de l'implication des habitants et des usagers. In *Cahiers Ramau 6, L'implication des habitants dans la fabrication de la ville. Métiers et pratiques en question*, 11-28.
- Brenner, W., & Uebernickel, F. (eds.) (2016). *Design thinking for innovation: Research and Practice*. Springer International Publishing.
- Brown, T. (2009). *Change by design: How design thinking transforms organizations and inspires innovation*. Harper Collins: New York.
- Boltanski L., & Thevenot, L. (1991). De la justification. Les économies de la grandeur. Paris: Gallimard.
- Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, 8(2), 5-21.
- Calixte, X. (2021). *Les outils dans l'activité collective médiatisée en conception: Traçabilité des usages au sein du processus de conception architecturale*. Doctoral dissertation, Université de Liège, Liège, Belgique.
- Clark, J., Laing, K., Tiplady, L., & Woolner, P. (2013). *Making connections: Theory and practice of using visual methods to aid participation in research*. Research Centre for Learning and Teaching, Newcastle University.
- Coley, F. J. S., & Lemon, M. (2009). Exploring the design and perceived benefit of sustainable solutions: a review. *Journal of Engineering Design*, 20(6), 543-554.
- Cooper, R. G. (2008). Perspective: The Stage-Gate® idea-to-launch process-update, what's new, and NexGen systems*. *Journal of Product Innovation Management* 25(3), 213-232.
- Denzin, N. K., & Lincoln, Y. S. (eds.) (2011). *The Sage handbook of qualitative research*. London: Sage.
- Dodier, N., & Baszanger, I. (1997). Totalisation et altérité dans l'enquête ethnographique. *Revue Française de Sociologie*, 38(1), 37-66.
- Estevez, D., & Léglise, M. (2015). Accountability and design. *International Journal of Design Sciences and Technology*, 20(2) 99-102.
- Heylighen, A., & Dong, A. (2019). To empathise or not to empathise? Empathy and its limits in design. *Design Studies*, 65, 107-124.
- Holopainen, M. (2010). Exploring service design in the context of architecture. *The Service Industries Journal*, 30(4), 597-608.
- Imbert, G. (2010). L'entretien semi-directif: à la frontière de la santé publique et de l'anthropologie. *Recherche en Soins Infirmiers*, 102, 23-34.
- Jacob, C. D. (2016). "Making is thinking": The design practice of crafting strategy. In W. Brenner & F. Uebernickel (eds.), *Design thinking for innovation. Research and Practice*, (131-140). Springer International Publishing.
- Lawson, B. (2005). *How designers think: The design process demystified*. (4th ed.) Routledge.
- Love, P. E. D., & Holt, G. D. (2000). Construction business performance measurement: the SPM alternative. *Business Process Management Journal*, 6(5), 408-416.
- Macaire, E. (2009). Des architectes à l'épreuve de la participation. In F. De Coninck & J.-F. Deroubaix (eds.), *Ville éphémère, ville durable – Nouveaux usages, nouveaux pouvoirs*, Paris: Édition L'Oeil d'Or, 135-147.
- McDonnell, J., & Lloyd, P. (2014). Beyond specification: A study of architect and client interaction. *Design Studies*, 35(4), 327-52.
- Nauwelaers, I., & Rossini, C. (2014). Construire, une brique dans le ventre pas toujours digeste. *Magazine Test-Achats*, 584, 10-16.
- Nishimura, S.-Y., Boda, S., & Sakurai, N. (2017). A Project based learning through international collaboration with students, inhabitants and local professionals. *7th World Engineering Education Forum (WEEF)*, 589-592.

- Norouzi, N., Shabak, M., Embi, M. R. B., & Khan, T. H. (2015). The architect, the client and effective communication in architectural design practice. *Procedia - Social and Behavioral Sciences*, 172, 635-642.
- Prost, R., & Chaslin, F. (2014). Pratiques de projet en architecture. Le tournant silencieux: Essai. In *Folio*, 250.
- Sarkar, S., & Gero, J. (2017). The Topology of social influence and the dynamics of design product adoption. *Design Computing and Cognition DCC'16*, Springer, 653-665.
- Siva, J. P. S., & London, K. (2011). Investigating the role of client learning for successful architect- client relationships on private single dwelling projects. *Architectural Engineering and Design Management*, 7(3), 177-189.
- Stals, A., Elsen, C., & Jancart, S. (2017). Practical trajectories of parametric tools in small and medium architectural firms. In G. Çağdaş, M. Özkar, L. F. Gül & E. Gürer (eds.), *Proceedings of 17th International Conference, CAAD Futures: Future Trajectories of Computation in Design*, 461- 473.
- Stals, A., Jancart, S., & Elsen, C. (2018). Influence of parametric tools on the complexity of architectural design in everyday work of SME's. *Archnet-IJAR*, 12(3), 206-227.
- Taoka, Y., Kagohashi, K. & Mougenot, C. (2018). A cross-cultural study of co-design: the impact of power distance on group dynamics in Japan. *CoDesign 17*, 22-49.
- Thomas Ng, S., Palaneeswaran, E., & Kumaraswamy, M. M. (2011). Satisfaction of residents on public housings built before and after implementation of ISO9000. *Habitat International*, 35(1), 50-56.
- Timmermans, S. & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, 30(3), 167-186.
- Tribout, S. (2012). Quels freins à la participation des habitants du point de vue des concepteurs ? In *Cahiers Ramau 6, L'implication des habitants dans la fabrication de la ville. Métiers et pratiques en question*, 199-216.
- Van der Linden, V., Dong, H., & Heylighen, A. (2016). From accessibility to experience: Opportunities for inclusive design in architectural practice. *Nordic Journal of Architectural Research*, 28(2), 33- 58.
- Van der Linden, V., Dong, H., & Heylighen, A. (2017). The good client: How architect-client dynamics mediate attention for users. *Proceedings of Professional Practices in the Built Environment*, University of Reading, 174-183.
- Van der Linden, V., Dong, H., & Heylighen, A. (2019). Tracing architects' fragile knowing about users in the socio-material environment of design practice. *Design Studies*, 63, 65-91.
- Zahle, J. (2012). Practical knowledge and participant observation. *Inquiry*, 55(1), 50-65.
- Zetlaoui-Léger, J. (2013). Urbanisme participatif. In I. Casillo, R. Barbier, L. Blondiaux, F. Chateauraynaud, J-M. Fourniau, R. Lefebvre, C. Neveu, & D. Salles (eds.), *Dictionnaire critique et interdisciplinaire de la participation, GIS Démocratie et Participation*, Paris.