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Learning to Shape Places of Care by Empathising with Patients and Caregivers

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Abstract—A crucial ability for architects and other designers is to empathise with the people they design for. In architectural education, however, these people are hardly present. Therefore, a design studio was set up to try and stimulate architecture students to empathise with the users of the building being designed. Students were asked to design a cancer caring centre next to a university hospital. This paper evaluates to what extent the studio was successful in achieving its aim. Analysis of students' design proposals and reactions to a follow-up survey suggests that the studio succeeded in encouraging students to empathise with users and their needs and wants, at least to some extent. Comparison across different years suggests that formats in which students can interact with users in a more personal way are more effective in stimulating empathy. Further research is needed to examine to what extent the attitude developed in the studio sustains as students enter architectural practice.

Keywords—architectural education; care environments; empathy; user experience

I. INTRODUCTION

Architects and other designers conceive buildings and spaces with an eye to offering people a certain experience. How the design outcome is eventually experienced may correspond to the designers' intentions, but might also differ from them in varied ways [1]. Different people experience designed environments differently depending on factors such as age [2], gender [3], ability [4], and ethnicity [5]. A crucial ability for architects and other designers is therefore to empathise with the people they design for [6]: it enables designers to anticipate what future users¹ of the design will experience.

¹ The notion of 'user' is subject to criticism in design research. Focussing on just the 'users' of a product may ignore the needs of others affected by its design [7]. Moreover, the term 'user' reflects a tendency to objectify people as 'test subjects' rather than human beings with a context, lifestyle and desires that go beyond their physical representation [8]. Aware of this critique, in this paper we use the term 'users' as a shorthand for 'people for whom designers design'.

In architectural education, however, future users are hardly present. Architecture students learn to design by working on more or less realistic design assignments, tutored by experienced professionals. Often, however, these assignments involve absent or even imaginary people, as there is no real client. Instead teachers or students 'invent' the future users of the buildings being designed, frequently after their own image [9], and might even adapt them to their design instead of vice versa.

In light of these observations, a design studio was set up to try and stimulate architecture students to empathise with the people who would use the building being designed. Students who attended the studio were asked to design a cancer caring centre next to a university hospital. The assignment was inspired by the Maggie's Centres, a series of centres in the UK which offer psycho-social cancer support by creating supportive environments that add to the wellbeing of anyone affected by cancer. Outstanding architecture, stated to have the power to uplift people, is an inherent part of the Maggie's program.

The design studio stimulated various ways of empathising with users of a cancer caring centre during design. Empathy was explored not simply as a method, but as a mind-set and an attitude towards people. Throughout the three consecutive years the studio was offered, the process of involving patients and caregivers evolved, starting with group sessions and moving towards personal interaction.

The aim of this paper is to evaluate to what extent the studio was successful in stimulating students to empathise with future users of the cancer caring centre. For this evaluation, we rely on the students' design proposals (design documents and oral presentations), which are complemented with a follow-up survey. After sketching the issue of user experience in architectural education in more detail, and introducing the context of the Maggie's Centres, we describe and discuss how

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the studio evolved over the three years, and analyse the impact on students' design outcome and attitude.

II. BACKGROUND

A. User experience in architectural education

In pre-industrial societies, where human-made objects were conceived, made, and used by the same person [10], the experience of using the object could be fed back directly in the design and making of its material, physical features. The industrial revolution introduced a separation between the designer (who conceives an object), maker (who produces it) and user (who experiences it). As a result, the direct feedback loop got interrupted. Today, architects and other designers typically conceive environments and products with an eye to offering users a certain experience, without having direct access to their motivation, values and prior experiences. How users eventually experience the result may correspond to what the designers intended but might also differ from it in various ways [1].

To bridge this gap between design intent and user experience, involving users' perspective in the design process is crucial. Several design disciplines (e.g., engineering, product, software, service design) have therefore started to adopt design approaches in which the actual people being designed for and their real-life experiences are present. The idea is to involve real people who actually take part in designing, contributing to the design process from their own personal experience [11-14], giving input and reflecting on solutions proposed by the designers [15] or even proposing ideas themselves [16].

If architects are to effectively adopt these user-centred design approaches, attention for user experience should start during their education already. Indeed, attitudes developed in the educational settings have been shown to be carried into individuals' professional careers [17]. Moreover, students learn as much through the social culture and type of teaching and learning in the school, as they do by the content of the course [18]. In architectural education, however, few students are confronted with users. Central to how architecture students learn to become architects is the design studio, which relies mainly on the interaction between students and experienced professionals [9;19-20]. The perspective of the people students design for often remains absent [17;21]. Clients, or by extension users, are fabricated by teachers and sometimes created after their self-image. In the exceptional cases where live clients participate in the studio (see e.g., [22-24]), they do not wield much power [10]. As a result, students are unable to form attitudes towards clients and users based on their own direct experience of working with them as designers. According to Rosie Parnell [21,p.64], “[t]his in itself sends out a message to students about the architect’s view of clients and users: they are unnecessary.”

In the absence of users' perspective, architecture students learn to rely mainly on other sources that offer ersatz feedback on how future users will experience the building being designed. A first source of ersatz feedback is the teacher, i.e., a professional architect who, in fact, replaces the client as the

most consistent and significant influence on the architecture student [9].² Yet, even professional architects have been found to often lack knowledge on, or fail to anticipate, user needs [26]; therefore passing on the ability to empathise with people to future architects risks to fail as well. As a result, architecture students become increasingly remote from how lay people describe and prioritise architecture [27-28]. Other sources of ersatz feedback include students' personal experiences of places they have visited [29], or exemplary buildings designed by others and documented in books or magazines [30]. The latter are also frequently referred to by teachers as an eye-opener for students.

In light of these observations, a design studio was set up to try and stimulate architecture students to empathise with the future users of the building they designed. As mentioned, the design assignment for this studio was inspired by the Maggie's Centres. Below we explain what the Maggie's are, and how they relate to the aim of the design studio.

B. Maggie's

Setting up a design studio around the design of a cancer caring centre inspired by the Maggie's allowed us to draw students' attention to user experience in multiple ways: through Maggie's personal story, through the architectural brief written by the Maggie Keswick Jencks Cancer Caring Trust – henceforth referred to as ‘the Trust’ – and through the existing centres.

The built environment is increasingly recognized as having an important influence on people's wellbeing. Landscape designer Maggie Keswick became particularly aware of this influence when she was told that the cancer she had been battling before had returned and she had only a few months left to live. In *A view from the frontline* she describes that she remembered the announcement as follows: “*How long have we got? The average is three to four months (and I’m so sorry, dear, but could we move you to the corridor? We have so many patients waiting...)*” [31]. The corridor she was moved to can be imagined by everyone who ever visited a hospital. Corridors, toilets and waiting areas are the main hospital spaces for which Maggie advocated the provision of alternatives: “*waiting areas could finish you off, they do not support you as a patient but rather tell you: ‘How you feel is unimportant. You are not of value. Fit in with us, not us with you’*”. She was convinced that with little effort the opposite could be achieved [31]. Based on Maggie's experiences and initiated by Maggie and her husband Charles Jencks, the Maggie's Cancer Caring Centres aim at creating supportive or even healing environments that add to their users' wellbeing.

Starting from Maggie's testimony [31], the Trust wrote an architectural brief for the design of the Maggie's Centres. Unlike a regular design brief, the document offers little infor-

² Even in design disciplines that do stimulate students to empathise with future users, the teacher's role has been found to be very strong. In two user-centred design studios in product design, students were found to clearly respond to their teacher above any consideration of user. This suggests that there is a natural desire among students to please their teacher and to focus on his or her needs or desires [25].

mation on required square meters or number of rooms. It rather focuses on the creation of spaces for different moods and uses [32]. Architects are expected not so much to translate rules into spaces, but rather to think along and come up with a truly inspirational building that suits the needs of patients, relatives and staff: “So we want the architects to think about the person who walks in the door. We also want the buildings to be interesting enough that they are a good reason to come in rather than just ‘I’m not coping’” [32, p.4]. Moreover, “What we’re also looking for in our architects is an attitude. We want people to deliver the brief but without preconceived ideas. We don’t want to say to them: ‘This is the way it is done’. We want them to open our eyes as well” [32, p.5].

Several of the existing Maggie’s Centres resulting from the architectural brief have been designed by world famous architects like Frank Gehry, Zaha Hadid, or Rem Koolhaas. They can thus be considered as exemplary buildings, a source architecture students and teachers are used to rely on. At the same time, these projects demonstrate an outspoken attention for and empathy with the people using the centre. All architects who designed a Maggie’s Centre have been challenged explicitly to work with and for the specific users. Some of them actually knew Maggie Keswick personally, others only got to know her through the Trust, or through the written sources she left behind.

Since for cancer patients, stress and anxiety are frequent, yet highly context- and person-specific, designing for them indeed requires that designers take into consideration their particular concerns, wishes and experiences [14]. A study of two centres suggests that the building may have an emotional impact on its users on multiple levels [33-34]: the building as such generates a great feeling of identification amongst them; its materialisation forms a basis for different uses and atmospheres; and, last but not least, the environment supports social interaction between its users and those around them, without forcing it on them (Figure 1).



Fig.1. Maggie’s London by Rogers Stirk Harbour + Partners © José Miguel Hernández Hernández

III. METHODS AND MATERIAL

The combination of Maggie’s story, the specific architectural brief, and the examples of existing centres designed by “star” architects, offered a starting point for a design studio

that aimed at stimulating students to empathise with the future users of the centre they designed. The studio was offered in the Master program in Engineering: Architecture at the University of Leuven (KU Leuven). It was taught by Elina Karanastasi in all three years, together with Mauro Poponcini in the first year. In the first year, students had to follow the Maggie’s studio; in the next years they could choose between this studio and another one. Students who attended this studio were asked to design a Maggie’s Centre next to the University Hospital Leuven. Below, we present first how the design studio was set up and how this set-up evolved, and second how we evaluated its outcome.

A. Designing a Maggie’s for Leuven

Design problems are generally considered to be ill-defined, ill-structured or wicked [35]. Therefore analysing the problem can become an endless task. Designers themselves have to find a way to define the limits of the problem to be able to suggest a possible solution [36]. The assignment to design a Maggie’s Centre for Leuven stimulates students to define these limits in their project by providing sufficient guidance without imposing too many preconditions. The way the Trust formulated the architectural brief inspires rather than limits the designer, whereas it still points out clear recommendations and requirements [32].

The same is true for the building site. Students were given a plan of a broader area where they could chose ‘their own’ spot and situate their proposal (Figure 2). The area is next to the university hospital, yet on the other side of the main road to the hospital. In this way every student could choose the degree of proximity or independency and the physical relation to the hospital. The area is characterized by an advantageous slope and by interchanging parts of dense thicket and deforested spots.



Fig.2. The site given to the students, next to the University Hospital Leuven (marked as UZ Leuven). The green frame indicates the broader area the students had to explore in order to choose their own specific site.

Students who attended the design studio were encouraged to engage with users during the design process. In the course of the three years the studio was offered, the formats to involve users varied in terms of degree and quality (see Table I).

In all three years, students learned about existing Maggie’s Centres. Guest lectures were given by the first and second author about how these centres were intended by architects,

TABLE I. STUDENTS' ENGAGEMENT WITH USERS IN THE DESIGN STUDIO

Year	# students	Interactions with users
1	34	<ul style="list-style-type: none"> - Workshop with 3 (ex-)cancer patients; - Visit to centre for palliative care; - Presentation of 7 design proposals to 2 (ex-)cancer patients & 1 caregiver
2	19	<ul style="list-style-type: none"> - Face-to-face interview with (ex-)cancer patient or caregiver + presentation of findings to other students; - Visit to centre for palliative care or wellbeing + presentation of findings to other students; - Discussion with (ex-)cancer patient or caregiver of intermediate design proposal + presentation to other students during mid-term review; - On-line exhibition of design proposals; - Final presentations in presence of (ex-)patient
3	16	<ul style="list-style-type: none"> - Face-to-face interview with (ex-)cancer patient or caregiver + presentation of findings to other students; - Visit to centre for palliative care or wellbeing + presentation of findings to other students; - Discussion with (ex-)cancer patient or caregiver of intermediate design proposal + presentation to other students during roundtable discussion; - On-line exhibition of design proposals; - Final presentations in presence of caregiver

and experienced by users [33;37]. In the first year, students were also asked to analyse an existing Maggie's Centre in pairs, and present their analysis to the other groups. In all three years, some students relied on video lectures by architects of existing Maggie's Centres and Charles Jencks himself.

In addition, students engaged with (ex-)cancer patients and/or caregivers, and heard their views through various formats. These patients and caregivers were contacted via the KU Leuven Department of Oncology, the Multidisciplinary Breast Centre and Surgical Oncology Department of the University Hospitals Leuven, and the 'Stichting tegen Kanker' (Foundation against Cancer). In the first year, all 34 students who attended the studio participated in a two-hour workshop with three (ex-)cancer patients who testified about their experiences, and about the importance and character of healing environments (Figure 3). In addition, all students visited a day centre for patients with life threatening diseases.

In the second and third year, however, the format was slightly altered. Small groups of 2–3 students either engaged with 'their' user (an (ex-)cancer patient or a professional caregiver), or visited the abovementioned centre for palliative care or a centre for wellbeing, offering people with cancer psychological support and/or facial care. They shared their findings with the other groups, so as to gain access to a more diverse set of perspectives on cancer care in the broadest sense. Moreover, students were encouraged to discuss their intermediate design proposals with 'their' user along the way, and report on these discussions during midterm presentations.



Fig.3. Workshop with (ex-)cancer patients (2012)

In the first year, all 34 students presented their final design project to a jury of two studio teachers and two guest lecturers (including the first author). In addition, a selection of seven projects were presented to two of the three (ex-)patients who participated in the workshop and an oncologist working in the University Hospital. This was expected to sensitize students to differences between architects and lay persons in reacting to or dealing with the presentation of design ideas. In the second and third year, all student proposals were displayed in an on-line exhibition open to everyone.³ In addition, only one final presentation was organized for studio teachers and a guest lecturer, to which participating users were invited too. It was (partly) attended by 1 (ex-)patient and 1 caregiver respectively.

Evaluating the Maggie's Design Studio

The design studio aimed at stimulating students to empathise with the users of the building they were designing. To evaluate to what extent the studio was successful in this respect, we took a twofold approach.

On the one hand, we analysed the students' design proposals. To this end, we conducted a document analysis [38] of the design documents students had handed in (concept schemes, plans, sections, elevations, perspective drawings, etc.) and posted on-line, and of the notes made during their oral presentation of the final design proposal. On the other hand, we analysed how students experienced the design studio. To this end, we conducted an on-line survey among the students who had participated in the studio. The survey was based on open questions, asking students about

- a) what lessons they learned from the studio;
- b) to what extent their design approach had changed as a result of the studio;
- c) and what they would like to change about the studio.

³ See www.maggiesleuven.com

Of the 50 students who were invited to complete the questionnaire,⁴ 15 responded. The answers to the survey were complemented with feedback given by the users and students immediately after the studio.

Both the documents about the students' design proposals and their presentations, and the students' answers to the survey, were analysed qualitatively based on the following questions:

1. Who is the user students consider or refer to? What does this user need or want? And where or how did students obtain information about this?
2. What are the implications of considering this user for the students' design proposal?

This analysis was conducted as a team activity by all four authors. In qualitative research, a team approach to data analysis enhances the possibility to grasp the essence of the data, to correct misinterpretations and to obtain rich, well-considered insights in the research phenomenon [39]. The composition of the team, combining people with different roles and degrees of involvement in the design studio under study, contributed to the quality of the discussion and the trustworthiness of the findings.

IV.FINDINGS

To what extent was the design studio successful in stimulating students to empathise with the users of their cancer caring centre? In their reactions to the survey, students mentioned as most important lesson learned *“that we need to empathise very strongly with the users of the building we design.”* In order to obtain a more nuanced understanding of the studio's success, however, we have a closer look at the extent to which students referred to users in (presenting) their design proposals, and how this affected their design decisions.

A. The user(s)

1) Who is the user?

Judging from the design proposals, and the way students presented them, the most important group of users they considered are patients. Members of this group appeared in several guises:

- Some students referred explicitly to Maggie, as a kind of abstract personage. During the final presentation, one student even displayed a painting by Claude Monet of a young woman which he called *“[his] Maggie”*.
- Other students alluded to patients who visit existing Maggie's Centres. In most design proposals, these patients seemed to be quite similar. Only a few proposals reflected a certain diversity among them (Figure 4).
- Yet other students brought up the patient(s) they had interacted with in real life during the workshop (first year) or interview (second and third year), and/or the patient(s) fellow



Fig.4. Diversity in users of the Maggie's Centre © Annelies Belemans (2014)

students had interacted with and reported on in their presentations.

- One student explicitly referred to well-known people diagnosed with cancer. In the renderings/collages of his design proposal figures popped up like former Apple CEO Steve Jobs or Belgian architect Jo Crepain.

Other groups of users referred to by students include the patients' family and friends, and the staff of the cancer caring centre. Compared to the patients, these groups were considered explicitly by relatively few students.

2) What does the user need/want?

If we look at what users need or want according to students' (presentations of) design proposals, we can observe both needs and wants of patients, and general issues that may apply to everyone. Given the aim of this paper, we discuss the former in more detail.

Among patients' needs and wants, students noticed *“a lot of contradictions”*.

- A first contradiction often cited, is that between a) wanting to be among companions and b) wanting to be able to withdraw, or between a) wanting to be active and b) wanting a relaxing environment because one does not have a lot of physical endurance. People visiting a cancer caring centre may thus want both social contact and privacy, both activities and rest. Other students expressed this contradiction as a need for flexibility, or a wish *“to be able to be alone without being lonely”*. Several students (especially in the first year) also mentioned that, during therapy, patients may have difficulty to concentrate, which might make reading a book even impossible.
- A second contradiction that can be found in the needs and wants students considered, is that between a) the need for a clearly visible, welcoming entrance, and b) the importance of having the opportunity to approach the centre and turn around without entering.
- A final contradiction that came to the surface is that between a) the emphasis on a welcoming environment that feels like home, which is often associated with the presence of a kitchen, and b) the observation that patients may have a difficult relation with food and a high

⁴ i.e., the students of which we had an up-to-date e-mail address.

sensitivity to smells. While the attention for the former was referred to by students in all three years, the attention for the latter to the surface only in the third year.

Beyond these contradictions, students stressed above all patients' preference for contact with nature. Some students referred to water as being considered by patients as a calming element; others to patients' need for brightness, light and sight. At the same time, students mentioned, some patients have difficulty with direct light. A phrase frequently quoted in this respect is *"we love the light but we don't like the sun"*. In the third year, several students paid attention to opportunities for visitors to express themselves (e.g., the possibility to draw, walls with messages, et cetera).

3) Where did students find this information?

Judging from the design proposals, and the way students presented them, they learned about the needs and wants of users (c.q., patients) through multiple sources.

The source referred to most frequently are the **real-life users students interacted with**. For the students who participated in the first year, these were the three (ex-)patients who testified about their experiences in the workshop. For the students who participated in the second or third year, the real-life users were the (ex-)patient or caregiver(s) they had either interacted with during a face-to-face interview or heard about through fellow students' presentations. These real-life users told the students about very specific issues such as the importance of being able to turn around without entering the cancer centre, or difficulties with concentration, the smell of food, or direct light. The importance of this interaction with real-life users was also underlined in students' reactions to the survey. Asked about the most important lesson learned, several students mentioned the importance of working with users. One student formulated it as follows: *"[...] Everybody reacts differently and therefore an individual approach is very important, so you design has to be flexible. A good Maggie's Centre should be able to adapt to the patient, not the other way around."* The interaction with users also seems to have altered students way of designing in later studio's: *"listening to the user is very important. Not just doing whatever you like or what you think might be good, the actual user has a lot of interesting things to say as well and will probably look at your design from a different perspective."*

Another important source students refer to explicitly is *A view from the frontline* and the **architectural brief** written by the Trust. These documents drew students' attention to, for instance, the importance of creating a homelike, welcoming atmosphere. The importance of this brief was confirmed by students reactions to the survey: *"I found the form of the 'architectural brief' highly enriching and pleasant to work with. The assignment offers a lot of design freedom which allows that the designer draws on his full creativity. A very different way of designing, it offers a broader view on architecture."*

Several students mentioned as a source of information their **visit to either the centre for palliative care or the centre for wellbeing**. Their own, personal experience of these environments seemed to serve as a point of reference in what they wanted to avoid or counter in their own design proposal. What students missed in both centres is the homelike, wel-

coming atmosphere asked for in the architectural brief. One student also brought up the absence of light and sight in the centre for wellbeing due to the use of non-see through glass.

Other sources of information about users students alluded to are **videos** about existing Maggie's Centres available online, and the **guest lectures** about how these Centres are experienced by their users. Also here the importance of being able to approach the centre at one's own pace was mentioned.

B. Implications for students' design proposals

To what extent did students' consideration of users' needs and wants impact their design proposal?

The fact that patients want to both enjoy the company of others and be able to withdraw inspired several students to foresee in their cancer caring centre different kinds of spaces. A first example of this strategy is a design proposal that features both a 'Le Pain Quotidien' table (a large wooden table around which people can gather) and a single-person, all-wooden room where a patient could be all by him/herself. In another example enclosed fixed spaces (the 'hardware' of the building) alternate with open spaces to landscape and to various uses (the 'software' of the building) (Figure 5). The need for flexibility was addressed by designing big open spaces that allow different activities, or spaces that can be adapted according to patients' needs. A case in point is the design of 'equipped walls' that can be opened or closed depending on the need for privacy (Figure 6, top). Interestingly, a student mentioned in the survey as most important lesson learned from the studio *"to rethink the concept of space and not think in different rooms, but more like a continuous space"*.

Because of the contradictory wants regarding the entrance of a cancer caring centre, several students paid special attention to how users would approach the building they designed. Examples include offering hesitating visitors a bench next to the entrance door, or as part of a wall along the entrance path that guides visitors to a front wall covered with quotes (Figure 6, bottom).

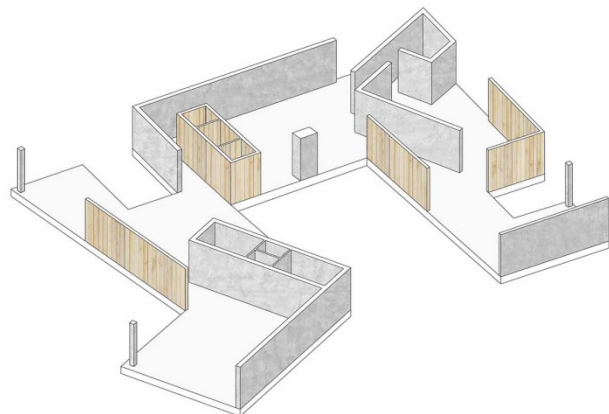


Fig.5. Enclosed fixed spaces (the 'hardware' of the building) alternate with open spaces to landscape and to various uses (the 'software' of the building). © Dries Carmeliet (2012)



Fig.6. Top: 'Equipped walls': spaces that can close or open according to the use. The kitchen can partly close for visitors sensitive to smell. © Annelies Belemans; (2014). Bottom: Benches as part of a wall along the entrance path, for hesitating first-time visitors © Dorien Willems (2014)

The need for a welcoming environment that feels like home inspired a few students to shape their cancer caring centre like the archetype of a house (Figure 7). Numerous other students addressed this need by the choice of materials like brick and wood. Think for instance of the all-wooden room we referred to. Because of the sensitivity to smells of food, a few students who attended the studio in the third year decided to design a closable kitchen (Figure 6, top), even though the architectural brief stresses the importance of an open kitchen. In a reaction to the survey, this is alluded to by a student who mentions as most important lesson learned *“learning to think more broadly, even when there is a pre-set program, daring to question this and think yourself which needs the users have.”*



Fig.7. The archetype of the house hosts the private uses, while the terrace shelters the collective activities. © Matthias Salaets (2012)

The importance of contact with nature was addressed by the majority of the students – be it by foreseeing ample views on the nearby forest, by paying explicit attention to the contact with outdoor spaces, or by integrating an aquarium into the centre. Some students even conceived the building itself as a walk through the landscape (Figure 8) or as a path through and hidden spaces in the forest (Figure 9). Patients’ preference for indirect light inspired several students to work with claustra, or to foresee north-faced windows.

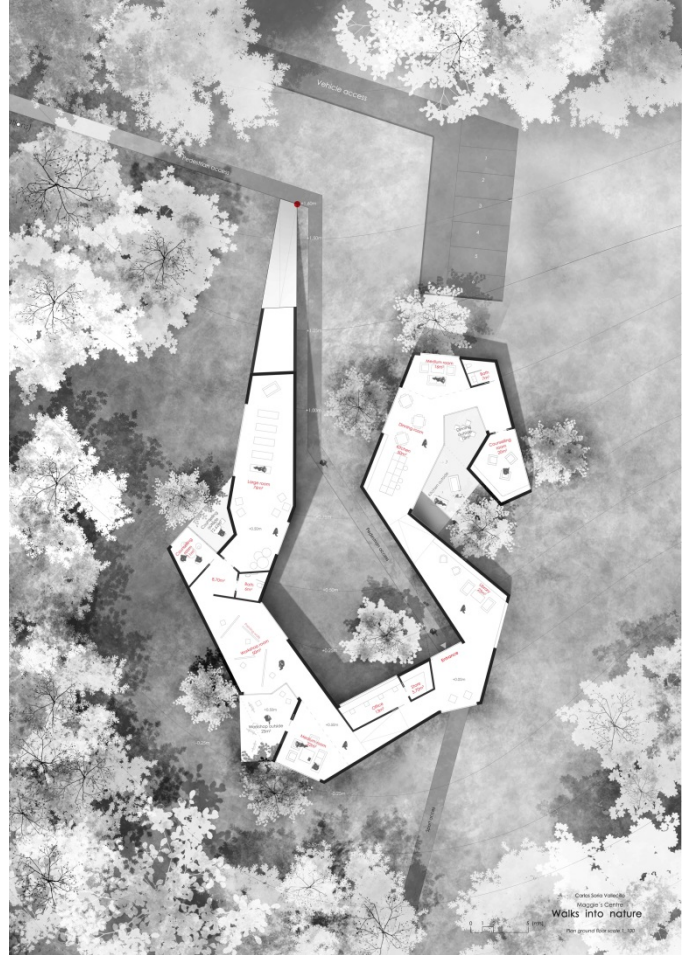


Fig.8. Maggie's Centre conceived as a walk into the landscape. © Carlos Soria Vallecillo (2013)

V. DISCUSSION AND CONCLUSION

Analysis of the design proposals and the way students presented them, suggests that the studio succeeded in encouraging students to empathise with users and their needs and wants, at least to some extent. Judging from the students’ reactions to the survey, the mere fact that students were considering users’ needs and wants, can already be considered a sign of the studio’s success. As one student wrote: *“[This studio was] the first experience with communicating the wishes of the user of the building in a design. Earlier design assignments started from a document made by the teachers/architects. This does not teach us to deal with users who, without much knowledge of*

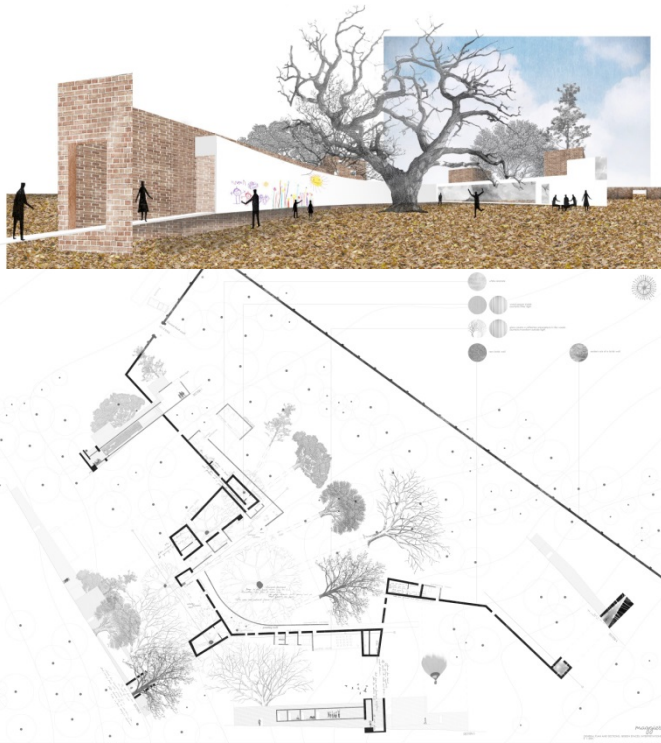


Fig.9. Exploration of the landscape through the building. A main route combined with 'hidden places' © Alejandro Infantes (2014)

architecture, do want to see their wishes elaborated in the design.” By drawing students’ attention to users’ needs and wants, the studio also seemed to raise students’ awareness about the impact of the buildings and spaces they design: “I learned that architecture has influences on people in other domains than just the physical experience of the space. As a designer it’s possible to influence, temper or strengthen the emotional and psychological state of people with your architecture. This was a very inspirational experience for me. I, as a designer, can create an environment that has the ability to make people feel better.”

If we compare students’ design proposals and reactions to the survey, a difference can be observed between the different years: students who attended the studio in the first year seemed to make much more reference to Maggie, or patients ‘in general’, whereas almost all students in the second and third year referred to the real-life user they or their fellow students had interacted with. This suggests that the format in which students can interact with users in a more personal way are more effective in stimulating empathy.

In their reactions to the survey, students formulated suggestions to further improve this interaction. A student suggested to work with more than one user so as to obtain more feedback and different points of view: “I think working with our [user] was a great experience and it definitely had an impact on the way I designed my Maggie’s, but I think in some ways I also adjusted it specifically focused on what she told me, so maybe it might be more interesting to talk with more than one person, to make a design that’s not based on tips of just one

individual.” Similarly, a student suggested to have all students interview a user *and* visit the centre for wellbeing (instead of one of both). We agree that interaction with more users would likely be more beneficial. Yet, to some extent, students were exposed to multiple users already through the presentations of their fellow students. Moreover, the latter were referred to by several students as an important source of information. Another student suggested to extend the interaction with users beyond interviews: “It can perhaps be interesting to do briefly voluntary work (afternoon) with [users] instead of only conducting interviews. During the work you learn to know people probably better and you can still ask questions.”

Besides the difference in format, another factor that might explain the differences between the first year and the second and third year, are the teachers. As mentioned, the teacher is known to be the most consistent and significant influence on the architecture student [9]. A detailed analysis of this influence in this particular studio transcends the scope of this study, however.

Another aspect that transcends its scope, is the role of example projects. Based on the analysis conducted so far, we assume that the architecture of existing Maggie’s Centres informed students both about users’ needs and wants, and about possible ways to address these. A more detailed analysis is needed to fully understand the role of this information source.

Finally, students completed the survey relatively soon after students had attended the studio (between 3 months and 2 years). An interesting topic for future research would be to repeat the survey after the students have graduated and gained a few years of experience in architectural practice.

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