

‘Inclusive design in our home’

Communications with

Older Clients

in the

Design of

Major housing adaptations

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Introduction and background

The majority of people continue to live in their own homes as they move into old age (Peace et al, 2007). However, the home environment may present considerable challenges to those for whom old age brings increasing frailty and disabilities. The purpose of major adaptations to the home is to remove or mitigate obstacles in the physical environment in order to facilitate activities of daily living (Heywood et al. 2002). However, the quality of adaptations may not always meet the expectations of the client. Heywood (2001) suggests that this may be due to difficulties in communication during the design process.

This study elucidates the process of communication which occurs during the design and construction of home adaptations for older people. It was carried out as part of a larger feasibility study into whether information and visualisation technology might be appropriate in supporting the design and implementation of housing adaptations for older people. The purpose of the main study was to investigate how communication between the older person and professionals might be improved, possibly by providing relevant knowledge with a computer-based tool. The study presented here constitutes the first stage of the main investigation. The aim of this preliminary study was to explore how communication between older clients, their family members, staff in social services, occupational therapists, surveyors and builders took place in the briefing and design process for housing adaptations. The objectives were to identify and examine the roles of the key resource controllers involved in determining client needs and initial solutions, locate the sources and extent of knowledge related to key design and implementation issues. By mapping the flows of communication and transfer of this knowledge would determine the feasibility of developing systems and an information and visualisation tool to support the design and implementation process so that both the user and the builder are presented with the best technical answers to meet their needs.

Literature review

Good communication with the client is seen as being very important throughout the whole adaptations process. The Northern Ireland Housing Executive lists fully inclusive communication as one of their principles of good design in adaptations work (NIHEb date XXX). The Department of Health (2004) stresses the importance of keeping clients informed at every stage of the process. Haywood (2001) maintains that ongoing consultation with the client is a prerequisite for good results. The quality of dialogue during the design phase of the adaptation process determines the level of choice and control that is made available to the client (French & Swain 2005). The expectation is that an equal partnership between the occupational therapist and the client should be developed where the latter is put at the centre of the discussion and decision-making (Pengelly 2005, Heywood 2004, Awang 1999). An open attitude on the part of the professional is recommended whereby his or her own ideas are not imposed upon the client (Nocon & Pleace 1998).

Researchers have examined various methods of communication used with clients. Ashlee et al (2005) argue that drawings and written specifications which use professional terminology may be difficult for the client to understand. Other means of communication are recommended to supplement professional tools. Suggestions include three dimensional drawings and other illustrations (Ashlee et al. 2005), sketches, perspective drawings, models and computer assisted 'walkthroughs' of virtual environments (Thorpe 1999). Clients' involvement can be enhanced by enabling them to visualise an adaptation (Heywood 2004, Picking & Pain 2003, Awang 2002, 1999), or by allowing them to see an example of the adaptation in advance (Picking & Pain 2003, Heywood 2001). This also enables clients to influence the aesthetic detailing of the design (Heywood 2001). The use of a CAD 3D tool system, in collaboration with suppliers and manufacturers, by surveyors on behalf of Home Improvement Agencies to image proposals for the occupational therapist is emerging but with no formal reporting (Figure 1).

It is not only clients who are involved in the adaptations process. Family members living with the client are, directly or indirectly, involved as well. This expands the range of communication to other individuals as well as the client. Heywood (2005) underlines the necessity to take into account the needs of the whole family as it constitutes the main basis of support for the client at home.

Methodology

This qualitative study is explorative in nature and case study methodology is used (Patton 2004, Yin 2003). Case study methodology involves 'the exploration of a small

number of cases, selected on the basis of offering rich or pertinent findings in order to address the research question' (Finlay and Ballinger, 2006, p.258). The main research method selected for this study was semi-structured interviews with questions focussed on the components of the research question, namely the design of housing adaptations and the communication process. Data from a range of sources, including all of the interviews, observations of the adaptations and related documentation provided the basis for triangulation (Yin, 2003). The design was retrospective, so as to examine participants experiences of the complete adaptations process. All the researchers were independent of the services examined.

Case studies based in one London Borough

A London Borough was selected as the location for the investigation. This was a purposive sample as suggested by Patton (2004). The main reason for its selection was its typical London housing stock, which includes a large number of houses built during the 1930s, a varied population of owner-occupier residents and a major housing association.

The study investigated the working processes operating within the Borough's social services department around the design and completion of major adaptations through the Disabled Facilities Grant system. This was achieved by studying, in depth, a small number of adaptation projects (cases) in which the clients were older adults. The projects for investigation were selected from those completed not earlier than 2005 so that the involved agents still had a good recollection of the process. The selected projects had substantial structural components and, by implication, more complex design issues.

Participants

Participants in the study included clients who had recently experienced the adaptation process and professionals who were involved in the briefing and design stages. Professionals included occupational therapists, grant surveyors, consultant surveyors and builders.

Ethical considerations

London South Bank University Research Ethical Approval Committee as well as the senior managers of social services approved the study. Participation in the investigation was anonymous. Special considerations regarding health, age or other personal circumstances were dealt with sensitively during the process of interviewing participants.

Data collection methods

Three major methods for data collection were used:

- open-ended interviews with clients and professionals involved in the adaptation process
- direct observations of the adaptations within the client's home.
- document based data collection.

Interviews

The main method of data collection was by individual interview and involved interviewee triangulation (Yin 2003). Open-ended interviews lasting one to one and half hours were conducted with each interviewee. Participants were interviewed only once. Interviews were conducted by the first author who is a qualified architect. Interviews were recorded and written verbatim (audio-taped and transcribed?).

Interviews were carried out with the following participants:

Clients

Six clients were interviewed in their homes. In three cases, the client's spouse was present at the interview. In two of these three cases, the spouse was also the client's main carer.

Two of the six clients were selected from a database held by social services on adaptation projects completed between 2005 and 2006 using the Disabled Facilities Grant (DFG). The database was searched using criteria for age (60 years and above) and project value (£7000 or greater). Three of the six clients were identified during interviews with social services staff or builders. One client, who privately funded the adaptation, was identified via a commercial company involved with adaptation projects.

Four of the six clients were women. Five of the six clients were owner-occupiers and one was a housing association tenant. One male client was represented by his wife who was also his main carer.

Topics for the interviews were derived from the literature review and included: the nature of the adaptation; the quality of the communication around the proposed adaptations with the professionals involved; the quality of the adaptations work; and the client's satisfaction with the outcome.

Professionals

Professionals involved in the adaptations process were included in the study and were interviewed individually (except for the two consultant surveyors who were interviewed together). Four were occupational therapists, two of whom were still employed in the Borough's social services department and two of whom were previous employees. Four interviewees were grant surveyors. Three builders from the social services' list of approved builders were interviewed. Two consultant surveyors who were responsible for housing adaptations in the local Housing Association also took part. Topics addressed within the interviews included: quality of, and difficulties in, communication about proposed adaptations with clients and other agents; reasons for communication difficulties; means used to facilitate communication; sources of information; access to knowledge; special techniques for conveying messages; discussion of areas of special difficulties.

Direct observations

Direct observations of adaptations were carried out during the interviews with the client. Parts of the interviews took place whilst clients showed the adaptation to the researcher. Architectural qualities, layout, material, equipment and furniture were noted. Photographs and field notes were used to document the adaptations.

Document based data

Document based data were collected from:

- Drawings which had been completed before and after the adaptation by the professionals involved
- Schedules for construction
- Client related documents such as letters and forms

Data analysis

Analysis of data followed established qualitative techniques involving coding, looking for themes and categories (Strauss & Corbin 1996).

The analysis drew upon interview transcripts, field notes detailing contextual information, observational records and photographs, documentary data, and reflective logs. The data from all these different sources were compared and formed the basis of triangulation which was used to evaluate the consistency of the findings. The data were continuously compared and contrasted to identify both where consistent

relationships existed and also where there were omissions or conflicting ideas. Common themes emerged from the accounts of both the clients and the professionals of their experiences of communication during the design stage of the adaptations process. The findings of the study are presented according to the four main themes identified.

Findings

The findings of the study are presented according to the themes arising from the documentary data and interviews with clients, occupational therapists, surveyors and builders. The typical process of an adaptations project in terms of policy, procedure and professional roles is outlined first. The themes which emerged from the interview data were:

- Communication between client, occupational therapist and surveyor
- Clients understanding
- Methods of communication
- Aspects of understanding

Progress of adaptations projects

Each home adaptation project had two major phases, design and construction. The design phase started with the client being assessed by the occupational therapist at an initial visit to the client's home. Additional visits occurred, depending upon the complexity of the required adaptation and on the client's capabilities in understanding the process. All the adaptations projects in the study involved visits from both an occupational therapist and a surveyor. After the initial assessment the occupational therapist made recommendations on the adaptations required to meet the needs of the client. The grant surveyor then produced an adaptations proposal based on his or her technical assessment of the house and on the occupational therapist's recommendations. (Figures 2)

During the construction phase the surveyor was responsible for the supervision of the adaptations work. Nevertheless, the construction phase involved a substantial amount of contact between the builder and the client.

Clients and adaptations

The six clients were of different ages and had a variety of disabilities and problems which in all cases affected their mobility and balance to some degree. Two of the clients were permanent wheelchair users. (See Table 1)

All the projects were bathroom adaptations with level access shower (LAS) or a walk-in-shower. Four of the clients had been using their adapted bathroom for approximately six months, one for more than a year and one client was still awaiting completion. All the adaptations included three major components: a washbasin, a shower and a toilet/closomat. Additional equipment included pumps for water

extraction, wall-mounted shower seats, grab rails in various positions and extra seating. In three projects there was a major reorganisation of the room layout; walls were replaced and an adjacent space was integrated into the bathroom in order to increase its size. All the bathrooms were fitted with non-slip flooring. Two of the bathrooms included a wheelchair turning space. (Figure 3)

All clients in the study had received some help with the design of the finishing of their bathrooms from the builder. Much of this was related to aesthetic appearance. The Borough's policy with regard to tiling of the bathroom walls was to cover only those surfaces which were exposed to water and to limit the colour choice to white. The purpose of the Borough's policy was to contain costs. Staff interviews in the study revealed that this policy often led to disappointment for clients because they did not like the 'institutional' appearance of the room. All of the clients in the study chose to add a personal touch to their bathrooms by including some individual design within the finishing of the room. To do this, all clients had chosen to pay privately for alternative finishes such as extra tiling or differently coloured tiles (including a contrasting tile border), different colours of floor covering, halogen light fittings, or decorated wall paper. They had added furnishings and fittings such as Venetian blinds, curtains, mirrors and cupboards to provide varied atmospheres and looks.

Communication between client, occupational therapist and surveyor

The consultant surveyors who were interviewed in the study said that communication was central to the success of an adaptations project. They pointed out that if one party, including the client, is difficult to communicate with the project is more likely to have problems. According to all of the professional staff who were interviewed, it was the occupational therapist who had the most contact with the client overall. This contact included explaining the adaptation proposal to the client. Similarly, all clients confirmed that they had frequent contact with the occupational therapist. Some clients also had significant contact with the surveyors. All clients expressed appreciation of the professionals involved, especially of the occupational therapists, who were described with words such as "marvellous" and "fantastic". One client said:

I thought she [the occupational therapist] had my interests at heart.

In many of the projects the occupational therapist presented ideas which were unfamiliar to the client. The majority of the clients had not got what they had originally envisaged. This was for different reasons, such as lack of space or because the client's health condition precluded the desired adaptation. They had, nevertheless, accepted what the occupational therapist suggested. None of the findings in the study indicated that the client had felt over-ruled, not listened to or not respected by the professionals they were dealing with. On the contrary, clients had felt involved and informed. The interviews with the clients showed that the trust in the occupational

therapist seems to have been of major importance in establishing and maintaining a successful dialogue.

A client expressed her thoughts during the design process, as follows:

You never know how it [the adaptation] is going to work out. But we had to trust that they [the staff] had done wet rooms before for people in wheelchairs so we had to assume that they knew what they were doing. Because they are professionals you just have to trust them, don't you?

The clients' level of participation in the design was relatively small. An occupational therapist said that they try to integrate the client's, carer's and family member's wishes but they are often inhibited by lack of space, or by challenges of the individual disabilities:

A lot of the time the LAS [level access shower] bathrooms are small so there is only a certain way you can have it to meet the disability need. I think they [the clients] largely can't get involved in the design because of the size. Certainly if they come up with a suggestion we would look into it and if it was feasible and it would meet the need it would be OK. I wouldn't say that the client has a massive influence on the layout.

For one couple that was interviewed (a client and his wife) a number of their original wishes had not been met: they had not been able to keep their bath as well have the shower; an outdoor ramp was never installed due to bureaucratic difficulties; and a cupboard which they had wanted could not be accommodated. At the time of the interview the couple revealed that they were no longer able to use the installed toilet because of the husband's deteriorating health so they now used a commode instead. When the client had initially used the level access shower, he had been alarmed by the noise of the pump but he had gradually got used to it. Nevertheless, the client's wife said that she was pleased with both the input of the occupational therapist and with outcome of the adaptation, especially the aesthetic look of it. She said:

I was more worried what it would look like that if it functioned.

Clients' understanding

Clients' capabilities to understand and communicate are varied. One of the occupational therapists interviewed said that some people are surprisingly good at imagining what an adaptation would be like. The occupational therapist's view was that the client's skills in understanding and communication are not necessarily related to age but there is a discernable relation between physical and psychological health and communication skills. The implication was that clients who were in a poor state of health had more difficulties. All staff interviewed had experience of clients who had had difficulties in visualising the adaptation proposals. One occupational therapist pointed out the difficulties for some clients:

you talk about the adaptation and they don't have a clue what you are talking about. They have difficulties in visualising if they had never seen a though floor lift or an LAS. So you do the best you can to describe it.

One surveyor also pointed out the particular problems that clients had in visualising adaptations in those cases where the client had not seen anything like the proposed adaptation before:

The only problem might be for our client when we say that the OT is recommending an LAS, they can't visualise that. Because when people think of a shower they think of a shower with doors around it.

The study showed that efforts were made to make the client understand. No adaptations project moved ahead without the consent of the client which implied some level of understanding. One occupational therapist stressed that she would never go ahead with a project if she realised that the client did not understand. Another occupational therapist recalled a situation where she had a feeling that the couple who were due to have a step lift installed did not really understand the full implications of the proposal but they nevertheless declared, after completion, that the adaptation was to their full satisfaction.

Methods of communication

A number of methods were used to help the client to understand the proposals. The most basic method was to verbally explain the adaptation to the client, including the layout, the equipment in it and how it would function. Sketch drawings were used to support the explanation. Clients received a schedule of work, sketch drawings, (i.e. plans of existing as well as proposed layouts), and a shower projection drawing which was an axonometric drawing showing the size of the shower tray, the position of the shower fitting, including the pump, and the wall mounted shower seat if provided. (Figure 4)

All clients who were interviewed indicated that they had, in principle, understood the drawings, even though they were not very detailed and used very simple symbols.

One client said:

I could make sense of it [the drawing] That was the symbol for the toilet, chair etc. no difficulties. I understand, but for an elderly person it looks like a road map. I knew basically what would happen.

In addition to explaining the layout, equipment and function, photos of adaptations and equipment supplier catalogues were presented to the client. One occupational therapist said that she had started to build up a catalogue of photos of adaptations which she took with her to show to clients when she was going to explain the adaptation proposal. None of the clients interviewed in this study had been shown any photos of adaptations. Some clients are offered a visit to an equipment showroom or disability living centre where the client can try out a stair lift and see a level access

shower. There was a local equipment demonstration centre which was visited by three of the clients in the study. One client and his wife said that they had visited an existing adaptation in their neighbourhood. However, trying to visualise how an adaptation seen in an external context would appear in the home environment can be difficult. Another client compared the process to buying furniture:

It is like when you buy a new three piece suite. You see things in a shop and you have a good idea about it. But when it comes home it is completely different.

The study findings suggested that the occupational therapists used additional methods only in situations where the client expressed concerns. The amount of information given to clients in the study varied to a large extent. The youngest client in the study had not been worried about the outcome. She just signed and sent back the agreement form. In her case, the discussion with staff was minimal. In the interview, however, she revealed that, even though she had a general idea of the expected outcome, she had not been able to visualise what the bathroom would look like when completed. In fact she was the only client in the study who clearly stated that she had not been able to visualise it.

I couldn't visualise and get a picture. Especially with the rough drawing. A round circle is your toilet, a square box is your shower, a little arrow saying shower on the side. It is all different shapes and figures which you try to visualise in a bathroom and I couldn't do it. Especially when you hadn't seen a shower.

The interviews with clients revealed different levels of diligence in seeking out information. In general some clients were very anxious to get information, whereas others were not. One client had used a number of information sources including demonstration centres, recommendations by the occupational therapist and a multiple sclerosis (MS) nurse, from a company in the field and the internet. The 93 year old woman interviewed in the study felt that she had got too much information, at the wrong time, from a commercial catalogue. It did not make sense to her at that stage and she simply threw it away.

Aspects of understanding

All clients who were interviewed said that they had been informed by the occupational therapist about the use and function of the adaptation as well as the safety benefits. According to the staff interviewed many clients are pleasantly surprised by the outcome. This was confirmed in the client interviews. The oldest of the clients interviewed said:

O yes, I was so worried but it turned out much better than I thought.

A number of concerns were raised about the use and function of the level access shower, especially as most of the clients had never seen one before. Some of the

clients talked about the 'wet floor' which is the technical term written on the drawings. Several clients said that this gave them the impression of water going all over the floor. A carer said:

I was worried about being swamped in water because I have difficulties in bending. I don't always want to have to mop my floor.

There were other concerns raised about the wet floor. The youngest client, who at the time of interview was still waiting for the bathroom to be completed, said:

The only impression is that it is going to be cold; it is going to feel cold. We will see. Because of the wet floor, not the tiles.

She and other women (carers and clients) raised the issue of easy cleaning. Other concerns were worries of being scalded or freezing if they were to fall in the shower, whether the shower seat would be steady enough, whether the curtain would be too heavy or not possible to move at all, where the shower gel would be kept for ease of reach. Two clients expressed their initial alarm at the unexpected noise of the shower pump.

Technical descriptions were difficult for some clients even though their attitude to them varied. One client was concerned about the confusion caused by technical terms in the drawings and specifications, whereas another client just accepted that this was beyond her knowledge. The latter client described the discussions between the surveyors and the builder in her flat:

I wasn't excluded they weren't talking above my head. But there were areas which I wouldn't understand. It was building talk, put it that way.

Many of the positive opinions about the adaptations revealed that neither the client nor the family members had been able to imagine all the benefits that would be gained from the use of a level access shower. For instance, neither of the two carers had been able to foresee the extent to which the assistance they gave to the client would be facilitated. Clients were surprised about the adaptation being more convenient and safer to work in than expected, and the extent to which it improved independence. Worry about space was common among the client interviewees. They had found it difficult to imagine, in advance, how the lack of space would be dealt with or how space would be reorganised. One client's husband had been actively involved in the design in order to include a wheelchair turning circle in the corridor outside the bathroom. He and his wife had nevertheless been very concerned that there would not be enough space for the planned adaptation. Some clients, over time, had developed particular care routines with their helpers when using the bathroom, which they chose to continue once the adaptation was completed. Some did not use the equipment provided. Two clients still preferred to stand even though a shower seat had been provided. They had not been able to foresee how the new adaptation and equipment

would offer opportunities for changes in care practices. The oldest client had been very worried that she would be unable to adapt to the new environment or use the bathroom at all.

Many clients talked about the worries and inconveniences in the construction phase. According to the staff interviewed, this was a common reaction from older clients. The oldest client had been worrying about how the builder would technically manage some of the works.

When they started I thought that wall that they were going to dismantle I thought it was bricks. But it wasn't. (Laughing) It was such an easy job. They went up and down with planks and... And when they took the bath out... I was thinking how will they get the bath out?

One builder who was interviewed said that people were often worried when things were taken out; they relaxed when the construction came closer to completion. Another builder said that clients often had a very vague idea about the construction process itself and about how much disruption it was going to cause them. (Figure 5)

Future Directions and Further Development

Two dimensions of communication between professionals and clients are discernable in the study results, *professional framing* and *information presentation*.

Professional framing

The results of the study indicated that communication seemed to have been successful in terms of clients' perception of the staff involved in the adaptations process. Staff attitudes were described as respectful and clients felt involved even though they did not fully understand everything. Good communication with the client implies an equal relationship, client centeredness and influence (French & Swain 2005, Pengelly 2005, Awang 1999, Nocon & Pleace 1998). This study points to a complex relationship between the client and the occupational therapist where professionalism is a core aspect. The clients' influence on the technical design was, in most cases, virtually non-existent. Several clients in the study had expected something other than a level access shower as a solution to their bathing problems and they had had a number of their own ideas rejected in the initial stages. One might have expected clients to have been disappointed but this was not evident from the interviews in this study. A major factor in the successful communication with these clients seems to have been the occupational therapist's *professional framing*, i.e. the ability to present a rationale for an adaptation proposal in such a way that *the occupational therapist gains the client's trust* in their professional competence. Clients linked professional competence with the occupational therapist's (perceived) good intentions to protect the client's interests.

The communication processes described as successful by clients in the study did, in fact, include several contradictory elements. The clients were deprived of choice and control over the design of the adaptation, contrary to the recommendations of French and Swain (2005). The 'good attitude' suggested by Nocon and Pleace (1998), whereby the professionals' own ideas should not be imposed on the clients, has to be interpreted differently in the light of the results of this study. It seems from the findings that it is possible to successfully realise the professional's ideas without the client feeling over-ruled or obliged to accept them. This demands a delicate balance between professionalism and an attitude which shows sensitivity to the client's wishes.

All clients in the study expressed satisfaction with their adaptations. Therefore the study does not reflect any interpretations of professional framing by clients who were displeased with the outcome of the adaptation process. Heywood (2001) has shown that poor communication is often a factor contributing to an unsatisfactory adaptation result. However, it is possible that an adaptation project could have an unsatisfactory outcome even where communication has been respectful and open to the client's wishes. The finished product may fail for some reason other than poor communication such as an unexpected deterioration in the client's condition. In such cases, a client may be more inclined to seek an explanation for the failed outcome within the context of their interaction with the occupational therapist. Professional framing is perceived as positive when the project ends in a fully functioning adaptation but may be interpreted negatively in cases where the adaptation has failed to fulfil its purpose. The client may then remember their experience of the adaptations process as being 'forced' into a solution which he or she had not expected.

All clients in the study were pleased with the aesthetic outcome of their bathrooms. The extra costs, which all had incurred for additional tiling and other decoration, indicate that the appearance of the adaptation is important to many clients. Heywood (2001) suggests that the involvement of the clients in the adaptation process is enhanced where they are able to influence the aesthetic detailing of the design. This study indicates that client satisfaction with the adaptation is substantially derived from aesthetic components. One adaptation project had failed to some extent. The client's wife (and carer) was, nevertheless, pleased with the bathroom, highlighting her satisfaction with the aesthetic look of it. If something goes wrong with the adaptation, or the client is not pleased with the aesthetic design, he or she may hold the occupational therapist responsible for ruining the bathroom as well.

Presentation of information on design

The staff interviewed in the study seemed to be very much aware of the difficulties clients had in understanding and visualising a major adaptation in advance of its

construction. The variety of clients' information needs was a challenge to the staff. Clients were provided with further information about the adaptation if they expressed concerns. However, the study showed clearly that, if a client did not have queries or concerns, it did not necessarily imply that he or she had fully understood the adaptation. The study revealed that none of the clients interviewed had fully grasped all aspects of the adaptation. Other research has shown that clients' consent to the adaptation not necessarily because they fully understand the design, but because they want the process to continue (Awang 1999). This study likewise revealed that clients accepted the proposed adaptation even if they had not understood the design properly. Clients may find it easier to accept proposed adaptations without full insight if the occupational therapist has been able to establish a relationship of trust.

The results of the study suggest that the judgement about the client's level of understanding is, to a large extent, a matter for the staff involved. How staff judge what level of understanding is required from the client before an adaptation project can go ahead or on what criteria the client's understanding is assessed were not made explicit in the interviews. Further research is needed to clarify what mechanisms and criteria are used.

Elements which contribute to a full understanding of an adaptation can be divided into four categories.

(i) A detailed image/ 3D visualisation of the adaptation

Many researchers have stressed the importance of clients being able to visualise an adaptation in order to participate in the design (Heywood 2004, Picking & Pain 2003, Awang 2002, 1999). In this study most clients had been able to visualise, to some extent, what the bathroom would be like. Many said that the appearance of the bathroom turned out to be better than they had expected. A positive surprise of this kind does not really reflect success in communication in that it indicates that the client had not been able to fully visualise what the bathroom would look like. Some clients dwelled upon aesthetic concerns, such as the beauty and ambiance of the room as created by temperature control, materials, interior fittings and lighting. For some clients, the fact that they had not had the opportunity to see an example of the proposed adaptation in advance, meant that they had problems visualising the sink, the toilet and, in particular, the level access shower. Some also found it difficult to imagine the size of the new bathroom, especially where it involved removal or repositioning of the walls.

(ii)Function

The occupational therapists gave particular attention to explaining the use and benefits of the adaptation to the client, even though this often involved addressing complex issues. Many of the clients had appreciated the benefits of the adaptation in relation to safety following the explanation from the occupational therapist. The enhanced comfort provided in using the adaptation and the improved level of independence it gave were, nevertheless, a surprise to clients. Clients had been introduced to the use and function of the adaptation by the occupational therapist. Moreover, clients themselves developed novel ways of using the adaptations which the occupational therapists had not anticipated. The benefits to the carer and to the wider family were often greater than the clients had expected. As well as the adaptation itself, a number of clients had concerns about equipment for moving and handling and furniture. These concerns were also addressed by the occupational therapists.

(iii) Technical matters

Clients were concerned about the technical functioning of the adaptation. A major concern among many women clients or carers was whether the water would fail to drain away as planned and flood the room. Also, the noise from a pump was mentioned by some of clients as being much more disturbing than expected.

(iv) The construction process.

Clients were informed about the Disabled Facilities Grant (DFG) process early on in the meetings with the occupational therapist. The Department of Health (2004) stresses the importance of providing information to clients throughout the whole process. The results of this study indicate that the last phase, the construction period, posed new challenges to the staff regarding provision of information. Client interviews showed a number of issues in relation to construction which were a concern. This was confirmed by the builders who were interviewed. They suggested that clients often had a vague idea about the construction work and this was a potential source of stress. One consideration is that occupational therapists should continue with active contact with the clients, even during the last construction phase. The contact would enable support in understanding the information they were being given.

The success of methods of communication used to convey information was variable. To be effective, information must be sufficient, relevant and timely. Where it is not, the client may simply disregard it. An example is a client who threw away the catalogue on shower adaptations. Verbal information given by occupational therapists was, according to the results, successful in conveying a certain amount of information, but not all. Sketch drawings helped to present a basic image of the adaptation but not

the details. (Figure 6) Technical terms in building specifications posed challenges to some clients, as was found in earlier research by Ashlee et al (2005). The results of the study indicate that it is important to give careful consideration to words used in presenting information to clients. One example from the study is the word 'wet floor' which seemed to have given some clients the impression of water flowing all over the room. This is unfortunate as the term actually refers to the opposite function: a protective surface which allows the floor to become wet without damage.

Visits to demonstration centres and to sites where there was an existing adaptation were valued highly by clients in terms of helping them to get a clear idea of what the adaptation was about. However, visualising the adaptation in the context of their own home environment still proved difficult. (Figure 7) None of the clients in the study had been shown photographs or catalogues by the staff involved in the adaptation process. One may assume, however, that if real life examples of adaptations, such as those seen at a demonstration centre, did not translate easily (in the client's imagination) to their own home context, it is unlikely that photographs would have had any greater impact.

Conclusions

The study shows that the client's understanding of an adaptation includes comprehension of tangible and intangible issues differing in size and importance. It is a private, tactile, sensual, body based experience of which aesthetics is a highly influencing factor for satisfaction.

The importance of visualisation of the finished product linked to stored information for the client and carer is key to their understanding of the design issues, whilst enabling the occupational therapist's ability to present and communicate the rationale for the adaptation. All these dimensions should preferably be integrated in the design process and conveyed to the client in order to arrive at a presentation which is as close to reality as possible.

Many researchers argue that *client centeredness* is of great importance in client satisfaction. This study shows that by carefully conveying professional knowledge the clients' trust and satisfaction is put in the centre. Doing this demands sensitivity and professionalism from all in the briefing, design and construction process.

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Figure 1 CAD 3D system tool in use by Telford Home Improvement Agency for use by their surveyors and supplied to occupational therapists to communicate adaptation design. By M'nG' Designs Ltd, in collaboration with specific suppliers/manufacturers, 2007.

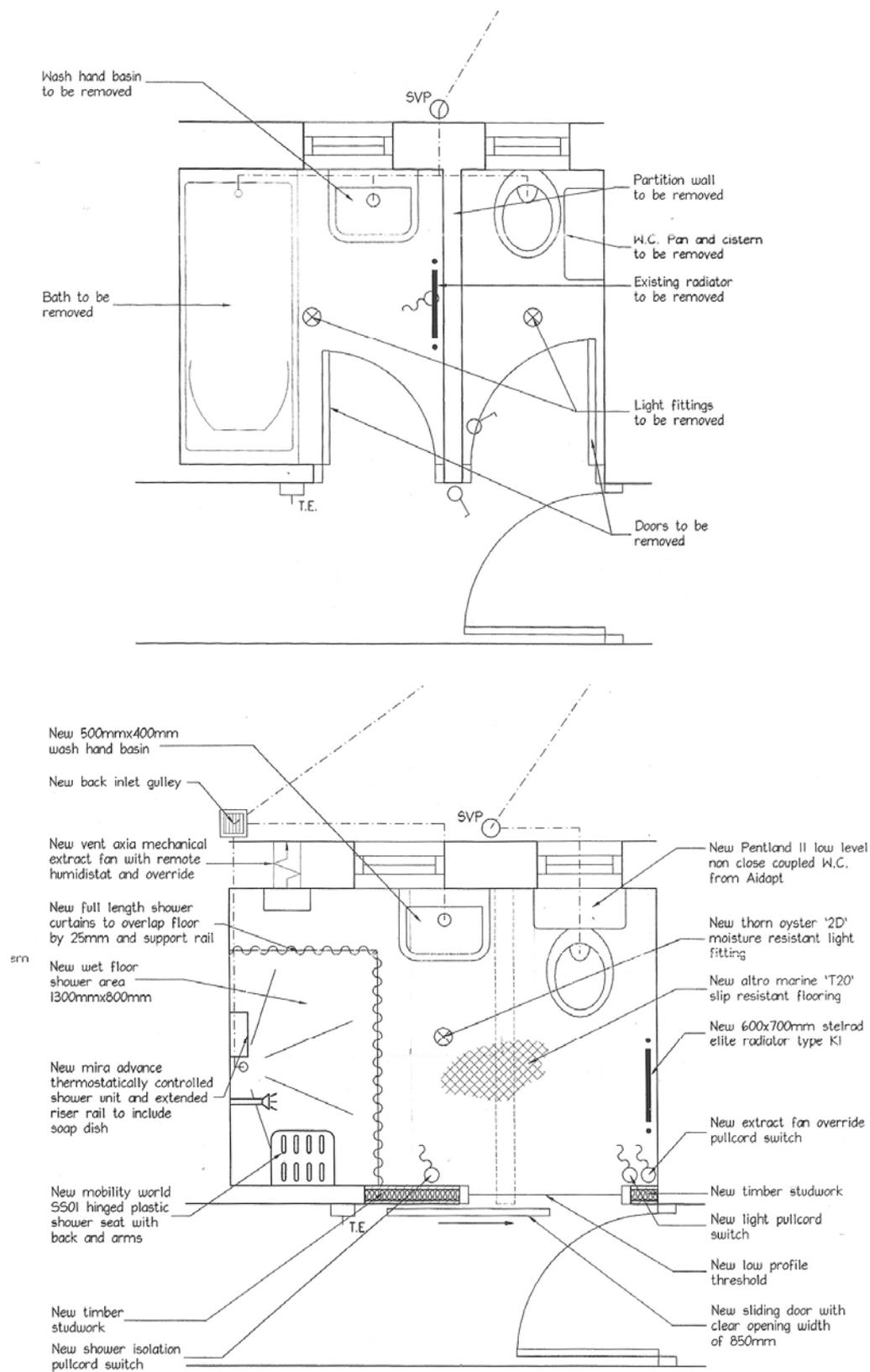


Figure 2 Builder's working drawings. Existing (on top) and proposed layout.



Figure 2 Adapted bathrooms: From left to right: Client 6, Client 2, Client 5 and Client 1.

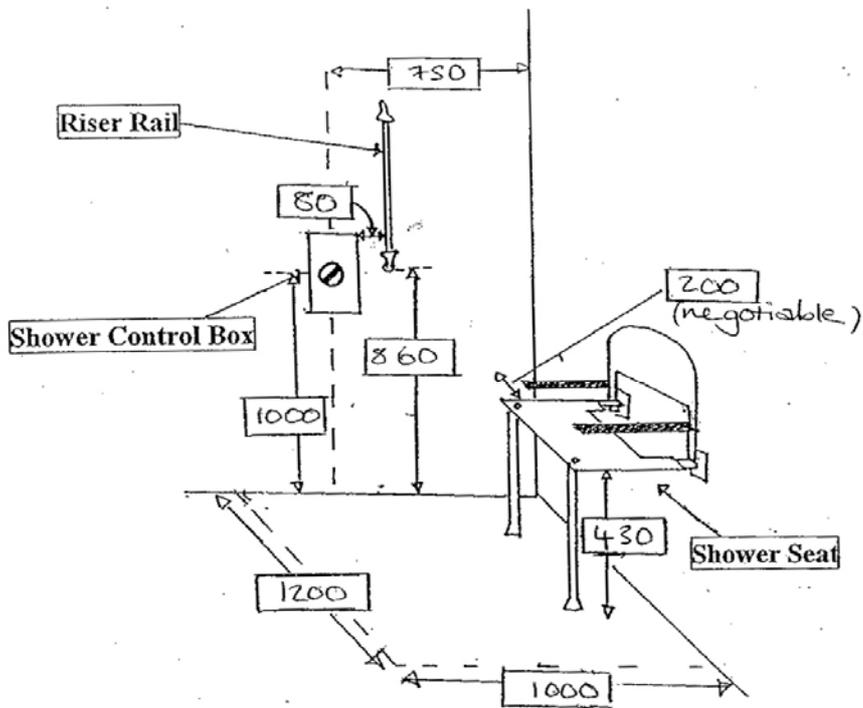


Figure 4 Occupational therapist's shower projecting drawing.



Figure 5 The progress of construction is a potential source of stress to the client.

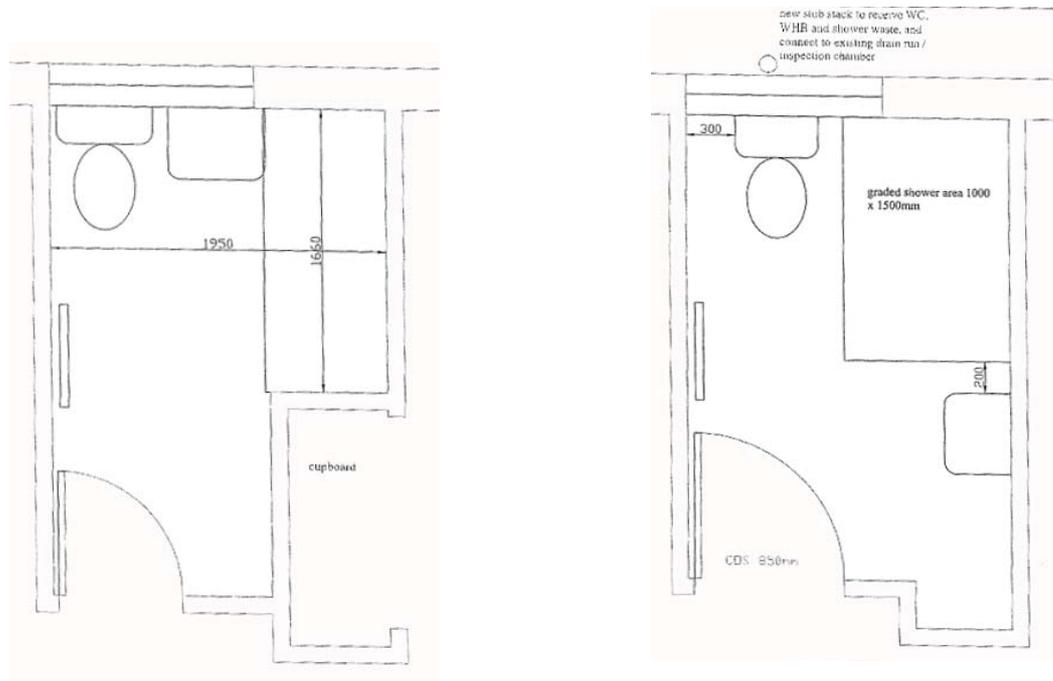


Figure 6 Drawing with existing and proposed (to the right) layout. Client 2.

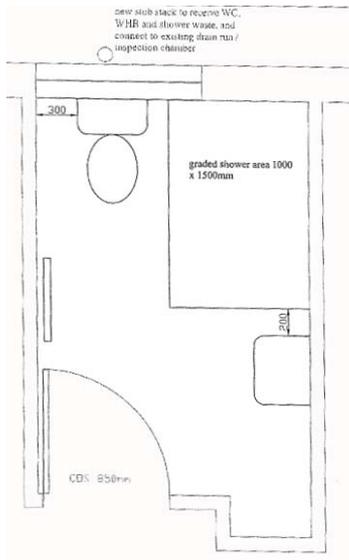
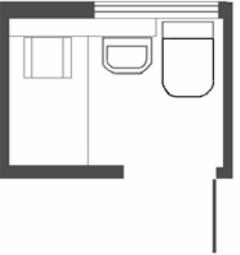
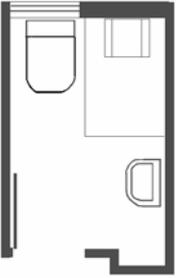
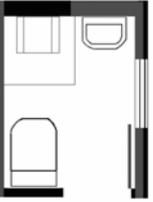
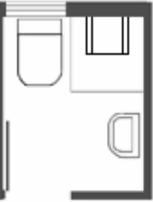
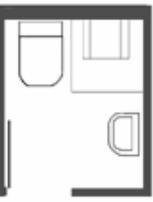


Figure 7 An imaginary leap for the client: from drawing to finished adaptation.

Table 1 Details of the six interviewed clients.

	Age	Sex	Use and process period	Disorder and physical problems	Owner or tenant	Type of housing	DFG	Household members
	Client 1 72	Female	14 months Two years	Stroke, epilepsy. Very bad balance, prone to falling.	Tenant	Flat in sheltered housing	Yes	Lives alone
	Client 2 70-75	Male	Six months 12 months	PMR???? Difficulties walking. Partly in wheel chair.	Owner	Semi-detached house	Yes	Wife and carer
	Client 3 45	Female	Under production 14 months	Arthritis in hips, bad spine. Bad walking, repeated falls.	Owner	Semi-detached house	Yes	Son 16
	Client 4 50-55	Female	Six months	MS. Wheelchair user General restricted mobility.	Owner	Bungalow	No	Husband and son 15.
	Client 5 70-75	Male	Six months	Stroke. Wheelchair user General restricted mobility.	Owner	Flat	Yes	Wife and carer
	Client 6 93	Female	> Five months	Frailty. Bad balance, prone to falling.	Owner	Semidetached house	Yes	Lives alone

