



This item was submitted to Loughborough's Institutional Repository by the author and is made available under the following Creative Commons Licence conditions.



CC creative commons
COMMONS DEED

Attribution-NonCommercial-NoDerivs 2.5

You are free:

- to copy, distribute, display, and perform the work

Under the following conditions:

BY: **Attribution.** You must attribute the work in the manner specified by the author or licensor.

Noncommercial. You may not use this work for commercial purposes.

No Derivative Works. You may not alter, transform, or build upon this work.

- For any reuse or distribution, you must make clear to others the license terms of this work.
- Any of these conditions can be waived if you get permission from the copyright holder.

Your fair use and other rights are in no way affected by the above.

This is a human-readable summary of the [Legal Code \(the full license\)](#).

[Disclaimer](#) 

For the full text of this licence, please go to:
<http://creativecommons.org/licenses/by-nc-nd/2.5/>

Using focus group methods to improve students' design project research in schools: Drawing parallels from action research at undergraduate level

Howard Denton

Senior Lecturer

Department of Design and Technology

Loughborough University

Loughborough, LE11 3TU

Telephone: 01509 222655, fax: 01509 223999, email: h.g.denton@lboro.ac.uk

Deana McDonagh

Lecturer

Department of Design and Technology

Loughborough University

Loughborough, LE11 3TU

Telephone: 01509 222665, fax: 01509 223999, email: d.c.mcdonagh@lboro.ac.uk

Keywords: focus group, design research, research application, evidence-based design decision-making

ABSTRACT

Focus groups are increasingly used in industry to elicit data on product users' less tangible needs and associated product symbolism . This can have a considerable impact on a product's subsequent sales and hence is commercially extremely valuable design research.

This paper provides an overview of an action research project which placed both a designer and an undergraduate designer, rather than a market researcher in direct contact with users in focus groups. The aim of the work was two-fold: firstly to develop a protocol for a designer to manage focus groups effectively, and secondly to see if this experience could improve the designer's ability to empathise with a range of users (socio-economic, culture, gender, age or abilities). In reporting the above, the paper also attempts to extrapolate the findings to a schools context; could focus group methods be used by students at a school level both as a vehicle for design research and as a learning tool?

This paper provides a background to focus group methods, together with their advantages and limitations. The action research project is described and three case studies within it are outlined. The protocols developed are described. The final section of the paper looks at the degree to which this work could be extrapolated to schools level design work both in the United Kingdom and internationally.

INTRODUCTION

Research is a vital aspect of any design work. At both school and undergraduate levels, design research also has a secondary value in developing the young designer's understanding of products and the social context of their use. Typically students on design and technology courses will employ questionnaires, interviews and product analysis as part of their research. These techniques, if taught and applied effectively are helpful, each offering advantages but also having limitations. For example it is recognised that users and purchasers of products have needs which are often subtle, subconscious and difficult to identify. Illustrating this Solomon (1983) argues that consumers use product symbolism to define both themselves and their relationships to others. McCracken (1988) uses the term *symbolic consumption* to describe the quasi-language through which people use products to communicate with each other. Manufacturers are increasingly sensitive to this issue and recognise that research offering an insight into these needs can provide a product a market-winning edge. Focus group methodology offers one way of gaining such insights. A typical focus group is a gathering of individuals brought together to generate data through discussing particular topics and issues whilst guided by a moderator. The method relies upon a positive synergetic effect within the group, particularly supporting group-brainstorming activities within the discussion. The method has a long history in market research (e.g. Savage *et al.* 1995). Specific procedures are described by authors such as Morgan (1998), Krueger (1998) and Greenbaum (1998).

In industry, specialist usually carry out market research. They gather raw data, process it, and feed results to design teams. The authors of this paper considered the lack of designer/user contact to be a serious limitation to good design. A working hypothesis was generated that all designers have a limit to the degree with which they can empathise with potential users from other groups, for example socio-economic, gender, culture, age and ability. In addition it is hypothesised that:

- trainee designers would benefit from frameworks which could be used to develop their ability to empathise with users from different groups
- experience gained from such activity would internalised and, therefore, be of value in future work.

A distinctive **action research project** was established and conducted over a five-year period. This placed undergraduate designers directly in contact with users through focus group activities and involved them in the process of identifying user needs and aspirations. It was intended that this would broaden their 'empathic horizon' (McDonagh-Philp and Denton 1999). Not only would the designer be better informed on the needs and aspirations of users in a particular project, but they would also *grow* as designers from the experience and be better able to empathise with, and design for, other groups outside their existing experience. The research explored two particular innovations, these were:

- a. The training of student designers in the management of focus groups. The aim is to bring the user-focus into the design team and design process itself.
- b. The employment of focus group methodologies at several points within the design process rather only at the beginning. This allows designers to explore the reaction to ideas at various stages within the development process.

The project produced case study materials and developed focus group methods and protocols for use by designers working directly with focus groups.

The **objectives** of this paper are to:

- Provide some background to focus groups as a research method and the ways in which the techniques embedded may support designers (Bruseberg and McDonagh-Philp 2001).
- To report the protocol arrived at after a five-year period of iterative development.
- To discuss how the technique may be utilised at undergraduate and extrapolated to school level design and technology courses.

The authors emphasise that focus group methodology should not be seen as a formulaic ‘answer’ to issues of design research. Best practice has long involved designers talking to users during the process of design. What is different is that focus group methods offer a way of addressing the difficulties of gaining the most appropriate feedback from users using techniques explained below. The authors consider that knowledge of these methods could expand the understanding of the young designer at either school or undergraduate levels. It is not intended that focus groups are used in exclusion to well established best practice in design research.

The paper presents an overview of the project, rather than specific detail on each of the case studies within it (references are given for published papers which focused on specific aspects). Focus group methodology is defined. The paper then explains why it is used, identifies the principles of the method and examines its advantages and limitations. Three case studies used as part of an action research programme are briefly described to establish a context. These case studies were used to explore the development of protocols to support designers use of focus group methods directly with users. These protocols were, particularly, aimed a use by undergraduate designers. The paper then explores how these may be developed for use by schools level designers in the age range 11-18, particularly relating the principles of educational progression.

WHAT IS A FOCUS GROUP?

Focus group is an umbrella term. It centres on a gathering of target users brought together for a relatively informal discussion on a specific topic or issue. A chairperson (moderator), using a flexible schedule of questions (the moderator’s draft), promotes discussion, while carefully ensuring not to direct, but guide the group through issues which emerge as important to them. A variety of techniques can be used to promote discussion. An obvious technique is to have examples of products available for direct handling.

The informality and synergy during this discussion can promote the emergence of more subtle and, to some degree, subconscious views and needs, life styles, values and behaviour. Focus groups should be conducted in a supportive environment, both physically and in the way they are dealt with by the mentor and any assistants. Many members may be uncomfortable in visiting universities or talking with groups of strangers and so careful procedures for welcome, introduction and warm-up are need. Members need to be assured of confidentiality. The room used also needs to have low ambient noise levels and suitable lighting for audio and video recording.

THE ADVANTAGES OF FOCUS GROUP METHODOLOGY

Garner and Duckworth (1999 p 94) found that recently graduated practising industrial designers considered themselves “*poor researchers and would now view researching skills as an important aspect of design education*”. Whilst these authors were referring to undergraduate work the point is also relevant at a school level. Developing this point further, Bird (1999 p 36) considered that the ever-increasing consumer culture requires designers to

“get under the skin of social, lifestyle and user needs”. This is a major issue. The majority of designers come from a fairly narrow socio-economic group in most western countries. Yet they design for people of all ages, cultures, abilities, gender and so on. Can a young, male, able, white middle class designer really understand and empathise with product users from very different groups? To some extent this is possible, but the authors see focus group research methods as a means of improving the ‘empathic horizon’. There are, therefore, two levels of value for design research (and, within that focus group methods). Firstly the obvious and immediate purpose relating to research for a given brief. However, there is also a secondary effect in broadening the designer’s (and student’s) understanding of the broad range of potential users and their needs including less tangible but important emotional aspects. This is a long term educational/developmental function; making the designer a better designer in terms of their ability to empathise with a broader range of product user. Indeed, at a school level it can be argued that this has a benefit in terms of the general education of any student: the ability to empathise with others. This is a powerful argument for the value of design education.

The success of a product is measured by the decision of customers to purchase it, but this decision is influenced by the satisfaction and pleasure gained through ownership. People do not simply perceive products as functional objects; they fulfil other purposes – based on cultural, social, and emotional needs and aspirations (McDonagh-Philp and Lebbon 2000; McDonagh *et al* 2002). The designer needs to be aware of these emotional responses to create products that users can identify with. Pereira (1999 p 227) stated “*The creative act must be an immersion into the situation of use, a truly felt empathy, not because we voluntarily acknowledge the user but because we need that connection in order to create*”. If done well this not only leads to improved products but can promote brand loyalty and improve the profitability of a company.

Of course designers have long realised the above and have attempted to gain user feedback via direct interaction and specialist market research. The value of feedback from direct interaction with users can be limited by the difficulty of getting ‘under the skin’ of users. Individuals, when faced with designers or market researchers may be able to give responses to questions such as colour preferences, comfort and so on but may find it extremely difficult to express their more emotive responses.

Focus groups employ the potential for synergetic interaction within a group (Hampden-Turner 1971) to encourage communication and provide insight into how others think and express themselves. This, of course, requires careful management and a sound understanding of the issues involved by the designer or market researcher managing the focus group. An example would be bringing the group together and helping individuals relax and feel they can express themselves freely. If this is achieved they can supply an efficient way of gaining an overview over various opinions at a reasonable level of detail. They provide large amounts of qualitative, concentrated, well-targeted, and pre-filtered data in a short period of time.

Focus groups should be used for topics that are poorly understood, because the discussion between people provides a variety of useful data relatively quickly. For example, focus groups provide reasons for individual opinions and experiences to be shared. The technique is therefore ideal for early, exploratory design stages (Morgan 1998a). For example, focus groups might uncover disregarded product functions, problems of the daily use of existing products in a range of environments, the current characteristics in cultural perceptions about style and fashion, or background stories that help to visualise the users’ activities and needs. The technique also provides instant access to the data collected. They may also be used to

investigate complex behaviour and motivations, and to uncover subconscious notions. Through discussion, participants become more explicit about their needs. Likewise, the technique is suitable to retrieve data that is not readily formulated or knowledge not thought out in detail (Morgan 1998). This may be useful, as users are not always aware of all the aspects regarding the use of products, or their own preferences. The content of the discussion might take unexpected directions or open up new topics.

Focus groups can provide a high degree of flexibility in the way questions are asked and generate qualitative data. As the numbers in a group are small, quantitative methods are inappropriate. The data provide detailed qualitative insights into people's beliefs and experiences, rather than statistically secured facts (Morgan 1998). The validity of the data can be increased by purposive sampling; selecting participants belonging to specific user groups (Cohen *et al* 2000).

User research has been typically conducted at the beginning of product development, for example evaluating existing kettles and the users' reactions to them. Focus groups can be used during the design process to give feedback on the emerging designs. This can be extremely valuable as the cost of alterations to a design becomes exponentially more expensive as the design and production process progresses (*idib*). A product recall due to a design fault is highly expensive and damaging to a company's reputation.

Focus group methodology in a design context, therefore, can operate on three levels:

- accessing potential users directly;
- harnessing the principles of group synergy to 'open up' members and help them express their less tangible needs;
- develop the designer's ability to empathise with a wider variety of users and contexts as a professional (and, at a school level, both at a young designer and a person generally).

THE LIMITATIONS OF FOCUS GROUP METHODOLOGY

Focus groups aim to use group synergy to promote discussion and idea generation. It is also claimed that group synergy will help individual members to uncover and express less tangible reactions/emotions/needs. Yet the term synergy is much misunderstood (Denton 1992). In the early phases of a group's life there is a *process loss (idib)* as members meet each other and learn to co-operate. Time and energy is spent getting the group processes in order before work can be effective on the task itself. Only when the group is established and well managed, will positive synergy contribute to the group's performance. The moderator, therefore, needs training to gain the skills required in handling groups and techniques which improve openness and free discussion. As an example there are indications (from the authors' experience) that in a mixed gender group females will tend to be less active in discussion due to gender dynamics. This can be remedied by using single sex focus groups. A moderator also has to be sensitive to personality effects that may not have been identified when a group is selected. An example would be a dominant personality who tends to overwhelm other members and reduce the synergy of the group. This can be handled by sensitive but effective chairing by the moderator.

Focus groups are, necessarily, small in sample size and, therefore cannot generate reliable statistically secure data. Nevertheless, samples can be focused more precisely and the nature of the qualitative data can be extremely valuable to the designer. Focus group methodology all too often carries a stigma, which the authors suspect, is carried over from the use of the methodology in politics, particularly in England. If the method is poorly planned and applied, then the data will, of course, be seriously flawed (as can, for example, a large questionnaire survey), but if planned and carried out methodically and with a good understanding of the issues involved the data can be valuable to the designer.

In an industrial context it is usual to pay each subject for attending and to provide hospitality in the form of drinks and snacks. There are also administrative costs in relation to letters, telephone calls, paperwork, video/audio equipment and so on. In a school or college, payments would not be possible and it will be necessary to rely on volunteers' good will.

METHOD: THE ACTION RESEARCH PROGRAMME

This action research programme (Cohen *et al* 2000) involved a design researcher setting up a series of small-scale case studies. Each was observed, data gathered and analysed. The findings were used to inform the design of the subsequent context in the programme. Each research context was treated as a Case Study (Stenhouse 1983) using triangulated methods (Cohen *et al* 2000) to build a measure of reliability. As practitioner led research it was, of course, essential to establish a professional detachment from the enquiry.

The first case study took established focus group protocols used by market researchers. These were developed to enable a designer to work directly with users employing an appropriate protocol and tools to gather data relevant to subsequent design work. This case study is described in depth in McDonagh *et al* (2002), and Bruseberg and McDonagh-Philp (2001). The second case study took this protocol and observed its application by an undergraduate design student, working directly with users. The data gathered formed the basis for the concept generation and development of a product (iron)(McDonagh-Philp 2000). The third case study developed this by replicating the previous study using a recently graduated designer to generate product concepts (coffee maker, kettle and toaster). Feedback was gained on how that designer adopted and adapted the initial protocol and tools.

Case study 1



Figure 1: Designer and users evaluating existing products

The literature on focus group methods was surveyed and an outline protocol established for evaluation in this context. Focus group methods are eclectic, specific techniques are adopted to assist group members in expressing themselves. This case study included four phases;

- warm-up exercises (based on their responses to existing products);
- members then evaluated products, relying solely on visual data (to simulate mail order purchasing);
- group discussion followed with focused on their experiences, needs and aspirations;
- members handled existing products (to simulate retail outlet purchasing).

Templates were created to support data collection in each of these phases. This project concentrated on mainstream consumer products (e.g. kettles, coffee makers and toasters)(Figure 1). The protocol developed is reported below.

Case study 2

This second case study took the protocol and tools previously developed. An undergraduate designer worked with users, generated data from the group and used this to develop product concepts. The student organised and ran 3 focus group activities involving 8 participants in each session. These sessions incorporated focus group discussion, product handling and visual questionnaire exercises. The project involved the investigation of the ironing process (e.g. ironing garments) by females, aged between 25-55 (main purchasers of this product in the UK). Collaboration with a major manufacturer of small domestic appliances further supported the project by funding the focus group activities (e.g. research participant attendance fees and hospitality) and by supplying product samples.

The aim of the project was to develop focus group methodology to ascertain if this design method would be appropriate at undergraduate level. The findings include:

- the undergraduate design student was able to employ the protocol and tools;
- ‘rich’ design data was elicited which was found to be extremely valuable in a subsequent finalist project;
- this case study provided the opportunity for the student designer to work with users and broaden their experience, understanding and awareness;
- this research design does not enable a direct comparison with the quality of design work in a more conventional student project.

Case study 3

This study aimed to replicate case study 2 and place it in the context of the design practitioner. The particular emphasis was on integrating the user throughout the designing process rather than simply using them as a pre-design phase resource. The case study focused on the design of a range of small domestic mainstream products for the future (e.g. kettle, coffee maker and toaster).



Figure 2: Focus group discussion

Two recently graduated industrial designers worked with one of the authors. The protocols and tools were adapted to suit this particular application. Initially a focus group was established to provide pre-design phase data. Subsequently, the group was used to gain feedback on initial design concepts. In parallel, a new focus group was formed (i.e. members not sensitised to the project). The intention here was to examine how this group (*cold users*) responded to relation to the first group (*hot users*). These groups met a total of four times throughout the project, to provide feedback at specific points in the design work.



Figure 3 User evaluation of conceptual designs
(data collected via series of questionnaires)

The findings include:

- group members can become too familiar with the project and develop an *interest* in the outcomes – which can make their feedback biased;
- introducing new group members during the designing process can offer a fresh input and perspective. Of course this involves more work/cost;
- experienced designers can be more receptive and able to adopting and adapting the tools further.

FOCUS GROUP PROTOCOL

The case studies above enabled the development of a protocol for use by designers working directly with users in a focus group scenario. The section below, presents a summary of the outcomes of this process.

Planning

The objectives of the session/s need to be clarified. Often only one session is carried out in order to gain feedback for designers on user preferences on a particular type of product. It may be possible to run several sessions during a design development, each with different objectives to suit the stage in the design process.

For example there could be as many as four focus group sessions within any one design project:

- *Pre-design*: general discussions covering user experience and aspirations, using this type of product, user environment, use of materials and evaluation of existing products.
- *Concept Generation/Selection*: the designer presents their initial concepts to gain feedback (e.g. drawings but also three-dimensional models such as blue foam to enable physical handling).
- *Concept Development*: users respond to developed concepts and give feedback for further refinement. This would involve use of more developed models, for example a range of renderings giving different colour schemes and more developed 3D foam models.
- *Concept Refinement*: a final opportunity for user testing and evaluation of concept models. At this stage a new user group may be used to overcome any bias that can develop in the original focus group.

The moderator will develop a *schedule* (sometimes called a moderator's draft) for each meeting. Typically, the session may include the following:

- *Initial gathering* – time is given to participants arriving and mixing for a few minutes. This can be useful in that the moderator can gain some idea of the personality types involved. A good moderator tries to ensure all contribute in the session and dominant personalities are prevented from overwhelming others.
- *Introduction* – to clarify the purpose of the discussion and to alert participants to recording devices (e.g. video camera). The schedule is explained to the participants.
- *Warm-up* – short exercise(s) assist in participants relaxing before the discussion.
- *Discussion* – focus group discussion based on a schedule of questions prepared by the moderator. In some cases these may be 'closed', others may be intended to encourage more open-ended discussion. Experience helps the moderator to react to data as it emerges, perhaps following up new lines which emerge unexpectedly but which are relevant. Sensitivity may be needed in terms of relating language levels and styles to the group members. The group needs to be encouraged to discuss issues amongst themselves, rather than respond to the moderator. Discussion may be promoted by having 'props' such as models, sample products, slides, drawings and prototypes.
- *Debrief* – opportunity for participants to provide views that may not have been expressed earlier. Moderator brings the session to a close.

Recruiting participants

Participants are usually chosen through *purposive sampling* (Cohen *et al* 2000) targeted at typical users. If the social make-up of the group is too diverse some participants may find it

extremely difficult to contribute and so their input is lost. They need to be comfortable in talking to each other, share a similar knowledge and background to encourage sharing of personal information as well as deeper and more detailed insights. On the other hand, there may be situations where contrasting opinions can generate discussions and new insight. Experience has shown that it is advisable not to mix different genders at the earlier stages of the project and keep the age range of participants to a minimum.

Practical Considerations

Focus groups are best held in neutral locations. Offices and university locations can be intimidating for many members of the general public. It is important to ensure there are no interruptions. If materials and physical objects are to be used as a part of the process there needs to be suitable space and surfaces. Refreshments help the group settle together and relax at the start of the activity.

Many focus groups are recorded on video in order to gain feedback from non-verbal cues such as nods and so on. Recording sessions also enable analysis after the event by the designer and other stakeholders. It is sensible to make a parallel audio recording as equipment can fail even with pre-session checks. Cameras should be positioned to be able to capture as many of the faces as possible. The microphone on a video camera may not pick up all voices from the group effectively. A good quality remote table mounted microphone may be necessary. Experience indicates the optimum layout for a session to be a round table. A trial run of all the equipment is important. Name badges can be helpful and reduce stress for members when referring to each other. Writing and sketching equipment can be helpful if an individual needs it to explain a point.

The moderator needs to encourage discussion and achieve a balance between leading the session and letting it run out of control. If the moderator takes notes it can stall discussion and make members extra sensitive to what they say. Experience shows that if the moderator asks a question and then leans back to symbolise physically moving away from the discussion this encourages members to focus discussion amongst themselves. Moderating also involves preventing dominant participants from having too much influence on the discussion, and ensuring everybody is involved and contributing to the discussion. It is also important to start and finish on time, as participants may have other commitments. Good time keeping also reassures members, should you wish to recruit them for future focus group sessions.

Feeding the Data into the Design Project

There should be a constant flow of data between the research and the design process. Moreover, the results from one focus group stage can provide a sound basis for planning the next one. There is no need to carry out extensive data analysis such as precise tape transcripts or discourse analysis. An efficient method is to extract the main particulars from the tapes and associated forms immediately after the event. It is useful to store interesting sections of the tape on the computer through video capture – to be used as a quick reminder, and for presentations to others. It is important to respect the confidentiality of the participants.

APPLYING FOCUS GROUP METHODOLOGY IN SCHOOLS AND COLLEGES

As an area of study at a schools level, design and technology has developed considerably internationally. The discipline has moved from the design of one-off craft objects to students designing products for a broad range of users and industrial production methods. Design research, therefore, has become a relevant area of study and practice in schools. This section of the paper attempts to extrapolate findings from the action research project to a schools level. While this is not based on direct observation at this time one of the authors has 24 years of experience as a design and technology teacher and teacher trainer. The extrapolation is made on the basis of that experience. It is hoped that teachers will use the data above to explore in their own schools and report their findings. In this way a degree of validation can be grown.

It would be valuable for students to learn the potential and methods of focus groups at three levels. Firstly, an awareness of the methodology can be valuable to them in their grasp of the research methods designers can employ. Secondly, focus group methodology can be actually used in schools, making learning a live experience whilst generating useful data. Thirdly, experience of focus groups can have a general educational benefit, helping bring students into contact with people from other socio economic, cultural, age and ability groups. Research (Cowie and Rudduck 1990) indicates that such contact assists in the development of empathy for others and may reduce incidence of racism.

In the early phases of most design work students need to be able to *identify relevant sources of information*. In the authors' experience of schools in the UK this phase of design is often limited to an over-simplistic approach of looking at catalogue pictures of products and writing questionnaires. However, there can be considerable naivete as to the value of questionnaires. If poorly constructed they capture limited data and tend to give responses only to questions the student has thought of previously. The brainstorming techniques employed within focus groups can be far more valuable in gaining direct user feedback and, particularly, uncovering factors not yet thought of. Students of age 13-14 could, with staff support, plan and run a focus group as a whole class. For example, disabled access in the school could be explored by asking disabled users in the school to come to a focus group. Individual students could be delegated various tasks such as moderator (the whole class would brainstorm questions), audio and video recording, hospitality and so on. The results could then be pooled for individual or small group projects. For example, door handle design, signage, ramps etc. Similarly a class could become its own focus group, meeting from time to time to discuss their own feelings, needs and emotions in a design project which relates to their own age range. In this way whole classes can learn about the methodology in a practical way and the logistical costs would be minimal, assuming a group of volunteers.

At a more senior level in a school an individual student could employ focus groups within a major project. The group would be selected from potential users, probably small in number (3-5) and working voluntarily. In many cases these may be fellow students if the project was aimed at the same age range as the user (e.g. study-bedroom furniture). The student could work up a schedule including a warm-up session with coffee and introductions where everybody is encouraged to relax. The student could then act as moderator using the schedule but encouraging broad discussion. The session could be simply audio taped. It is not necessary to produce verbatim transcripts, only to record the essence of factors emerging and an indication of the levels of agreement. Analysis is then direct, identifying categories. The student could use the focus group to assist in *developing criteria* for their design project. Focus groups can help identify criteria important to the user rather than simply those that a student designer can identify. This is because the technique can help explore *the needs and values of others* more flexibly and effectively than questionnaires. The same group could be re-convened later in the design project to give feedback on the most appropriate design directions after initial ideas had been explored, and/or to give feedback on the early stages of development of the chosen direction. Once a project is finished focus groups of potential users offer a far more powerful method of evaluating the design than the individual student ever could. At a simple level with younger students this could take the form of small groups of students forming 'quality circles' and effectively acting as an evaluative focus group for other students' project outcomes. This is particularly relevant if the project focused on a product to be used by that age range.

In general the student cohort itself offers a great design research resource. This can help validate their own experiences and lead to greater respect for the diversity of background and experience in the cohort itself. Having said this, it would be educationally beneficial to also engage with typical users beyond the students socio-economic group. In terms of progression, staff may initially use a student cohort for focus group activities, but should aim to expand this experience to working with groups such as adults and specific groups such as the elderly or disabled.

SUMMARY AND REFLECTION

Focus group methodology offers a flexible approach to gathering design related data that can support and encourage user-centred design. The approach can be valuable in gaining important information on users' values and well as wants and needs beyond the functional. More importantly, by becoming directly involved with focus groups, designers can broaden their own empathic horizons and so improve their own ability as designers to design for others. The approach allows the designer to get far closer to the range of users than more traditional design research methods, though these still have an important role in terms of gaining statistically reliable data (at a professional level) which focus groups cannot offer.

In schools and universities focus group techniques have the potential to improve design work but also student learning and the individual student's ability to empathise with other users. Student cohorts offer valuable design research resources in themselves. Focus groups can also access the broader community where appropriate. Looking beyond design education therefore, focus group experience can contribute to citizenship development and increased empathy with individuals from other sections of the community.

Focus groups are not, however, a universal panacea for design research. They have their limitations, notably in terms of statistical viability and the skill and experience needed to plan and run them effectively. Data generated can be superficial and the time involved substantial and largely wasted, as is the case with more conventional design research at a school level if techniques are not properly understood. Nevertheless, focus group techniques offer a potentially valuable contribution to the student's armoury of research methods and techniques. The potential rewards in terms of design research and growth of the student as a designer and citizen, however, are extremely significant. It is suggested that staff should give the approach serious consideration and incorporate student experiences of focus group methodologies, with logical progression, within their long term planning.

REFERENCES

- Backhouse, C. J. & Brookes, N. J. (eds.): 1997, *Concurrent Engineering: What's Working Where*, Wiley, New York.
- Bird, E.: 1999, Brave New World - Meeting the needs of Society in the Twenty First Century, the Role of Design and Design Education. In P. H. Roberts & E. W. L. Norman (eds.), the proceedings of the 1999 *International Conference of Design and Technology Educational Curriculum Development*, Loughborough University, 35-38.
- Bruseberg, A. & McDonagh-Philp, D.: 2001, Focus Groups to support the Industrial/Product Designer: A review based on current literature and designers' feedback. *Applied Ergonomics: Human Factors In Technology and Society*, 33(1), 27-38.
- Cohen, L., Manion, L. & Morrison, K.: 2000, *Research Methods in Education*, Routledge, London.
- Cowie, H. & Rudduck, J.: 1990, *Co-operative Group Work in the Multi-Ethnic Classroom*, British Petroleum Educational Service, London.
- Denton, H.G.: 1992, *Towards maximising student endeavour: An enquiry into a learning approach centred on teamwork and simulation in the context of Technology education*. Unpublished Ph.D thesis, Loughborough.
- Garner, S. & Duckworth, A.: 1999, Identifying Key Competencies of Industrial Design and Technology Graduates in Small and Medium Sized Enterprises. In P. H. Roberts & E. W. L. Norman (eds.), the proceedings of the 1999 *International Conference on Design and Technology Educational Research and Curriculum Development*. Loughborough University, 88-96.
- Greenbaum, T. L.: 1998, *The Handbook for Focus Group Research*, 2nd ed. Sage, London.
- Hampden-Turner, C.: 1971, *Radical Man*. London, Duckworth.
- Krueger, R. A.: 1998, Moderating Focus Groups, in D. L. Morgan & R. A. Krueger (eds.) Vol. 4, *The Focus Group Kit*, Sage, London.
- McCracken, G.: 1988, *Culture and Consumption: New Approaches to the Symbolic Character of Consumer Goods and Activities*, Indiana University Press, Bloomington.
- McDonagh, D., Bruseberg, A. & Haslam, C.: 2002, Visual Evaluation: Exploring Users' Emotional Relationships with Products, in *Applied Ergonomics: Human Factors in Technology and Society*, May, 33(3), 237-246.
- McDonagh-Philp, D & Lebbon, C.: 2000, The Emotional Domain in Product Design. *The Design Journal* 3(1), 31-43.
- McDonagh-Philp, D. & Denton, H.: 1999, Using Focus Groups to Support the Designer in the Evaluation of Existing Products: A Case Study, *The Design Journal* 2(2), 20-31.

McDonagh-Philp, D., Denton, H. & Bruseberg, A.: 2000, Use and Evaluation of Focus Group Technique: The Undergraduate Industrial Designer Experience. *The Journal of the National Association for Design Education*, 8, 17-26.

McDonagh-Philp, D.: 2000, Undergraduate Design Research: A Case Study. In S. Scrivener, S. Ball. & A. Woodcock (eds.) *Collaborative Design*, Springer-Verlag, London.

Morgan, D. L. 1998a, The Focus Group Guidebook. Morgan, D. L. and Krueger, R. A. (eds.) *The Focus Group Kit Vol. 1*, Sage, London.

Morgan, D. L.: 1998, Planning Focus Groups, D. L. Morgan and R. A. Krueger (eds.), *The Focus Group Kit Vol. 2*, Sage, London.

Pereira, L. Q.: 1999, Divergent Thinking and the Design Process. In P. H. Roberts & E. W. L. Norman (eds.), the proceedings of the 1999 *International Conference on Design and Technology Educational Research and Curriculum Development*. Loughborough University, 224-229.

Savage, P. A., Millen, D. R., & Bayerl, J. P.: 1995, Designing Features for Display-Based Systems. Designing the Global Village. Proceedings of the *Human Factors and Ergonomics Society* 39th annual meeting, 9-13 October, San Diego, California, Santa Monica, CA: Human Factors and Ergonomics Society, 182-186.

Solomon, M. R.: 1983, *The Role of Products as Social Stimuli: a Symbolic Character of Consumer Goods and Activities*, Indiana University Press, Bloomington.

Stenhouse, L.: 1983, Case study in educational research and evaluation. Chapter in *Case Study: an overview*. Deakin University, Victoria, 11-55.

The National Curriculum for England: Design and Technology (1999). Department for Education and Employment. HMSO (www.hmso.gov.uk/guides.htm).