

DAVID NEAT

MODEL-MAKING IN PRACTICE

Observations based on a research survey conducted 2006-7 of student experiences in theatre design model-making.

Part One: Student Questionnaire

I was originally intending to 'publish' the full account of the research project here as one quite lengthy document, of which the following questionnaire report is only a part. I've now decided to offer this part separately, as a 'foretaste' if you like, of the content to follow. The other, better reason for doing this is that many of the responses from students are so interesting and informative that I wanted to focus on and present 'their own words' first rather than too many conclusions of my own. These follow in the second, more discursive part. In my summarising of responses I have occasionally referred to sections of this. For those wishing to know the context of the research project as a whole and its further content, the following outline precedes the questionnaire report.

Outline

Project purpose

The purpose of this project is primarily to examine the student experience of scale model-making within the context of theatre design instruction at degree level. By studying both the practice and the tuition of model-making at this 'grass roots' level, questions are formulated on the accepted purposes of model-making and its effectiveness within the design process. These questions are followed up through an examination of current professional practice. The resultant account is intended to serve as both a practical guide to students, a resource for teachers and a source of information for practicing designers.

The reasons for it

My personal reasons first were simply to improve my own teaching of the subject, primarily at undergraduate level but also in the context of professional skills development. I felt the time had come for me to collate my own experiences; to review my own teaching methods and to compare them with those of others; to question students more rigorously for their point of view; and to question above all how far the teaching situations I worked in were attuned to the realities of the discipline. I felt that too often (to a greater or

lesser degree amongst a variety of people, but students, teachers and practitioners alike) model-making was either feared, treated with suspicion, neglected or misunderstood. On the other hand even where it was championed, nurtured and embraced, I suspected this was not always for the right reasons and sometimes posed a threat to the integrity of the design process.

Sources and methods of enquiry

Specially-devised workshops were conducted over a period of roughly a year with 1st, 2nd and final year students at Rose Bruford College and other workshops were conducted as part of my normal teaching remit throughout this period with students at Rose Bruford, Wimbledon College of Art, Central School of Speech and Drama and the Royal Academy of Dramatic Art. The average size of these student groups was 8 (with the exceptions of Wimbledon at 18 and RADA at 2). Another distinction was that all groups were predominantly female students, which is the general case for these courses at the present time. The workshops at Rose Bruford were mainly practical in nature, requiring the students to work with a variety of materials and methods and with particular making outcomes in mind. Time was taken however for group discussion in which students had a chance to comment on the specific workshop activities and to relate their experiences of model-making in general. Some of these students were further interviewed or asked to complete questionnaires, designed to follow up and clarify questions emerging from group discussions.

Similar questionnaires were formulated and distributed via email to students at the other theatre or performance design colleges. These included Wimbledon College of Art, Central School of Speech and Drama, Royal Welsh Academy of Music and Drama, Central Saint Martins and Nottingham Trent University. Students were first of all asked to list all the reasons they could think of why a theatre/performance designer should make a scale model and then asked questions concerning materials habitually used, time spent on models, aspects they enjoyed or found particularly problematic, how much sketch modelling they usually did etc. They were also asked to comment on the role which their models played in the collaborative process i.e. how they were received and used by directors and technical staff. Students were encouraged to give considered answers but not to force them, to recognise that a 'Don't know' would be just as valuable to the survey, and to answer independently rather than in consultation with others.

The third important source of information was professional practice, meaning both in the field of academic teaching and in the theatrical profession. Colleagues from the above mentioned colleges were consulted for their views (particularly Rose Bruford and Wimbledon College of Art) and in some cases formally interviewed. Here the emphasis of the questioning was on the importance they personally attached to model-making within the course of study, the standard they usually expected, and methods of teaching and assessment. Questions were also asked about how they'd developed their approach to the teaching i.e. how far they felt they were reiterating how they

themselves had been taught, how much came from their own professional practice and how much this might have been modified through teaching practice.

Other professional practitioners (who were not involved directly with teaching) were also consulted, formally interviewed in some cases, or asked to complete an email questionnaire. These included professional designers in the first place, but also directors and technical staff. The object here was to ascertain more from different perspectives (how the other collaborators in the design or realisation process, for whom set models are partly intended, received and made use of them) and to reach an understanding of any shifts in current theatre practice.

Another valuable source of information on current professional practice has been provided by the current (2008) exhibition at the V&A organised by the Society of British Theatre Designers. 'Collaborators' presents the work of more than 100 designers working currently in the British theatre. On show are the models they have produced, often set against photos from the realised productions.

The final, perhaps the underlying, source of information was my own experience as a theatre designer and a teacher. I spent eight years as a freelance set and costume designer from 1984 to 1992, designing a variety of both large and small scale productions. I had received my training on the Motley Theatre Design Course under the direction of Margaret 'Percy' Harris, then based at the Riverside Studios in London. Both during my freelance time and subsequently I also regularly made set models for other established designers, including Peter Pabst in Germany and Alison Chitty and Ashley Martin-Davis in England. I began teaching at undergraduate level in 2004 after completing a PGCE in Art&Design at Goldsmiths. I now regularly lecture/tutor at Rose Bruford College and Wimbledon College of Art, with occasional teaching assignments at Central Saint Martins, Royal Academy of Dramatic Art, Central School of Speech and Drama and London College of Communication. Since 2006 I have additionally run my own course in 'Advanced Model-making Techniques' for the benefit of professional practitioners wishing to extend their skills. My forthcoming book 'Model-making: Materials and Methods' will be published by The Crowood Press in 2008.

This background has furnished me with as good a knowledge as anyone of the practice of model-making and of the demands it can make of people. What is still largely unfurnished, in my mind, is the surety of how exactly to teach it, or more specifically how to assist in cases where those demands become a block in the creative process. The object of this research was therefore largely a very personal one, to examine my own teaching and experiences and hopefully draw some conclusions as to how the former could be bettered.

The following email questionnaire to students is reproduced in full. The questions are in bold type followed in each case by my summary of the

answers received. Wherever practical I have used the students' own words and some representative answers are quoted in full.

Survey of theatre model-making practice **Student questionnaire 2007**

Thank you for agreeing to contribute to this. Please try to give answers, but base them on personal experience rather than discussing them with anyone. A considered 'Don't know' will prove just as valuable to the survey. You don't need to print this out, just add text to the document, typing your answers between the questions. There is no minimum or maximum length for the answers you give. After completion please save the document either as .rtf or Microsoft Word and send back to davneat@aol.com It would help greatly if you could do this within a week of receiving it. If you would prefer to send anonymously please ask your college tutor to forward it.

Name (optional).... Year of study (e.g. 2, 3, M.A.)....

Institution....

1. General

Could you first of all list all the reasons you can think of why a set designer/scenographer/performance designer should make a set model?

Most answers indicated a good appreciation of the dual purpose of the model i.e. as a tool for the designer to work out ideas, and as a means of presenting them to others. In the first place reference was made to '*comprehending the space available*' to being able to work out ideas in actual 3D beforehand, '*to be able to physically experiment with the space without great effort*' or '*testing ideas at no cost*', as a means of integrating different elements '*set and costumes and see how they work together*'. Some referred to the benefits of working from the audience perspective and being reminded of their position (i.e. through modelling part of the proscenium or through some definition of sightlines). The model can generate ideas that '*may not have been seen in the drawings*'. Reference was also made in some cases to being able to experiment with lighting, applying to both stages in the process. The advantage of being able to show how elements moved (both in terms of '*mechanical*' scenery or visible scene changes) was also referred to by some, though not in terms of testing how many pieces might fit in the wings or scene docks for example. Opinions were fairly unanimous as to the effectiveness of model-making over 2D work, '*Theatre Design is a three dimensional art form so its important to think in 3D*' or '*sketches are usually quite rough and stylised making it difficult for others to interpret your ideas easily*'.

In the second instance, as a means of presentation, ideas were clear as to the benefits when working with the director and the fact that elements could then be 'played around with' i.e. 'It allows the director to visualise and to understand what the designer is communicating and also interact with the space' Feedback was also clear on the benefits of 'physical' instruction for the workshops particularly in the cases of texture and colour:

'Beyond the design process and into production it gives the scenic artist a detailed specification of the design but only if the model is used to its full capacity paying close attention to detail.'

There was less mention of the 'fringe' benefits, though there was some. Two students referred to the value of impressing 'people who aren't involved in doing it' with model-making quality as an indication of the designers overall skill. There was much less specific mention of the aid provided by the model in solving technical, constructional problems either prior to the involvement of the technical crew or during (though some, e.g. 'set models can eliminate many potential problems during a set build'). No one actually gave a reason for the model as 'because that's how it's always done' but it was referred to a few times in terms like 'a well established communication' implying the value of using a method that everyone understood.

One the whole the responses received to this question showed a good understanding of the purposes and most answers listed more than three of the essential ones.

2. Materials and methods

Would you say that you are a good model-maker? What criteria are you using?

Most people answered in an affirmative i.e. 'yes' or 'I think so' but it could be argued that only those with model-making sympathies might agree to contribute to the survey in the first place. But the point of this question was for the criteria offered. The question could have been phrased 'What do you consider to be good model-making?' but that might have led to de-personalised answers. Many referred to being able to create 'detail' or 'realism' or 'correct scale' or being 'convincing' in the model and left it largely at that. Some answers were more specific and complete i.e:

'I would aim to create a model that displays my design ideas effectively in whatever form they may take. My desire to achieve this feeds my attention to detail, and patience, which I think can make me a good model maker.'

Reference was made on occasion to using materials i.e. 'I think that the criteria the determines a good model-maker is also about their ability to find materials that represent what will be used in reality'

But on the whole the answers were much shorter and less considered than I'd anticipated. The emphasis tended to be with the final result rather than the quality of the process i.e. few people said that they felt they used models well to develop a design. On the occasions when people were not happy with their model-making, slowness was often cited.

Do you enjoy model-making?

Again most people answered in a form of affirmative, but nothing further was necessary. This question may be dropped in the future or built into another.

Are there any aspects of model-making you find particularly difficult, don't enjoy or resent having to do?

This question could be interpreted in different ways, concerning either specifics or general processes. The specifics most often cited as 'difficult' included (as mentioned in the section 'Construction') steps or stairs, anything to do with rakes, model figures, window frames and furniture. As also previously mentioned, I'd expected model boxes to feature here quite prominently but few were mentioned and then more in terms of boredom than difficulty. On the more general side, repetition was cited a few times e.g. *'repetitive things can become tedious especially when there is no great visual outcome'*, as was *'scalpel strain'* and *'when the glue you are using doesn't stick'*. Reference was also made to the disadvantages of model-making taking so long within the design process, and the pain of having to change an element in the model after having spent a long time making it.

What materials do you habitually use for model-making i.e. for just about every model you make?

As expected mountboard was almost always listed followed by foamboard, and then in decreasing frequency balsa wood, paper, UHU, PVA glue and acrylic paint. Other materials mentioned more than once included brass rod, Super Sculpey, gouache, obeche wood and superglue. The list of the main ones has direct correspondence with the stock of the average design college shop.

What other materials do you use occasionally?

Most people responded to the distinction here but I now feel that the question is unnecessary. Most often mentioned were wire, fabrics, acetate, and modelling materials such as plasticine. There was less mention of woods (other than balsa) and brass rod, and almost no mention of other plastics.

If you had to choose just one material as the main one, which would it be?

Again this question may seem unnecessary but it is really just a lead-in to the ones that follow. Needless to say, mountboard was almost always cited, followed quite closely by foamboard. Where there were exceptions these

came from students I had taught who had adopted my recommendations for special forms of foamboard or plastic sheet.

Thinking about this material, where do you get it? What does it cost? What size does it come in i.e. thickness, width, height?

I was particularly interested to know how aware students were of thickness (because it can be crucial in terms of keeping to scale) but in almost every case the answer was wrong or omitted (even from students who had given a very considered account for the following questions). It may of course be that this is something that's checked as-and-when needed and then measured on the scale rule (such as when contemplating making a strip of skirting board for a wall in mountboard and then checking how thick that would appear at 1:25 scale). But I would have assumed that the standard thickness in millimetres would be remembered by anyone who had encountered that issue and looked for alternatives. As it was, the thickness of mountboard was given as anything between 2mm and 3mm (it is 1.4). The thickness of foamboard was also largely guessed, with many variations.

However most students were fairly accurate with the price, perhaps reflecting the financial pressures. Size was given, not in any measurements, but in terms of 'A1, A2' etc.

What can you say about its properties i.e. what can be done with it and what can't?

This was, in my mind, a crucial question and one of the most crucial to successful model-making: awareness of what can and can't be done with available materials. This will often have a direct bearing on the way a design develops. What I mean was illustrated by a particularly considered answer from one student, speaking of mountboard:

I think I use it often as a starting point because it is strong but thin, and is easy to cut. It has the advantage that it can easily be broken down quickly, because I find the smooth texture in initial design stages can be flat and boring to look at. It soaks up water easily so painting is quick, but also the results are quite predictable. Another reason for using it, at least in initial stages of design is that it sticks easily but not permanently so changes can be made easily. The question then arises about how far the card can be used to try out ideas, before it becomes a part of the design and that texture or finish stays. I have found it useful for creating curves by scoring, which it does quite well

3rd year student, RBC

Do you use any form of plastic i.e. PVC, styrene, acetate, acrylic, styrofoam? What do you use it for? (If you do but don't know what it's called just describe it and say where you got it.)

In my own teaching I have been advocating the use of plastic (mainly PVC and styrene) for some years now, because I believe it can solve many constructional problems and facilitate a better level of detail. It remains 'questionable' though, because although I have witnessed undoubted benefits when used by some students, many find it problematic (see 'Materials').

Starting with the students I have not had direct teaching contact with, almost all mentioned acetate for window panes and transparent effects. This is easiest to source as most college shops would sell it for photocopying OHP graphics and it is relatively cheap. The next most mentioned was polystyrene/styrofoam (sometimes either word was used to describe both) for shaping landscape elements, sculpting of forms or achieving curved architectural elements. Some mentioned plastics for mirror, glossy surfaces or water effects (i.e. either acetate or 'cling film' were cited). Specific mention of PVC or styrene was rare; only one student referred to building window constructions using styrene strip (though not by name). Another said she would never consider plastic as a base because it was '*too expensive and not as versatile*'.

With the students I have taught the answers were generally different, though also not as different as I might have envisaged them to be. Roughly half acknowledged using either PVC or styrene to make model furniture (others said they preferred using wood). Some referred to using it for windows or doors, acetate for windows was also mentioned, as was styrofoam for building layers.. Referring to its uses, some said that it enabled making curved shapes '*bends easily to create the curves*' but others were wary of it, finding it difficult to stick. Just one listed it as her main material, finding it beneficial for solid, flat construction and clean cutting. She said that it could be '*easily painted*' but could not in itself be used to create textural effects.

Have you ever done any casting for a model? If so, what? Have you ever considered casting but haven't in the end? Why not?

No one had done any casting for their models and few had considered it. Most said that they had never thought it necessary or had never be shown how to do it, i.e.

I haven't been introduced to the skills so it hasn't ever really crossed my mind

Others assumed it would be too time-consuming compared to simpler methods, perhaps expensive, and '*a bit of a faff to do and very messy*'. Many assumed that it would only be applicable for large forms, or that it would be difficult to cast forms in a small enough scale.

Casting seems a lot of effort when I could try to make the same thing with different materials (such as wires and modroc, for example). I might go from the model box to a half scale cast, to test whether my design was going to work, but for the model box I'd probably use another method.

3rd year student, WCA (DfP)

What paints do you normally use? Try to be specific, e.g. tube acrylic or liquid acrylic, tube or cake watercolour, etc.

The answers to this and the following question indicated what I would call a very 'negative limitation' in the choices of paint! Tube acrylic came first for almost all and exclusively for so many. More people than I had anticipated however also cited inks as favourites, some saying that this gave the option of working with nibs as well as brushes. After that gouache and watercolour (tube and cake) were referred to most. The more liquid acrylics available in bottles were rarely mentioned, and the same went for enamel paint (i.e. Humbrol or Revell modellers' paint). Answers like the following were the exception rather than the rule:

I use cake watercolour, watercolour pencils, tube acrylic, tube oils, acrylic or enamel spray paint, small pots of enamel paint and large pots which you can buy for decorating.

3rd year student, RBC

Other exceptions were the use of Rosco testers (recommended by a design tutor) or mixing acrylics and inks together to extend the range

Any special ones?

Very few 'special ones' were mentioned. Spray paint or *car spray* was most often cited, followed by special media (either spray, enamel or acrylic) to paint gold or other metallic effects. Using crayon or pencil in conjunction with paint was mentioned on occasion.

2. Relationship to design

If you had to design a simple set in a day and the means of presenting your ideas were entirely up to you, what form would they take?

I wanted to see how many people would still consider making a model in this, albeit hypothetical, situation and how many would opt for drawing. I wanted in addition to see whether there would be any difference to the answers given by the Design for Performance students compared to the students of Theatre Design. For example I was hoping for answers like this from some:

I think it would depend on what I was designing for, some forms of design can be well represented by a model, in which case I would probably use one, however, I think that there are types of sets which a model is not the most effective way to articulate the idea, for example, when the production is centred around the performer and the element of movement are the most important feature a model is often too static, therefore I would prefer to use drawings, video or photographs. However I may still use a model to identify how the actual space would be set up.

2nd year student, WCA (DfP)

Interestingly enough there was very little difference in the answers from different courses, and some form of model was cited as the favoured means of expression for most, despite the time factor. A number of people indicated that they would work on a basic sketch model (to represent overall shape, use of the space, perhaps in some cases with a little colour). An equal number of people suggested that they would produce both sketch model and drawings in combination. There were some who preferred just to represent through drawing or painting because they felt that this would be quicker, but these were few. Some advocated making a simple model, photographing it, and then working on the photos to (either digitally or by painting) to give a quicker impression of colours and textures. Some were very specific in their approach

I would forget colour and texture in the model box and represent that in 2D samples and design ideas on mountboard, or in swatches that could be passed around. The model box would take the form of a sketch model to show the relationship of objects. Perhaps if one object is especially important to the design I would make a full scale model of that with colour and texture.

3rd year student, WCA (DfP)

while others suggested that the model in this short time-frame could ‘display colour, shape and texture in a simple and probably more abstract way’ rather than getting involved too much with a practical interaction with objects and space.

Would you say that you might approach a design influenced by what you know you can make in the model?

This may appear to be a silly question since one would think that no one would want to own up to it, but I’m glad it was included because it produced some very interesting answers.

I think subconsciously I would, I think that somewhere there lies an equivalent to using a photograph when you can’t draw a person i.e. when you can create something 2D but can’t translate it I would be inclined to simplify it, for example. The interesting thing about that is that on a larger scale, that simplification wouldn’t be necessary.

3rd year student, RBC

Some like the above considered that they might be influenced subconsciously, but hoped that they wouldn’t. Others said definitely not, or went further to make the point

‘If anything I think I’m slightly blasé about model-making and design things which I’m not really capable of making.’ or ‘the model should represent what would happen in real life not the other way round.’

..if I wanted to do something that wasn't possible in a model but was in reality I think I would try and articulate it in another way, I would try and not let the shortcomings of model making inhibit me, however I can see how this would happen, especially when the model becomes the main tool for design.

2nd year student, WCA (DfP)

The few who suggested a 'yes' to the question implied that one makes use of one's 'available skills' in most creative situations anyway, and they didn't interpret it as necessarily a bad thing.

Another few students echoed the sentiments of a widely experienced production manager I'd also interviewed for this survey i.e. *'Generally if you can't make it in the model box you won't be able to make it in real life in the theatre space.'* There was the fairly unanimous agreement that *'design comes first and then the model'* (apart from the ones quoted) but this seems to presuppose that the design can be fully worked out before the model-making process begins. Few picked up on the idea that model-making, being an integral process to the design, can't fail to influence it in some form, although my wording of the question may have been responsible for that.

Can you think of any instances where you've been compelled to change something in a design because you haven't been able to make it in the model?

This was not strictly a separate question although it also needed to be asked. In my teaching/tutoring I have encountered quite a few apparent instances but it has usually been difficult to judge how much this was actually the case. Some admitted that this might have happened at the beginning of their studies but less so as their practical skills improved. Some suggested that difficulty in making something in model form might cause them to question the viability of their design (similar to the last quote above) and perhaps therefore lead to changes, or that intentions can sometimes be modified in practice:

I can think of times when my intentions for creating a particular effect have led to a different outcome, which I have then chosen to use, rather than continuing to pursue the original effect.

3rd year student, RBC

How soon do you start the model-making process? i.e. do you make sketch models? When do you start making them?

The 'sketch model' question had been fairly well served by this point in the questionnaire, but this uncovered some more information. All said that they began the model-making process as early as possible, but some clarified that with the words *'after initial research'* or *'As soon as I feel I'm at a point where I have enough ideas to start experimenting in 3D'*. The implication was generally that the text was tackled first (naturally) but that sketch modelling

would begin only after a period of research and/or drawing i.e. after initial ideas had become established. This point is taken up in the section 'Research'.

I start making a model as soon as I need it, for example if I'm getting really stuck with an aspect of a design I would make a sketch model and play with it. Usually parts of the design will change quite a lot, but this is no excuse not to start the model until the end, I think it's very important to make several versions and really test your ideas.

3rd year student, WCA (DfP)

Only two people referred to making the model box as the starting point of the model-making process.

Do you think making the final model contributes to the design development, or do you see it more as just a means of conveying your intentions once you've worked them out?

Unfortunately a number of students overlooked the fact that I'd written 'final model' here as opposed to the 'sketch' modelling stage discussed previously, and answered in terms of the contribution made by model-making generally. This may in itself have some significance though. In the course of visiting different colleges and speaking to students either as a model-making tutor or a 'visiting professional' I have witnessed many different approaches, some blurring the distinction between 'sketch' and 'final'. I'm not implying this is necessarily bad, but it does lead to confusion.

How far do you feel you have to go with a sketch model in order to be able to judge what the final outcome might be? i.e. do you put colour on it, do you suggest mouldings on walls, do you use photocopied details etc.?

Here I wanted to find out more about how explicit different people needed the developing design to be in order to judge where it was going. For example I have worked with designers in the past who were quite comfortable with making all the major design decisions on the basis of an unadorned white card structure, perhaps just with drawn lines to indicate doors and windows, concentrating fully on space, form, proportion and scale as their priorities. Others preferred to realise colour and even texture alongside these from the earliest stages.

The majority of students had adopted, or rather been trained to use, the former method. Most of these said that they produced a white card model with no colour *'to work out scale, space and layout'* first. *'sometimes colour and basic details can help to make the design clearer, but rarely'*. Some indicated that they might work on notions of colour or texture at the same time but keep them separate, either in the form of coloured drawings, Photoshop renditions or textured samples. Others relied on visual research in picturing these components:

The sketch model helps me to define the form of the set. Details of the set come from research i.e. photographs, photocopied details.

2nd year student, CSM

The other 40 per cent of the students surveyed preferred a more holistic approach, some aiming to put as much of everything into the sketch model stage as time would allow *'the further the better if it can be achieved quickly'*.

I think there is a necessity for colour and texture even in a sketch model to establish atmospheric as well as spatial concerns and in an ideal world hopefully all the elements of the design would grow together.

2nd year student, WCA (DfP)

A few suggested they might treat the sketch model in the end almost with the same care as a final model in order to be able to use it as the final with the minimum of rebuilding. Others would not go so far but said that they used colour photocopies on the card structure or saw the sketch model in terms of *'an expressive line drawing with splashes of colour'*. A few stated that they would vary their methods of visualisation according to the nature of the project and what they considered most important for a particular design:

It depends on what I want to know. I tend to focus on answering a particular question: if I want to know how the box will relate to light it will be coloured, if I want to know the mechanics I will leave the box white, if I want to compare details, scales etc the box will be more detailed and possibly include photocopies where drawing would be time consuming/inappropriate (e.g. for patterned covers on chairs)

3rd year student, WCA (DfP)

How do you go about judging space, for example if you had to recreate a 'roomy' living-room as opposed to a normal one? Would you work this out from a model?

All students confirmed that they would work this out largely in the model and seemed confident at being able to judge. A few indicated that they would take some form of spatial reference from available real spaces first i.e. the spaces they lived or worked in, or would collect research images.

I would use references of spaces around me i.e. look at my own living room, looking around the studio spaces.

Some referred to working this out through both model and ground plans, and some wrote that they would use a good model figure or model furniture as a scale aid.

3. Practicalities

Do you always work in 1:25 scale? Are you comfortable with this? When would you consider working in another scale?

All said they worked in 1:25 scale as a general rule, because that was what they'd been told to do. Most said either that they were comfortable with it, or that they'd got used to it. A few added that getting more accustomed to a fixed scale i.e. being able to work on sketch models without constantly having to measure, helped to speed up the process. Many said that they'd only consider working in another scale if the performance space was too large to make 1:25 practical (both TD and DfP students referred to site specific or '*street environments*' for example) or difficult to transport, in which case 1:50 would be a better option. One student referred to making a 1:50 model in a situation where there was also '*very little detail in the set*'. A number of students said that they might prefer to work in a larger scale if the space was very small, 1:10 for example, and some added that they found 1:25 problematic sometimes for the depiction of detail. One student especially questioned the effectiveness of the 1:25 scale alone in communicating certain surface effects to scenic workshops, and said that she would rely more on larger scale samples to do this.

Does work on the model take the amount of time you think it will take? Never/ hardly ever/sometimes/usually/always.

The majority answered that this was only 'sometimes' the case, adding that this was often shorter or longer depending upon the problems encountered. Many chose 'never' or 'hardly ever', some adding that this was because problems were always encountered. Only three people wrote 'usually' and no one put 'always'.

Usually, but sometimes things crop up that you can't plan for and it sets you back, other times the opposite and you're finished with more time to go, which is probably worse because you feel you haven't spent enough time on the design! If you're realistic and honest to yourself you can plan pretty accurately.

3rd year student, WCA (DfP)

Do you like listening to music, talking to others or even watching the TV while model-making? Do you feel this is a help or a hindrance?

Almost all said that they found music a help. One said that particular music helped '*to keep in a vigorous rhythm*' while another referred to it as '*therapeutic*' and a way to '*help concentration and patience*'. Others reinforced the point that music could function sometimes as the opposite of distraction, helping the mind to focus and blocking out unwanted noise or conversation. A

few felt more comfortable having the TV on at home, in the background, and one said further that it helped her to *'keep in the room rather than getting distracted and wandering off.'* Many suggested that it would depend of course on the particular task and that, for example, when measuring or trying to solve constructional problems neither conversation nor TV are particularly helpful, but most acknowledged that not everything in model-making *'requires complete attention'*. Some welcomed chatting or conversation with others particularly if it gave the chance to talk about the design. Many mentioned the need to counteract the occasional monotony or 'tediousness' of the task and more than one person suggested that some form of accompaniment was important *'in order to keep a perspective and prevent the model from taking over too much.'*

How much of the actual model-making process do you prefer to do at home? What are the conditions there as opposed to those in the college?

The interesting thing about the answers to this question is that they showed an almost exactly divided preference between college and home (i.e. half the people preferring to work at college and the other half at home) and that the reasons given were very much the same for each. For example the reasons cited for preferring to work in the college included; *'better concentration', 'more space', 'a more organized work environment'*. But these were also the reasons given by many for preferring to work at home, being dependant on a variety of individual situations. Many felt that they could concentrate or relax more *'in my own space'* and would be less disturbed or distracted at home, or felt that college space could *'get cluttered if a lot going on'*, while others valued the *'productive atmosphere'* of the college *'it's like walking into a making zone'* and welcomed freedom from domestic distractions:

I prefer working at college or in an environment specifically designed for working as I find that it focuses me. Working at home I get distracted by the Internet, phone calls, the television and even books that I have lying around.

3rd year student, RBC

Other advantages cited of working in the college space were the fact that all the materials were to hand or that the shop was close by; there would be help/advice if needed and access to the Internet. But others preferred to use the Internet and consult reference books at home, more time could be taken in a more comfortable and personally controlled environment. Quite a few mentioned that they would often bring small or detailed model elements home to work on them. Only one person referred to the fact that the college was normally where the model box would be as a reason for working there, and only one other person cited working at college because one was *'meant to'*.

Can you comment on the effectiveness of the college space - the environment and the facilities – in relation to the task of model-making?

Much of this had already been addressed because the responses to the previous question were generally more detailed than I'd anticipated. Most were actually satisfied with college space and facilities; some said 'good' others said 'excellent'. Many reiterated the benefits of being able to ask peers for advice and some referred to tutors/staff usually being 'close at hand' to help with problems. In terms of actual 'space' to work most indicated that they were satisfied though many others said that there wasn't enough of it. Many also referred to desks being old and 'bumpy', or too low (the discomfort of long periods in a hunched posture was also referred to) and some cited lighting as something which could be improved (i.e. not all students had table lamps). Individual answers brought up some issues of privacy or security i.e. 'things are fiddled with' or 'go missing', or that the heating could be improved, not enough power points, or that when wanting to spray-paint 'the logistics of where to do it aren't great'. Only one person referred to college hours re. being able to work until 9 pm but wished that they could be longer. Surprisingly also only one person said anything about the college shop, saying in this case that it was cheap and well-stocked, and only one other person mentioned access to water.

How much can you generally afford to pay for a model yourself? At what point might you have to consider alternatives? Can you estimate what you've spent on each of the last two models you've made?

This varied a lot according to circumstances of course and many students found it difficult even to estimate, saying that many materials bought could be used for more than one project and that these projects differed so much in their requirements. Where some form of general outlay was guessed this was most often put at £20 - £40. Many put the absolute upper limit at £50 (varying between £20 - £100 throughout) and for others estimations of how much they'd spent on individual models rose to £80 in some cases and £100 in a few.

Foamboard (presumably for the model box) was cited by many as the major expense, followed by brass or metal mesh when it was needed. Many students referred to using scrap materials as much as possible (i.e. leftovers from previous projects) and some suggested that they had to recycle even recent work. Only one student mentioned parents as a source of help.

Do you rely on finding free or cut-price materials? If so, what?

My object was to find out whether students made use of any other sources, such as scrap banks, 'pound' shops or recycling depots for example. No sources of this kind were mentioned. Some students said they made a habit of looking in skips or recycling bins on the off-chance, looked out for bargains in places like Cass Arts (though not The Works) or, as before, recycled previous model boxes where possible. One mention was made of a studio scrap box where everyone was supposed to contribute off-cuts for general use, but on the other hand another student said that he tended not to build up a stock of scrap in his own space because it would quickly disappear. The suggestion was made that there might be a better system put in place for

recycling the mass of material the departing 3rd year students usually leave rather than it being binned.

What does your college provide?

In terms of financial help with materials, this varied. According to the students at two of the colleges, they had to pay for all their materials themselves including model boxes, although one did say that the deals in the college shop partly made up for that. At a third the college provided 'some basic materials for college-based tasks' although what and how much was not specified. Another college provided a little more: for example the model box materials for the 1st year design project; an amount of card, paper, scalpel blades and glue; materials arising from college subscription to a scrap bank scheme, and finally £50 towards model-making costs on a final 3rd year project.

4. In collaboration

Can you comment on the role which your models have played in the collaborative process? I.e. in working with directors, lighting designers and technical staff.

Do you think directors have appreciated models?

How have they used them?

How have lighting designers used them?

Most of the students related very positive experiences of working with directors in front of the model box and felt that their work in the model was appreciated. For them the process became really interactive at these moments and they felt that the model in this context became 'an immediate reference point' showing their intentions 'in a 3dimensional and physical sense', invaluable for dispelling any misunderstanding. Some found that directors were impressed with model-making skill and generally had a good grasp of scale, though some more than others.

I think directors do appreciate models as it allows them to also visualise what you see as well as allowing them to consider how they can place and direct the actors within the space alongside the suggestions the designer has offered. Directors generally move things around and interact with the space (although they can be very apologetic) but I think this is the ultimate use of the model box – interaction with the space.

Definitely, they love to play! It's immediately a playground for them, moving the figures, creating scenes, it comes to life when they're there!

3rd year student, RBC

Colleges which included courses in lighting design could obviously offer their design students the opportunity of working with the lighting design students, because many students related instances where their model boxes were

experimented on using different gels or effects in the 'lighting lab'. One design student who had recently transferred from the lighting design course wrote the following:

I have sat with a torch and checked angles – I've noticed interesting lighting effects from ambient light, which sometimes work into the final design. I like model boxes as they are often very representational, and tend to give a very strong idea of what the final result will be. It's useful to see the colours and positions in relation to the space.

3rd year student, WCA (DfP)

What experiences have you had with the way technical staff have recreated information provided by the model? Was any form of supporting information necessary?

The following is worth quoting in full as an introduction to this:

In terms of construction, the information provided by the model was supported by drawings, and many decisions had to be made during construction, mainly to do with paint colours or effects that could not have been fully finalised at 1:25 scale. The other problem which apparently occurs quite a lot, is that designers can't believe how big everything is when it's made, and I am definitely guilty of that. The ability to comprehend how a model box will transform back to life size must come with experience! Something else to note is that when a designer makes for example, a steel deck platform, they imagine it will look like it does in the model when it's made of foamboard and looks really neat. When the production team put the steel deck together they are not thinking about looks but practicalities, and once the steel deck has a fabric front taped on it doesn't have the same effect! Using the model as a communication tool is effective but cannot fully cover all areas of different interpretation by different people, and hopefully as my practical knowledge increases these problems won't occur so often.

3rd year student, RBC

Many of the students who responded to the survey had not yet experienced that stage in the process and were unable to comment. Of those who had already had the chance to experience a real production process and see their sets realised, most listed technical drawings as the foremost necessity alongside the model. A few added that, from their experience, the better or more complete the technical drawings the more seriously they felt they were being taken. Others referred to technical staff wanting to see the movements, the 'mechanics' or 'working details' of scenery clearly demonstrable in the model. A number of students referred to making larger scale colour or texture samples as aids in discussion with the scenic department. Some talked about the productive nature of meetings in the process 'so that everyone can inform each other as to their thoughts' and found that discussion was not only necessary for a fuller account of their intentions but sometimes led to improvements in the design.

It's a great starting point for a discussion with the technical staff about what is and isn't possible, and what could pose problems during realisation. I think you do have to talk it through though, the model doesn't speak for itself enough.

2nd year student, CSM

There were just a few negative experiences cited. A few students felt that technical staff could have been *'a bit more enthusiastic'* about the designs themselves and one student felt that *'they just pick holes in your ideas'*. Another described how she'd been very specific about colours in the model but these were not recreated on stage. But on the whole the students gave the impression that their experiences of working with technical collaborators had been positive.