Becoming a designer: Some contributions of design reviews

Janet McDonnell

Central Saint Martins, University of the Arts London, UK
j.mcdonnell@csm.arts.ac.uk

Abstract: The paper presents a study of 1:1 desk crits between an instructor and five students in the early stages of a design project that forms part of their formal education in Industrial Design. The study is based on inspection of video-recordings and transcripts of what the participants say during their meetings. The study is motivated by interests in how design expertise is acquired through experiences of designing and in how novice designers are assisted to develop their own positions as designers. The discourse is characterized through organizing its description according to a range of roles the instructor adopts. The study draws attention to how the instructor directs, guides and encourages the students in ways which both serve the immediate design task they face and presents students with opportunities to develop their own design values and preferences and to become more aware of their own design sensibilities. The paper proposes that developing an appreciation of how design proposals, viewed as rhetorical instruments, can serve to scaffold the novice designer's own thinking and support the presentation of preferred designs to others is a significant facet of designer competence which supports professional design practice. The paper uses material from the project studied to draw to notice the particular practice of developing designs whose raison d'être is to serve these rhetorical purposes.

Keywords: design crit, designer formation, design expertise, rhetorical objects

1. Introduction

This paper uses data from the DTRS10 dataset (Adams & Siddiqui, 2013). It presents an examination of conversations between industrial design students and their instructor (from dataset ID-jr) during one to one desk crits. The study is motivated by an interest in how working on design projects serves to develop novice designers’ competence as practitioners and their understanding of what becoming a designer entails.

Two closely intertwined issues focused attention on the material available. These are to better understand aspects of design expertise that are acquired through experiences and to explore the means through which novice designers find their own voice as designers whilst simultaneously learning what is expected from them as professional practitioners in a particular design field. Each of these issues is now
briefly elaborated. First, professional designers have to contend with the complex and unpredictable problems of practice. Their profession is not unique in this respect but it does mean that the practices they employ, the strategies they learn, and the ways in which they acquire competence are fundamentally influenced by this state of affairs. These relations are central arguments of Donald Schön’s thesis in ‘Educating the Reflective Practitioner’ (1987) and they underpin the case for why experiences of designing, through the ‘studio’, or through project work, are deemed critical to design education.

Although the balance between studio/project-based learning and the provision of technical component-based elements of education varies radically between design disciplines and types of educational establishment, the necessity for it is not questioned. Even in traditionally non-studio-centered curricula such as that predominating in the engineering disciplines, design project experience is regarded as an essential part of the designer’s education. In the UK, for example, professional accreditation of degree programmes by engineering institutions demands that curricula include both individual and group design projects. So, the necessity of opportunities to develop knowledge and competencies that can only be acquired through experience is not contested. However, interest in what are the characteristics of effective experience, and how one might assess their presence and value continues to engage pedagogical researchers. Among the matters of interest is what goes on in the interaction between novice designers and those who teach or coach them. The motivations are various and include a desire to inform curriculum design, to understand effective critiquing practices, and to guide, inform and assess tutors’ interventions. Underpinning these is a concern to understand better what are the competences the novice is acquiring through practicing their craft and being critiqued in the process.

The second issue motivating the study presented here is how educational experiences serve to create a balance between two processes which together preserve and advance design as a profession. On the one hand, novice designers must develop a command of technical matters and the norms of practice in their discipline. They submit to inculcation to achieve this end. On the other hand they need to develop their own sensibilities; to develop their own values and preoccupations and the confidence and ability to manifest these in what they design. Professionals have to take responsibility for what they propose; becoming a design professional therefore implies finding one’s own ‘place’ or ‘voice’ and being aware of what that is and the consequences. This is a process of emancipation.

The study presented here was motivated by interest in the issues outlined above and the data selected for attention from the large range of material made available by the DTRS10 organizers was informed accordingly. The organization of this paper is as follows. Section 2 identifies the part of the DTRS10 dataset selected for scrutiny. It sets out the reasons for this choice and indicates how the focus was narrowed to serve the researcher’s interests. Sections 3 and 4 describe and then interpret the discourse examined. Section 3 describes the conditions under which
the crits take place: territorially and temporally (in 3.1) and in terms of procedural constraints (in 3.2). These conditions are not open to negotiation by the students. They are interpreted here as forming part of the mechanism of inculcation\(^5\), serving to establish and maintain the student-instructor (power) relations. The conditions described in 3.2, also function to initiate\(^6\) the students as designers since these conditions oblige them to comply with a prescribed design process. Section 4 presents an interpretation of the conversations between the instructor and each student; it draws attention to the repertoire of roles the instructor plays during the desk crit sessions examined. In these roles he retains control over the interactions that take place, because both he, and the students he talks to, are conforming to established social practices of 1:1 desk crits between instructor and student. In presenting the interpretation at this point, the instructor’s performance is viewed through the lens of prior work that has characterized role profiles for tutors operating in a design studio context.

Section 5 moves on to present some particular observations that arose as a result of examining the material with the interests, and from the motivations, outlined above. It pays attention to how the instructor’s performance presents students with the opportunity to acquire understanding of how design alternatives can be made to function very specifically to support and drive their own design thinking and to serve as rhetorical resources for persuading audiences of the merits of their design proposals. It draws attention to how novice designers are encouraged to use design alternatives as mechanisms to scaffold the development of their own design proposals and communicate their designs to others in their roles as professionals. Whilst it is well understood that as designs evolve designers revise, discard, incorporate and pursue ideas prompted by their exploration and evaluation of what they have designed so far, here attention is drawn to design proposals whose primary purpose is scaffolding. Readers are invited to notice the ways that the instructor shares his understanding that design proposals can function as rhetorical devices which serve (a) to appeal to the interests, attitudes, opinions and values (Buchanan, 1989, p. 106) of (here) clients and simultaneously; (b) as instruments which support the designer’s own exploration of design alternatives (his/her design thinking).

Section 6 concludes the paper with some general observations about the consequences for research into design thinking and the formation of designers through educational experiences.

2. Data and approach

2.1 Data selected and notation used

The data examined below is drawn from desk crits between a single instructor, Gary, and five industrial design students (Todd, Lynn, Adam, Alice and Sheryl) which take place at two key moments in the design process of a semester long project to design occasional-use ‘quirky’ seating to complement the traditional comprehensive
office furniture range of an external client. 'The design project is client inspired, and after the final presentations the client will select one or more students for a design award and a summer internship.' (Adams & Siddiqui, 2013, p.24) The data comprises single-viewpoint video recordings of five crit meetings and transcripts of these with minute Time-stamp markers supplied by the workshop organizers. The dataset is referred to as ID-jr in the workshop documentation (op.cit.). Here specifically, reference is made to the two available recordings relating to the first review and the three relating to the second review:

- R1: 1-ID-jr-FirstReviewTodd (20 mins.) – recording starts shortly into meeting
- R2: 1-ID-jr-FirstReviewLynn (26 mins.)
- R3: 1-ID-jr-SecondReviewAdam (16 mins.)
- R4: 1-ID-jr-SecondReviewAlice (21 mins.)
- R5: 1-ID-jr-SecondReviewSheryl (5 mins.) – recording is a meeting fragment.

Section 3.2 below shows where these reviews ‘fit’ in the design process being followed. Timestamps from the transcripts supplied by the organizers are used to indicate from where examples of spoken interaction are drawn. Use of the organizers’ supplied Timestamps affords common anchors for cross-references to other researchers’ analysis of the dataset. Where talk is directly quoted, these (given) Timestamps help to locate the point in the conversations at which it occurs. Directly quoted talk in Sections 4 and 5 is shown italicized. References to specific fragments of conversation use the labels R1-R5 for the recordings as listed above, and, where appropriate, the (supplied) transcript Timestamp, thus R2:18 refers to an exchange during the 18th minute of the first review meeting between the instructor and Lynn.

### 2.2 Grounding analysis by working with a common dataset

There are many different legitimate approaches to research which starts from a common dataset. The introductory chapter in the edited collection of contributions to DTRS7 (McDonnell and Lloyd, 2009) discussed these in some detail. Some researchers are theory or model driven, using the invitation to examine a common dataset as an opportunity to test, refine, extend or discard theoretical positions or models constructed for specific purposes or conditions. Others start with the common dataset, coming to it with a particular lens or with a set of interests and background knowledge. They look for patterns, perhaps to build theories, or simply with the ambition to notice something that has previously gone unremarked that may increase our understanding of a phenomenon, raise questions to disturb common assumptions, or even overturn prior beliefs. Here, the author came to the dataset with the interests that have already been described. These concerns influence what is paid attention to: prior published literature on these subjects, including related work by the author, forms the theoretical sensitivity. In relation to the formal education of designers, the author is interested in how design projects in an educational setting serve for acquiring experience and developing technical and procedural know-how relating to a design discipline, whilst at the same Time serving as experiences for the novice designer to develop their own design.
sensibilities. Underlying these specific interests is a long-standing research agenda to contribute to deeper understanding of what constitutes design expertise through work that examines what people do and say rather than through making psychological claims.

2.3 Rationale for data selected and approach to analysis

After reading the DTRS10 data documentation and sampling the different types of material available, attention was focused on the ID-jr dataset for the following reasons. The students are at a relatively advanced stage in their formal education majoring in industrial design. One is a graduate student of industrial design; the others are in their third year of a four year bachelor programme. The project has an external client, hence there are stakes for the students taking part beyond fulfilling educational assessment: namely, the opportunity to compete for a prize and the award of an internship at the client company. This project, therefore, gives scope for students not only to gain technical knowledge but also to apply it within a credible professional context. The task requires them to develop designs to meet a brief, and to communicate these in a setting beyond the academy. This scenario, thus, offers an opportunity for a researcher to inspect an educational experience that is presented to students as a resource for acquiring technical know-how (here about materials, furniture construction and manufacturing processes), whilst simultaneously developing their own design values.

Repeated viewing of the ID-jr recordings revealed the following. In presentations to clients (3-ID-jr and 5-ID-jr recordings) the clients’ interactions with the students are suggestions, clarifications and encouragements focused on the design proposals; the clients are not concerned with the nurturing of the designers as practitioners other than through providing a realistic challenge. Their interest is task focused: they attend to the quality and potential of the design proposals themselves. In contrast to the recordings of meetings with the clients, the recordings relating to desk crits between each student and the instructor show a rich variety of objects of attention. The instructor moves fluidly beyond reflections that are task focused (see Figure 1) to encourage the student to consider their designs, to think differently about them, and to develop self-awareness of themselves as designers who have particular preoccupations and enthusiasm that can, and should influence what they develop and propose. Noticing these differences narrowed the focus for detailed attention onto the ID-jr recordings with richer potential variety of foci of attention; namely, on design and designer formation (1-ID-jr, 2-ID-jr and 4-ID-jr).
Further cycles of viewing the recordings and reading the transcripts of these showed that the, so called, 'look-like' reviews (4-ID-jr recordings) are heavily focused on technical matters, although the instructor does make one comment which is beyond critique of the immediate task, but this is a repetition of advice he has given earlier. The recordings of the 'look-like' reviews were set aside for this reason principally, although there is the practical drawback that these reviews take place in conditions where there is a great deal of other noisy activity. The broad characterization of the topic orientations of the crits at each of the five stages given here is consistent with that of other researchers' inspection of the 1D-jr dataset (cf. Gray and Howard, 2014, this volume, for example) and of a dataset which followed a similar sequence of reviews (cf. the findings of Sonalkar, Mabogunge & Leifer for the 1D-g data, 2014, this volume).

The remainder of this paper is based on paying close attention to the five recordings of 1:1 desk crits between the instructor and individual students taking place at earlier stages in the project (1-ID-jr and 2-ID-jr). These are a rich resource for examination: the interpretation presented comes from close inspection of what the participants say. The conversations are constrained by a number of factors. Sections 3 and 4 present an account of the discourse as follows. Section 3 describes the temporal and physical settings of the conversations and proposes an underlying design process to which the participants adhere. This design process is part of what constrains what is discussed, when, and for how long. Section 4 interprets the conversations as the social practice known as 1:1 desk crits. It draws on prior studies of similar occasions for conversation to characterize roles played by the tutor with the compliance of each student. This allows the functions achieved by the 1:1 crits to be drawn out.
3. The situation of the conversations

3.1 The physical and temporal settings

The meetings take place in laboratories where others, who are sharing the facilities, are working. The meetings are naturally occurring ones (rather than researcher-induced in controlled conditions). The environment is noisy: there is a lot of movement and background disturbance. For example people are entering and leaving the room and other conversations, often loud, and of a social nature, are taking place. The work-tables where sketches or computer screen-based material is discussed are cramped and cluttered by other objects. The video is recorded by a researcher who is present during the recording, usually filming from a static position, but occasionally moving round the instructor and the student while their conversation takes place. So sometimes we are seeing a desk crit, without a desk! Despite the apparent shortcomings of the sites of meetings, the interlocutors do seem to be able to focus on the matters they are discussing, rarely indicating awareness of either the video-recoding taking place, or the surrounding activities and conversations.

Whilst the locations are places in which the students do some of their work, there is not a sense of ownership of the space: we are not seeing the students being visited by the instructor at their ‘own’ desks. The desk crits do not occur in what is conventionally understood as a studio setting that has territorial connotations. What there is in common with the ‘studio’ experience is that the students are engaged on independently pursued design projects to address a brief.

Studio one to one crits, and much of the research related to these, (e.g. Sacks (1999) on getting ‘stuck’; Heylighten and Neuckermans (1999) and Uluoglu (2000) on what knowledge is communicated; Oak (2000) on the roles of assessment during crits in designer formation) examines resource-intensive studio experiences in which access to advice, and attention to a student’s individual progression needs during a project are served by frequent, intensive, personal attention from a studio master. For example, in the context of architectural design education, Goldschmidt, Hochman and Dafni (2010) characterize the studio experience as typically, ‘meeting two or three times a week for a number of hours, during which students present and discuss their work in progress with their teachers and sometimes also with classmates and guests⁸’ (p. 285). A second distinction then is apparent between one to one crits in the ‘studio’ and the desk crit data examined. Here, students meet with their instructor at key decision points in their design process (outlined below in 3.2), the crits are particular milestones in progressing with the design work. The instructor reminds the students of the purposes of each meeting and what progression outcomes are necessary at the end. So, whilst the meetings help students to shape their ideas (formatively), they also play a summative role, not as formal assessment points per se, but to mark critical transitions between phases of the design process the students are following.
3.2 Underlying design process

The design process the students are engaged upon is briefly described here. The description is based on the characterization supplied with the dataset (Adams & Siddiqui, 2013, pp. 26-30) supplemented by evidence from the explicit references to tasks made by the instructor, Gary, during the desk crits.

The students are working on this design project over the course of a semester in parallel with pursuing other components of their formal education. They have a design brief from external clients who design, manufacture and retail office furniture. The students have examined the company’s current office furnishings ranges and ‘what the competition is doing’. They are tasked with preparing a set of ideas to discuss with their instructor in a first (1:1) design review (1-ID-jr) with him. In this session they discuss their initial ideas with the instructor with the specific goal of identifying five concepts for further development. During these meetings the instructor accomplishes a number of things discussed below in section 4, including prescribing how to go about the next task. He tells them to spend two hours on each idea, develop each as much as possible, thinking of seating ergonomics (so function) at the scale required for accommodating a sitting person, and so on. He tells them to have a 'hard stop' after working for two hours on each concept.

The purpose of the second crit (2-ID-jr) is to select three from the five developed concepts through discussion with the instructor. These three alternatives are to form the basis of very short (‘elevator pitch’) presentations to a small group of client stakeholders. The remainder of this paper pays attention to the five examples of desk crits related to 1-ID-jr and 2-ID-jr. Subsequent recorded activities entail the client review (3-ID-jr) comprising 5-minute presentations and resulting questions and discussions (these make use of slide presentations, foam prototypes and story boards developed for this purpose by each student). This is followed by production of full-scale mock-ups and/or models to develop the students' designs further (the milestone related to this activity is dubbed the 'look-like' review (4-ID-jr) – a desk review 1:1 with the instructor). Following this students prepare and present (final review (5-ID-jr)) their design proposals at the client premises to an audience comprising the instructor, expanded client stakeholder community and their student peers, supported by slide presentations, and other material such as the mock-ups and story boards.

The stages in the design process are therefore unambiguously prescribed for the students with the five reviews above situated at key transitions in the focus of attention. The process underlying the activities they are directed to engage in fits well to the engineering design process model attributed to Cross (2000) reproduced below in Figure 2 on the left, annotated on the right to show how some of the specific tasks for this project map onto it. The particular instructions leading up to and following on from 1-ID-jr, 2-ID-jr and 3-ID-jr (tasks during and goals between) are formal instantiations of the feedback loop shown between generation and...
evaluation in the figure.

Figure 2. Underlying design process with annotations for the ID-jr design project (flow at left from Dubberley (2004 p.30) attributed to Cross (2000))

Having outlined some of the conditions under which the meetings examined occur, we now turn attention to interpreting what takes place organized to draw attention to the roles the instructor performs.

4. What is accomplished in the desk crits

The purpose of this section is to construct a characterization of the discourse between the instructor and his students by paying attention to the roles the instructor performs conversationally. Section 4.1 briefly indicates what the instructor does to set out the agenda for each desk crit and places the agenda in the context of the project as a whole. He moves between telling students how to proceed and (through various means) encouraging them to develop their design concepts and make choices in decisions small and large. A prior categorization of teaching roles/profiles is then used to characterize how the instructor engages with the students during the crits. For this, three types of profile identified by Goldschmidt et al. (2010) are used to organize the conversational exchanges. The profiles are: instructor as source of expertise or authority (section 4.2); instructor as coach or facilitator (section 4.3); instructor as ‘buddy’ – one who provides encouragement and ‘helps in socialization into the professional community’ (section 4.4) (op.cit. pp. 286-287). In the literature on tutor profiling there is usually some hedging about pigeon-holing individuals, Goldschmidt et al. phrase it thus, ‘No design teacher has traits of a single profile only, but the classification is viable on the basis of the teacher’s predominant traits.’ (op.cit. p. 287). Looking at the video-recordings of the
instructor, Gary, in action with these profiles as sensitivities we see that he is proficient in fluidly shifting among all these three types of engagement, nurturing the novice designers’ development across several fronts seamlessly.

4.1 Prescribing activities and goals and encouraging design thinking

Close scrutiny of the talk between the instructor and his students shows a marked contrast between thinking and doing, or put another way between processes and ideas. Gary gives, often precise prescriptive, instruction about what to do: *once you decide which ones you are working on ... give yourself a cut off... give yourself say a couple of hours on one ... and then you’re gonna find it out at the end of two hours as a, as a designer, is this too complex* [R1:14] ; *you’ve got five concepts, try to give yourself at least two hours for development ... in terms of height ... whatever you think is with the requirements of the design brief, spend a couple hours on that and exhaust every single possibility and then stop and then go and look at this one work for two hours ... then work on another one* [R2:16]. This contrasts markedly with how he deals with their design ideas and the choices they need to make about how to select alternatives for development and how that development emerges.

Gary pushes each student to make decisions, guiding them in how to arrive at a point where they can do this if necessary. He does not tell them what to think, even when asked to do so explicitly: [Sheryl asks:] *So of these two which one do you think they would prefer to see?* [Gary responds:] *Well I don’t, I don’t wanna, you’re the designer, which do you think? I mean there’s some great simplicity here. This is, this is intriguing, ah but what I would do is I would maybe, this is gonna change because you gotta change some of your dimensions. See what it looks like ... develop that far enough to where if you start losing the essence of what you consider a strong visual design* [R5:04]. We notice he not only says explicitly: *you are the designer what do you think?* but also more subtly suggest that the decisions rest with Sheryl and are hers to make – he refers to *your dimensions* (subjective) rather than ‘the dimensions’ (objective) and then he tells her what to do to arrive at a point where *she* can make a judgment, using ‘you’ twice to convey agency: *develop that far enough ... if you start losing the essence of what you consider a strong visual design*. We see a similar pattern - here with Adam - where Gary avoids making a choice for the student but suggests what Adam should do to be in a better position to decide for himself. Adam asks: *So do you think it’s worth my time to try to develop this more or should I go with something that’s safer?* Gary responds: *I don’t, I don’t, I’d hate to have you stray away from something you’re really passionate about. I know you really love that shape* [R4:11]. Gary goes on to advise on use of time, namely, telling Adam to work up the two alternatives he is committed to and then to use the time remaining to determine whether to work up a third proposal that is simple (i.e. quick to do) or to work on a proposal that is more complex (more time consuming).
Within each meeting, Gary explicitly reminds each student of its purpose. This is usually early on in the conversation but may be mentioned more than once to introduce or repeat instructions: because you’ve got to have – we’ve got five concepts by next week then we narrow it down to three [R1:05]; our job is for you to have five concepts, directions that you want to go in today [R2:00]; [after considerable elaboration] so maybe what you do is you develop those two, and then where the time lands will help you decide whether you wanna [develop /pursue other concepts] [R3:13]; again the purpose of this [selection of three concepts] is to show’em [the clients] and get their feedback the concepts [R4:06]; you gotta narrow this down to ah your final three R5:01; rate these in order of your preferences [R4:12].

As part of this explicit rehearsal of what the process is, and where the meetings fit within it, Gary reminds students what they have done so far - where they have come from in the design process - perhaps by alluding to the brief, the competitor products they have researched, or what is the context and intention of the brief: they’re looking for something new and exciting [R1:04]. He also reminds them where they are going next in the process, referring to what needs to be done with the selected design ideas to take them to the next stage in the sequence (cf. Figure 2). In effect, by these means, he acts as project manager and inculcates them as to what a systematic design process entails for a designer.

The three following sections (4.2, 4.3, 4.4) enumerate some of the conversational strategies Gary uses to perform three types of role in his meetings with students. In each case examples from the transcripts are given to illustrate the strategy identified. Seen in combination, what Gary does is revealed as using a rich variety of means to achieve a balance between directing, informing and encouraging. This, in turn places the onus on the student to make choices, develop their own stance, and assume responsibility for the choices they make. He, thus, supports them in developing their own judgment and in understanding and becoming conscious that this is what they are doing. There is an emancipatory element to this.

4.2 Being a source of expertise and authority

The desk crits take place within a prescribed series of activities that have already been outlined in section 3.2. The activities, and what to do to accomplish each, come to the students as explicit instructions from Gary. Examples have been given above. Gary presents himself as an authority on the design process and what to do to develop a variety of design proposals through conversational turns that are instructional in form and tone.

Beyond the advice about how to proceed and what will happen next, Gary positions himself as an authority over a whole range of technical matters related to the design brief, the clients, and the design of furniture. These include what the clients’ expectations are, to Lynn: why their product ranges have the properties they do: if you saw what N...... [the client company] was like, it’s very, very simple and the reason for that is that it’s capital investment ... these offices can be very expensive ... and so they
wanna get several years out of these office expensive systems ... so they typically pick up kinda safe and neutral colors [R2:01]. He makes a similar set of comments to Todd at [R1:15].

He ‘transmits knowledge and know-how’ (Goldschmidt’s terms, op.cit. p.286) including technical information about materials: a lot of upholstery of a lot of, you know, comfortable chairs and what they’ll do in a minimum of two different densities of foam ... so you have one which is a heavier density which keeps your, that’s your ergonomics, then you do something lighter that’s gotta be, it’s gotta be resilient enough to actually fill your form out [R2:20], he makes similar comments to Todd about the properties of foam with different densities at [R1:18]. On furniture construction: this form will probably be something made out of plywood, too, which we’ll upholster that sorta thing ... but you can on the inside here, potentially, do a veneer if you wanted to [R2:13]; even hard surfaces, and then a hard surface in terms, doesn’t necessarily have to be wood or something, it could be like a, a leather which is bonded to plywood, so you get a kind of a nice feel [R1:11]. On manufacturing processes and their costs (and hence viability): the reason they’re staying away from injection molded plastic is they don’t, this is not a primary purchase item, and it’s new, and so they don’t expect the manufactured numbers each year to be big enough to be able to support a man – a big injected mold tool which can be hundreds of thousands of dollars ... so all this would be a great design in another material [R1:09]; they can do wood presses, which tooling isn’t that expensive so maybe that’s a place you can throw in a wood veneered base [R1:10]; now when it goes on the floor, um, you may consider maybe that’s a, have some semi-soft machinable plastic pieces of material ... maybe a metal piece or something ... we need to have some kind of structure ... keeps the fabric from touching the floor ... maybe it could be waterproof or more durable [R3:04-05]

In contrast to the way Gary avoids questions about what to think (examples in 4.1 above), he does answer technical questions, e.g. when Alice asks about the thickness of a cross-sectional element, with: an inch?, Gary responds definitively: ah, it’s gotta be more than that, I mean you might be able to get by with like a plywood and then you still got put foam. Give yourself at least two inches [R4:19-20]. With Adam, he is equally forthcoming, Adam: do you think this is too – I can see that being a bit unstable. Do you think the base this way would be too unstable? Gary responds: um, this is, this is better. I mean if you get the same – I would – I would make that between the bases or the, that you, that it, I would probably make ‘em the same. Try to come up with the symmetry [R3:02].

Gary makes references to precedents, always in the context of drawing a student’s attention to some feature that resonates with some particular idea a student is currently developing. These include reference to Herman Miller’s spun chair, to encourage Todd to consider how people sit in ‘fun’ chairs [at R1:03] and again to Todd when he says: it’s extreme but I think, I think with what you’re doing like you could get some inspiration from it at [R1:15]; he refers to other features of the same chair in the context of a discussion with Adam to reassure him over his seat height
[R3:01]; he alludes to Ron Arad’s use of color to play up negative space in a way he is encouraging Lynn to consider [R2:03]; and refers to a designer of seating constructed entirely in cork, held in a museum collection (the ‘bone collection’) when Adam is talking about using cork for one of his proposals [R4:10]. He occasionally makes reference to his own prior experience of furniture design, again in the context of drawing something very particular to a student’s attention. He speaks about designing speakers using magnets to connect components that might be useful for the development of a particular design proposal from Alice [R4:11].

4.3 Coaching and facilitating

A distinction has already been made between how Gary deals with what to do and what to think. He instructs on the former, he acts as coach and facilitator with respect to the latter using a number of conversational strategies. To encourage students’ exploration in depth of their initial design concepts he uses a variety of means to open up the proposals for further development including asking questions: are these all fixed together? [R1:00]; and this, and this, this is part of the stacking thing here? [R1:06]; no, now explain that, how would, what would use for mechanical, would this be Velcro or something or what? [R1:07]; this one would be x number of pieces then all layered together or what? [R1:08]; what could you do to this to offer just another function? [R4:00]; well is there anything you could do in this area here minimally between this surface and that surface, maybe, to create a shelf? [R4:01]. He offers suggestions which are hedged by indirection (e.g. ‘maybe’), often by suggesting what he would do, rather than instructing the students’ to take the action he introduces: and I, I would develop an in-, independent piece, too, just as a pure form exercise [R4:14].

When Gary makes positive appraisals of proposals he draws attention to attractive features, inviting students to notice these and to consider how to work to build upon them: this is really fascinating too ‘cos again it becomes a, a design element on its own, a, when you’re not using it [R2:11]; this is still very interesting ‘cos it’s the forms, in fact you put something in and it, it changes the complexity of it, you turn it upside down [R2:13]; it’s almost a visual kinetic, if I would sit on it, all of a sudden it changes the whole palette, like that’s really cool [R2:21]; I saw that neat little tension, it creates tension which is kind of neat ... you know? and so which offers, and then you could have different materials and colors [R1:06]; visually it’s really attractive, a person maybe, you know, they could, you know, two people could be sitting here and just bring this around and throw, or they could just pull’em out and then sit back of each other [R1:11]; both these are really fun, both of ‘em have great merit. This, um, you could play around with the height on this thing and your proportions [R4:20].

Gary avoids explicit negative appraisals, rather he makes these in an indirect way by drawing students’ attention to features of a design proposal that they should focus on: this is really, really nice ... this is gonna be your biggest challenge is trying to get your geometry right [R2:09]; I don’t wanna influence you on the curvilinear thing you got going on and an organic shape, but like once you start laying this out scale-wise
then you might find out that maybe some of your proportions, some of these may not work for you [R2:16]; you got this energy, this dynamic opening in this really cool form. But if we work on the dimensions on that part, but like you still gotta have your cushions on the outside. It could, still could be minimal on the inside, in terms of upholstered. But I mean at least you gotta have some, some dimensions [R4:09]. And here two more examples, first positive qualities then the cause of the negative, and finally a lot of hedging: let me tell you what’s really, what I like about this is it, everything but base. We based for the price to get this nice curvilinear biomorphic sort of flowing shape. And this, ah, I don’t know it kinda puts in on a little, it creates to me, it creates a little design tension, a little bit, personally [R3:07]; this one’s got a really nice organic, ah, you’re kind of drawn to it ‘cos of the coolness of the form, and, and the fact that you can nest it. Um, but that’s gonna take some time to get that dialed [development time] in the way you want to [R3:12].

4.4 Being a ‘buddy’

Gary does not manifest as a buddy conversationally in some of the more obviously direct ways. For example he doesn’t imply a shared set of issues to be addressed together by using the collective pronoun ‘we’. He does use ‘you’ to instruct (4.2) and in coaching, and hedges advice to render it more coaching in tone using ‘I’ for suggestions he directs apparently at himself: I like this element and that, that could be pretty cool as one, I probably would do two, I’d figure as a designer, pick one [R1:17]. He does make explicit reference to what a designer has to do when he is putting the onus on the student to make choices, and particularly when he is avoiding invitations to chose for them he separates himself from them with phrases like ‘you’re the designer’, these are not buddying conversational tactics. He does hint, by little indications, that he understands their plight, but again indirectly. Here is an example: So, well that’s the curse of being a designer, you have to sometimes stop and figure out what you wanna do [R3:03]. He does occasionally put himself alongside the students by referring to his own experience, but in the recordings we have available he does not make a lot of this. Here is a rare example, when he speaks of a particular prior experience: we used to do this with N…… D…… back on speaker grills, the way you orient the magnets, there’s like one way that they can go together [R4:11]. Even here, he mentions this less as buddy but more as expert (section 4.2) in the context of proposing an analogy to Alice: I mean you could orient your fabric and that creates the same sort of alignment, anyway, a lotta, lotta fun things but simple [R4:11].

Indirectly, he sets himself alongside the students by giving positive appraisals that are not justified. (So here we are contrasting this conversational behavior with the positive appraisals referred to above in section 4.3 where reasons are proffered to coach students on what to pay attention to). Since the majority of these unjustified positive appraisals occur in the context of students showing their work and explaining their ideas they could perhaps equally be regarded as serving as facilitation or encouragement of students to describe what they propose prior to guidance – whether instructional or coaching in form. There are numerous
examples: here are two to give the flavor. In response to one of Lynn’s ideas, Gary responds with: no, that’s great, followed by Lynn’s; and can sit here or you can sit here, and Gary again responds further: no, that’s exciting, that’s fun [R2:06]; a similar series of uncritical positive responses comes with Todd’s presentation of his initial ideas, Gary’s turns at talk include: I like that [R1:00]; that’s ok that would be good [R1:10]; it’s kind of fun [R1:12].

5. Designs as rhetorical devices

Sections 3 and 4 are attempts to characterize the context of the crits and the nature of the discourse that is taking place. In this section we draw attention to how the crits function to encourage students to see how design elements (either complete design concepts or features of a design) may serve as scaffolding for (their own) design thinking or as resources for justifying their (preferred) design proposals to others. Section 5.1 looks at engagement with others – here potential clients, section 5.2 moves on to consider how the instructor invites students to see working on their designs ideas as instruments for understanding, clarifying and testing their own priorities – their design values and design sensibilities more generally. Section 5.3 briefly addresses the inseparability of these two phenomena and proposes what Gary shares as a manifestation of scaffold designs that serve as rhetorical devices for design thinking and design justification.

5.1 To engage with clients

Cynically knowingly manipulating a client’s perceptions of design alternatives to influence their choices in favor of a designer’s own preferred option is well know to practice, even though many of the tales may be apocryphal. Here ‘sharp’ practice is acknowledged but set to one side, as we do not see this form of practice advocated by the instructor. Gary’s references to client choice is positioned by him as supporting clients in understanding the qualities of designers’ proposals - as authentic engagement that is aimed at helping the clients realize their goals. For the ID-jr project these goals are for ‘impromptu’ seating, explicitly designed to be an arresting feature of a work space: something which is to contrast with the brand’s mainstream office furniture product ranges.

The practice Gary advocates is to present clients with three choices: what I always like to do is I like to have, you know, safe, medium and extreme to some degree. That’s, that’s, kinda it helps them [R4:07]. He advocates not giving too many options which he regards as unhelpful and confusing, but he does advocate conveying openness about design variations within each distinct design concept proposed to encourage the clients to see possibilities beyond rigid adoption of what is formally presented: the purpose is to show ‘em the concept, get their feedback, ah, and they can, they could say, ‘well we think this is doable’, whatever ‘but may want to make this modification’ [R4:06]. He makes it clear that it is important to differentiate between the alternative design concepts - the safe, the medium, and the extreme - and the potential for introducing variations in each of these which do not detract from each
one’s essence. This is a subtle matter that the students are grappling to master. Gary says to Alice: they are not hiring you to do CAD, ah, or pick out materials, but they’re hiring you for your vision, so you as a designer, when you look out against, and again, the landscape of all the competitors, where’s the next step up? Again they [the clients] can come in with anything and be after the fact they can be ‘me too’, but they hired you to say ‘okay let’s be bold and these are the reasons why and this is, this is the essence of what I want to do’, and be passionate about it, again you’re the designer, lead ‘em, and baby steps [R4:07]. Two minutes later he advises Alice again, when she is expressing concern about the possible functions, beyond the ‘first function’, of one of her design concepts. Alice says: I like that one [concept] too ... the only thing with that it didn’t have a [second] function ... Gary counters with advice: if you run across a form which is, it has a lotta strength, as a designer, don’t worry about the additional function ... [he praises its qualities] ... but the neat thing about that once you have talked to the [client] designers ... you can say ...’well you know I can make this functional by running some metal rods across here to add another material just if you feel like you need to do that, and it might give some additional support’. But be thinking about those things so you can say ‘well this and this is what I was also thinking’ ... so somehow you need to channel them into an area which you think is your best design [R4:08-09].

In these exchanges, Gary is giving the students the opportunity to develop their understanding not only of what constitutes the essence of a design concept but also how a design proposal constitutes an argument that can serve a persuasive function. That beyond the rhetoric of words lies a rhetoric of things (Buchanan, 1989, p.105); a design concept functions, as does a designed object as a practical demonstration of what might be, or what is the case. ‘The designed object declares that it is fit for use ... yet it is only an assertion; users may then begin their own deliberations about whether to buy it and how to use it in their lives’ (ibid.). Gary shows students how to use their design proposals as rhetorical objects serving persuasive purposes. Here are two moments from two crits that make his position on this clear. First, towards the end of the first review meeting with Lynn: I would have something really simple ‘cos it’s, I call it the illusion of choice ... it’s safe ... sometimes it’s good for them [clients] to have something safe to compare it to ... you may decide you may wanna eliminate that later, but I was just pointing that out, that’s probably the safest one you have [R2:23]. The second, early on in the first review with Todd, having rehearsed the brief and the reasons why the clients are seeking ideas from outside the company which will move them beyond their normal product lines, Gary advises: so that’s that’s what they’re looking for, something new and exciting. Always do something safe. Um, ‘cos sometimes you never know how, what people are, how, who you present to, but there’s a good reason for the safe too, is what it does if you don’t have the option, I call it the illusion of choice. If you don’t have that option they see all you’re really extreme, they, they don’t have anything that’s gonna ground ‘em to, to why, ah, why they like what you like [R1:04].

Gary recommends a course of action to his students so that they will generate what they need to make persuasive arguments about their design proposals. Playing off
the different qualities and features of design proposals, one against the other, is a significant aspect of design justification. The idea of the ‘safe’ option serves an explanatory function. Explanations presuppose a question; they function to avert misunderstanding (Wittgenstein, 1953, §87). It is anticipating what the explanation must answer that makes it stand on its own as empirically adequate. Professional designers know how to anticipate what their audiences will raise questions about and will often use an expected, but for some reasonable infeasible or dis-preferred design, to rehearse the arguments against the obvious or standard design response. The designs they use in this way serve as rhetorical objects, supporting (scaffolding) persuasion - away from the described design as a feasible option in its own right – towards the qualities of preferred options by drawing attention (through comparison) to certain properties or qualities. Developing a sensitivity as to what needs to be justified about a design proposal and what can be left unsaid is a professional skill that requires an understanding of audiences: what their norms and values are, and their expectations and aspirations. Here, Gary reminds his students about the brief and the background of product ranges against which they are developing something novel and complementary. Against this backdrop, the case for a proposal is made by successful appeal to the audience. Gary directly guides his students in learning to do this through explicit advice. However, he also helps them to acquire the material for persuasive arguments implicitly by the way he counsels them to proceed with developing and responding to their design concepts in a way that makes them more self-aware of their own design thinking (how they are generating ideas and evaluating of them, or as Schön would have it: their framing, moving and reflecting). Attention turns to this below in section 5.2.

5.2 To evolve design proposals

Gary frequently directs the students what to do (sections 4.1 and 4.2), indicating that the proposed actions will lead to productive movement through the design process through the insights that will arise from taking action. For example, he directs students to consider what the imposition of hard constraints (on the comfortable height range for seating) will do to the forms they have sketched out: ok I would, again, now I would develop these in terms of scale ... in fact I wouldn’t mind seeing a scaled elevation front and a side view and a top view I mean, I’m talking about just taking a, a piece of paper and creating a, a grid on a piece of paper over it. Just, just, I just wanna make sure that you, you, you’re going down that route to where you, you evaluate in terms of the, of real scale [R1:19-20]; you have to make your dimensions back scale to two and a half inches to get that, that scale to where now all of a sudden, ‘cos if it’s twenty inches high, it needs to be a certain amount deep and a certain amount wide, that sorta thing [R4:14]. He proposes that resolving difficulties with how to handle aspects of a concept may be achieved by moving to 3-D advising building a foam model to test the reality of dimensions [R3:03], or advising using modeling clay to resolve how to progress with developing part of a form. Lynn says: yeah but I don’t know how to do the top part because it’s kind of not a flat part, so how to sit on it, Gary advises her what to do to resolve this for herself by responding: well maybe you wanna get some modeling clay – perhaps Lynn was hoping for a solution
rather that a route to find her own as she responds with surprise: oh, leading Gary to elaborate: you wanna mess with [the modeling clay] I mean it, does, that's really something to think about, we’re looking at a two-dimensional drawing. So you’d model a Hershey Kiss, and then you’d figure out you’re gonna have to do a, I’m not gonna draw it, but you’re gonna have to do something which [he draws something] you’re still, depending on what your shape is, maybe your Hershey Kiss from the, from the front has a little bit more curvature, you know [R2:18-19].

As Gary advises his students about what to do to develop their design concepts and choose between them, he creates opportunities for them to develop their own understanding of a number of things: that their own preferences are legitimate criteria for selecting in favor of one move over another; that their evaluation of the outcomes of moves may legitimately lead them to revise their own preferences and goals; and that finding that meeting hard constraints such as seat height, stability requirements, the practicalities of physical construction and materials’ qualities (e.g., strength, flexibility) and production costs may undermine the essential features of a concept they have in mind. Here are examples of Gary presenting these opportunities. Firstly, here is Gary advising Todd: what I would do is I would do the, the easy simple form ones first, and the more complex ones later, and that way – ‘cos you’re gonna find out on your forms whether or not it’s something you wanna work with [R1:13], and a couple of minutes later: and some you may find out you just got along you’ve gotta change it, which may lead even lead you to a better solution or you may say, listen now, this is wonderful thoroughbred, you know horse I had designed, now it probably looks like a mule and a goat. And so well – so that’s my bit of information [R1:16], and then again: now I would develop these in terms of scale ah, and, and you may find out that it may force you into some other forms you like even better [R1:19]. We see the same pattern in conversation with Adam, Gary tells Adam to work with a foam model and indicates what might happen: and then when you do your foam model that’ll be what you do before you design, well, you may discover another proportion or something, another element which you might wanna incorporate back into your line drawings [R3: 03-04]. With Alice, discussing adding function to a bench form she likes, Gary asks about the potential for incorporating something between two surfaces. Alice expresses concern not to lose qualities she sees in the form, saying: I just feel like it kind of ruins the form … 'cos this profile I really like the profile like this. I feel like if I add more material on there, it's just gonna ruin the relationship [R4:01-02]. Gary offers practical information about what to do (quarter inch elevations) and construction techniques that will be an acceptable cost: to keep it less expensive and it’s upholstered piece so they’ll probably use plywood ribs, that sorta thing and then they’ll skin in with a real thin wood veneer that they’ll plump that up with upholstery [R4:02]. This is followed immediately with advice: that’s the part I would work on, you wanna keep this design essence but now you have, you’ve gotta translate it into a buildable materials [R4:02]. They then discuss construction constraints in relation to parts of the form where thickness is a critical issue and other factors such as the flexibility of veneers.

Designers have to come to understand what can be called into question (Lawson,
they have to establish the scope of their design intervention – what parts they have control over. The central activity of designing is ‘understanding the field of the context and inventing a form to fit it’, these concerns ‘are really two aspects of the same process’ (Alexander, 1964, p.21); Alexander’s notion of fit and misfit embrace the idea that as an evolving design is evaluated, the designer understands better the qualities and short-comings of his/her design whilst simultaneously developing his/her understanding of the context. This is what is meant by the observed practice that trained designers focus on solution testing in order to better understand the situation their design is intended to address. Misfit is a relationship between a design proposal and the problem framed by the designer. The designer’s understanding of both – namely that which is designed and that for which it is designed change as the design proceeds. Misfits claim attention – Gary is inviting his students to see that both shortcomings and novel aspects of a design which come to light as a proposal is evaluated serve equally as useful information that helps the designer to proceed.

5.3 To practice design

In all of the examples of Gary’s instructing drawn to attention above (5.2) he is making allusions to the experience of designing. What he says renders acceptable the feeling of surprise at the ‘talk-back’ from a developing design, and legitimates allowing oneself, as a designer, to respond to this by shifting ambitions and expectations about what a design can, and cannot achieve, and what qualities it can have. The actions he instructs the students to take present them with opportunities to move their designs on, and at the same time encourage them to develop a designerly disposition to what emerges. By making them aware of what may happen he legitimates what they will experience and also draws attention to it (brings it to their self-consciousness). If this is effective, the students learn to make use of their own evaluation of emerging designs not only to move on with the immediate task but as a resource for justification of the choices they have made (and the ensuing effects on the design) to themselves and to others. Once designs are appreciated as rhetorical resources it becomes possible to see how some of them may serve this instrumental purpose as their principle or sole function – to be scaffold designs.

In the practice of design, insights about how a design brief might be addressed which come about through working on a particular line of enquiry (such as developing a particular design concept) do of-course influence the conception of, and response to the task as a whole. Noticing something in the evaluation of an idea may prompt or adjust another avenue of development. In Schön’s terms, this is reflection-in-action. Educating the reflective practitioner involves providing the occasions to learn to reflect-on-action. Gary’s talk encourages reflection-on-action. It is not clear that, without his intervention, this would automatically be an outcome of working on the design project. Making designs serve as scaffolding to others – sacrificial in pursuit of some (other) design outcome is a subtle aspect of professional practice. Studies of design and other kinds of creative practice have
revealed that some ideas serve entirely as scaffolding for others and may be discarded once that purpose has been served. Studies of poets’ writing practices (Beatty and Ball, 2010), and of collaborative Fine Art practice (McDonnell, 2011), show that practitioners are aware of their own strategies for scaffolding their creative practice with different sorts of devices. Rhetorical devices akin to primary generators (Darke, 1979) serve a creative purpose before being discarded once that function has been fulfilled.

A recent study by Harkins of how expert text type face designers work shows that some routinely, and others occasionally, design a medium weight character set which scaffolds the development of lighter and bolder character sets. These, in turn, are used to re-design a new companion medium weight set - by working of off the other two (Harkins, forthcoming). The original medium weight letter forms are entirely, partially, or largely discarded. Here the initially designed medium-weight forms serve as rhetorical objects whose instrumental purpose is largely to support the designer’s own design thinking (self-persuasion/argumentation), and once this purpose has been served the original scaffold design proposals are discarded. Whilst Gary’s advice about evolving the students’ design proposals does not explicitly advocate that specific designs be treated wholesale as sacrificial, he does invite the students to see that pushing through with detailed design for some design ideas – such as considering seat heights, strength of materials, and so on can serve other ends. These include getting a better sense of what are essential qualities – what it is about the ‘design concept’ that is non-negotiable, from the point of view of the designer, i.e. what will irrevocably compromise the design, and what remains negotiable.

The view of what designing entails, the strategies and the knowledge structures that an expert designer employs to set and solve a complex design task competently are arrived at through training and prolonged practical experience. In sections 5.1 and 5.2 above attention is drawn to the rhetorical instrumental properties of designs for different audiences. In doing this, the aim is not to argue that what is manifest stems from separable underlying phenomena.

6. Concluding remarks

As experience is gained in a chosen profession, factual knowledge becomes structured in a way that reflects the strategies and the heuristics that the practitioner adopts to tackle the professional challenges s/he faces. Individual professional designers rarely work in isolation and rarely design for themselves. Their knowledge is therefore organized for effective problem solving in a way that allows communication and cooperation with others. In design, this takes places both within design teams and with ‘outsiders’. A designer’s need to explain his reasoning and to justify decisions is an integral part of the practice of his profession – a need supported by the way her/his knowledge is structured.

Close examination of how Gary instructs his students (section 4) shows us a highly
skilled, nuanced set of activities which help to demystify how ‘knowing how’ is nurtured through careful navigation between modes of instruction using a rich variety of conversational strategies. Once again, paying close attention to apparently unremarkable, everyday (here educational) practices brings something overlooked into visibility and ‘leads to a recognition of the dignity of ordinary behavior, or the act of stating simply: here is value’ (Johnstone, 2008, p.12).

Rowe (1987, p.37) has observed that design is seen to be a normative exercise – design proposals are about what is proper. Buchanan (1989) expresses the same set of ideas in terms of what is visibly manifest in talk – as the persuasive figures of rhetoric: ‘The skillful practice of design involves a skillful practice of rhetoric, not only in formulating the thought or plan of a product, through all of the activities of verbal invention and persuasion that go on between designers, managers, and so forth, but also in persuasively presenting and declaring that thought in products.’ (p. 109) In moving from novice designers to competent ones designers become answerable for the choices they make (Dreyfus, 2001, p.36). This implies a certain level of awareness of what they have done and the decisions they have made and an ability to communicate this. In section 5, attention has been drawn to how Gary presents students with the opportunity to see their designs as rhetorical instruments that can serve these needs. Buchanan’s writing refers to the rhetorical properties of designed artifacts, here it is proposed that during the design process, and in presentation of design proposals to others, skilled designers use some design proposals solely for rhetorical ends.

Beyond the intrinsic merit of understanding better what we do, this study points to how suitably supported engagement in design projects serves to provide opportunities for the acquisition of design expertise. It does this by drawing very particular attention to certain features of what one instructor accomplishes in 1:1 desk crits. It shows the subtle ways in which the experience of the crits provides value, and also that appreciation of this value requires understanding something of what design expertise entails. In doing all this, it reminds us of the mantra from the learning theorists that, ‘experience alone is a poor teacher’ (Halpern & Hakel, 2000). The study, in raising to the surface the qualities of good instruction, has implications for what are the necessary abilities and background experience of those who play the critic’s role, and for the viability of any substitutes for faculty-intensive 1:1 instructing practices.

Acknowledgements

The author thanks the DTRS10 organizers for the making the data for this study available and the study participants for their generosity in allowing it to be collected.

References


Biography

Janet McDonnell is Professor of Design Studies at Central Saint Martins, London where she is Director of Research. She holds a PhD for work on modeling engineering design expertise, an MSc in Computer Science and a BSc in Electrical Engineering. She is the editor-in-chief of the International Journal of CoDesign.

---

1 Definitions of discipline include reference to ‘systematic training in obedience to regulations and authority’; ‘a system of rules for behavior, methods of practice’.
2 Inculcate in the sense of ‘to instill forcefully’.
3 Definitions of sensibilities include reference to ‘the ability to sense or feel’; ‘capacity for responding to emotion, impressions’; ‘capacity for responding to aesthetic stimuli’.
4 Emancipation defined as understanding the conditions that shape experience. Inculcation and emancipation are appropriated here from the critical discourse approach of Fairclough (2001). Use of inculcation is consistent with his definition (see endnote 5), however he uses the term ‘communication’ as the mechanism for emancipation. Here emancipation is referred to as a process rather than an outcome. Emancipation, for Fairclough, arises through coordination and control of social practices through communication and debate in the ‘communicative action’ sense advocated and elaborated by Habermas (1984/1981) between interlocutors seeking understanding.
Inculcation has an overtone of force; Fairclough (2001) describes it as the mechanism by which ‘coordination and commonality of practice in respect of social beliefs, social relationships, and social identities’ are achieved by imposition of power (p.62). This form of coordination is at play here with regard to the instructor-student context. However, Fairclough’s usage suggests that this mechanism is applied particularly for imposition of power ‘in a largely hidden fashion’. Here, we may question whether ‘inculcation’ is a suitable term since, although the power in the discourse examined does reside with the instructor, this is made possible by the consent of the student(s).

The term, ‘initiate’ rather compromises the critical discourse agenda as it carries a voluntary association. This seems attractive on one level but since it is not clear that the students are aware or self-aware of what is going on at the level of their inculcation into a discipline, inculcation is retained in the rest of the paper as the term to characterize discourse that constrains them (gives them their discipline).

Term originally coined by Glazer, ‘theoretical sensitivity is the ability to recognize what is important in data and to give it meaning’ (Strauss and Corbin, 1990, p.46).

Use of the term, ‘guests’ suggests the studio is the territory of students who invite others in.