

**Dialogic Enquiry and Aspects of Interaction
in Architectural Design Review of Undergraduates**

Classification of Principal Oral Feedback Typologies

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στην κυρία Τίτη,
που με έμαθε να σκέπτομαι

for Mrs. Titi,
who taught me how to think

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Abstract

In an architect's education, the design review is an event where students present a design scheme in front of a panel of critics, in order to receive feedback. The nature of feedback is usually more evaluative than informative, and its delivery is predominantly instructive and in the form of monologues. In an environment that appears to be more authoritative, students often feel intimidated, and some are reluctant to participate in a dialogue and interact.

This thesis through the observation and classification of oral feedback in undergraduates' architectural design review, explores dialogic enquiry as means of teaching and assessment that can promote interaction. The research draws on the method of Grounded Theory to identify three principal feedback typologies: *Direct Suggestions*, *Reflecting Questions*, and *Abstract Suggestions*, and a principal comment typology, *Clarifying Questions*. Based on empirical evidence, four student-presentation factors seem to influence the typologies' frequency: *Well Comprehended Scheme*, *Poorly Comprehended Scheme*, *Less Communicative Student*, and *Well Developed Scheme*. Students' and critics' participation duration was also documented.

A new method for recording design reviews produces coded transcripts designed to accommodate these objectives. The results assist in understanding dialogic enquiry as a condition that promotes interaction, which can constitute design review a social, participatory, and experiential activity.

The outcomes suggest the need for more dialogue and more questions, and more importantly, a shift in the general mentality of approaching design reviews from 'fault-finding' and prescriptive feedback, to a more exploratory learning situation that sets an example on how to be critical of someone's work and share ideas in a professional and social environment.

The research proposes a concise theoretical framework predicated on dialogue and enquiry for design tutorials and reviews that can become part of the training for design teachers in Schools of Architecture, as well as Schools of Design.

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Preface

Working in the industry was not for me. I've always been more keen on theory, and two years of practice in the UK and Greece reminded me of this natural inclination. The decision to pursue a different form of creation through teaching and writing, led me back to Academia.

I asked myself: "If you want to teach architecture, how does one teach architecture? How does one become a good teacher of architecture?" That was the question that drove my search for a PhD thesis. When I later discovered that there is only a limited amount of literature on architectural pedagogy, I knew that I had found an area in which I could contribute.

How was I taught architecture? It was only a few years since I had left the architecture school, so it wasn't very difficult to remember. Lectures, studio tutorials and reviews were the obvious response, but that was not enough for a research topic to be specific. Since literature was scarce, the method of observation would assist in creating a personal understanding. What to observe though?

The studio seemed to be the place where there was more activity from both students and tutors, compared to the quiet environment of the lectures, where students are more passive. I soon realized that I was interested in this active participation of both parties, and that the driving force of this exchange of arguments and ideas was the tutors' feedback. In short, what describes this active participation of two parties in an exchange of arguments is dialogue. If I then wanted to focus on dialogue, my initial research question would be updated to: how can one teach architecture through dialogue? At that point I was confronted with a dilemma: Which context should I observe? Tutorials or Reviews?

The difference in observing a tutorial or a review was distance. In tutorials, and especially one-to-one tutorials, I assumed that sitting by two people having a

conversation, taking notes or even audio recording them would not be very comfortable for them and may be affecting their discussion in various ways.

Instead, the review offered this physical distance I was looking for, as I could be part of an audience in an environment that appeared to be more controlled. The review resembled the controlled environment of a laboratory, where the parameters that affect the review procedure are more stable compare to the ones of a tutorial. Specific time for presentation and feedback, similar formation of furniture as well as an almost standardised allocation of the review panel and students' sitting or standing, were shaping a method of conduct close to the one of a ritual, often accompanied with a bit of drama.

The topic was beginning to take a clearer and more precise shape. The environment that was described above would be the area of the investigation, and oral feedback would be at the epicentre.

A series of questions then started to cross-examine what was at hand at that point. I assumed that in a review context teaching takes the form of feedback. How is feedback given? Is it delivered through dialogue? Which other ways are used? These questions would assist in steering the enquiry towards the understanding of the review condition with regard to expressing an opinion.

Giving your opinion in a review though, sets an example of how to be critical of one's work. Students present their proposals in order to understand why their work, and the work of their peers, is good or not, based, ideally, on constructive criticism. After all, this is why in architecture schools the review is also called 'the crit', which is the abbreviated term for critique.

Almost instinctively, all the elements of the discussion were pointing to Plato and the Socratic dialectic. Dialogue and critical thinking especially, were the words that awakened my theoretical background in classical studies and led me to name the first proposal: Thinking CRITically: Dialectic in the Review Session.

The research started and proceeded with this title for almost a year. The subject not only became too narrow, but also the title implied a bias toward the Socratic dialectic as an appropriate suggestion for reviews. Since the whole approach derived more from a predisposition rather than a hypothesis, the subject had to open up to the wider area of enquiry and dialogue as an educational tool, leaving the Dialectic as an example of it. Furthermore, from early observations I realised that the review session, as the title at the time indicated, could not have been any review session but a design one.

In the Welsh School of Architecture, as in many Schools in the UK, the design aspects of a proposal, compared to the structural, construction and environmental ones, are reviewed in different sessions by academic staff and guest practitioners related to the respective subject. In the technical ones, it became clear that there was not much room for argument, as most of the answers were justified by physical and mathematical evidence. On the other hand, science in design reviews, expressed in formulas and calculations, was not much of assistance on aesthetic issues.

Evidently, scale, site response, and tectonics, among other design elements of a proposal, were the main issues under the scrutiny of the critic panels. Within this art related part of architecture, arguments are more exposed, since they are justified by the students' personal aesthetic and artistic intentions. As well as their arguments then, what is also vulnerable is themselves, their own beliefs about architecture as influenced by their backgrounds. Therefore, to question such opinions, is to question what has been developed up to that point in their studies as identity.

The definition of 'that point' was the last addition to this research's subject. After 12 months of extensive observations throughout the undergraduate and postgraduate years of the WSA, the study focused on the undergraduate years. Design reviews in these years are more challenging for critic panels, since they have to confront students' adjustment issues related to the multi-layered demands of the new environment.

Although this investigation started with the intention to examine design reviews of all taught years, the evidence from the undergraduate years revealed a complex condition, for which oral feedback needed to be offered with greater care. The way of creating a condition of interaction based on dialogue in a design review, as well as a tutorial, could set an example of how students can be critical of their own work from the very beginning of their studies. As the proverb goes, *well begun is half done*.

Chapter 1

Introduction

This research through the observation and classification of oral feedback in undergraduates' architectural design review, explores dialogic enquiry as means of teaching and assessment that can promote interaction.

1.1 Current Context

The design review is an event where students present a design scheme in front of a panel of critics in order to receive feedback after they finish. It has often been portrayed as an environment where critics control most of the power in offering feedback, and sometimes abuse it, without sharing it with students. The abstraction in the use of feedback language, and lack of purpose specificity of the event, can create a condition in which students don't find themselves comfortable, and as a result, they become defensive and adopt survival strategies (Anthony 1991, 21; Webster 2007, 23).

Compared to the graduate years of an architects' training and education, where dialogue appears to lead the feedback part of the review in the undergraduate years, the predominant pattern in the way critics deliver feedback appears to be instruction though monologue (Dannels & Martins 2008, 151). With the nature of oral feedback being more evaluative than informative, and more corrective than constructive (Salama 2015, 79), fear seems to overwhelm students, and so their presentation and participation performance in a conversation is usually compromised (Parnell et al. 2007, 80).

Oral feedback, however, is a manifestation of teaching and assessment. It is not only about comments that suggest commendation or correction, but also a certain mentality and approach in the delivery. The approaches portrayed above, as many suggest, appear to impede learning, imply a lack of training that prepares critics for design reviews (Attoe & Mungerauer 1991, 42), and indicate an environment that loses the potential to be interactive.

Proposals place dialogue and enquiry at the centre for conditions appropriate for design reviews, as it is considered to promote interaction and learning (Anthony 1991, 118; Webster 2007, 26; Willenbrock 1991, 115, Dutton 1991, 94; Parnell et al. 2007, 5-9). Activities that are social, participatory and experiential are all aspects that can characterize interaction.

1.2 Aims, Hypothesis, and Objectives

This research explores dialogic enquiry as a condition of teaching and assessment that promotes interaction in undergraduates' architectural design review, and can constitute it a social, participatory, and experiential activity. In order to understand this condition then, it is essential to understand oral feedback as means of conducting and facilitating a design review.

The thesis focuses on the nature of oral feedback, and more in particular on comment typologies, which is a subject with limited amount of research. Dannels and Martin's work, to the author's knowledge is the only piece of research in literature that has contributed in this particular aspect of design reviews across undergraduate to graduate students, and has identified nine types of oral feedback in four different disciplines of design, but not architecture (Dannels & Martin 2008, 135-159). Considering their work as a more detailed study on feedback typologies, this research approached the same subject from a much broader perspective.

In both learning and pedagogic process, knowledge assimilation and accommodation requires transition from the general to the specific and vice versa. The knowledge deriving from a narrow perspective then, needs to be accompanied by knowledge deriving from a broad perspective in order to be as complete as possible. This forms the hypothesis for this study.

The first objective of the thesis is the recognition and classification of principal feedback typologies and their overarching concepts. This piece of knowledge reveals more about the identity of oral feedback in design reviews in general, and about the already identified nine types in particular.

For a more comprehensive understanding of the nature of oral feedback though, it is considered necessary to also identify factors and their characteristics that may influence the frequency of the principal feedback typologies, and therefore the overall process of feedback in design reviews. Therefore, the second objective is the identification of factors that relate to student presentation and scheme representation. These factors are the elements the critics respond to, and through their exploration would be derived why and how they affect the choice of principal typologies in feedback. These factors then, as part of the wider context of design reviews, become the constant in this research, and the typologies, the variable.

The third objective deviates from the aspect of oral feedback's nature, and addresses participation, which is an aspect of interaction. The quantification of students' and critics' participation duration, parameters that have not been investigated in literature, is a piece of data that is tangible, and provides a clear picture of the effects of oral feedback on interaction.

1.3 Methodology

The review of the literature explores educational and pedagogical aspects of dialogue and enquiry that promote interaction, and inform the delivery of oral feedback in the undergraduates' design review. On the one hand, understanding educational principles provides essential information regarding the overall attitude and mentality involved in the oral feedback delivery, and on the other, understanding pedagogical methods and techniques contribute specific ways and approaches in giving oral feedback.

The research required the collection of a combination of qualitative data (principal typologies and student presentation factors), and quantitative data (students' and critics' participation duration and principal typologies frequencies), and therefore, the methodology was based on qualitative and quantitative methods of approach and analysis.

For the first objective of the identification of principal feedback typologies, the research draws on the method of Grounded Theory (Flick 2014), where through

constant comparison (Bryman 2001, 390-391), oral feedback is classified into typologies. Non-participant observation (Bryman 2001, 163) was selected for the second objective of recognizing presentation factors.

A new method for recording undergraduates' design reviews was designed in order to collect quantitative data. The method address the second and the third objective, since it produces coded transcripts from which data and results can demonstrate frequency of types, potential patterns, and how they can influence interaction in terms of duration. The recordings took place at the Welsh School of Architecture of Cardiff University.

1.4 Scope and Limitations

The elements of dialogic enquiry and interaction are considered to be essential in an environment that fosters learning (1.2 p.22). This research does not investigate the impact of these elements on learning, but focuses on educational and pedagogical aspects of oral feedback, as a practice of teaching and assessment, and its role on aspects of interaction in undergraduates' design review.

Within the constraints of the PhD, data collection was limited to a single School of Architecture, which was selected as a case study to address the objectives. Although the data of typologies and their frequencies, as well as the students' and critic's participation durations are not intended to be used for statistical generalization, they collection aimed more at an in depth exploration of a condition within its real life context and generate theory, than to explain or test it (Willis 2014).

1.5 Structure

The thesis is divided in three parts. The first part comprises four chapters and exhibits the review of the literature. Chapter 2 presents an overview of the design review context today, as well as the one of architectural education and pedagogy in relation to dialogic enquiry and aspects of interaction. It explains the reasons dialogue, enquiry and interaction are important in the practice and the profession of architecture, and therefore in its education and training.

The next two chapters describe ways dialogue and enquiry can be applied on architectural education and pedagogy and create conditions for interaction, supported by literature on general education and pedagogy. Chapter 3 explores ideals and principles found in architectural education, and Chapter 4 methods and techniques suitable for architectural pedagogy.

The last chapter of Part 1, Chapter 5, is a discussion on the review of the literature. All major educational and aspects explored in the previous chapters are illustrated in a key diagram that shows their interconnection and interdependence. The thesis' hypothesis, aims, objectives and limitations are presented at the end of this chapter.

The second part of this thesis exhibits the research methods and results in two chapters. Chapter 6 presents a methodology review, and a detailed description of the data collection procedure with the first results, which include the principal oral feedback typologies, and the student presentation factors, as well as the design of the recording method. Finally, Chapter 7 demonstrates and analyses the results from the recording method.

The third, and last part also includes two chapters. Chapter 8 is the general discussion of the thesis, where a more detailed analysis of the results is examined in relation to the reviewed literature. The Chapter closes with a proposal of a concise theoretical framework as a set of principles for a design review predicated on dialogue and enquiry, and making use of the knowledge of the principal oral feedback typologies and the student presentation factors. Chapter 9 concludes the thesis, and proposes potential future research work.

Part 1
Review of the Literature

Chapter 2

The Significance of Dialogue, Enquiry and Interaction in Design Review, and Architectural Practice and Profession

2.1 Introduction

This chapter presents an overview of the context of the design review today, as well as the one of architectural education and pedagogy in relation to dialogic enquiry and aspects of interaction. More in particular, it investigates the causes that can make design review problematic, and the reasons dialogue, enquiry and interaction are relevant to the practice and profession of architects, and therefore to their education and training as well.

The design review is a method of evaluation and assessment where feedback aims to explain and clarify performance as depicted on grades. There is usually an interim session half way through a design project, where feedback comes in the form of formative assessment that aims to suggest the condition of the design process to that point, and after their final presentation, at the deadline day, students receive feedback as summative assessment.

During the day of the event, students try to communicate their ideas with the use of various media, and receive feedback from the participants. In architectural education this event is also known as jury, but because it is a critique on someone's work, it is more frequently called, the 'crit' (Parnell et al. 2007, 4).

Salama identifies the aim of the design review in four points, which intend to foster intellectual growth (Salama 2015, 94). He says that the purpose is to:

- Introduce constructive criticism of the students design, drawing their attention to the pros and cons of their design;
- Provide general instruction on critical design issues that pertain to the students' projects under assessment;

- Initiate scholarly dialogue and exchange between faculty members, faculty members and students, and among students themselves; and
- Measure the degree to which a student is able to acquire and apply knowledge in the form of a design solution in response to a hypothetical or real-life architectural or urban problem.

The 'crit' is an opportunity for students to learn from one another how to be critical and express their opinions, as well as to discover presentation methods and techniques. In a communal environment, students and their teachers have the chance to understand different points of view and approaches to the design brief, ask questions and enquire into each other's work, and because there is human contact, build and enhance relationships. As Lymer says, "It is safe to say that an adequate account of critique is of central importance for understanding architectural and design education" (Lymer 2010). It is, therefore, a place where dialogue and enquiry can instigate such situations (Blythman, Orr & Blair 2015).

However, it is rare for most design reviews "to operate at, or even near, their full potential" (Fredrickson 1993, 38), and Salama concurs, since, as he claims, "The literature alleges that the typical jury practices in many schools of architecture worldwide are not able to effectively and efficiently address" the four points mentioned above (Salama 2015, 94).

2.2 The 'Crit' as a Learning Impediment

A typical design review is a setting where certain aspects can affect it in a negative way, and create a chain of effects that can render it a harmful experience with inadequate learning outcomes. First of all, the spatial configuration, with the critics at the front, right opposite the student presenting standing, is what Webster calls a 'staging' of power (Webster 2007, 23). The symbolism of power in the furniture formation as well as its asymmetry between teachers and students in the feedback process has been noted and expressed repeatedly by both parties (Dutton 1991, 94; Willenbrock 1991, 114; Webster 2007, 22). This is what appears to be one of the main reasons why students prefer the desk 'crit' as their main source of feedback, since they feel more

relaxed and able to ask more questions, and discuss their project development (Seymour & Chance 2010, 154).

In a desk 'crit', feedback that refers to a body of work is also the way in which design and the design process is mainly taught in a studio. Students expect this feedback in order to learn and understand the process of design and its parameters. Both desk 'crits' and design 'crits' then have this element of evaluation and feedback in common, but it seems that students feel more intimidated with this arrangement, where in the first occasion the tutor is seen next to them, and on the latter, opposite them.

Furthermore, this power is exercised and sometimes abused by teachers (Crysler 1995, 209-210; Webster 2007, 23), often in the form of "lengthy illustrated monologues that remain S" (Anthony 1991, 21), and reinforce the figure of authority already perceived by most students from their previous educational experiences. In addition, in a CEBE funded project, Sara and Parnell report that the majority of student responses regarding worst 'crit' experiences related to tutor behavior (Sara & Parnell 2011).

Another occasion that reinforces a sense of authority in critics is when feedback is delivered from the critic's point of view only, ignoring the students' frames of reference and avoiding making contact with them. (Tural & Tural 2006, 489). "The juror, by directing the subject matter to a blurry experience, terminates the enquiry as well as the criticism to be proposed" (Tural & Tural 2006, 488).

According to Webster, "the model of hegemonic overlord was more prevalent than that of the caring pedagogue" (Webster 2007, 24). Ahrentzen and Anthony find that these "rigid, hierarchical, and patriarchal relationships between students and faculty" are not fit for an educational environment, and reflect a culture of "competition, individualism, and external control" (Ahrentzen & Anthony 1993, 17), found in the workplace of corporations. The cultivation of such values perpetuates a condition often met in the industry, and sets an example which "alienates many bright and eager students, and unfortunately, it

also socializes others into this same counterproductive behaviour” (Fredrickson 1993, 43).

The way critics exercise this power is not always consistent. This is also an issue in their attempt to clarify the purpose of the ‘crit’ (Parnell et al. 2007, 11; Ross et al. 1993, 25; Wilkin 2000, 103; Bridley, Doidge & Willmott 2000, 114-115) “in the scope of their concern” (Webster 2007, 24) and the language used to express it (Anthony 1991, 115; Ahrentzen & Anthony 1993, 16-17). It appears it is not always clear whether students know a review is only a method of assessment or an opportunity to learn too.

The purpose of the questions in the discussion is yet another aspect that requires clarification, as “it’s easy to interpret an unexamined question as an attack” (Parnell et al. 2007, 81). Questions and issues raised on the design brief should guide the discussion, and relate to the expected learning outcomes as set on it (Parnell et al. 2007, 11-13).

Power dynamics and ambiguousness in purpose and language in the delivery of feedback create an environment in which some students are confused and become defensive. As a result, their willingness to listen and participate is reduced, and when opinions do manage to reach them, they are elusive and difficult to process (Parnell et al. 2007, 80; Willenbrock 1991, 103; Webster 2007, 25; Persy 2004, 1-7). Their defensive stance comes natural after the physical and emotional exhaustion most of the students have after working on limited hours of sleep the days and nights before the review (Scott 2015). Being in a situation that does not appear to be supportive, and being in such a condition, students adopt a strategic approach for their presentation (Webster 2007, 25).

As part of this strategy, in fear of being embarrassed or even humiliated, engagement in a dialogue with the critics is considered a movement of significant risk (Anthony 1993, 21). Avoiding arguing, and “consenting to the

values and norms modeled by the critics” (Webster 2007, 25) gives the impression that students want to survive this situation as if it is a battle.

In addition to that, some students prefer to stay indifferent and in apathy, as they only wish to get the whole situation over with, surrendering in this way to their exhaustion and fear (Anthony 1993, 40). The last stage of their plan is to give the impression that at the end they have understood their feedback, but “such strategies clearly negate the possibilities of deep, transformative learning because they suppressed honest reflection, self-doubt, and any admission of not knowing or not understanding” (Webster 2007, 25).

This behaviour is nourished by a culture of competition in the studio, where students, although they sit next to each other, essentially, they prefer to work on their own, guarding their ideas in an attempt to impress and attract the critics’ attention (in Salama 2007, 155). Competition should not be seen entirely negatively though. It can be a source of positive energy, which when channeled properly, could motivate students in learning together.

Anthony proposes the emphasis on the design reviews to shift “from an individual public defense, to a more democratic debate and discourse” (Anthony 1993, 132), in which the overemphasis on the final product, as many educators suggest, should give its place to a challenge of exploring and enquire into the process of reaching it (Tural & Tural 2006, 491; Dutton 1991, 94-95, Anthony 1993, 133).

It seems that the main reason the design review is seen to be problematic has to do with the students’ as well as the critics’ perception of it. Students’ participation and interaction in the process of feedback appears to be lacking, with the critics having the largest part in contributing. Many educators suggest that clarity of purpose and of feedback, in a supportive environment of social character, should change the way students and critics perceive the design review as an independent event and “ a time to be judged” (Parnell et al. 2007, 51), and understand it as an “integral part of the course” (Sara & Parnell 2011,

120), or in other words, “a learning continuum,” where dialogue and enquiry leads the discussion (Tural & Tural 2006, 494).

The design review is a context for students to learn to listen, express, and exchange opinions about a design scheme. The learning outcomes immediately relate to the practice and profession of an architect in similar contexts such as meetings with colleagues and clients, or even social events. Dialogic enquiry and interacting in a design review can be a lived example for students through which they can develop skills for communicating their ideas and opinions in a professional manner, with respect for the interlocutors and the subject of the discussion.

2.3 The Relevance of Dialogic Enquiry and Interaction to the Architectural Profession and Education

The practice of dialogic enquiry and the creation of environments for interaction is not only essential for the context of the design review, but extend further in architectural education. Developing communication and social skills, and learn to discuss and ask questions about architecture, the world and their relationship together with other students, is a fundamental practice in an architect’s education and training.

Stamps describes a society today where information and multiculturalism are the two most prominent elements that characterize it. The qualities of such a society will “reward architects who have the ability to evaluate information efficiently, who can understand value systems that are different from their own, and who have high degree of initiative” (Stamps III 1994, 107). Anthony and Grand also call for an “architectural education more responsive to an increasingly diverse population” (Anthony & Grand 1993, 2).

Evidence of this lack on or inability to respond to the needs of society, due to lack of preparation in understanding it in Schools of Architecture, is found in practice, where Till refers to this condition as “the black box of the profession of architecture” (Till 2009, 18), implying an introvert behaviour. Jenkins et al

observe the same in many architects, as they talk about “a sense of privileged isolation, and a defensive relationship with wider society” (Jenkins et al. 2010, xiii). This condition suggests a view of architecture that appears as a monologue that refers to itself, excluding the social and political context from any discourse.

This perception of architecture as an autonomous and detached element seems to detach architects “themselves as humans (social, political, and ethical beings) and then look through the wrong end of the telescope, and see a world as an abstraction” (Till 2009, 25). This detachment at a personal level also seems to be responsible for the stereotypical view of the public on architects as Pollan vividly describes in *A Place of my Own*. He compares this public perception of “a power-mad empire builder, a chilly figure at home only in the realm of his own ideal forms,” to his personal experience with his architect, whom he depicts as a positive example of “a contented citizen of the real world, somebody with a deep appreciation for life as it is really lived” (Pollan 1997, 14).

Except for intellectual capacity to process information about a social context, social intelligence has also to reach a high level of development, in order to understand and embrace diversity, as well as empathic development, in order to understand clients and their needs.

In the practice of architecture, according to Salama, “what to design must respond to the institutions of society, to society’s cultural directives and to the overall lexicon of building,” whereas how to design is based on “a set of actions and procedures a design student performs on purpose” (Salama 2007, 154).

Ironically, Dutton says, “while architecture is widely assumed to reveal much about the character of a society, students learn little about their society beyond that which is necessary to function professionally” (Dutton 1991, xvii). The numbers support a situation where “the majority of students entering architectural education will not become professional architects” (Clear 2014, 99). Consequently, Clear suggests, “Education cannot emulate the profession, nor should it simply be beholden to it. It has to critically engage with the

changing values, ideas of the profession and set them within the context of the wider changes of society” (Clear 2014, 100).

However, the chance to socially mature in team projects is sporadic, and the co-operative model is not often met in schools, as Anthony says. “Instead, the competitive model prevails” (Anthony 1991, 16). Buchanan observes a similar situation, where “architectural education is geared to producing the solitary genius, rather than today’s collaborator” (Buchanan 2015). He does not though completely disregard such a quality in an architect whom is part of a team, since he believes it is useful on the occasion of final judgments.

Except for social skills though, intellectual prowess is also needed in the education of the architect. The social skills is an element, Ward argues, that relates to architecture and architectural education, as they are both “a socially mediated phenomenon. A transformative architectural education will therefore seek to make and understand the connections between power structures in the larger society and the form of architectural theory” (Ward 1991, 203).

Intellectual skills should be left to develop together with the teacher based on the different backgrounds, interests and experiences of the students, and not cut into one way of seeing and thinking of the world, architecture and the relationship between the two. Dialogue and enquiry is then key in this situation. According to Bond, “if we let them flower more and work together, we could develop a much richer motion of what architecture should be and what architecture could be” (Dutton 1991, 87).

The practice of ‘why’, ‘what’, and ‘how’ questions in a dialogic process is essential in the practice of designing, Salama says, and assists in creating an understanding about architecture and the world. ‘What’ involves “students in proposing human activities appropriate for certain types of spaces and buildings,” ‘how’ has to do with “manipulating forms in response to well articulated and defined spatial needs,” and ‘why’ “represents students’ involvement in exploring why a certain type of space and form is appropriate for a certain type of user population” (Salama 2012, 8-9).

Students should be encouraged to ask these questions, so “a ‘reflective dialogue’ can occur on an ever-increasing knowledge and skill basis” (Hurt 1985, 55). Deep understanding of the meaning of the questions and their answers though, will be produced only after the transition from asking them to testing them in practice. Whitehead, many decades ago, has very eloquently expressed the relationship of this inseparable pair with regard to learning:

“No man of science wants merely to know. He acquires knowledge to appease his passion for discovery. He does not discover in order to know, he knows in order to discover. [...] Education should not turn out the pupil with something he knows well and something he can dwell. This intimate union of practice and theory aids both” (Whitehead 1962, 74).

Before anything though, as these arguments suggest, students should create an understanding of the world and the different forms of societies in it, and see for themselves how they should respond to it as architects, and more importantly, how this response relates and reflects themselves as personalities. In addition, in a similar way a teacher tries to see through the eyes of a student, in order to understand their ways of thinking, and to identify and address issues that may impede learning, students should also learn to empathize, and to come closer in understanding human nature, as a sum of needs, feelings and memories.

Giroux calls for new theoretical and practical approaches in both education and pedagogy, so the post-modern ideal of the architect’s role as a public intellectual is redefined as a cultural worker (Giroux 1991, xi). Groat’s view on the matter is almost from the same angle, since she understands the architect as a ‘cultivator’, where personal identity and world perception influence the design proposals. In her definition, “the cultivator possesses a ‘personal perspective’ animated by transpersonal interaction and motivated to express and embody in living acts and artifacts a humanized, cosmically rooted intelligence” (Groat 1993, 9).

Similarly, Umemoto and Raiser expand their area of exploration and understanding by including and introducing related subjects and fields. For them, it is “an ongoing inquiry into connectivity between architecture, landscape architecture, engineering and urban design, along with theatre, film, computation and fabrication” (Umemoto & Raiser 2014, 212). Except for experimenting and understanding building technology in relation to the environment, there is also a need for “an ongoing social, political and philosophical reflection through critical discourse on the changes in contemporary life” (Umemoto & Raiser 2014, 215).

This critical discourse should aim at illuminating the connection of the fields that relate or need to be related to architecture, so architecture is understood as dialectic, and not as parallel monologues, as it will be shown in the following unit. Salama considers teaching that is grounded on dialogue and interaction between students themselves, as well as together with educators, as an approach that responds to the gap between ‘what’ and ‘how’, and “that invigorates the collaborative creation and distribution of power in the learning setting” (Salama 2012, 3-4).

The implications of failing to bridge this gap, according to Salama, can be apparent in the professional and social life of the students, as well as in the context of the built environment. Below is a list of aspects that demonstrate this impact (Salama 2012, 14).

Impact on Students/Practitioners

- Difficulty in explaining work to others
- Inability to convince clients and users of architects’ values
- Learning to develop solutions, not testing them
- Learning to defend product, but not to explicate the process
- Gaps between:
 - Intent and Practice
 - Ideology and Method
 - Espoused theory and theory-in-use

- Inadequate language for communication to non-architects
- High emphasis on manipulating formal elements
- Limited understanding of construction technology
- Limited understanding of impact of building to environment
- Limited ability to predict impact of built environment on users
- Limited skills in manipulating human side of architecture; client relations

Impact on Profession's Environment

- Architects seen as artists
- Architects seen as mysterious
- Architects seen as expensive luxury
- Society places low value on architects

Impact on Built Environment

- Building frustrates users
- Building economically inefficient
- Designs produce visual experiment
- Design produce functional problems
- Unintentional discouragement for seeking architects services
- Dissatisfaction of users

The view of the role of the architect today seems to be strongly related to deep understanding of social and cultural aspects as a prerequisite for its definition, redefinition and development by each student at a personal level. Furthermore, understanding extends to the need for communication and co-operation with fields related to architecture during design and execution of a scheme.

Architectural education can then prepare and provide an environment for students to be part of, and architectural pedagogy the situations for them to explore the discipline and beyond. A contemporary school of architecture can then lay the foundations and prepare the ground not just for students, but also with the students, so after their studies they may develop a superstructure suitable for themselves and their view of the world.

2.4 The Relevance of Dialogic Enquiry and Interaction to Architectural Pedagogy

Gharaati sees “the school of architecture only as a starting point on the path to architecture, where students are guided toward their individual directions” (Gharaati 2006, 113). For Clear, “A good school develops students who go to become competent architects; a great school develops students who go to become whatever they want to be” (Clear 2014,101).

Many teachers of architecture today agree on the need for a structured process where together with the student they construct knowledge in an investigation of shared critical enquiry (Yanar 2007, 70; Dutton 1991, 93; Dinham 1987, 5). Salama and Wilkinson believe that this should be the backbone of design pedagogy (Salama & Wilkinson 2012, 1). Although students should be assisted in understanding the process, ultimately, according to Schön and Dinham, it is the students themselves that are responsible for their education and training in designing, and they should be expected to discover it for themselves by doing (Schön 1985, 56; Dinham 1987, 5).

Unfortunately, most of students arrive at schools of architecture with an attitude of waiting for instruction, largely affected by their previous experiences in the way they were taught (Colomina et al. 2012). Beckley mentions that this resembles the condition at the Beaux Art in Paris in the late 19th century, in the very beginning of the modern school of architecture. In this model there was a master – apprentice relationship between teachers and students respectively. This relationship was based on instruction and following specific directions.

With the advent of the Bauhaus movement a few decades later, in the School of the same name, contrary to the French School, the design teacher had the role of a ‘stimulator’, where students were expected to explore and experiment their own ideas and solutions to design problems, and not to imitate their design teacher (Beckley 1984, 105).

When teachers follow the former mode of teaching, they only enhance the students' attitude of expecting to be spoon-fed, and perpetuate the general misperception that connects a passive stance to learning.

Luis Khan is a characteristic example of the opposite pedagogic approach to that. During his time as a university teacher, he had adopted the Socratic method, which he aimed at instilling to his students. The method mainly involves asking questions, instead of giving instructions, in order to engage students in a dialogue that aims to make them active participants in their education. In his opinion, "a good question was superior to the most brilliant answer" (Williamson 2013, 316).

He emphasized the importance of learning how to ask questions and enquiring into the essence of things, so his students could "critically examine [their] underlying thoughts about design [...] and to begin developing [their] own individual approaches" (Williamson 2013, 319). The discussions with his students took place around a big table, where all together were searching and debating in a democratic manner, with him as the facilitator (Williamson 2013, 316).

Today, "the results of research comparing lecturing versus discussion techniques indicate that students favour discussion methods over lecturing and the one-way mode of knowledge transfer" (Salama 2012, 2). It is suggested that architectural pedagogy should respond more to that, take advantage of it, and create the necessary forms of social relations between students and teachers, through which creative action produces knowledge (Ward 1991, 197; Dutton 1991, 85; Dinç 2001, 192).

Teachers, Dutton says, should be aware that social relations between students "are strongly influenced by forms and practices of power in society" (Dutton 1991, 165-166), and that their mode of conduct "too often reinforces and sustains the dominant interests of contemporary society" (Dutton 1991, 171). The condition met in most institutions, he continues, involves "forms that in this

society legitimize top-to-down models of authority and types of social control” (Dutton 1991, 167).

More in particular, Stevens describes these types and forms when they manifest themselves in a group situation, either in a tutorial on teacher’s presence or between students in a design project. He says,

“Dominant groups dominate because they wield some sort of symbolic power over subordinate ones, who misperceive the power as legitimate and thereby co-opted into their own subordination. By accepting the state of affairs as natural, the subordinate groups allow the dominant groups to exercise their dominance with minimal social conflict” (Stevens 1995, 107).

He also compares the way the current economic system works to the one of the education system. He finds how similarly economic and cultural capitals respectively seem to be favoured, and on cases of discrimination in a school, he claims, “that failure is not necessarily failure to know something, but failure to be something” (Stevens 1995, 110).

At an individual level, the dominance of the competitive atmosphere in the studio, as Anthony has noted, “places undue pressure on students. As a result of their preoccupation with winning and their reluctance to share their ideas with their competitors, they often fail to be receptive to the criticism they receive” (Anthony 1991, 163). With such mentality, any chance for interaction is compromised.

Taking all these aspects into consideration, it is clear that the facilitation of dialogic enquiry in a group can be very demanding. Retaining a balance of power dynamics, as well as the sharing of in participation and knowledge production in all parts of the discussion is a challenge for every teacher.

Gharaati talks about a social activity where he sees teachers and students as “explorers who actively participate in and directly influence their pedagogy, rather than being mere receivers” (Gharaati 2006, 112). The critical analysis

undergone in such a discussion “reveals the dialectical relationship between knowledge, culture, social relations and forms within society” (Dutton 1991, 167).

The design studio becomes an example of knowledge production and social practice, through which students will hopefully “recognize the indispensability of non-dominant relations, dialogue, cooperation, consensus decision making, and other practices based on reciprocity” (Dutton 1991, 179), and that it “is no more than a microcosm of the real world.” (Beckley 1984, 105).

The objective for students then, is to understand that they can learn much more about themselves and improve upon their own abilities together with others through dialogue and individual contribution than just by themselves, and with an attitude of competition and trying to outdo everyone else (Anthony 1991, 164).

The outcome of the former condition describes what is known as shared or distributed cognition, which creates an understanding of the benefits of learning and achieving something together (Brown & Cole 2016). As Salama argues, learning for students should be the outcome of an experience through social praxis and experimentation that aims to develop “experiential, critical thinking and analytical skills, rather than how much knowledge they have acquired” (Salama 2012, 2).

Dialogue and enquiry can be the tools for creating conditions of interaction and social activity that reflect architectural practice, and inspire and stimulate students in a discourse that challenges them on contemporary issues about architecture, the world and themselves. The act of dialogic enquiry and social interaction as part of architectural education and training reflects the practice and the profession of architecture, and can set in students an example for it.

2.5 The relevance of Dialogic Enquiry and the Element of Interaction to Architectural Design and Practice

Except for being relevant to the profession of architecture, dialogic enquiry and the element of interaction are also immediately related to the practice of design, and more particularly, architectural design. The practice of dialogue and enquiry in socially interactive environments can also create an understanding on the very notion of dialogue and interaction, which are both evident in the act of designing and the notion of architecture itself.

2.5.1 The Dialectic of Design Process

'Design', is not only a word that describes a completed work, but as a verb it also refers to the process that leads to it (Lawson 1997, 3). For Rowe, "the design process assumes a distinctly episodic structure, [...] investigations cohere into a more singular direction for the design activity, although not necessarily as a linear progression of reasoning" (Rowe 1987, 34).

Salama concurs with regard to the non-linear nature of the process, and argues that "involves integrated thinking where continuous interaction between the phases takes place" (Salama 2007, 153). Mitchell identifies the phases and the overall complexity of the process as "simultaneous shifts between analysis, synthesis and evaluation" (Mitchell 2006, 347).

Lawson represents the interrelation and interaction of the three phases in a design process in diagram 2.1 (Lawson 1997, 38), and in diagram 2.2, Markus and Mover depict the design process in a more analytical map, where the three phases, including the one of decision, are repeated through the three standard design stages followed in an architectural practice (Lawson 1997, 35). Although it captures the episodic nature of the process, it doesn't seem to illustrate the interrelation of the phases as shown in diagram 2.3 of the RIBA's map (Lawson 1997, 33).

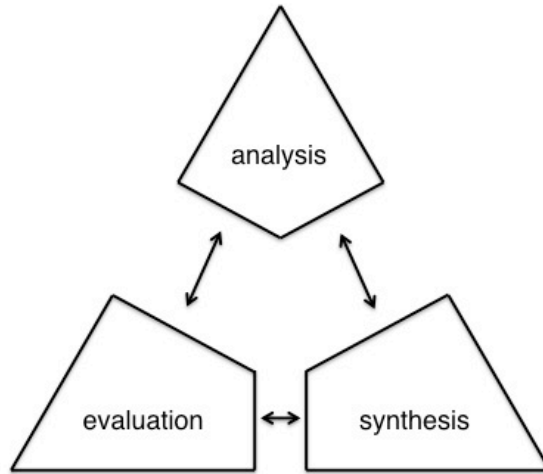


Diagram 2.1. Lawson's graphic representation of the design process

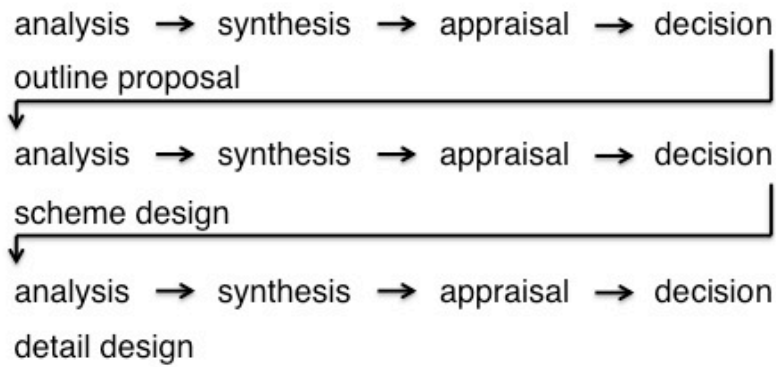


Diagram 2.2. The Markus/Mover map of the design process

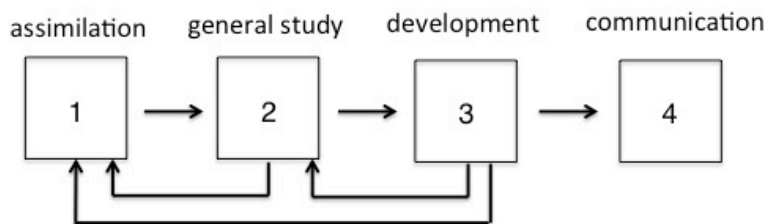


Diagram 2.3. A map of the design process according to the RIBA plan of work

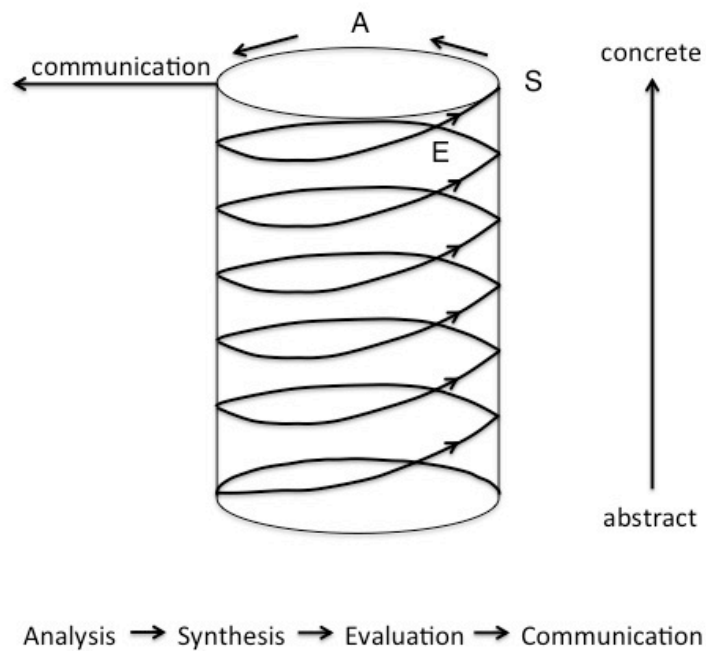


Diagram 2.4. Asimow's view of the design process

Before communicating an idea in Asimow's three-dimensional depiction of the design process, the three phases follow a periodic spiral movement into which the development occurs (Rowe 1987, 48). The development of the idea goes through a simultaneous transition from abstract to concrete, which implies that design in general is a deductive process.

In relation to Asimow's diagram, it is worth mentioning Cowan's modified diagram where he combines the famous Kolb's cycle and his own initial diagram that depicts acts of reflection and acts of a learning process between the acts of reflection in a stretched spiral. The acts of a learning process are depicted as coils of a spiral understood as Kolb's cycle operating within a spiral of larger coils that depicts the acts of reflection, as illustrated in diagram 2.5 (Cowan 1998, 39).

The first large coil, A, represents reflection-for-action, which is a first stage of organizing and preparing for the task ahead, the second large coil, C,

represents reflection-in-action, which is an act of reflection in between exploration, B, and consolidation, D, and the last large coil, E, represents reflection-on-action, which is an act of reflection on the followed process altogether, and in relation to the results and findings.

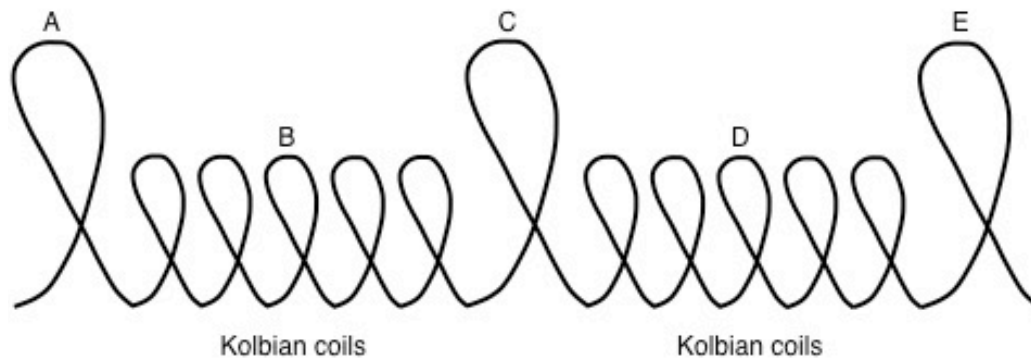


Diagram 2.5. Cowan's Modified Diagram

Evidently, design, as a process, appears to operate as a constant and recurring dialogue between different stages, which designers need to be able to facilitate by asking the right questions. In addition, the process requires from the designers to act upon their decisions, analyzing the outcomes of the process, react, and interact with their creations. Their decisions seem to be influenced by two aspects their relationship resembles yet another dialogical condition.

2.5.2 Thinking and Feeling Dialogue

For the designer, the decision-making and facilitation of the design process is based on a dialogue between feeling and thinking. "Architects," Stamps says, "appear to be split about evenly between feeling and thinking" (Stamps 1994, 105), and Zumthor believes that their constant interplay is what drives the discourse (Zumthor 2010, 21). Both feeling and thinking act upon the information related to context and program, as well as the architect's personal world perception and imagination. This action is applied on what Pallasmaa calls, "dialectic interaction of external and internal reality" of the architect (Pallasmaa 2009, 92). Zumthor gives an example of how he includes his internal reality into to his design process. He says,

“When I design a building I frequently find myself sinking into old, half-forgotten memories, and then I try to recollect what it had meant to me at the time, and I try to think how it could help me now to revive that vibrant atmosphere pervaded by the simple presence of things, in which everything had its own specific place and form” (Zumthor 2010, 8).

The dialogue between thinking and feeling is then what appears to control and facilitate the dialectic of architecture, where the notion of dialogue and interaction are evident in two ways.

2.5.3 The Dialectic of Architecture

The first condition the notion of dialogue is evident is in the view of architecture as a conversation of the design scheme with the context for which it is proposed. A context, which an architectural scheme can be proposed for, is a complex situation, which contains many different layers. The design team must examine each layer and see into them individually as well as their interconnection, in order to understand the site’s level of complexity. Historical elements, social conditions, urban and architectural language, topography, climatic and environmental conditions are only but a few aspects that require attention and rigorous study. “It is essential to the quality of the intervention, that the new building should embrace qualities that can enter into a meaningful dialogue with the existing situation” (Zumthor 2010, 17-18).

In a sense, the site asks questions, the architecture replies and asks its own questions back at the site. Moreover, the architecture becomes part of the context and all together pose new questions that seek answers. As Rashid says, “the projects form a rich dialogue with their environments, sites and so on” (Rashid 2014, 291). Therefore, architecture “does not exist in a vacuum” (Dobson 2014, 15), and as Till says, any belief that sees architecture being autonomous is deluded (Till 2009, 44).

Except for the context and everything that constitutes it, within a proposal itself, “Form – Function – Materials & Structure [which] are the elements in every design of a building” (Bielefend 2013, 13), should strive for a consensus in a

dialogue of their own. This is the second condition where the notions of dialogue and interaction become evident. Architecture has a dialogue and a “relationship to itself and its constituent elements” (Rowe 1987, 153). It is important for this internal dialogue to respond and correspond to the context; otherwise it will be a self-absorbed one, and hence reduce architecture to an object, isolated from the place it should be part of.

Metaphorically speaking, the situation where a building or a space acts as an object that isn't in dialogue with a context, and instead imposes itself into it, could also leave outside the user, the third potential 'interlocutor' of this 'conversation'. According to Dutton, buildings should not be seen “as consumptive objects” (Dutton 1991, 91), where they are simply designed to serve a certain purpose, and Bond suggests, “it is not our role to give immutable objects to people, but it is to find ways to include people in the creation and changing of the object” (Dutton 1991, 92).

The architect or the design team has to understand the programmatic requirements and the contextual parameters, in order to start approaching an architectural solution where all the influencing elements are invited to participate and create a dialectic for each other. Zumthor calls for the construction of “a radial system of approach that enables [the architects] to see the work of architecture as a focal point from different angles simultaneously: historically, aesthetically, functionally, personally, passionately” (Zumthor 2010, 18).

The practice of architecture involves an extensive and thorough enquiry into all these parameters that can contribute towards a solution. Zumthor and AGPS believe that mastering the art of asking questions is not only what describes the practice of architecture, but also what defines an architect (Zumthor 2010, 65; Angélil & Himmelreich 2011, 404). Bielefeld says, “When a new assignment begins, it is more important to ask the right questions than to embark on a hasty search for simple answers that might not do justice to the assignments complexity” (Bielefeld 2013, 14). In addition, as Beckley points out, the right questions should be directed toward recognition and definition of a problem as

well as towards a solution. An architect, he says, is dependent upon this rhetorical dialogue (Beckley 1984, 105).

All the dialogic conditions on their own, and in relation to each other, as mentioned in this unit, become part of one multilayered and multidimensional dialogical system the design process is. Learning to be part of a dialogue and ask the right questions in a social and interactive environment is a practice that is essential not only because it immediately relates to the practice and the profession of architecture, but also because it can create an understanding about the notion of dialogue and interaction, as it is evident in the act of designing and architecture itself.

2.6 Conclusion

Design reviews, at least for the majority of them, have been repeatedly reported to be a problematic situation that inhibits learning, and continues to be so. The power asymmetry, and sometimes power abuse, the lack of purpose specificity, and abstraction in language use for feedback, creates an environment in which students don't find themselves comfortable, and as a result they render themselves defensive and adopt survival strategies.

The overall way students and critics perceive this event as isolated from the learning process, where feedback is more evaluative and prescriptive than informative and constructive, are the main factors that affect students' presentation performance and their ability to participate in a dialogue. Their tentativeness has a significant effect on the opportunity to generally communicate their identity, and more particularly to learn how to reflect during the feedback part of the session, and be critical and express their views in a manner suitable for professional discussions between design groups or clients.

Architectural education and pedagogy rooted on active engagement of teachers and students together in dialogic critical enquiry that constructs knowledge and personal understanding is a demanding task for any teacher. Power dynamics and social rules of dominance have to be taken into consideration, so participation is coordinated, and energy deriving from competitive attitude is

channeled towards collective action, and a dialectical relationship between knowledge, culture and socialization.

The practice of dialogic enquiry is essential in the act of designing, and the element of interaction is also evident between the design and the designer during the act. The notion of interaction manifests itself between phases of design, and the notion dialogue is vivid in the way many architects understand architecture. It is often seen as a situation where a design proposal is in conversation with context, program and the human body, and also seen as conversation itself, where aesthetics and technology strive for a consensus.

In an educational environment, dialogic enquiry and interaction can become a lived experience and example that students can develop and make their own, depending on the way they see architecture, and want to practice it for themselves. Understanding dialogue as a process, and learning to ask questions can assist students in facilitating the dialectic of architecture in their practice, and communicate it in their profession.

The next Chapter explores dialogic enquiry and the element of interaction in relation to principles and ideals found in architectural education. These principles and ideals are also part of general education theory, which provides arguments in support of their significance in contemporary education and the world today.

Chapter 3

Dialogue, Enquiry and Interaction in Architectural Education Principles and Ideals

3.1 Introduction

As seen in the previous Chapter, the process and practice of design involves many different aspects that are interrelated and interdependent, and are part of a 'conversation' that forms a complex multifaceted system. Architectural design education and pedagogy, as Salama and Clear suggest, should enable students to manifest their ability to generate, conceptualize, develop, coordinate and execute spatial ideas, and the idea of building (Salama 2012, 9; Clear 2014, 100).

This Chapter explores the aspect of division and fragmentation in architectural education, and argues for a more holistic approach in the way architects are educated and trained as individuals, and the way architecture is taught as a subject. General education theory aims to support the argument, and presents reasons for its importance and relevance to the needs of society today.

According to Dinham, teaching and learning the process of design depends on "revealing the complications of studio instructor's and student's thinking" (Dinham 1987,10). Chen and Heyleghean say, "We have been teaching design studio with a focus on students' design but unaware of their learning; or with a focus on their learning but unaware of our teaching; or even with a focus on our teaching but unaware of our learning to teach" (Chen & Heylighen 2006).

It seems the gap between teaching and learning is mainly created due to the view that understands them as different and detached elements. A clearly negative manifestation of this gap is the perception of the 'all-knowing' teachers and the ignorant students, which is often adopted by either side. Willenbrock claims that both sides are responsible to recognize this inequity, move towards minimizing the distance, and make room for dialogue (Willenbrock 1991, 113),

especially “in an era of multiplicity, complexity, and new hybridized forms of engagement” (Douglass 2014, 183).

Reasons for this condition can be found in the students’ educational experiences before entering a university. Lipman argues the conditioned environment of most schools that does not provide the sufficient stimuli for their imagination and curiosity, as well as adequate incentives to thinking (Lipman 1994, 9). In addition, Bramley says that the “chronic dependency on authority figures” does not contribute to the full growth of their intellect, creativity, social skills, and self-confidence (Bramley 1979, 55).

Ovens et al also talk about the “cultivation of attitudes of dependence and conformity” (Ovens et al. 2011, 10). They mention that many students believe their learning is dependent on the effectiveness of transmission teaching, and that the very fact of them being at a university proves their ability to learn. Learning, they usually say, is not something that they need to know what it is or how it happens (Ovens et al. 2011, 9).

Biggs mentions that as well as the students, teachers also see the lecture dependent on their performance, and that this perception must be reversed (Biggs 2003, 104). Moreover, students tend to misunderstand knowledge as something “firmly established [...]. Only gradually they begin to understand how knowledge changes over time, and so recognize its provisional nature” (Entwistle 2009, 31).

A mode of pedagogy, Salama calls ‘mechanistic’, is still prevalent in most schools of architecture today, and maintains this gap, since it is based on a one-directional way of imparting information, and does not promote methods that cultivate personal understanding. The ‘systemic’ pedagogic mode on the other hand, “places emphasis on learning by experience, learning by exploring and doing, [...] a concept that expresses the interactional process and the everyday experiences manifested by the daily routines of students and teaching staff” (Salama 2012, 15).

Teaching and learning becomes a shared living experience, where teachers and learners are engaged together in activities that form examples on how to collectively approach and process information, and create knowledge that is responsive to the complex system of architecture, and not detached from it.

The investigation is focused on the principles and ideals of the architect being educated as a whole and not just trained, and of architecture being studied and learned as the complex system that it is. The former draws the attention on the development of identity in an architect, and the latter, on understanding all the elements that constitute architecture as part of it, and not as independent components.

3.2 Developing Identity and the Education of the Self

The development of reason and intuition both collectively and individually is fundamental for the practice of architecture (Stamps III 1994, 111; Groat & Ahrenten 1997, 281). Hill considers self-discovery, self-empowerment and mental agility to be the real objective for an architecture teacher to develop in a student (Hill 2006, 329). Pallasmaa calls for the need to acknowledge the significance of the sensory realm as an aspect that “enables us to discover ourselves as complete physical and mental beings, to fully utilize our capacities, and to make us less vulnerable to manipulation and exploitation” (Pallasmaa 2009, 21).

The knowledge to discover and develop the parameters that constitute ourselves can contribute towards the ultimate objective, which, according to Pallasmaa, is the development of personality. He believes that this should be at the very centre of architectural education, so students are made conscious of their own personality, and one’s own freedoms and responsibilities (Wall 2009, 78). In other words, it is the understanding and development of identity that will help students to realize what kind of architect they want to be, and will allow them to play to their strengths (Dobson 2014, 47).

The condition of architectural education in a great deal of schools at a global scale shows that emphasis is given to skills and attributes that prepare students

to practice architecture, leaving aspects relating to identity development carrying less weight. According to Crysler, “students are encouraged to sever connections between personal and professional worlds” (Crysler 1995, 208). The dominance of skills in representation and form manipulation as entry criteria, as well as an objective that controls architectural education “throughout the duration of study at the expense of other pedagogical aspects and learning outcomes,” is evident in an analysis of data coming from over 120 schools of architecture worldwide (Salama 2012, 2-3).

On the road “to become architects, rather than just practice architecture” (Wilkin 2000, 100), the knowledge of learning how to collectively and individually discover and develop the self should be of equal importance to the knowledge of “thinking architecturally” (Attoe & Mugerauer 1991, 41) and representing an idea. Students, as Anthony says, “need to be educated in the broad sense, not merely trained” (Anthony 1991, 158).

Historically, Sunwoo notes, it was the “modernist system of professional training that codified the architects responsibility to design and build for the needs of society,” whereas post-modern pedagogy “positioned architecture as an intellectual and critical practice” (Sunwoo 2012, 24). What can be implied here is that approaches that prioritize mere training instead of comprehensive education, at least at undergraduate level, leave these schools behind in response to the current needs of society, and consequently in the way they view the role of the architect today.

Peters says, “Being educated is incompatible with being narrowly specialized” (Peters 1972, 4). Jaques believes that intellectual growth must be “closely linked to emotional development” (Jaques 1991, 21), and Rogers concurs that learning can be significant only when it “combines the logical and the intuitive, the intellect and the feelings, the concept and the experience, the idea and the meaning” (Rogers 1979, 20). Ovens et al agree that “learning as a practice is not merely an individualized, taking possession of a cerebral commodity, it is mainly a social, whole-person-alised process of reaching out” (Ovens et al.

2011, 14). Teaching then aims at the growth of the mind as well as the heart, because if learning “takes place ‘from the neck up,’” and “does not involve feelings and personal meanings, it has no relevance for the whole person” (Rogers 1979, 19). These arguments directly relate to the ‘feeling-thinking dialogue’, mentioned in the previous Chapter (2.5.2, pp. 46-47), and discussed as the principal instrument of architectural design.

A holistic approach with regard to educating and training a person does not only involve developing personality and identity, as well as grounding on a subject, but also involves the personal and active participation of this person in the educational process. Carl Yung, as quoted by Schön in ‘The Design Studio’, defines education as the self-learning process, whereas the knowledge acquired by instruction is considered as training (Schön 1985, 56).

Learning for oneself about a subject is only one aspect of this process, which becomes complete when the self is also the subject of study. Vella is convinced that “people are naturally excited to learn anything that helps them understand their own themes, their own lives” (Vella 2002, 6), and that they should study their “own educational projects in terms of cognitive, affective and psychomotor possibilities (ideas, feelings and actions) that address the whole person, not as a machine but as a developing man or woman, with incredible potential” (Vella 2002, 19).

Education is then synonymous to self-education as well as the education of the self. Consequently, students should not only learn for themselves, but also about themselves. In order for them to create an understanding for their subject, they need to understand themselves, as knowledge needs to be filtered through them, transformed to understanding, and thus become part of them. For Augstein and Thomas, this transformational process of constructing meaning and achieving personal knowing is the definition of learning (Harri - Augstein & Thomas 1991, 51).

Fisher states that it is through discussion with teachers that students should create their own “personal understanding and knowledge” (Fisher 1998, 142),

and “not imposed or transmitted by direct instruction” (Biggs 2003, 13). Entwistle believes that in order for teaching to assist in developing personal understanding, its effectiveness “depends on establishing a relationship between the specific subject content and the ways in which students are helped to engage with the ideas” related to that subject (Entwistle 2009, 3).

The discussion between teachers and students sets a learning example for students to understand the subject and its context for themselves. The process primarily instills in them the mentality of accepting nothing before deconstructing it to its bare elements, and reconstructing it in their own image (Harri - Augstein & Thomas 1991, 35). The unquestioned acceptance of others’ view and interpretation of reality and the physical world leads “to students inability to think critically or develop their intellectual skills. This handicaps their abilities to gather, analyse, synthesise and process different types of information” (Salama 2012, 10).

Salama proposes an architectural education “centred on critical enquiry and knowledge acquisition and production” (Salama 2012, 9), so future architects “have the capacity not just to consume knowledge but to produce it” (Salama 2012, 25).

The process of internalizing information and creating new knowledge, Piaget understands it as a dialogue between what he calls assimilation and accommodation. The former describes the incorporation of new information into existing knowledge, and the latter of adapting it depending on whether there are fields in the existing knowledge relevant to the nature of the new information, so a connection can be made, or developing a new field where the new information can find a place within (McLeod 2015).

This practice sets both subject matter and subject (architecture and the student) in a constant dialogue, where one defines the other. What is transformed then, is not just knowledge to understanding by constructing personal knowing, but also knowing and understanding of the person.

At the centre of this discussion lies the student, as the centre of decision-making and knowledge transformation is within him/her. In order for these centres to be active, they need to be given the power to operative on their own. This “involves students taking ownership of the learning process” (Harvey & Knight 1996, 8), by giving them the power to participate and influence their own transformation.

As many educators today believe (Biggs 2003, 93; Bramley 1979, 17; Ovens et al. 2011, 12; Rogers 1979, 120), the aim of education is towards autonomy, where students learn how to learn, and “explain themselves to themselves” (Harri - Augstein & Thomas 1991, 59). Except for looking what to learn, they need to learn “how to seek new information; how to utilize it and evaluate its importance; how to solve novel, non text-book, professional problems” (Biggs 2003, 93).

Hart believes that this “development occurs via awareness and growth towards emancipation” (Moon 2004, 87), and Barnett expounds this idea of emancipation as a “process in which students by means of their own powers of self-reflection through their lifespan, come increasingly into themselves, maintaining their critical distance from the world around them while acting purposively in it” (Moon 2004, 88).

The journey towards “rational self-determination” (Fisher 1998, 147-148) and “self-actualization” (Harvey & Knight 1996, 13) should then be based on an education that fosters in the students “the power and ability to control, insofar as they are able, their own lives,” their destiny, and shape their future without submitting to it (Siegel 1988, 57).

Because of lack of experience though, students will usually search for a solution from their teachers, with a mentality that has the teachers as the ones that know the ‘right’ answer. When teachers face such mentality, they should act with a “self-conscious display of curiosity and puzzlement” (Fisher 1998, 147), of someone that is part of the discussion and the search for a solution.

More specifically, Rogers argues, they should facilitate the dialogue between the subject and the students in a way that allows them “to go charging off in new directions dictated by their own interests; to unleash the sense of enquiry; to open everything to questioning and exploration; to recognize that everything is in a process of change” (Rogers 1979, 120).

This mentality shift aims towards a self-directed learning, which “is sometimes expected to need less from the tutor, and more from the student” (Harvey & Knight 1996, 128). Therefore, not only the teacher should be a facilitator of a dialogue between the student and the subject, but also “a conduit between knowledge and understanding” of the subject as well as the learning process itself (Entwistle 2009, 79).

Biggs clearly differentiates transitional from transformational teaching and learning. He says, “The teacher should be an agent for transforming knowledge, helping students to interpret and to construct their own knowledge, not a passive sub-station that relays pre-formed messages to them” (Biggs 2003, 101). The first require from the students the single act of reproduction, whereas the later, the composite one of deconstruction and reconstruction, where they “internalize their learning, making it part of themselves and relate it to the real life” (Brockbank & McGill 1998, 36).

This new knowledge should be carefully evaluated, and then applied and adapted in certain contexts (LaBoskey 1989). The confidence of both the ability “to provide a convincing explanation and to adapt ideas flexibly for the use in varying and novel contexts” is what distinguishes understanding from knowledge (Entwistle 2009, 50).

As examined in ‘The Dialectic of Architecture’ (2.5.3, p.47-49), context is but an aspect of what constitutes architecture. Because a context consists of many layers, and the notion of context can be seen in different scales, thorough understanding of it is fundamental in architectural design, and therefore, education. Architectural education is itself a context with many layers, and part of a wider context.

3.3 Context and the Context of Architectural Education in the World

The notion of context can be seen as a spectrum where on the one side lies a specific context with certain characteristics and parameters, and on the other side, the world we live in. In order for an architectural proposal to be responsive to a context, a study may include the whole spectrum, starting from the immediate context and its many layers that constitute it, to considering global issues.

As everyone, students are part of the world, with which they are interdependent, and in which they live their real lives. As explained earlier in this Chapter, the students should be at the centre of this inter-relation and interdependence of contexts, the subject knowledge, and themselves, and try understanding the wider context in which everything is part of. Hebraken uses an example from a different discipline to explain the importance of being aware of the wider context. He says,

“Teaching architecture without teaching how everyday environment works is like teaching medical students the art of healing without telling them how the human body functions. Knowledge of the everyday environment must legitimize our profession” (Salama 2009,15).

Unfortunately, in most cases, according to Salama, “a course or module in one subject does not refer to the content of another,” which is based on “the notion that knowledge is made up of many unrelated parts” (Salama 2012, 3). He mentions a condition where not only courses’ structures appear to be fragmented, with elements unrelated to each other, but also courses been disconnected from the real world. He explains,

“Education in architecture is decomposed into schools, curricula, design studios, grades, subjects, modules, courses, lectures, lessons and exercises. It has not been treated as a whole, nor has it been appropriately conceptualized as a part which takes place within society; a characteristic of systemic pedagogy” (Salama 2012, 3).

What Entwistle proposes is “not just providing an induction into the world of work in a specific profession, but also an effective preparation for life in the twenty-first century” (Entwistle 2009, 2). The work of the world, Vella would add, is what an educational curriculum should prepare students for, “which is discovery, creation, integration, and peace making” (Vella 2010, 32).

Paulo Freire, one of the most influential educators of the twentieth century, was an advocate of the development in students of “the necessary critical tools that will enable them to read their world so they can apprehend the globality of their reality and choose what world they want for themselves” (Freire & Donaldo 1995, 389). As Bramley points out, teaching should only offer the students “an example of how one person sees and experiences the world, manages his [or her] feelings and his [/her] thinking responses to the environment” (Bramley 1979, 33).

The condition where “the process of educating future professionals is reduced to a large number of disconnected components” is an element of what Salama calls ‘mechanistic mode’ (Salama 2012, 3). In his view, this seems to be the prevalent mode today. There are some schools though, that embrace a more holistic educational approach. At Columbia University for example, the composition of “seemingly incompatible information becomes the school’s guiding principle” (Wigley 2014, 223).

Almost twenty years ago, Crysler called for “a selective jamming of the machinery of architectural education” (Crysler 1995, 215). Today, based on his extensive research, Salama describes something that should compel similar action,

“The current culture of architectural education is characterized by high advocacy and low enquiry while most criteria for students’ performance and success are ambiguous. It adopts a research strategy shaped by low emphasis on developing or even critically examining current theories of precedents. It socializes its members through high emphasis on form and abstract aesthetics while superficially adopting fragmented pieces of

knowledge on technology, ecology, social sciences, sociopolitical and socioeconomic aspects” (Salama 2012, 13).

Many of these aspects can contribute in analyzing and understanding a given context, and provide information for a comprehensive design proposal that responds to its context. Knowledge fragmentation serves the study of a piece of knowledge in detail and understanding in depth. The method of isolation should only extend to the teaching and learning of this part of knowledge, but with awareness of it being part of wider context.

It is like focusing on different trees, and failing to understand that they are part of a forest, and that the forest is part of a wider system. It's about the understanding and awareness of different scales, and that the principles that bind them in a dialogic situation are evident either in observing the scales together as one system or individually on their own.

The mechanistic mode operates mainly by the use of monologue, in an instructive mode of delivery, and views a discipline as parallel monologues, where the parts that comprise it are disjointed to each other, as well as to the real world. On the other hand, the systemic mode functions more collectively, with dialogue and enquiry, and achieves to observe the greater picture of things, approaching education more holistically.

3.4 Conclusion

The idea of a holistic architectural education is widely accepted as the most comprehensive and effective way to prepare students for their vocational endeavours and the world, as complete professionals and citizens. The development of awareness of the self and the world, and ultimately of identity, is an objective of the highest importance, as it directly affects the process of creation, and immediately relates to the profession.

Any disconnection of the 'person' from the 'professional', with the attention mostly on job-related skills and less on identity growth is a disconnection of 'education' from 'training', with a focus on the latter. The lack of integration of

different subjects, of theory, history and practice in a course, further enhances this notion of disconnection in education, leaves the students with an idea of architecture that appears isolated, and consequently, detaches architecture from society.

The preparation for the world requires the cultivation of social skills and an autonomous mind and heart, in order to develop the capacity to discover it and change it for the better. Teaching and learning in this process can be understood as one; a lived experience for both students and teachers, and an example for enquiry.

Before anything though, students need to realize that it is them that need to change first, keep changing for themselves, and understand that they are part of something that changes constantly, and with which are interdependent.

Understanding of the self, society and the world, how they relate, and how the self is reflected in them, constitutes what holistic education ought to aim for. Awareness of all three elements and their interdependence, places the architect today as a facilitator that defines and redefines this perpetual dialogical relationship.

The next chapter explores the practice of dialogic enquiry in the context of tertiary education and architectural pedagogy in general, and the context of the design review in particular. The investigation covers aspects, methods and techniques the conduct of dialogic enquiry involves, and examines the relevance to feedback and assessment, as the main way of teaching in a design review.

Dialogue, Enquiry and Interaction in Architectural Pedagogy and the Design Review

4.1 Introduction

This chapter investigates aspects, methods and techniques that influence the conduct of dialogic enquiry as a learning situation in general, and architectural education in particular. The relevance and significance of dialogic enquiry in feedback and assessment, and more specifically in the context of architectural design review are also examined.

In the previous Chapter, the formation of understanding and personal meaning was seen to be more effective in social contexts, in which the notion of interdependence manifests itself in a more evident manner. It is what mostly affects and shapes the way we come to understand the world, the way we are and change, and live our lives. As Bramley says, “many of the most important determinants of human behaviour lie outside the individual himself [/herself] in the properties of the social systems of which he [/she] is a member. With these he [/she] must interact” (Bramley 1979, 35).

The foundations of the modes of conduct that will permit for interactions to be positive and productive should be laid within an educational setting. According to Vella, the way we work and live in such settings “is a powerful force in developing how we live and work in the world” (Vella 2002, 29).

The examples of such modes should then be well-defined and integrated in the educational process, in order for them to have a successful effect on students. More particularly, as Entwistle points out, “the practice of sharing ideas and discussing how to tackle problems or issues remain a crucial part of higher education that has a lasting value for students after graduating, both in employment and in their everyday lives” (Entwistle 2009, 135).

In a design review, students have the opportunity to present and explain their ideas, as well as express their thoughts and feelings about their design brief approach. At an individual level then, it isn't just a chance to sell an idea, but sell themselves (Morton & O'Brien 2005, 6-19). In a sense, the 'crit' is about communicating identity. Collectively though, it is a chance for students to view their work in relation to everybody else's work, and therefore learn from one another (Parnell et al. 2007, 5-9).

Group discussion encompasses methods that develop constructive argumentation by asking questions in an environment of positive feelings, and within a spirit of mutual contribution towards a common goal. It comprises all of the elements that describe dialectic, which for Walton "seems to be a forgotten art" (Walton 1998, 12).

In architectural pedagogy and the 'crit' in particular, as such is the nature of this context, there is a great deal of opinions that do not just call for the increase of dialogic enquiry use in design reviews, but for a way of conduct predicated on it (Anthony 1991, 118; Webster 2007, 26). Ross et al consider dialogic enquiry facilitation the most suitable pedagogic approach for the 'crit', since the spontaneity and freedom that characterizes the conversations are most appropriate for "the delicate task of probing and appraising the quality of a pupils expressive and creative process" (Ross et al. 1993, 26).

Moon suggests "students can be taught to probe for meaning by using questions to chase meaning. If students are taught to use appropriate questions, they can make better use of dialogue among peers to facilitate reflection" (Moon 2004, 205). Being critical on your own and others' work is an integral part in an architect's professional life, says Willenbrock. Design reviews though, she continues, should be a learning experience that "must be rooted in a dialogue and equal exchange" (Willenbrock 1991, 115). Dutton appears to be more categorical, as he claims, "If there is no dialogue, there is no learning" (Dutton 1991, 94).

To think for oneself is a dialogic process (Lipman 1994, 204), and the act of reflection, individually or collectively, is itself an act of dialogic enquiry. The dialectic of reflection implicates the self, a subject of study, the world, and a way of approaching them. It also requires critical thinking and an urge to discover and learn. The preparation that will set an example for students to facilitate dialogic enquiry with themselves, and with others, should then be a task of great importance for the training and education of an architect.

4.2 Dialogic Enquiry Facilitation

4.2.1 Challenges

Engaging students in conversation with other students, as part of a group discussion in an academic setting, is not always an easy task. According to Bramley, meeting each other could require encouragement from the teacher, as some students may have “spent their school career being conditioned to control natural social impulses. This is not a healthy model for higher education or for adulthood in today’s often asocial world” (Bramley 1979, 93-94). He also recommends further encouragement for even the basic act of speaking. Getting to know one another and having the courage to speak their minds and express their emotions is essential in starting a conversation. Motivation will otherwise be possibly lost from the very beginning, and regaining it would be difficult (Bramley 1979, 80).

Student’s “educational histories may have silenced them” (Brockbank & McGill, 1998, 152), but this is not the only experience they may bring with them. They carry their beliefs, to which they may be loyal, an attitude that could obstruct the way towards listening and learning (Browne & Keely, 2007, 32). According to Jaques, some of them might have a more self-centred behaviour, characteristics of which is “blocking, aggressing, seeking recognition, special pleading, and dominating” (Jaques 1991, 35-36).

Although students need to be more open, and allow the chance for the new knowledge and the reasons behind it to influence their development, this is an act that leaves them vulnerable and exposed, especially during the early stages

of their academic life (Boud 1995, 43). It is a period where many of them is diffident, as they would “seek for the security of being told what to do (Brockbank & McGill, 1998, 164),” which is a residue from the years where results were the outcome of direct instructions.

Parnell and Stead point out a mentality students have in design reviews in the early stages of their education, where it is only the critics that are allowed to have an opinion on their work (Parnell 2003; Stead 2003). This general view has teachers trying to understand the presented work of every student, come up with profound statements that define the work (Parnell et al. 2007, 13), or provide ‘the answer’ to their questions (Parnell 2003). Also, part of this general view has the word ‘criticism’ viewed as ‘fault-finding’ (Raman & Coyne 2000, 83).

Opening up to change, without knowing much about the new subject of study, neither about the route or the destination of the new knowledge, fear usually overwhelms students, and makes them react in different ways. Table 4.1 illustrates the different reactions and the conditions that cause them, in response to trying internalizing, generalizing and testing new knowledge (Carter et al. 1972, 72).

Carter et al argue that the application of pressure and encouragement as forces that aim to eliminate the effect of these barriers are not always successful, and that sometimes they are counter effective in a sense that they increase their impact instead of removing it. They say,

“In order to facilitate experiential learning it is important to remove the barriers rather than to find sticks and carrots with which to urge the students over them. Each student must find his or her own way of recognizing and dismantling the barriers if real learning is to take place”
(Carter et al. 1972, 72).

They suggest teachers should respond to “fear with encouragement; arrogance and inertia with criticism; ignorance with ideas; and low self-esteem with peer

group esteem” (Carter et al. 1972, 73), and thus “working with the emotional climate of the classroom rather than ignoring or trying to work against it” (Morgan & Saxton 1991, 25). The responses aim both at the emotional, as well as the reasoning centres of the students, and intend to reinforce the social character of learning, and transmit, in this way, an ethos of collectivity that supports the development of individuality.

	Fear	Inertia	Ignorance	Arrogance	Low Self-esteem
Internalization and Generalization	I am afraid of the implications of it	I am more comfortable as I am	I don't know how to think about it	I know it isn't worth thinking about it	It wasn't really any good
Testing	I am afraid to try it	It's too much bother to try it	I don't know how to try it	I know it isn't worth trying it	Someone like me couldn't do that

Table 4.1. Barriers to experiential learning

4.2.2 Behaviour and Attitude

The facilitation of dialogic enquiry in groups of students operates within a social system, which is the reflection of similar systems and networks of the real world, but at a smaller scale. In such systems we live already, and thus, “the obligation to treat students with respect is independent of more specific educational aims. It is an obligation binding on us generally, and so is not part of any particular setting” (Siegel 1988, 56). Furthermore, Vella says, “respecting learners as decision makers of their own learning is a principle that involves the recognition that adults are in fact decision makers in a large part of their lives” (Vella 2002, 15).

Conveying enthusiasm and being respectful of the students and their opinions are then fundamental traits in the behaviour of a facilitator, and can always be present from the beginning to the very end of a conversation. The teacher should not “use the group as a platform for showing off his prowess and then

expect the students to admire and imitate” (Bramley 1979, 100). The challenge for the teacher is not to conduct the group, but to manage the conversation. “To become expert arbitrator kills the point of the exercise, as students then tend to sit back and want to be told what to think” (Biggs 2003, 91).

The students’ perception of the teacher as an authority figure must be given reasons in order to change, and certain actions from the teacher’s behalf should aim towards that direction. Rowland argues that “the transition from ‘teacher-centred’ to ‘student-centred’ way of working [...] represents a shift in power from the teacher to the student, [...] but the very attempt for this shift by facilitating the change, is itself an exercise of power” (Rowland 2000, 68). Although it is almost impossible to disperse this sense of power teachers possess, their behaviour should at least not convey it. Instead, they should strive to distribute it so the students can begin to “cultivate their own” (Bramley 1979, 93), and “find their voices” (Vella 2002, 9).

The teacher can then welcome contributions, and thank anyone that participates, as well as affirm the value of contribution (Jaques 1991, 25). Once the students start realizing their powers and the benefit from everyone’s input “peers become important” and “teachers appear mortal” (Bramley 1979, 54). Students begin to see the teacher “not only as someone with answers, but also as someone, who like them, is seeking answers” (Morgan & Saxton 1991, 8). At the end of the discussion, it is necessary to point out what has been achieved, as it reinforces each student’s “sense of worth” (Brown & Atkins 1988, 77), and leaves everyone with “a collective sense of achievement” (Bramley 1979, 100).

For Foucault “power is strategic games” (Foucault 1988, 18), and should not be seen as something evil. In his opinion, in a societal context, much as the situation is in a group context, power relations will always exist. He claims,

“The problem is not of trying to dissolve them in the utopia of a perfectly transparent communication, but to give one’s self the rules of law, the techniques of management, and also the ethics, the ethos, the practice of

self, which would allow these games of power to be played with a minimum of domination” (Foucault 1988, 18).

Foucault talks here about autonomy as a practice of freedom where the teacher becomes a free agent in the education of students, an action that “implies the exercise of choice” (Rowland 2000, 101). The notions of authority and power must then become clear for students, as they are often misinterpreted and mixed-up, resulting in a submissive and passive stance in relation to their teachers. The abuse of power must be avoided, since it is the reason for “the confusion between authoritarianism and authority,” which according to Freire creates the need for teachers to become facilitators (Freire & Donaldo 1995, 378).

In Freire’s view, a facilitator should aspire for the democratization of power (Freire & Donaldo 1995, 377). Brockbank and McGill also believe that the creation of an environment with such conditions is vital for group contexts. They say,

“When the social context of learning is recognized and collaboration is valued rather than penalized, the significance of relationship in learning makes sense, prioritizing involvement and connection, nurturing joint endeavours, [...] thereby encouraging movement towards higher stages of learning” (Brockbank & McGill 1998, 147).

Similarly, in a design review, participation, tentative as it may be in the beginning, can open up the conversation, and new experiences, concepts and ideas can be evaluated and explored further. Different opinions and points of view, both from critics and students can find their way through the discussion and constructively begin to compose new understandings for all. The conversation becomes then something comfortable to be in (Kent 2005, 160), and an example of how from disagreement new knowledge can be synthesized. Students can then use different experiences and parts of the critics’ identities to compose their own (Webster 2007, 25).

Opinions that come from the studio tutors or the critics or students participating in the 'crit', regardless of whether they agree with each other or not, present a reality everyone needs to recognize and accept, and see it as different kinds of information that need to be processed and examined in relation to themselves, and decide how they can be used to their benefit.

It is essential for students to feel comfortable in a learning environment, which conveys a clear message that the discussion is conducted between equals, as true dialogue occurs only between equals (Ross et al. 1993, 118). In an environment like that, defenses should be dropped considerably, and talking will get in the way of listening much less (Parnell et al. 2007, 78). Deliberation is what appraising a work requires (Ross et al. 1993, 35-36), and listening to a variety of views and taking part in a discussion provides the ground for cultivating critical thinking (Parnell et al. 2007, 9).

Students' comfort should not be depended on the safety of being passive and dictated on what to think and do, but on feeling safe to be exposed and share their thoughts, and ask questions. The facilitator's behaviour is an agent that can create a place where everyone can embrace their vulnerability and celebrate their ignorance.

4.2.2.1 Desire to Learn

Being part of the academic community, one would assume that students have an urge for trying to approach and discover new things about their subject of study, themselves, and the world. Teachers must not take this for granted, and should constantly stimulate curiosity and encourage "the need to know" (Biggs 2003, 17). Even for tasks or modules that might appear to be less interesting, the reasons behind their purpose must be made clear, and the overall attitude and approach of the teacher should make no room for negative feelings. Any sense of boredom or anxiety will turn an assignment into something that needs to get out of the way as quickly as possible, and it will also make "a mess of a student's priorities" (Biggs 2003, 66).

The love of learning and the love of knowledge itself, not just the love to learn and to know a specific subject, should be conveyed from teachers in a way that is infectious. Not everyone can be a charismatic teacher, but the ingredients that need to be part of the teaching of any university teacher must be “enthusiasm, friendliness, humour, dynamism” (Brown & Atkins 1988, 15), and any positive way that expresses and reflects their love of learning and knowledge.

The activation of positive feelings in students will first of all keep their spirits lifted, a condition which will form the basis for them to take part in their learning. Entwistle argues that the success and effectiveness of encouraging conceptual understanding is less related to specific teaching styles and methods, and primarily depends on “the teachers’ attitude towards the subject matter and to the students. It may amount to a passion, not just for the discipline but also for conveying that enthusiasm to students in ways which make them want to understand for themselves” (Entwistle 2009, 128). Brown and Atkins agree that if teachers convey their “enthusiasm for a topic through body language and language, then it is more likely to become infectious” (Brown & Atkins 1988, 23). As Donald Bligh says, “there is one thing more contagious than enthusiasm, and that’s the lack of it” (Bligh 1998, 63).

The teachers, except for creating this condition by conveying this attitude, they are part of a ‘conversation,’ which they should facilitate in a way that incites students to actively participate in it, and assist them in calling this learning process as something of their own.

4.2.2.2 Participation

Education, Harvey and Knight argue, “is a participative process” (Harvey & Knight 1996, 7), and “not a service being sold to customers or supplied to clients” (Harvey & Knight 1996, 61-62), but an ongoing process where students need to be participants in order to transform themselves. What distinguishes for them quality in education is this element of transformation, as teaching should be conducted in ways “that affects changes in the participants and, thereby, enhances them” (Harvey & Knight 1996, 7).

Teaching can then be interactive and not expository, as the later “is one way, involving minimal interaction from students” (Biggs 2003, 83), and primarily an exchange of lifeless data in which they are not involved. Participation will bring life in these data only when students relate personally to them, and “experience an emotional laden connection between the topic and themselves, their opinions, longings, fears; their politics, their ambitions, their values” (Bramley 1979, 41). Brockbank and McGill as well as Ovens et al, claim that responsibility for learning lies more or less with the student rather than the teacher (Brockbank & McGill 1998, 168; Ovens et al. 2011, 8). It is therefore teachers’ responsibility to motivate and stimulate students in order for them to take part in their education.

4.2.2.3 Motivation and Stimulation

Creating the desire to learn by stimulating positive emotions is not merely an act that influences motivation, since emotions “constitute the primary motivational system for human beings” (LaBoskey 1989, 218). Furthermore, Vella claims that the very act of “inviting learners to be subjects of their own learning is indeed the practice of freedom” (Vella 2002, 17).

Participating and the act of participation should be disassociated with the act of performance, which relates to a culture of compliance, and be connected more with the act of discovery, which leads to a culture of opportunity (Entwistle 2009, 22). As Swan says, “it is a matter of encouraging people to create new ideas and test them” (Swan 2007, 48). The teacher’s role then “is essentially to provide a stimulus for learning, to support the learner in the process and to assist the learner in extracting the maximum benefit from what occurs” (Boud et al. 1985, 36).

For the context of the design review, it is an invitation to contribute in a learning process where students and teachers collaborate, and all become part of “a living act of contemplation” (Ross et al. 1993, 38). The students are made conscious of their voice and are encouraged to “relate, interpret, and assess their own making in a shared act of compassion” (Ross et al. 1993, 35) that aims to develop confidence in them.

Teachers should not only behave as a facilitator, but also present themselves as one. “In a dyadic (one-to-one) relationship there is no doubt who is the seeker and who the giver” (Bramley 1979, 97). This is a perception most students have when coming to university, and changing is a difficult task. Even in a conversational context, which would imply contributions from all members, most students still see the teacher as the one that provides the information, and themselves as individuals that do not necessarily need to interact with each other. Within such a context then, students must change how they understand their roles in relation to their teacher and to each other.

Vella claims that “if the teacher’s perceived role does not lend itself to dialogue” (Vella 2002, 21), students will not seek their teacher out and will become passive. In addition, Bramley believes that when “roles are polarized, so that the teacher is ‘wise parent’ to the helpless student ‘children’”(Bramley 1979, 39), interpersonal commitment is absent, passivity is excessive, and thus learning in the group becomes limited.

Students will need to see the design review as an opportunity for discussion and exchange of opinions and ideas, and not as another one-directional delivery of information in a different setting. A crucial parameter that affects a conversation is also the layout of the seating should be in a way that allows students to “see and hear and make eye contact with one another, so that participation is both encouraged and made easier” (Morgan & Saxton 1991, 84).

Anthony proposes a room big enough to fit a large table where everyone could sit around, rather than the typical ‘crit’ environment (Anthony 1991, 134). The number of all participants should ideally be small, since many educators have found that large groups and lengthy reviews are less effective and inhibit learning (Wilkin 2000, 104; Bridley et al. 2000, 114). Teachers can then create a secure environment where students feel they belong to, “an atmosphere of trust and openness where people are valued for what they are and have no need to fear for making fool of themselves” (Jaques 1991, 131).

When students feel safe within a learning environment, their disposition towards active participation is positive and they become more willing and eager to learn. At the place “where suspicion and the urge to withdraw for self protection lurked before” (Bramley 1979, 93), mutual trust begins to develop, creating a condition that encourages critical thinking, and leaves no room for “anxiety about being ‘put down’” (Entwistle 2009, 131).

It becomes obvious then, that in a group session when a “tutor is censorious, or sarcastic, students will keep quiet, preferring not to make themselves vulnerable. This is independent of any particular teaching method” (Biggs 2003, 77). Biggs describes an example of a similar setting where a teacher was constantly replying to a student “all-knowing and sneering ‘that’s for me to know, and for you to find out. So the students in this group gave up asking questions” (Biggs 2003, 77-78).

Furthermore, motivation and will to participate is compromised when academic tasks are devalued by encouraging cynicism (Biggs 2003, 64). Roberts has noted a connection between lack of motivation and teaching that is not challenging (Roberts 2006, 524). Without motivation, Brown and Atkins say, “attention is lost and there can be little understanding” (Brown & Atkins 1988, 7). Entwistle becomes more explicit on this matter, as he believes that motivation should operate in a way that establishes a personal connection of each student with the studied subject. He says, “In higher education it is intrinsic motivation that engages learning processes leading to personal understanding” (Entwistle 2009, 20).

Biggs distinctly states that “motivation is a product of good teaching, not its prerequisite” (Biggs 2003, 13), and Cowan’s definition of teaching is directly related to motivation. He sees it as “the purposeful creation of situations from which motivated learners should not be able to escape without learning or developing” (Cowan 1998, 47). This condition then, of heightened emotions and stimulation increases alertness and intellectual restlessness, an energy that needs to be channeled towards action. As Howe mentions, “learning is an active rather than a passive process,” and “a learning session can be made

very much more effective simply by encouraging individuals to take more active stance” (Howe 1998, 8-9).

4.2.3 Action

The encouragement of a “positive working atmosphere” (Biggs 2003, 17), is the result of effective teaching, as “activity heightens arousal” (Biggs 2003, 79), and learning can be more efficient. Efficiency in teaching also depends on the choice of method, which has to be tailored in a way that aims to achieve a certain goal. As Entwistle points out,

“What counts as effective in one context may not be so in another. A beautifully polished lecture, which provides the solution to a problem, may be considered effective if the goal is merely conveying information. If the goal was to stimulate the students to develop the solution, then the polished lecture may be regarded as ineffective” (Entwistle 2009, 4-5).

Examples that aim to provoke students for an active response are “questioning and presenting problems, rather than teaching to expound information” (Biggs 2003, 17). More particularly, problem-based learning is an example “where real life problems become the context in which students learn academic content and professional skills” (Biggs 2003, 63). Swan argues, “all learning is a special case of problem solving” (Swan 2007, 44), which takes place when a problem-solving activity creates a new expectation.

The knowledge that comes out of this process is based on the connection that is established between action and what is expected from it. This process develops in a “context of experience” (Swan 2007, 42), where students learn by doing. A healthy educational environment is fostered and promoted when students are involved in problem solving activities and interpersonal relating.

Students begin to appreciate the real value of their knowledge and understanding of the content they study when they relate it to real life problems and situations, and hence feel more confident and prepared on what to expect. They should then be encouraged to go beyond what they know and understand.

“Academic understanding, in itself, may be of little value unless it is used actively, looking out for and recognizing opportunities to make use of it in everyday life; in problem finding as well as in problem solving, and in designing specifications as well as designing to specifications” (Entwistle 2009, 21-22).

All these tasks usually involve the evaluation of a great deal of parameters, which will ultimately result in a proposed solution that responds to a real life given problem. The students should then be encouraged to “actively inquiring into their rational status” and not to be “brought to develop a non-evidential style of belief” (Siegel 1988, 89). They should also be encouraged “to be conscious of their own values in their deliberations and of the moral implications of their interpretations and behaviors” (LaBoskey 1989, 56).

The effectiveness of teaching and learning then depends on how all these tasks and situations are structured. The practice of being critical should not only include thinking, but also embrace the self, as an element that contains feelings, which also need to be active in the learning process (Brockbank & McGill 1998, 4). Morgan and Saxton believe that the organization of tasks aims “to invite and sustain that active participation by providing experiences which ‘get them thinking and feeling,’ ‘get the adrenalin flowing,’ and which generate in students a need for expression” (Morgan & Saxton 1991, 7). Furthermore, according to Brown and Atkins, changes in activities as part of a planned structure or reaction to students’ response to an activity are more “likely to renew attention” (Brown & Atkins 1988, 10).

Within this environment, where rational, emotional, and moral development is the result of active participation, students should be slowly becoming more and more confident in making mistakes, and assist them in seeing them as a valuable element that is part of the learning process. Further and constant encouragement can then be offered, as this will help them realize that there is more to be learned from failure than success. Through making and doing, and not by instruction, they will know for themselves the reasons behind a thought that did not lead to a positive result. Harvey and Knight explain that,

“trying to banish error and failure would be trying to banish information about the gap between what we understand, know and can do, and what we could know, understand and do. [...] Failure is harmful to self-esteem when it is seen as a terminal condition, a part of a learned helplessness, rather than a concomitant of learning” (Harvey & Knight 1996, 177).

The management of negative criticism in this occasion then is crucial for maintaining active participation in a design review. From the students' point of view, Anthony finds this to be a characteristic of the best reviews, since neither kind of criticism, positive or negative, is “lopsided in either direction” (Anthony 1991, 32).

Dinham notes, that since mixed messages between critics are inevitable, “suggestions for improvement are interwoven with negative criticism” (Dinham 1987, 10). A follow-up question, a clarification, or the reason behind a negative comment appears to be more helpful to students, and less as an attack, as they seem to understand and learn more from this way of expressing an opinion (Dinham 1987, 10). The design review then, as Fredrickson says, becomes “a vehicle for realigning our professional attitudes and methods of communication” (Fredrickson 1993, 43).

It is important for the students to be able to see immediately how useful is the new knowledge that comes out both from their failures and success, as “the immediacy perceived by learners,” Vella argues, “will affect their determination to continue working” (Vella 2002, 19).

Even more essential and vital to the whole learning process is “that facilitators offer no interpretations or analysis of their own” (Boud et al. 1985, 37). They must not do or decide on what the students can do for themselves, as “the learning is in the doing and the deciding. Teachers must be careful not to steal that learning opportunity from the adult learner” (Vella 2002, 16). Freire appears to be categorical on this subject. He says,

“the radical educator has to be an active presence in educational practice. But, educators should never allow their active and curious presence to transform the learners’ presence into a shadow of the educator’s presence. [...] The educator who dares to teach has to stimulate learners to live a critically conscious presence in the pedagogical and historical process” (Freire & Donaldo 1995, 379).

Effective learning relies mainly on the active participation of the students, as “the abilities people gain are largely the outcome of their learning activities” (Howe 1998, 3). It has been argued that the responsibility for learning should lie more with the student rather than the teacher. The responsibility for an environment of action and participation then lies with the teachers, and should be based on a structure that enables it. This structure should also be flexible enough to allow the possibility to be organized in different ways and adapt to students’ different reactions to it. It needs to have the element of transformation, in order to be more efficiently transformative.

Education is seen as a process that doesn’t just aim to prepare people for their vocational endeavors, but the world itself. The desire to learn should not be taken for granted and should be stimulated constantly. The more active participation is, the more effective it can be. Personal understanding cannot be developed with a passive stance, but with personal involvement in learning. Understanding should never be seen “as an endpoint in learning, but in terms of ongoing sets of thinking processes that led students towards understanding” (Entwistle 2009, 90).

Once fear of exposure starts dispersing, self-confidence begins building up. By giving reasons of the benefit of participation in the creation of knowledge, and involving students in activities that justify the reasons, they can see for themselves and realize they have power, and learn to use it together with their peers and teachers.

4.2.4 Agenda and Purpose

It is essential for students to know “how pedagogy can meet their individual learning needs within the learning context” (Gharaati 2006, 109). Salama agrees that endowment of control “over the process of knowledge acquisition, assimilation and utilization of future experiences (Salama 2012, 3),” grants students “more control over their design actions, choices and decisions” (Salama & Wilkinson 2007, 128). Teachers though, should maintain some control, which according to Ross et al is necessary, and try to balance it with the amount of freedom they should allow students to express themselves (Ross et al. 1993, 22).

When students take part in an interaction that involves reciprocal questioning, teachers must “make sure there is a clear and high-level agenda for them to address” (Biggs 2003, 92). The learning objectives, the way they interrelate as well as the reasons behind them must be explained from the beginning of the session. Transparency is then a key element in the facilitation of group sessions.

Students may also be reminded in the course of the session during the tasks that are immediately related to the objectives, so it is clearer for the students to understand the connections. This of course does not mean that the connection will be established at the moment they are explained to them, as some students need longer time to assimilate the information they process, but it elevates students to a level where they become aware of the process while it happens (Harri-Augstein & Thomas 1991, 59).

Except for clarity on the reasons behind teaching approaches then, the structure of a process should also be clear. This level of transparency will allow students, Mitchell suggests,

“To discover for themselves how abstract principles have been applied in specific circumstances to address particular needs. Students also ‘discover’ which questions are important as they begin to observe patterns

and make concrete links between abstract principles and application”
(Mitchell 2006, 347-348).

There is also evidence that demonstrate the influence of clarity of purpose in students’ motivation during their year out in practice. Roberts says,

“It seems that students learn more when they are given responsibility although the scope of that responsibility need not be extensive. Those students who appeared to have a sense of ownership for some element of a project felt that they have learnt more” (Roberts 2006, 526).

Theorists agree, Salama says, “that students must talk what they are learning, write about it, and relate it to past experiences” (Salama 2012, 7). Students should be aware of ‘what’ they learn, ‘why’ they learn about it, and ‘how’ they go about learning it, and make it part of their discussions with their teachers.

Bligh claims that attitudes cannot be taught, because if any change is to take place in them, it has to originate from the students. He says, “It is the teachers task to engineer the situations so that the students will acquire or change them for themselves” (Bligh 1998, 214). These situations that foster learning must be based on a ‘learning contract’ where a group of students and their teacher(s) agree on some ground rules, and respect and value each other (Rowland 2000, 65).

Conversation in a group context should be seen as a practice that happens every day (Vella 2002, 23). The benefits, as learning objectives, should be linked with the necessary use of dialogue in social and professional contexts, in which people function almost daily. Bramley calls this context an artificial social system, which “is a crucial device, manufacturing kinship networks so that everyone belongs somewhere” (Bramley 1979, 16).

In a design review then, a conversation can be an example of being critical, of having an appropriate way to express an opinion, and an overall behaviour

suitable for a discussion in a group of professionals. The design review as an event, and dialogic enquiry as its vehicle should align itself with what closely resembles a meeting between a design group and (a) client(s).

The obligation of everyone is to participate in order to keep this 'device' functioning. Participation in the conversation may not seem to be immediately a contribution towards the learning goals set at an individual and collective level, but it is a contribution towards the goal of the conversation itself as a means to a more extrovert behaviour.

In Brown and Atkins's opinion, "the immediate goals of small group teaching are to get students to talk and think" (Brown & Atkins 1988, 56). Growth and the development of communication and intellectual skills as well as self confidence are long-term aims, part of which are also the management of their own learning, and insight into themselves and others (Brown & Atkins 1988, 57). Bramley concurs with this position. He says, "if they are to become productive society members, they must learn how to pool every group's resources with others for the maximizing of data collection, analysis and interpretation" (Bramley 1979, 97). For Biggs, this is a great opportunity "for students to see how others interpret the material and to judge with discreet adjudication from the chair" (Biggs 2003, 88).

The means to achieve their personal and collective goals as a group, is to learn to ask questions together, which is the meaning of the word 'competition.' Vella explains that 'com' means 'with' and 'petition' means 'asking' (Vella 2002, 23). Asking together is then about a healthy competition, where, as Morgan and Saxton say, productive discourse

"gives students opportunities to make connections with their own lives; to be responsible for the organization of the discourse (who speaks and when, who asks questions and how soon), and it allows them to participate in controlling the process (what ideas are introduced and developed)" (Morgan & Saxton 1991, 76).

Furthermore, students are “encouraged to challenge their personal myths about their own learning capacity” (Harri-Augstein & Thomas 1991, 98), and when dialogue becomes reflective, Brockbank and McGill believe it “engages the person at the edge of knowledge, their sense of self and the world as experienced by them” (Brockbank & McGill 1998, 57). Ultimately, the purpose for students is “not only the understanding of the reflective dialogue process, but also to model the discourse in their practice” (Brockbank & McGill 1998, 54).

Once more, the centre of the discussion must be students and their learning, and how they may reach an understanding of it. “For the teacher, the focus moves away from the transmission of the material to how the learners are working in the material in the here and now” (Brockbank & McGill 1998, 5). According to Edwards and Westgate, “questions do not operate in a vacuum” (Morgan & Saxton 1991, 72). The agenda of facilitation itself needs to be ‘open,’ where teachers are part of a relationship of collaboration with the students, and teaching is not experienced as “didactic transmission of pre-formed knowledge, but as an attempt to negotiate shared meanings and understandings” (Morgan & Saxton 1991, 72).

The learning objectives that relate to the use of the medium of conversation in a group context must be clearly and analytically presented to students before the process begins. The way these objectives are going to be addressed should equally be made clear before and during the process, so students are alert and conscientious to recognize the connections of the method and the purpose.

The benefits from talking and expressing thoughts and ideas are the development of communication, behavioural skills and self-confidence. Encouragement to externalize thoughts will present in front of students different viewpoints and interpretations of the discussed subject, from which views they can gain more information and compare with to their own. When entering the cyclical process of reflecting on their new findings and understandings, the discussion will assist in presenting further interpretations, outlooks and perspectives. The next Section explores ways that assist students in this endeavour.

4.2.5 Methods and Techniques

The negotiation and exchange of meanings and personal understandings form the basis for a good dialogue that shapes, elaborates (Biggs 2003, 13), and promotes “the potential for deep and significant learning” (Brockbank & McGill 1998, 70). According to Brockbank and McGill, the effective facilitation of dialogue “leads to critically reflecting learning” ((Brockbank & McGill 1998, 161). and “facilitative methods call for an arrangement so students relate to each other and the teacher” (Brockbank & McGill 1998, 167).

As it has been argued in the previous Section 4.2.4, the need for assisting students in understanding the process and the connections between methods and objectives is essential to take place during the learning process, so they are aware of it as much as possible.

Biggs claims that the same principle should be applied while the students’ knowledge is being constructed by probing it in the formative stage, in order for them to avoid any misunderstandings (Biggs 2003, 77). In lectures, he says, where “the expert delivers information, the learners are passive. In the tutorial the students should do much of the work, the tutor’s role is to see that they do. They should set rich tasks, ask probing questions, challenge misconceptions” (Biggs 2003, 88). Brown and Atkins agree that imparting information is a method that is not efficient in a small group, the potential of which “lies in the interplay of ideas and views that develop a student’s capacity to think” (Brown & Atkins 1988, 52).

The process of thinking and the series of inferences that it may lead to are different from student to student, due to different educational and social backgrounds and experiences. The exchange of views and ideas highlights the diversity of perspectives, which student’s need to understand and learn to cope with. For some of them the reality of diversity is harder to accept and adjust to.

The discovery of people having different interpretations based on same data, but different viewpoints on the data or their approach, may come as a shock for some students, as they will try to present their arguments with certainty of their

correctness. That shock, Biggs argues, “can be powerful, forcing students to examine closely the basis of how they arrived at their own conclusions” (Biggs 2003, 91). The teacher ought to facilitate this reflective process and open it up to a conversation, where all should collectively strive to analyze the soundness of each argument and the way the conclusions were reached, setting in this way an example for reflection.

Patience and persistence are fundamental aspects of this process, and thus everyone must feel comfortable in waiting for the contributions of others, and be eager to examine all of them together with everyone else. According to Brockbank and McGill, in a reflective dialogue, exploring and investigating should be a struggle, where “this slower pace and the shared time space becomes a means, potentially to reach meaning and understanding that goes beyond the surface” (Brockbank & McGill 1998, 106).

For Morgan and Saxton “quality thinking time depends upon everyone being comfortable with silence” (Morgan & Saxton 1991, 80). The facilitators should then prepare students for moments like this, and help them see them as valuable parts of the process, and not time that needs to be filled. Furthermore, teachers should pay attention on the students that find it more difficult to escape these moments of silence, or the ones that are generally quiet.

A good debate, Biggs argues, is facilitated when the quiet ones are helped to open up, and the ones that are too open are gently made quieter (Biggs 2003, 8), because, as Jaques notes, when two or more students participate for more than a few consecutive minutes they become a group of their own, and consequently detach themselves in the minds of everyone (Jaques 1991, 13). One of the responsibilities of a facilitator then, is to pay attention on the participation cohesiveness, and to act accordingly, should participation patterns described above occur.

Jaques mentions some tasks that can function in favour to participation and activity of the group. They could involve information seeking, information and opinion giving, clarifying, elaborating, coordinating, orienting, testing and

summarizing (Jaques 1991, 35). Essentially, what he suggests is breaking down and isolating parts of a research process, so students can work together on each part and learn it separately, with constant awareness of the whole process.

The tasks are integral parts of his ‘theme-centred interaction’ method (TCI), as they become the themes that are “treated as common property to which the individuals and the group as a whole relate, [...] and create a momentum and a sense of participation” (Jaques 1991, 26). TCI (Diagram 4.1) consists of three elements: ‘It’, which refers to the theme just mentioned, ‘I’, which refers to each member of the group, and ‘We’, which refers to the group as a whole. In order for this system to be productive the ‘I’ has to be in equilibrium with the ‘We’ and the ‘It’. The autonomy of each student (‘I’) must be in balance with the interdependence of all students, and the responsibility each student has towards the group (‘We’), and its aims that relate to the topic (‘It’). The circumscribed area needs to be identified, as it is the place where learning takes place, and the aims are met (Bramley 1979, 48-49).

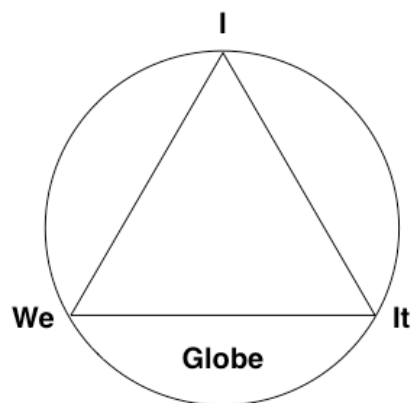


Diagram 4.1. The Theme-Centred Interaction triangle and globe. The autonomy of each student (‘I’) must be in balance with the interdependence of all students, and the responsibility each student has towards the group (‘We’), and its aims that relate to the studied topic (‘It’). The circumscribed area needs to be identified, as it is the place where learning takes place, and the aims are met.

Diagram 4.1 bears resemblance to the general educational interrelationship of the student, the subject, and the world, where the world here (globe), circumscribes the overall tripartite relationship, and with which it needs to be related constantly. The 'It', instead of being a subject of study, is a topic of discussion, or a task with certain aims, whereas the 'I' remains the same.

Both conditions share the same pattern. It is an overarching theme that repeats itself on different scales: as a pedagogic situation, at a smaller scale, and as an educational principle, at a greater scale. Practising it at the smaller scale could inform the greater one, and assist in its understanding.

Encouraging students to expose and engage them in activities for which they are aware of their process, and the association of teaching methods with learning objectives, are essential aspects for the creation of a safe educational environment. Except for a clear educational agenda, explained in advance and during the process, the facilitators have also to be attentive of the participation of everyone, including themselves. They need to be part of a reflective discussion where everyone has the time he or she needs to express opinions and ideas.

Students will then have the chance to see their teachers removed from an adversarial position to one where they are partners with them (Morgan & Saxton 1991, 25). Above all, the facilitators are responsible for "a place where learning is recognized by the students as something to be valued for itself rather than as a means to someone else's evaluation" (Morgan & Saxton 1991, 23). Feedback and assessment, which the main means of teaching in a design review, should then be integrated in the learning process, and should not be a detached experience from it.

4.3 Feedback and Assessment

A system of assessment aims to be aligned to the objectives of teaching and the curriculum, and not confuse students with mixed messages, as that puts both teaching and the curriculum in jeopardy (Biggs 2003, 15; Harvey & Knight 1996, 144). Harvey and Knight believe that since teaching and assessing

shouldn't be differentiated, "the quality of assessment is indicative of the quality of teaching" (Harvey & Knight 1996, 151). As Erwin says, "deciding what to teach and assess is one thing, not two" (Erwin 1995, 51). The need for integration of the assessment process and feedback to the teaching and learning process is then fundamental.

Boud asks a fundamental question in order to approach the current condition regarding assessment in higher education: "what do our acts of assessment communicate to students?" (Boud 1995, 37) He argues that students are constructed as passive learners by the dominant view for assessment, having "no role other than to subject themselves to the assessment acts of others, to be measured and classified" (Boud 2007, 17).

The problematic condition described above reflects the general condition in higher education, as it has been portrayed from several educators so far in this investigation. By definition, assessment is the formation of judgment based on criteria, which relate to the extent the learning objectives are met. This is what Biggs calls "the 'signs' of learning" (Biggs 2003, 15). Since assessment involves critical thinking and a process of evaluation, students could be part of this process, which would set an example on how to conduct it for themselves, and adapt it to their own way of judgment.

Boud argues that "the passive construction of learners in the dominant assessment focus of higher education" (Boud 2007, 18) does not prepare them to actively participate in learning demands outside the academic context. Ideally, they would

"have to determine what is to be learned, how it is to be learned and how to judge whether they have learned it or not. They would not expect to do this independently of others or of expert sources of advice, but it is required that they mobilise themselves and their own resources, taking a much more dynamic position in the tasks of learning and assessing" (Boud 2007, 18).

Assessment systems that encourage passive and reproductive forms of learning are against the relational nature of learning, in which the student, the teacher, the subject and the world interrelate as part of the process of constructing meaning and understanding. Entwistle sees assessment and feedback as “two of the influences on the quality of learning within a learning environment” (Entwistle 2009, 145), and Boud argues that “every act of assessment gives a message about what students should be learning, and go about” (Boud 1995, 37).

Clarity is then vital in any form of assessment. Whether oral or written, it needs to “meaningfully elaborate on what the grade purports to summarize” (Boud 1995, 45). Inadequacies should not be the only issue pointed out in feedback, Entwistle says, but it should provide “an opportunity to give encouraging comments and suggestions about how to improve future work” (Entwistle 2009, 155). Harvey and Knight align themselves with this view, and understand feedback as a “source of information in the process of continuous quality improvement” (Harvey & Knight 1996, 150).

Teachers can help students disperse the dominant view of feedback and marks as an indicator of performance, by encouraging them to “understand their learning rather than to be ‘grade hunters’” (Harvey & Knight 1996, 138). As Brockbank and McGill note, the word assessment means ‘to sit beside’, which “reflects the values being promoted in critically reflective learning as collaborative rather than inspectional” (Brockbank & McGill 1998, 100).

Schön’s opinion concurs with the previous statement, since he doesn’t see the relationship of the facilitator and the student(s) as one of a critic and performer(s), but as a “partnership in the setting and experimental solving of a problem” (Schön 1985, 80). The sense of partnership within a group could be enhanced by encouraging critical responses to mutual expression of feelings and ideas, allowing in this way greater “potential for group intimacy, trust and sharing, and more opportunities for better learning and closer attachments” (Bramley 1979, 93).

In architectural pedagogy, teachers quite often affect feedback with their personal aesthetic preferences and professional paradigms, using a language shrouded in abstraction. As Bucsescu and Eng point out, “the terms of reference are left vague, ill defined, and too personal to provide enough constructive criticism to push students design projects forward into the next stage of development” (Bucsescu & Eng 2009, 122). Willenbrock, as an undergraduate student, expressed her inability to comprehend “the concept of a more absolute and universal categorization of ‘good’ and ‘bad’” (Willenbrock 1991, 98).

Rapoport suggests, the dialogue between teachers and students on decision-making shouldn’t “be based on a body of literature, or research on person-environment interaction, on theory rather than the likes and dislikes of designers” (Rapoport 1984, 100). Teacher-centred approach and unquestionable dependence on authority figures has shown to inhibit the student’s potential for personal understanding. Whether a design is appealing to the teacher’s personal aesthetic or design approach should be irrelevant to the process, and should not influence it.

In a discussion, it is both students’ and teachers’ subjectivities that should be placed at the centre, so all participants can begin to understand how they are “constituted, promoted, or constrained by configurations of power within class, race, gender, ethnicity and culture” (Dutton 1991, 174-175). Teachers ought to understand the aspects that affect students’ thinking and not ask them “to come to studio ‘naked’” (Willenbrock 1991, 98), so they all understand their points of reference and learn to build on existing knowledge. Dialogic enquiry facilitation should be a celebration of diversity of people and ideas, where “the student is not left to drift in an intellectual vacuum, but rather is exposed to heady currents and winds of architectural theory and practice” (Hurt 1985, 55).

Teachers, as bearers of this knowledge of good practice and theory, should on the one hand supervise students on whether they meet the criteria of this practice of vocabulary, practical skills, and decision-making, and on the other, to see how they develop it to their own abilities and experience “in the pursuit of

personal meaning” (Ross et al. 1993, 23). Teaching should then dwell and oscillate between these two situations, and encourage the creation of knowledge by facilitating them.

One crucial aspect in the relationship of the facilitator and the student that was also examined in the beginning of Section 4.2.2 (pp.67-69) is power. The same principle of exercising power with effect as minimum as possible, applies when the facilitator is also an assessor. Barnett argues that in cases of summative assessment, the power of controlling and classifying students might “limit their educational development and impair their own sense of self” (Barnett 2007, 39). He proposes,

“If we can reconceive of summative assessment as an educational site in which students can more fully become themselves – at least their educational selves – then summative assessment may be redeemed as having formative educational potential” (Barnett 2007, 39).

Power in formative assessment is less evident, because students understand this form of having a provisional character. They are part of a discussion, in which the feedback they receive aims to improve their performance, and thus the whole process is seen as part of their learning process (Brown & Knight 1994, 16). For that shift in students’ perception of assessment, Brown and Knight argue that the use of dialogue is essential, since

“feedback ought to involve the interplay of the tutor’s understanding and the learner’s. The tutor’s task is to shape his or her public knowledge in a way that allows it to mesh with what the tutor has identified as the learner’s alternative, insufficient concepts” (Brown & Knight 1994, 112).

Boud suggests that the teachers welcome students in an assessment discourse “around the theme of informing judgment: that is, informing the capacity to evaluate evidence, appraise situations and circumstances astutely, to draw sound conclusions and act in accordance with this analysis” (Boud 2007, 19). On the one hand then, students need to “internalize the discipline’s standards

and notions of quality” (Gibbs 1999, 47), and on the other, to be capable to identify whether their work complies with them.

Assessment as a practice cannot stay outside the general principles of education. As much as students need to be actively involved in creating an understanding about their subject, they also need to be actively engaged in the processes of evaluating that understanding. The process of looking back at what has been learned, and evaluating it based on criteria is a reflective process. However, as Brew points out, although self-assessment involves reflection, “not all reflection leads to self-assessment” (Brew 1999, 160).

Learning is the subject of assessment, but the process of assessment should not be detached from the students’ learning process, and should be integrated in it. The assessment process should cultivate in students the ability to learn to detach themselves from their learning, and reflect more and more effectively. Harvey and Knight argue that “there should be evidence that students get useful feedback on their work through interaction with teaching staff and, perhaps, their peers – in other words, assessment should give rise to dialogue” (Harvey & Knight 1996, 145).

In this dialogue, whether in a formative or summative assessment, students should understand the quality standards of their discipline, and learn how to critique work, either their own or that of others. Except for the creation and maintenance of a learning environment appropriate for group discussion based on dialogue, the types of questions are essential part of the facilitation, which is a subject investigated in the next chapter.

Conclusion

The students’ perception of the teacher-student relationship may have been influenced from their previous educational experience where teacher-centred approaches in teaching resulted in passive stance and fear of exposure in the learning process. The creation of a safe environment where students see the teacher as a partner in their academic endeavours could establish a new relationship in which the role of a facilitator is one which channels the power of

participation, and allows all the space that is needed for personal engagement through social interaction.

For most students this is an experience of a new relationship, accompanied by a new learning contract. The learning objectives should be clearly explained in advance as to how they relate with the practice of the studied subject, as well as how dialogue, as a means itself, along with its structure and techniques are appropriate for meeting these objectives.

The agenda and purpose of a discussion or activity should also be clear for everyone. The purpose of being aware of their pedagogy is to keep them motivated and eager to explore with their teachers and their course-mates, and be able to influence it. Active engagement of teachers and students together in dialogic critical enquiry can set an example of constructing knowledge and personal understanding. Transparency is then essential in order for students to be aware of the process as much as possible, and be able to adapt it in their own way of practicing the subject.

Clarity should also be the characteristic of feedback where reasons are explicitly given for both inadequacies and competencies. Feedback and assessment should not be detached from the learning process, and students should be given chances to actively be part of the evaluation process, so they acquire a better understanding of the assessment criteria, develop self-assessment skills, learn to reflect, and be critical of one's work.

Enquiry should not only be dialogic, but also experiential, where students are directly involved with their subject, acquire first hand knowledge and create a deeper understanding. The language in these discussions must be as clear as possible, so understanding is not obstructed by obscure and abstract terms and expressions. The main criteria by which students' understanding should be assessed is acquisition and assimilation, that is, what they have learned, and how they have made it their own.

Facilitating dialogue is a demanding task for any teacher. Power dynamics and social rules of dominance have to be taken into consideration, so participation is coordinated, and energy deriving from the competitive attitude is channeled towards collective action. The aim should be a pedagogical condition of a dialectical relationship between knowledge, culture and socialization.

Architectural education should be a context that provides the opportunity for students to practice social interaction as part of their learning experience; a community of enquiry that enables students to be active participants in a diverse and democratic society. The understanding of a dialogic enquiry conduct should be the outcome of a practice within an academic context, that creates an example which can be adapted on social, professional, or private settings, and prepares for the participation in rational and civilized conversation.

The next chapter, except for exploring different typologies of questions, as well as alternatives to questions, as an essential tool for the conduct of dialogic enquiry in general, it also investigates typologies of questions and comments used in the context of design review that form feedback typologies.

Chapter 5

Question Typologies

and Feedback Typologies in Design Reviews

5.1 Introduction

The previous Chapter suggested the conduct of dialogic enquiry in design reviews as an appropriate means to provide feedback and assessment, and a practice that is relevant to designing and presenting architectural schemes in professional contexts. The explored aspects, methods and techniques of dialogue and enquiry facilitation can contribute in making students part of this process, and assist them in understanding it and making it part of themselves.

This Chapter focuses on the aspect of enquiry, and the practice of questioning, and investigates types and typologies of questions as means that can address an agenda, and guide a dialogue toward its purpose. Finally, the emphasis is drawn on the design review and the types of comments and questions used as the medium to express oral feedback.

The Socratic tradition has influenced the practice of questioning, not only as a way to express an opinion, but also as the means to seek the essence of things along with others (Fisher 1998). Morgan and Saxton sum up in six points the levels of involvement for students, which teachers should aim at when facilitating a dialogue and practicing questioning (Morgan & Saxton 1991, 19):

- Interest: being curious about what is presented
- Engaging: wanting to be, and being involved in the task
- Committing: develop a sense of responsibility towards the task
- Internalizing: merging objective concepts (the task or what is to be learned) with subjective experience (what is already owned) resulting in understanding and therefore ownership of new ideas
- Interpreting: wanting and needing to communicate that understanding to others
- Evaluating: wanting and being willing to put that understanding to the test

Fisher identifies seven key elements of thinking, which can also be seen as a guide for a dialogue and the questions that can assist in its conduct (Fisher 1998, 128-129). Also, they can be seen as the learning outcomes of dialogic enquiry regarding intellectual development. Although they appear to be as part of a process, the first two are of principal importance and prerequisites for the development of the other five. They are:

- Questioning: asking good questions to provide a focus for enquiry
- Reasoning: requesting reasons or evidence to support argument and judgments
- Defining: clarifying concepts through making connections, distinctions and comparisons
- Speculating: generating ideas and alternative viewpoints through imaginative thinking
- Testing for truth: gathering information, judging evidence, examples and counter examples
- Expanding on ideas: sustaining and extending lines of thought and argument
- Summarizing: abstracting key points or general rules from a number of ideas or instances

Emotional development is equally significant to intellectual development (Unit 3.2, p. 53), and so questioning should focus both on feeling and thinking. It must operate constructively in two ways: in relation to previous questions, as part of the dialogue structure, and in relation to the students' previous knowledge and personal experiences, so they are stimulated to create intellectual and emotional connections, and find meaning in their learning (Moon 2004, 155).

When questioning becomes inaccessible to students, facilitators can resort to statements, providing they are presented as a refutable argument as part of the discussion, and to stories, either as real-life examples or metaphors to less tangible subjects.

5.2 Question Typologies for Dialogic Enquiry and Other Alternatives

The construction of meaning and understanding in a learning environment established on dialogue is a collective process, which “is dependent upon the students’ skills in asking productive questions” (Morgan & Saxton 1991, 6). In order for this objective to be met, Morgan and Saxton believe that the method by which teachers should assist students in the task of composing meaning and understanding for themselves and with others is questioning, as this becomes the example for students to follow and practice.

Teachers must then be clear and straightforward in their questions (Woods et al. 2004, 51), as well as explaining to the students how the process they choose to follow helps them towards constructing meaning and learning. The facilitation of dialogic enquiry with the use of questions can only be effective when the questioning is “presented in such a way that it ‘connects’ with the students at both an intellectual and feeling level” (Morgan & Saxton 1991, 6). Thinking and feeling are once more seen as inseparable ingredients in the students’ doing and making, and factors that need to be active in their learning altogether (2.5.2 p.46).

5.2.1 Socratic Enquiry

The technique of probing through questions itself aims at inciting more the act of doing and making. It “is designed to help students to think out answers more thoroughly, to encourage quantity and quality of participation, to require students to be more accurate and specific” (Morgan & Saxton 1991, 92). The characteristics of such process resemble those of the Socratic method, which is a useful tool for helping a student understand something specific, and more helpful when ignorance is standing on the way of explaining something new.

In the first case, when “a teacher attempts, by question and answer, to teach a pupil some fact, p , deducing it from answers that the pupil gives to the teacher’s questions” (Woods et al. 2004, 53-54), they are both engaged in an instruction argument. “In an examination argument two parties seek to determine what follows logically from propositions they jointly hold, or from some proposition

they are interested in scrutinizing” (Woods et al. 2004, 53-54). Both types of arguments directly derive from the Socratic method of enquiry, and could be used in a discussion with more than two students, where all inputs contribute towards an understanding for each participant individually.

In the second case, ignorance may appear as an obstacle to the two occasions described above, to which the teacher could respond by assuming a more leading role in order to remove that ignorance. The Socratic method of questions and answers could continue, but by eliciting “a new understanding that will ultimately defeat the respondent’s ignorance” (Woods et al. 2004, 53-57). Deduction can then be based on eliciting knowledge from real life examples or similes, which share principles relevant or identical to the discussed subject. In essence, the process remains the same, but the way the ingredients used to construct the arguments, and ultimately understanding are sourced differently. The formulation of new questions and examples should then be more effective in order to overcome ignorance.

Except for overcoming ignorance, the nature of this method, of questions open for both/all sides as well as gentle elicitation is noted by Brockbank and McGill. They say, “Socratic questioning is a powerful way of highlighting errors without pointing them out, and open questioning allows for creativity and innovation” (Brockbank & McGill 1998, 161). For Fisher the aim of the method is the pursuit of truth, and the understanding of the method itself as the way to pursue truth. In his opinion, a sequence of questions in Socratic enquiry is the means to seek, and not to tell the truth (Fisher 1998, 146).

He claims that there aren’t any questions that are clearly termed as Socratic, but in the list below he thematically categorizes questions “that are open, Socratic, and act as invitations to better thinking” (Fisher 1998, 154-155). The sequence of the general titles is not necessarily following a standard sequence found in a Socratic dialogue, but reflect different types used in it.

1) Questions that seek clarification

Can you explain that?

Explaining

What do you mean by...?	Defining
Can you give me an example of...?	Giving Examples
How does that help...?	Supporting
Does anyone have a question to ask?	Enquiring

2) Questions that probe reasons and evidence

Why do you think that...?	Forming an argument
How do we know that...?	Assumptions
What are your reasons...?	Reasons
Do you have evidence...?	Evidence
Can you give me an example/ counter example?	Counter examples

3) Questions that explore alternative views

Can you put it in another way...?	Restating a view
Is there another point of view...?	Speculation
What if someone were to suggest that...?	Alternative Views
What would someone who disagreed with you say...?	Counter argument
What is the difference between those views/ideas...?	Distinctions

4) Questions that test implications and consequences

What follows (or can work out from) what you say...?	Implications
Does it agree with what was said earlier...?	Consistency
What would be the consequences of that...?	Consequences
Is there a general rule for that...?	Generalizing rules
How would you test to see if it was true...?	Testing the truth

5) Questions about the question/discussion

Do you have a question about that?	Questioning
What kind of question is it?	Analyzing
How does what said/the question helps us?	Connecting
Where have we got to/who can summarize so far...?	Summarizing
Are we any closer to answering the question/problem...?	Coming to conclusions

Woods et al appear certain that dialectic today is “a benign form of argument and a true friend of reason” (Woods et al. 2004, 58). As a direct descendant of the Socratic dialectic, “its procedures are designed to promote objectivity and fairness, and its structure allows for a range of outcomes or results that enhance our capacity, however modestly, to get at the truth of things” (Woods et al. 2004, 58). Furthermore, they argue, it “is valuable because it provides an extremely practical model for real-life reasoning” (Woods et al. 2004, 68).

The relevance of the Socratic dialectic inheritance in contemporary education is evident in the practice of questioning today. The types of questions in most educational activities are broadly divided to processes of higher or lower cognition. The latter ones involve “base knowledge, comprehension, and recall, compare to those involving loftier matters of analysis, inference, speculation, synthesis and the like” (Dillon 1990, 12). Dialogic enquiry then, Dillon argues, finds a place at the higher tiers of cognition, whereas recitation is cast into the lower ones (Dillon 1990, 12).

The cultivation of high order thinking as well as memory have a value of their own, and serve different purposes that are important in education. Questioning can be practiced in ways that assists in developing both.

5.2.2 Practicing Questioning

In a dialogue where questioning is practiced, there is a fundamental principle that all sides must understand and keep in mind at all times: there aren't necessarily any right or wrong opinions. Everyone needs to understand that each side may represent a different point of view, and in this sense there could only be agreement or disagreement with these views. Any words with a meaning that abides to the 'right/wrong' dichotomy must be avoided, and teachers and students must conduct their dialogue through reasoned arguments as the determinants for what to agree or disagree on.

The use of words that relate to the 'agree/disagree' mode of responding to arguments must then be the basis for a discussion (Dillon 1990, 13), and not dogmatic replies that could impede the flow of participation and productivity.

This is not an easy task for teachers, because, as it has been mentioned before, the previous educational experiences of students may have not prepared them for such modes of action and attitudes (Chapter 4 'Conclusion', p.92). Especially in the early stages in tertiary education, they would often ask whether their course of action or a decision is right or wrong. The engagement into a dialogue with "deliberately non-directive responses" (Moon 2004, 173) is not always welcomed with comfort, as students may express their discontent about the answers they are given, and were not used to receive.

Among the parameters that affect the facilitation of a discussion, as well as the learning objectives that are promoted by this practice, questioning, as the means to promote these objectives is an aspect of equal significance. The success in the engagement and the productivity of a discussion based on questions relies on the selection of the appropriate types, depending on the activities around which the discussion is constructed, and the way the questions are expressed.

Before anything else, as Freire firmly believes, "dialogue, as a process of learning and knowing, presupposes curiosity. It implies curiosity" (Freire & Donald 1995, 282). He does not just mention the necessity to stimulate students' curiosity, but also the obligation of the teacher's attitude to convey an "epistemological curiosity" (Freire & Donald 1995, 283). Morgan and Saxton, on a list of general characteristics of a good question, begin by stressing the need for "an expressive demonstration of a genuine curiosity; behind every question there must be the intention to know" (Morgan & Saxton 1991, 78-79).

The list continues with the following suggestions:

- the words are ordered in such a way that the thinking is clarified both for the students and the teacher
- the intent must be supported by intonation and non-verbal signals
- provide surprise
- challenge existing thinking and encourages reflection

- the question is seen as part of an ongoing dialogue which involves relationships between speakers

The list is based upon the axis of general principles for facilitating dialogue-stimulated reflection. Active participation and productivity, which can lead to understanding, is motivated and promoted by enthusiasm, clarity in communication, an attitude of inquisitiveness, and a sense partnership in learning. Questioning should not deviate from that core, which has to be embodied in its practice.

Except for the aspects that contribute towards a good question, Morgan and Saxton propose a series of actions that should be avoided after a student's answer. All these responses have a negative effect on participation and towards emancipation, since they do not follow the principles mentioned above, and promote teacher-centered facilitation. In addition, the very practice of questioning can be compromised and result in passiveness and indifference.

Below is listed a number of ways of responding to answers that should be avoided (Morgan & Saxton 1991, 97-102). Although it is not an easy task, teachers must strive to eliminate them from their teaching and facilitating as much as possible.

1. Manipulating responses by non-verbal signals
 - facial expressions
 - gestures
 - non-verbal utterances
2. Verbal responses which are detrimental to learning
 - sarcasm
 - vague and ambiguous statements
 - leaping to your conclusions
3. Reacting to every contribution
4. Reinforcing prejudices
5. Answering your own questions

6. Asking another question before the students have had time to contribute their answers
7. Collecting answers until you get the one you want
8. Hearing only what you want to hear
9. Insincere praise
10. Asking questions too soon
11. Asking questions when students are too tired to think

The general principles in practicing questioning should be harmonized with the general educational principles and objectives in teaching and learning. It is a tool constructed to instill and nurture the intellectual and creative skills, which are essential in the education of any subject. The general types of questions that relate to these general learning objectives may have been given different names, but their meaning as ways that develop knowledge and understanding is similar or the same.

5.2.3 General Typologies

Fisher recognizes four types of questions, which in terms of learning objectives are approached very broadly (Fisher 1998, 163). For him, there are Conceptual questions which are about meanings of words and ideas, Empirical questions, which are about evidence and matters of fact, Logical questions which are about reasoning and what follows from that, and Evaluative questions which are about judgment of what is and should be.

Morgan and Saxton, on the other hand, are more explicit in their typology organization, as they identify six general types of questions, which are based on an exploratory process facilitated by the teacher (Morgan & Saxton 1991, 12-15). The process, and therefore the typologies, responds to the need for cultivating a certain mode of approaching a subject, as well as certain intellectual aptitudes. The order each typology is presented does not reflect a specific order one should follow, and should not be seen as stages of a standardized procedure. They can be used according to the needs of the discussion.

The first type relates to Remembering, with questions that draw upon knowledge and stimulate memory, the second one tests comprehension, a type about Understanding, the third one has to do with Solving, and involves questions which require application, the fourth one encourages analysis, which aims at activating the Reasoning faculty, the fifth one invites synthesis in order to develop Creating skills, and finally, the sixth type intends to foster Judging with questions which promote evaluation.

Reasoning and Judging from the second set of typologies overlaps with Fisher's Logical and Evaluative typologies respectively. The remaining two, Conceptual and Empirical, could be seen as part of the much broader typology of Understanding, as they relate to comprehension of meanings and the facts behind them. Similarly, Solving and Creating are actions that contribute towards Understanding and require Reasoning, but either Solving or Creating could not be a fixed part of such general typologies.

Moreover, both Fisher's and Morgan and Saxton's systems have isolated Judging/Evaluating from Logical/Reasoning. Critical thinking as an intellectual action cannot be differentiated from reflection (Harvey & Knight 1996,161). The typologies are separated here so they address different modes of thinking. Remembering is then an independent typology, since it relates to memory, but its stimulation is important for the overall process.

In all cases, the reason for division and isolation is that students need to reach an understanding of each different mode of a thinking process. By dividing and isolating them, they can then learn the purpose each one serves, and use them depending on the needs of a task/discussion. Ultimately, students should be able to decide on how to adapt each mode on a thinking process that is generally relevant to themselves, and occasionally to specific tasks or discussions which they may be part of.

5.2.4 Specific Typologies

Certain question typologies have the flexibility to be used in the facilitation of a discussion as part of any general typology, which relates to a specific mode of

thinking, or part of a discussion structure, should there be one. Some of the typologies may be expressed with the use of other typologies defined below, and therefore there may be an overlap. Categorization, mapping, and demonstration of interrelationships of these typologies are not in the intention of this research, so the objective of this Section is the presentation of the predominant typologies used in practice.

First of all, there are three typologies that relate to a generic structure of a discussion. The first one, the opening question, has to do with the teacher's capacity to sense and understand the group's mood and assist it in beginning the session. At certain points of the session the students can be asked to reflect on the process up to that point, and start considering the following steps in relation to what has been achieved. These series of questions are called process or development questions. The last typology is the synopsis question, where students are asked to summarize what they have learned, perhaps up to a certain point, and not necessarily only at the end of a session (Morgan & Saxton 1991, 66-67).

In a discussion, when the teacher "does not have one particular answer in mind" (Morgan & Saxton 1991, 63) or appears not to "have a view on the point in question" (Fiengo 2007, 58) and invites students to explore many possible answers and express themselves in different ways, then the question is an Open one. An Open question allows for opinions, other than the one of the teacher, to be voiced and used as points on which everyone can reflect and consider further development and perhaps composition of these points. It is a type of question that promotes dialogue and a democratic process in a discussion.

In a Closed question the answer is predetermined, and therefore it can be used to draw a piece of information the discussion may need that is part of a more established knowledge or a common practice. It is obvious though, from what has been mentioned in this chapter for far, that the use of this kind of question from a teacher as a means to express a personal opinion, could be understood as a 'right' answer, and thus prevent further examination from the

students. A comparable typology is a Leading question “in which the question tells, strongly implies or prompts the answer that is been sought” (Morgan & Saxton 1991, 67).

It is essential then, that when teachers express an opinion, they must stress to the students that is their personal one, and present it as part of the discussion and a point on which to reflect, and not accept without questioning it (Morgan & Saxton 1991, 70).

A type of question that does not imply an answer, but gives students the chance to choose between specific alternatives is a Branching question (Morgan & Saxton 1991, 64), whereas the “Double-Barreled question is one where a bias (generally subconscious) intrudes on the question (Do you prefer a story that is short and well written or one that is long and frivolous?)” (Morgan & Saxton 1991, 68).

A Divergent question “is one which invites many different responses from a large number of students and encourages both concrete and abstract thinking” (Morgan & Saxton 1991, 65). Morgan and Saxton believe, “the more opportunities the teacher gives the students to think about the same think in different ways, and different things in the same way, the more agile their minds will become” (Morgan & Saxton 1991, 11). In addition, Fisher argues that “widening the range of response so that one opens up more potential paths of exploration is the heart of creative thinking and living” (Fisher 1998, 137).

When students express an opinion, a Confirmation question can be used in order for them to clarify or rephrase. The teacher has then the opportunity to probe for error, evaluate the evidence and establish things more firmly (Fiengo 2007, 54). A type that could follow a Confirmation question is a Confrontation question “or a ‘tough’ question, which attempts to eliminate inconsistency and challenges the validity of what has been said or done” (Morgan & Saxton 1991, 64). An opinion can be confronted in many ways, but it is important that is not presented as a threat or in a way that degrades it.

An Overt question could be seen as such, as it is a direct one and “it generally produces short answers” (Morgan & Saxton 1991, 63). A Covert question, on the other hand, “is indirect and invites elaboration; it often masquerades as a statement (How might one describe that experience?)” (Morgan & Saxton 1991, 63). Except for thinking, both types intend for responses that provoke feeling. A type of question with the same intention is a Reflective question, “which clearly signals that an immediate answer is not required” (Morgan & Saxton 1991, 66), and a Rhetorical question is simply “designed to affect the emotions and does not expect an answer” (Morgan & Saxton 1991, 66).

Emotions can be badly affected by ‘why’ questions, when used inappropriately. Intrusion to personal life or criticism that isn’t constructive and merely demonstrates disapproval and dissatisfaction could be harmful to student’s confidence (Morgan & Saxton 1991, 69). An attitude and behaviour that conveys partnership, and an honest display of care for the student’s learning can change this type of question “from a perceived personal interrogation of the respondent to being seen as a genuine need to know on the part of the questioner” (Morgan & Saxton 1991, 69).

Finally, a type of question that especially depends on the way it is expressed is the tag questions. Falling or rising of the intonation at the end of such questions is essential in their utterance. “One may say, it’s hot, isn’t it? [...] If it is falling the speaker presents herself as confident that the question whether it is hot is settled, if rising not confident that the question is settled” (Fiengo 2007, 70).

Questions can be a powerful tool for learning. The placement of a question mark at the end of a phrase can invite to dialogue by expressing a sincere interest in knowledge. With the appropriate intonation and attitude, part of the question mark’s power is that it removes certainty, compared to a statement from a teacher that may appear as rigid, and thus questions offer the opportunity for a discussion. There are of course other ways that can also contribute to dialogue facilitation.

5.2.5 Questions' Alternatives

Dillon proposes four alternatives that could replace questions should the course of a dialogue require it, and be part of the inventory from which teachers can chose in order to facilitate dilogue (Dillon 1990, 179-181). The first alternative is 'statements', which "work extremely well, providing that students understand that a statement is offered as an invitation for discussion and not as something which cannot be disputed" (Morgan & Saxton 1991, 70). There are six types of statements:

1. Declarative statement
State the (pre-question thought that occurs to you as a result of what the speaker has just been saying.
2. Reflective statement
State your understanding of what the speaker has just said
 - a. repeat it
 - b. summarize or characterize it
3. Statement of mind
Describe in truth your state of mind, and none other, in relation to what the speaker has just been saying.
4. Statement of interest
State whatever it is that you are interested in hearing further about what the speaker has just being saying.
5. Speaker referral
State the relation between what the speaker has just said and what a previous speaker has said.
6. Practitioner rendition
Give an account of your own status (knowledge, experience, feeling) regarding the matter at hand.

Dillon calls the second alternative 'speaker's questions', where the facilitator aims at eliciting questions form the discussion participants. He suggests three ways to achieve that:

7. Speaker's question

Provide that the speaker formulates a question about what he is struggling to think to say.

8. Group question

Provide that another participant pose a question about the speaker's contribution or the matter under discussion.

9. Discussion question

Provide that participants formulate the question that now appears at issue in the discussion.

The third alternative is 'signals'. The facilitator may use certain gestures or discreet exclamations that intend to maintain the flow of the dialogue. There are three techniques that can be used for this purpose:

10. Phatics

Uttering a brief phrase, quietly exclaim feeling in reaction to what the speaker has just finished saying.

11. Fillers

Emitting some word or sound, indicate alternative interest in what the speaker has said or is in progress of saying

12. Pass

By gesture or statement, pass the next turn at talk to the/another speaker.

The last suggested alternative is 'silence'. Dillon talks about maintaining a 'deliberate appreciative silence' for a few seconds that allows a speaker to resume or for someone else to enter the discussion. When silence is not deliberate and begins to obstruct the flow of the dialogue, the facilitator needs to return either to questioning or a different method, some of which could be from the ones mentioned above.

One more method the facilitator could resort to, when facing silence or general confusion and lack of understanding regarding the discussed subject, is story telling. It is a technique that comes from antiquity, and has the potential of

creating powerful metaphors, which can enliven attention and restore participation. Fisher believes,

“The power of stories resides in the ability to create possible worlds as objects of intellectual inquiry. Stories liberate from the here-and-now, they are intellectual constructions but they are also life-like. They are intellectually challenging, but also embedded in human concerns. Stories provide a means to understand the world and to understand ourselves” (Fisher 1998, 96).

Stories can provide a context that could arouse imagination and incite critical thinking. Except for its practical use of clarifying a perhaps more elusive meaning, it can inspire for different ways of expressing an idea, and generally provoke creativity.

When facilitators practice questioning, they should always keep in mind the relevance of their questions in relation to the replies they receive, and the aim(s) of the discussion. They should try not deviating from the theme themselves, as well as preventing students of doing the same. Therefore, the sequence of the questions and replies, together with the alternatives, “should exhibit a constructive relevance” (Walton 1998, 237).

Above all, when facilitators practice questioning should consider thinking as “an unfinished project [...] and provide a stimulus and direction for critical thinking [...] move us forward toward continual, ongoing search for better opinions, decisions, or judgments” (Browne & Keely 2007, 2). As Postman and Weingartner argue, “the ability to identify and ask questions is the best measure of the quality of someone’s education” (Cowan 1998, 157).

Both questions and their alternatives intertwine in a conversation in order to keep it constructive, and interaction from all parts alive. For a facilitator, the choice for a question or an alternative is itself an interaction to a student’s reply or to the course of a discussion. These choices are then challenging for facilitators, as they require constant attention on the students and the

conversation itself. Providing conversation is the main form of teaching and assessing in a design review, the types of questions or other alternatives critics decide to choose in such a context, become vital for an effective conduct.

5.3 Typologies of Questions and Feedback in Design Reviews

Literature, on the way teachers express their views and give feedback orally as genres in design reviews is scarce. The paper *Critiquing Critiques: A Genre Analysis of Feedback Across Novice to Expert Design Studios* by Deanna P. Dannels and Kelly Norris Martin, published in the *Journal of Business and Technical Communication* (2008), provides one of the few insights in this field.

Their research was conducted at an American University across four Schools of Design, and from each School a different level of studio was selected with to aim to recognize the frequencies of these types of feedback across novice to expert studios. They chose one freshman studio from Industrial Design, a junior and a senior studio from Graphic Design, one senior studio from Landscape Architecture, and one graduate studio from Art & Design.

Schools of Architecture and Schools of Design share this aspect of having the design review as an integral part of their pedagogy. Regardless of their differences in the subject of study, 'design' as a process and as a result of it, binds them all together, and is the subject that is under scrutiny in design reviews. The way to criticize, and therefore offer feedback, follows the same principles.

Dannels and Martin have identified a feedback typology of nine types that relate to critics' responses on specific and general design aspects. The types provide a detailed view on feedback, and critic's ways of expressing opinions.

The 9 types Dannels and Martin identified, as well as their frequencies are: **Judgment** (25.4%), where critics interpret, evaluative and assess a design in the form of statements, **Process Oriented** (20.8%), where statements or questions relate to the design process, as a process of creation and decision making, **Brainstorming** (18.3%), where critics expressed in the form of

statements or questions their views on potential aspects that the student could consider, **Interpretation** (12.4%), where critics react to a design and try to make sense of it with a statement or question, **Direct Recommendation** (9%), where critics give specific advice about a design aspect, **Investigation** (5.1%), where critics request more information regarding the design or the design process in the form of questions, **Free Association** (3.7%), where critics immediately reacted to a design by associating it to an example known to them, **Comparison** (2.8%), which is similar to *Free Association*, but the reaction is more intentional and strategic than spontaneous, and finally, **Identity Invoking** (2.5%), where critics, in the form of statements or questions, invited student to consider themselves as designers in the wider context of the profession.

Looking closely onto these types, *Judgement*, *Interpretation*, *Direct Recommendation*, and *Free Association* are clearly teacher-centred comments, since critics express directly their own opinion to the students. The frequencies of all these types add up to 50.5% of the total comments. In addition, except for *Investigation*, which is a type that invites students in conversation through questioning only, the remaining four types, which all together add up to 43.4%, do not have a specific identity, and could be expressed as a comment that is teacher-centred or student-centred.

It is safe then to infer that teacher-centred comments dominate the results of the investigation in the design Schools, and is one more piece of evidence regarding the character of feedback in design reviews being more evaluative and instructive, as Salama has suggested (Salama 2015, 79).

Dannels and Martin's research also offer a better understanding with regard to the nature of feedback as it appears in different years, from novice to graduates. The three types, *Judgement*, *Recommendation* and *Free Association*, which, as mentioned, are teacher-centred comments, dominated the freshman studio with 56.1%, 22% and 12.2% respectively. The types of *Process Oriented* and *Brainstorming*, which have the potential for a more dialogic approach, and the type of *Investigation*, which is clearly dialogic, did not occur in this studio at all.

On the contrary, in the graduate studio, *Process Oriented* and *Brainstorming* types were more frequent at 37% and 27.2% respectively, compare to *Judgement*, *Recommendation* and *Free Association*, which did occur, but at the low percentages of 14.8%, 9.9% and 3.7% respectively.

With regard to this inverted image in the results of the novice and expert studios Dannels and Martin suggest,

“The ID (freshman) studio had the lowest frequency in brainstorming, investigative and interpretive feedback types compared to the other three studios, suggesting that the critics assumed less creative and exploratory roles with novice students. With more expert students, critic’s roles seemed to become more collaborative, exploratory, and creative as they helped students gain autonomy as a designer. Conversely, critic’s roles seemed to become more directive in the freshman ID studio. Thus, in the novice studio, critic’s roles where more about directing students and their designs unequivocally whereas in upper division studios, their roles were more exploratory.” (Dannels & Martin 2008, 151)

Their findings suggests a more dialogic teaching approach for critics in graduate years, and an overall condition that looked like a discussion between colleagues that explore a design scheme together, compared to a more instructive attitude in novice years. On that matter, Dannels and Martin refer to the importance of learning through feedback as a pedagogical tool and as an example itself for students to learn “to speak, listen, respond, and interact within social settings that affect civic life” (Dannels & Martin 2008, 156).

Their research managed to relate and connect notions to types of oral feedback, which, on the one hand propose a way to understand these actions needed for designing, and on the other, demonstrate a way to orally manifest these features in a professional or public context. Being directive, reactive and reflective, creative, exploratory and evaluative, needs to be developed as attributes essential for the process of designing, as well as attributes expressed in a professional setting.

5.4 Conclusion

The practice of questioning is a vital part in a dialogue that can contribute to its conduct, and guide it to its purpose. The process of examination should include both teachers and students, where they reason and enquire together in order to analyze, create connections and come to conclusions.

The Socratic approach in questioning though, does not necessarily focus on reaching a conclusion at the end of a discussion. The method itself is a way to explore and understand a subject, and a process predicated on active participation and contributions from all interlocutors. It is an example of reasoning that extends beyond the realm of education, and can be part of everyday life.

Before deciding on appropriate question typologies that benefit the course of a dialogue, asking questions is above all an attitude that needs to be conveyed to students. In a spirit of collaboration, and being curious is as essential as asking questions that incite thinking and reflection, and stimulate new ways in seeing and approaching a topic. Certain verbal and non-verbal signals can weaken or even extinguish a positive atmosphere that holds a conversation together. An attitude that manipulates the dialogue and the students' replies may compromise participation and be detrimental to autonomous learning.

As means to guide a dialogue, question typologies, when seen broadly, have an overarching concept that is a mode of thinking they aim to cultivate. Broad division of typologies can assist students in understanding the purpose and value of each mode of thinking individually, and teachers in understanding the modes of thinking students need more development in. Specific typologies vary from questions that relate to the general structure of a dialogue, to questions that serve a dialogue in very particular occasions, and can change its course or maintain a flow.

When questions are not effective in keeping the dialogue alive, the facilitator may decide to express an opinion as a statement, providing it is only presented as an argument that is under the scrutiny of every participant, and that only

contributes to the discussed subject's examination and not solution or conclusion. Stories and real life examples are also a method a facilitator can resort to, should questions and statements don't appear to stir a stagnated discussion.

Typologies of comments in the feedback part of design reviews are a subject with limited amount of research. Dannels and Martin's contribution is an in depth analysis of feedback typologies and their frequencies across undergraduate and graduate years of Design Schools in the United States.

From the nine typologies they identified, the ones related to evaluation and recommendation are more predominant in early undergraduate years, whereas the ones that engage students in the process of feedback are more evident in graduate years. It seems that dialogue appears to be used as a medium in more developed students, and the element of instruction and evaluation dominates feedback in students' first design reviews.

With this Chapter the review of the literature is concluded. The next Chapter is a discussion of the literature review explored in all previous Chapters, and presents the aim, hypothesis, and objectives of this thesis.

Chapter 6

Discussion on the Review of the Literature, and Aim, Hypothesis and Objectives

6.1 Literature Review Discussion

The Socratic ideal of “the awakening of the mind to the need for criticism, to the uncertainty of the principles by which it supposed itself to be guided” (Anderson 1980, 69), is what lies at the heart of dialogic enquiry. It is an attitude that does not aim to disregard old knowledge, but understand it by filtering it through the self and the world, and then decide whether it is worth keeping and practicing, instead of blindly accepting it.

A great number of educators have supported this ideal, upon which tertiary education and academia is predicated today (3.1 pp.52-53; 3.2 pp.55-58). Except for the mind and the intellect though, feeling and emotional development is equally important towards growth of the self as a whole (3.2 p.53 & p.55; 2.5.2 pp.46-47).

The attitude of questioning, to approach the world critically, as well as with sensitivity should not just become a habit, but a way of life. Because of the cyclical nature of evaluation, and the certainty of the notion of change in the world, in the search for meaning, questions themselves should not be posed once only, but “repeatedly, and held in tension to one another” (Bucsescu & Eng 2009, 13). As Rogers claims, the essence of evaluation is meaning (Rogers 1979, 20).

Enquiry as a process itself is what defines education for Morgan and Saxton, where

“questions are the chief agents by which meanings are mediated whether they are used within discussion, to promote research, as summary or reflection, to focus the intelligence of the group, to generate a collective emotional perspective, to foster shared contexts and joint understandings,

to offer springboards to new knowledge, to invite student participation, to encourage talk, to present different ways of communicating, or as a means of handing over control and a device to initiate ownership” (Morgan & Saxton 1991, 51).

Many have argued that for most university students today, their previous educational experiences are grounded on a teacher-centred mode of approaching information, leaving them as passive receivers of information (3.1 pp.52-53). In their new learning environment, the university, the practice of teaching and the overall mentality can be conveyed in a way that helps them understand that students and teachers are in pursuit of meaning together (3.2 pp.55-58). After all, the word ‘university’ itself, historically derives from the old guild name ‘universitas magistrorum et scholarium’, which in Latin means, ‘the whole body of teachers and students’ (Cole 1950, 190).

‘Learning together’ in an environment of social participatory activities based on dialogue and active participation, and ‘learning by doing’ are ideas that have been investigated on how they aim for students to influence their own training and education. Such approaches prepare them more effectively for professional and social settings, and establish intellectual and emotional connections that would pave the way for the discovery of personal meaning in the content of the studied subject, and in the way it is approached, as adapted to their own aptitudes (4.2.4 pp.79-83).

There are certain educational and pedagogical aspects for dialogic enquiry facilitation found repeatedly in the literature, and endorsed by many practitioners and researchers, suggesting a common ground in theory and practice. The aspects are divided to primary and secondary, and all are summarized in Diagram 6.1, which depicts their interrelationship and interdependence.

Providing the search for meaning in new information is build upon previous knowledge with patience and persistence, which are both essential

prerequisites for learning (4.2.5 pp.83-86), facilitating dialogic enquiry should act as the agent that assists students in transforming information to knowledge, and ultimately, students themselves to transformative agents of new information (Harvey & Knight 1996, 58 &178). The review of the literature has identified four principal interrelated aspects to affect dialogic enquiry facilitation: Behaviour, Place, Process, and Attitude.

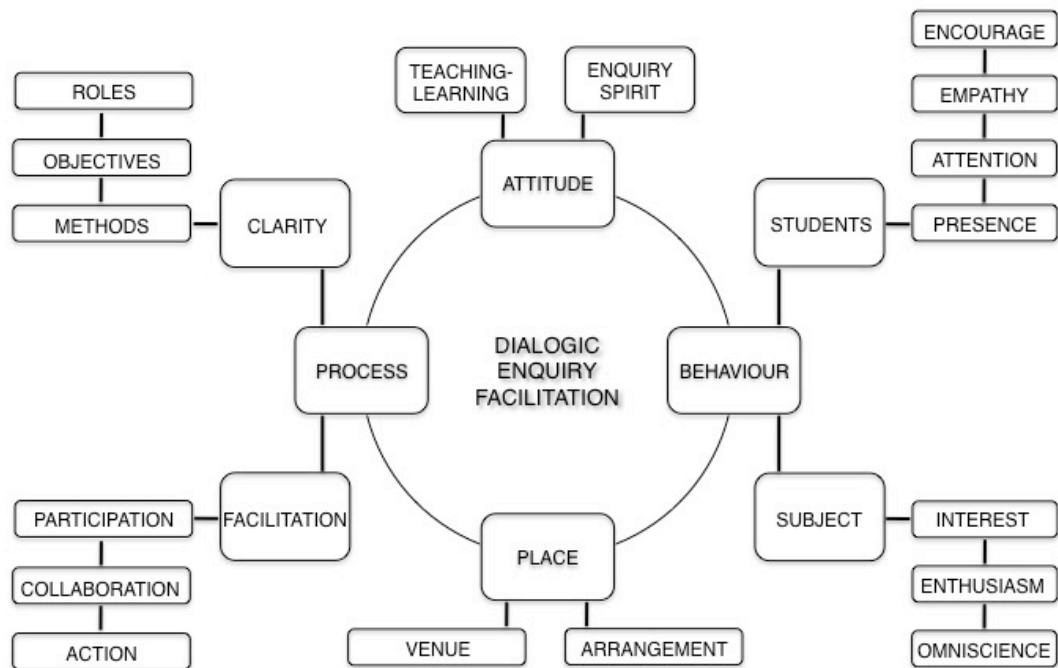


Diagram 6.1. Educational and pedagogical aspects for facilitating dialogic enquiry

Behaviour

It refers to the teacher's behaviour towards **Students** and towards the taught **Subject**. Firstly, students should receive as much **encouragement** as possible in their learning (4.2.1, p.65; 4.2.2 p.67; 4.2.2.3, p.72; 4.2.3 p.75; 4.2.4 p.79; 5.2.1 p.96). It aims to generate positive feelings, which should increase their confidence and the sense that they are supported. They should also receive the **attention** they ought to when they express their opinions (4.2.5 p.83; 5.2.5 p.107). Moreover, it also refers to the need of the teacher to notice whether the students' attention is on the discussion. Tiredness, lack of interest or motivation may have their reasons in the length of the session or perhaps in the teaching itself, which should suggest a different course of action.

Attention is then important in order to understand the students' condition and feelings during the discussion, and how they affect it, which in turn results in **empathy**, another crucial component in the behaviour of a caring pedagogue (3.2 p.53). The overall **presence** though, from the body language to the ways of expressing that care, should convey the message that learning is a process where the student searches for meaning together with the teacher, as mentioned above (2.2 p.29; 2.4 p.39; 4.3.5 p.83; 4.2.2 p.67; 4.2.3 p.75).

Secondly, the teacher's **interest** on the subject should be evident (4.2.2.1 p.70; 5.2.1 p.96; 5.2.4 p.103; 5.2.5 p.107), complemented by a certain level of **enthusiasm** (2.3 p.33; 4.2.2.1 p.70; 4.2.2 p.67; 5.2.2 p.99). Students seem to be stimulated and inspired by teachers that convey such behaviour towards the subject they teach. An appearance of having an absolute knowledge of the subject (**omniscience**), which may in turn be understood as unquestionable, is a behaviour that may create distance from the students, both to the teacher and the subject (2.3 p.33; 2.4 39; 4.2.2 p.67). To the teacher, because the presence of an all-knowing teacher as a figure of authority does not usually stimulate discussion, and students become passive. A similar stance, as a result of this attitude, is adopted towards the subject, since the way it is communicated does not usually provoke questions, because by definition they appear to be indisputable. Students would then seek understanding only on the way it was presented and the meaning it conveyed.

Although students expect and appreciate when their teachers know their subject well, appearing as absolute and an authoritative figure tends to discourage students from searching for personal meaning. It misleads them in adopting the meaning as presented, and the teacher's authoritative stance sets an example that detaches teaching from learning.

Place

The **Place** a learning situation is held has a significant effect on its experience, as Webster and Anthony have suggested (2.2 p.29). The **venue** is then important to be spacious enough for the number of the participants, and does not create opportunities for distractions. The furniture **arrangement** should

ideally not create a sense of hierarchy between teachers and students, because it is a feature that enhances power asymmetry, and creates a condition that hinders engagement in discussion. Instead, it should allow eye contact between everyone, and predispose participants that the dialogue is taking place among equals, and increase in this way the sense of an environment for collaboration.

Process

The **Process** of enquiring all together mainly relies on the teacher's facilitation, and the **Clarity** on certain issues set in advance for everyone. The participant's **roles** may differ from activity to activity, but they need to be made explicit together with the learning objectives (4.2.2 p.67). The knowledge of the **objectives**, their relationship and relevance to the 'real world' should act as motivation for the students (2.4 p.39; 4.2.2.1 p.70; 4.2.4 p.79; 4.2.5 p.83; 5.2.1 p. 96). Furthermore, knowing how the followed **methods** relate to the achievement of these objectives, enhances motivation, and makes students aware of the learning process, and conscious of their learning (2.3 p.33; 4.2.2.1 p.70).

Facilitation should aim at three targets: **participation** (2.2 p.29; 2.4 p.39; 4.2.2 p. 67; 4.2.2.1 p.70; 4.2.2.2 p.71; 4.2.3 p.75; 4.2.5 p.83; 5.2.1 p.96; 5.2.2 p.99), **collaboration** (2.3 p.33; 2.4 p.39; 4.2.2 p.67; 4.2.4 p.79; 4.3 p.87), and **action** (2.3 p.33; 4.2.3 p.75; 5.2.2 p.99). Students should be learning by doing together, through active and social participation that leads to experiential learning. The experience that stays with the students should be an example of how people can work together effectively, and have a sense of collective achievement, as well as a sense of self, since in that way they have the opportunity to cultivate individuality through collectivity and come to a better understanding of their learning on both levels.

Attitude

Finally, teachers learning together with their students should convey an **Attitude** that displays a **spirit of enquiry** (4.2.2.1 p.70; 5.2.2 p.99), and a sense of wonder and curiosity that should aim to keep the one of students' alive (Fisher 1998, 157). **Teaching and learning** cannot be separated, and ideally,

teaching itself should be an example of learning; the teacher should be an example of a student (2.3 p.33). The four main principles and their aspects depicted in diagram 6.1 should then be conveyed and transferred to the students as an example for learning together.

The interrelationship of the diagrams' four principles for teaching and learning could also be represented as a metaphor of a tower crane in a construction site. Part of the stability of a tower crane depends on the central counterweight ballast at the base (**Attitude**), and the counterweight ballast of the counter jib (**Behaviour**). The metaphor represents these two elements' state of equilibrium in relation to the workload and the way it is operated (**Process**). The preparation of the site to a condition suitable for working is essential, and an integral part of the construction process (**Place**).

The tower crane does not build by itself, but it merely facilitates the construction together with the workers. The diagram depicts the construction of foundations. This represents the educational and training process as a substructure construction, as literally building foundations within the studies' duration. "Constructing a knowledge base," as Biggs says, "is done not by the teacher as master-builder, but by the students using the materials supplied both by the teacher and by their experience" (Biggs 2003,78)

The understanding of the process, of learning how to learn, and adapting it to their capabilities should prepare students to develop the superstructure in ways they prefer, and become whatever they want.

During the process, and through the process, students should realize their studied subject in relation to themselves and the world, and understand their interrelationship, how one defines another, and how the notion of change is central in this perpetual dialogue. In order to create this understanding, learning to question and reason is vital in order to process and assess information. Defining and speculating, testing and expanding ideas, deconstruction and composition, and the ability to reflect back on the followed process, are fundamental tools for assessment and self-assessment.

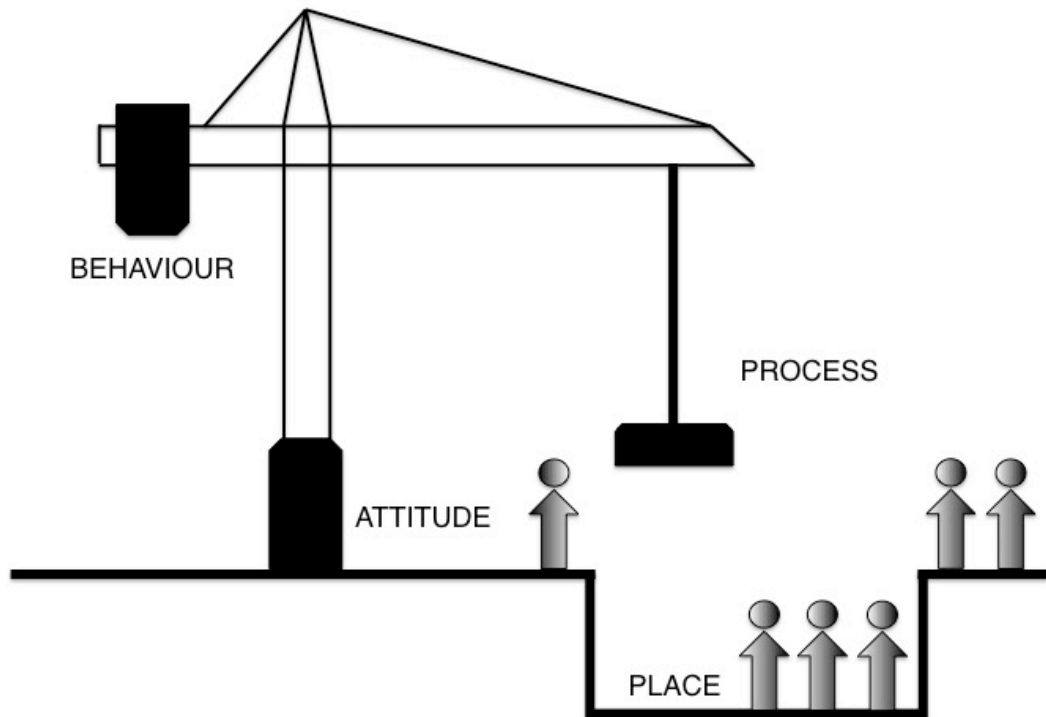


Diagram 6.2. The Tower Crane Metaphor. Part of the stability of a tower crane depends on the central counterweight ballast at the base (*Attitude*), and the counterweight ballast of the counter jib (*Behaviour*). The metaphor represents these two elements' state of equilibrium in relation to the workload and the way it is operated (*Process*). The preparation of the site to a condition suitable for working is essential, and an integral part of the construction process (*Place*).

The metaphor demonstrates the aim for understanding the notions of teaching and learning as one, where the student ultimately becomes the tower crane, and comes to an understanding of the self and the world, individuality and collectivity, autonomy and interdependence. It is “to learn what it means to be a self and socially constituted person giving meaning to the world, in order to act upon and change institutions, society and life” (Dutton 1991,166), or as Schön puts it, “a way of understanding themselves, shaping their relations with others, and living their lives” (Schön 1983, 284).

The aims for identity development, self-awareness and world-awareness, deriving from general education theory, are also integral parts of architectural pedagogy. All three educational aims influence the understanding of the design

process, design communication, and the way students perceive architecture. Developing these three aspects just mentioned, and cultivating the three educational aims are the principal learning objectives for the education and training of an architect. The three educational aims relate to the notion of education, which refers to the architect as a person, whereas the three aspects relate to training, which refers to the architect as a professional. Both education and training inform each other for the practice of architecture (2.3 p.33; 2.4 p.39; 2.5 p.43).

Engaging feeling and thinking in the learning process is essential for all three aspects, and consequently for understanding design (2.5.2 p.46). It is through the design process though that awareness of the self and the world, and identity development appears to occur more effectively. The principle of learning and understanding through doing and making, is seen to create process awareness, which in turn inculcates the capacity to facilitate the process itself. All aspects then interrelate, and reaching to their understanding depends on their constant interaction (2.5 p.43; 2.5.2 p.43). A process based on dialogic enquiry can become experiential in two ways: as a dialogue between teachers and students, and between students and their creations. The former aims to set an example on how to conduct the dialogue for the latter (2.4 p.39).

Architecture itself is part of a complex system of interrelations, where all parts are intertwined. The design team, during the design process, has to take into consideration contextual and programmatic parameters, and liaise with other disciplines that affect the result. It is clear that the process of creation is a multi-dimensional system of interdependence. Understanding this dialogic system and mastering its facilitation becomes the purpose in the training of an architect (2.5.3 p.47).

With regard to the education of the architect, except for the three aims mentioned before, many see the role of the architect as a cultivator, where deep understanding of cultural and social aspects of the human condition should inform the design process, and affect design proposals in order to produce new situations of life (2.3 p.33).

Assessment of the learning process should be based on two parameters: acquisition and accommodation, that is, what the students have learned, and how and whether they have made it their own respectively (4.3 p.87). The lack of training of many whom teach in schools of architecture, results in poor understanding of a great deal of the aspects mentioned in Diagram 6.1. Consequently, the predominant pattern appears to be a less effective practice of design reviews, which is the main form of feedback and assessment.

The most characteristic reasons that render the design review a learning experience with detrimental effects is tutors' behaviours and space arrangement that reinforce power asymmetry, as well as lack of clarity in the participants' roles and the purpose of the event. These reasons create an atmosphere that is not very comfortable for the students to be in, and amplifies an already existing intimidation and fear of exposure and failure (2.2 p.29).

Many educators and students endorse training for design review facilitation based on dialogue and enquiry in a participatory and collaborative environment, as this approach is seen most suitable for this learning condition. The overall experience should be a learning example that reflects the profession's needs for presenting and expressing views, both in a design group context or in client appointment situations (2.3 p.33; 2.4 p.39; 2.5 p.43).

6.2 Synthesis

Both aspects of general pedagogy theory and architectural pedagogy theory with regard to aim, objective, process, and approach in pedagogy and architectural pedagogy in general, have been further summarized in a more concise way in Table 6.1, which aims to compliment Diagrams 6.1 and 6.2. The table does not demonstrate a comparison or contrast between theory of pedagogy and architectural pedagogy theory, but places one next to the other to reveal how general pedagogical principles are interpreted in principles of architectural pedagogy.

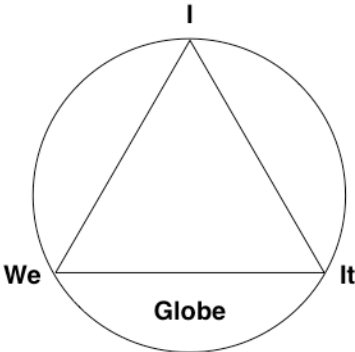
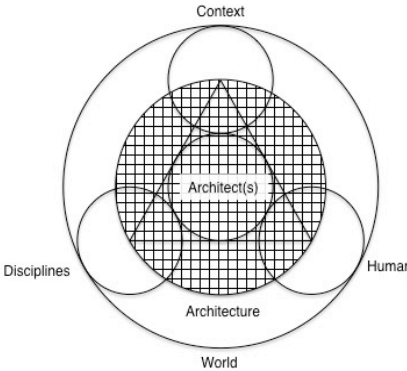
	General Pedagogy	Architectural Pedagogy
Aim	Personal Understanding in Education & Training	Personal Understanding in Architectural Education & Training
Objective		
Process	Reasoning Questioning Defining Speculating Testing Expanding Deconstructing Constructing Reflecting	Analysis Synthesis Evaluation Communication
	Assimilate in the Process - Assimilate the Process	
Approach	Social Participatory Experiential Activity Based on Dialogue & Enquiry	

Table 6.1. General Pedagogy and Architectural Pedagogy Aspects Composition

More specifically, personal understanding on the educational and training issues explored should be the aim of pedagogy, and on the respective issues for architectural pedagogy (**Aim**). In particular, these issues involve understanding interdependence of the studied subject (**It**) to the person studying (**I**), and everyone else (**We**), and how this network reflects the student's world perception (**Globe**). In a similar way, **architecture** as the studied subject is part of an interdependence between the **architect(s)** as the creator(s), the

immediate **context**, programmatic issues that relate to **human** needs and feelings, **disciplines** involved in the design process, and the wider context (**world**) in which all parameters belong (**Objective**).

The process to reach this understanding requires learning to practice certain aspects, and to follow an iterative and cyclical way adapted on the needs of the practitioner. All these aspects are necessary in the process of creation for architects, the parts of which have also a recurring and non-linear character.

The general pedagogical process aspects are then necessary tools for the general design process elements (**Process**). A fundamental pedagogical part of all this procedural condition is that assimilation and accommodation of all the aspects should occur through the process, which itself should also be understood and adapted to the aptitudes of the learner, as mentioned above.

The pedagogical approach can be common, and it appears to be suitable for architectural education and training (Chapters 2-5). Teachers and students in such approach, appear to be active participants in social and experiential learning situations based on dialogue and enquiry, in order to meet the subject's learning aims and objectives, understand the process of getting there, and the reasons that made the process appropriate and successful or not (**Approach**).

Aim

This research explores dialogic enquiry as a condition of teaching and assessment that promotes interaction in undergraduates' architectural design review, and can constitute it a social, participatory, and experiential activity. In order to understand this condition then, it is essential to understand oral feedback as means of conducting and facilitating a design review.

The thesis focuses on the nature of oral feedback, and more in particular on comment typologies, which is a subject with limited amount of research. Dannels and Martin's work, to the author's knowledge is the only piece of research in literature that has contributed in this particular aspect of design reviews across undergraduate to graduate students, and has identified nine

types of oral feedback in four different disciplines of design, but not architecture (Dannels & Martin 2008, 135-159). Considering their work as a more detailed study on feedback typologies, this research approached the same subject from a much broader perspective.

Hypothesis

In both learning and pedagogic process, knowledge assimilation and accommodation requires transition from the general to the specific and vice versa. The knowledge deriving from a narrow perspective then, needs to be accompanied by knowledge deriving from a broad perspective in order to be as complete as possible. This forms the hypothesis for this study.

Objectives

The first objective of the thesis is the recognition and classification of principal feedback typologies and their overarching concepts. This piece of knowledge reveals more about the identity of oral feedback in design reviews in general, and about the already identified nine types in particular.

For a more comprehensive understanding of the nature of oral feedback though, it is considered necessary to also identify factors and their characteristics that may influence the frequency of the principal feedback typologies, and therefore the overall process of feedback in design reviews. Therefore, the second objective is the identification of factors that relate to student presentation and scheme representation. These factors are the elements the critics respond to, and through their exploration would be derived why and how they affect the choice of principal typologies in feedback. These factors then, as part of the wider context of design reviews, become the constant in this research, and the typologies, the variable.

The third objective deviates from the aspect of oral feedback's nature, and addresses participation, which is an aspect of interaction. The quantification of students' and critics' participation duration, parameters that have not been investigated in literature, is a piece of data that is tangible, and provides a clear picture of the effects of oral feedback on interaction.

There is no indication in the literature in general, as to how much students are engaged in their feedback, in terms of duration after their presentation, as well as how much their peers in the audience are active participants in it. This piece of information is expected to address the condition of passive stance of students in design reviews that repeatedly appears on the literature, and provide quantified data that aims to offer an indication of the magnitude of this condition.

A new method for recording undergraduates' design reviews was designed in order to collect quantitative data. The method address the second and the third objective, since it produces coded transcripts from which data and results can demonstrate frequency of types, potential patterns, and how they can influence interaction in terms of duration. The recordings took place at the Welsh School of Architecture of Cardiff University.

The next Chapter presents an overview of the methodology, and the chosen procedure for collecting data, by describing methods and approaches, as well as the first results.

Part 2

Methods and Results

Methodology Overview and the Data Collection Procedure: Description of Methods, Approaches and First Results

7.1 Introduction

Research for this thesis began early in the Spring of 2011. With the start of the new academic year 2011-12 the review of the literature had progressed enough to provide some information regarding the design review context, as well as with regard to pedagogy and architectural pedagogy in relation to dialogue and enquiry. By that time then, a way of approaching design review sessions began to be considered and slowly take shape, as they would soon be available for study as a living event.

Literature on the subject of how feedback is orally given in architectural design reviews was scarce. The approach then, was to start seeing design reviews as if it were almost for the first time, with a fresh view, and from a very broad perspective, as explained in the previous chapter.

In this chapter, the aim is to outline the methodology, demonstrate the methods and approaches, and present the results in each phase of the data collection process.

7.2 Research Methodology Overview

The research approaches the problematic condition of the design review as a teaching and learning environment. The elements of dialogic enquiry and interaction are considered to be essential in an environment that fosters learning (1.2 p.22). This research does not investigate the impact of these elements on learning, but focuses on educational and pedagogical aspects of oral feedback, as a practice of teaching and assessment, and its role on aspects of interaction in undergraduates' design review.

The research focuses on the way feedback is given to students, since the means through which students are taught during this event, is oral feedback. As

explained in Chapter 6, the objectives are the identification a) of principal feedback typologies, b) of factors related to students' oral and graphic presentation that may influence the frequency of the principal typologies, and c) the identification of the students' participation duration. The second objective was not set at the same time as the other two, but added later on as the research developed.

Within the constraints of the PhD, data collection was limited to a single School of Architecture, which was selected as a case study to address the objectives. Although the data of typologies and their frequencies, as well as the students' and critics' participation durations are not intended to be used for statistical generalization, their collection aimed more at an in depth exploration of a condition within its real life context and generate theory, than to explain or test it (Willis 2014).

The device of a method that would record the feedback part of the design review in a way that addresses the three objectives mentioned above was necessary. The recording method itself, and the methodological approach for this research in general is a mix of quantitative and qualitative methods of data collection and analysis. Both aim to provide the ground for a more comprehensive understanding of oral feedback within the established scope, and address the hypothesis.

The source of all data derived from the natural setting of the design review, and the researcher was the key instrument of the collection of those data, which were in the form of words. Furthermore, discerning and identifying typologies and student participation factors from participants required an inductive process of analysis, which also requires a way of writing that conveys the experience of the researcher and the organic development of the research (Creswell 1998, 16-17). For these reasons qualitative enquiry was necessary for the conduct of this investigation.

Data collection was conducted in three phases: Phase 1. Identifying Principal Typologies, Phase 2. Devising the Recording Method, and Phase 3. Recording

the 'Crit'. The three-phase design was decided before the addition of the second objective, which was noticed during the early stages of Phase 3, and considered necessary for study for reasons explained in Section 7.3.3 (p.147). Therefore, at the time of data collection design there were only two objectives. Identifying principal typologies (objective 'a') was considered as the first task, since measuring students' participation duration (objective 'c') would be done using the recording method, which at the time wasn't devised yet. The recording method would also assist in measuring the frequency of principal typologies, which of course needed identification first.

Quantitative analysis and qualitative analysis of the data are Phase 4 and Phase 5 respectively, and will be presented in Chapter 8.

7.3 Description of the Data Collection Procedure: Methods, Approaches and Results

7.3.1 Phase 1: Aims, Methods, and Results

Aims and Methods

The aim in Phase 1 was the recognition and identification of principal feedback typologies. It was conducted based on observation and audio recordings of design reviews across undergraduate and graduate years. The idea for incorporating recognition and identification of factors related to students and their work with regard to oral and graphical presentation was not planned in advance, but grew organically from Phase 3 during the initial stages of recording design reviews. The scope during that phase then, was slightly broadened, a decision that will become more explicit in Unit 7.7.3 p.147, since research and its phases are described as they naturally occurred in chronological order.

Observation and audio recording was preferred over video recording of design reviews for two reasons: the camera's field of view and the operator's attention. The latter is related to the primary attention of the operator on the camera capturing the event, and less capturing the event as an experience and keeping

notes. The camera's angle and field of view as a restriction, compare to direct personal observation from a point where the whole event can be experienced as it occurs (Foster 1996, 59), and many more details can be captured i.e. paralinguistic elements of all the participants.

Observation in this phase served for *memo writing* (Thornberg & Charmaz 2014, 163), which would supplement transcribed data obtained from the audio recordings of oral feedback. The School's Ethics Committee granted permission for the conduct of Phase 1. Prior to the conduct of the observations and audio recordings the participants were fully briefed, and were assured that everyone would maintain anonymity. The briefing was also presented in written form, and everyone was asked for his or her written consent in order to proceed. The Observer requested from everyone not to be asked to take part in the session in any way, as the role was made clear that would be a *non-participant* (Bryman 2011, 163), or a *complete observer*, as Junker would suggest (Foster 1996, 70), or of *peripheral membership*, according to the Alder's (Marvasti 2014, 356).

The Observer was sitting among the audience of students, and as close to the edge of one side of the general arrangement as possible, in order to have a view of everyone, and be as detached and discreet as possible. This describes a researcher's stance that Blaikie calls an *outsider* (Blaikie 2007, 11).

Another element that relates to a 'researcher's stance', according to Blaikie, is the choice between being an *expert*, where the "researcher approaches the problem armed with relevant existing knowledge in the form of concepts and theory, and/or previous research findings" (Blaikie 2007, 11), or a *learner*, where "the researcher aims to set aside existing social scientific knowledge [...] and the answers to the research question emerge from the learning process" (Blaikie 2007, 11), rather from previous knowledge.

The purposes of the research dictated a more intermediate position, rather than a clear choice between one extreme and the other. On the one hand, the current depth and breadth of research on feedback typologies in design reviews could not render a researcher as an expert. A theoretical framework to assist

the investigation was drawn from fields as near to feedback typologies for design reviews as pedagogy, architectural pedagogy, and question typologies for dialogic enquiry. On the other hand, this piece of knowledge does not constitute feedback typologies for design reviews as uncharted waters completely.

Furthermore, the concept of 'learner' as a 'researcher's stance' has been debated, and it is not entirely clear whether and to what extent a researcher can actually avoid preconceptions and previously established knowledge (Dey 2007, 176-177; Kelle 2007, 197). The aim is to approach data as they emerge with an open mind, based on the characteristics as they appear, but filtering decisions on their identity based on relevant literature in order to be as grounded as possible. Empirical facts will then be sensitive to the theoretical framework as established from the review of the literature.

The first set of observations was conducted across the five years of undergraduates and graduates. Within a period of two months, some of the available interim and final 'crits' were the contexts of observation, and the subjects were reviewers. They were a mix of academic staff, and visiting practitioners, whom were predominantly architects, and some of them artists.

Because of the broad perspective from which oral feedback was looked at, the sample of reviewers was from all five years, and there was no consideration in selecting between the two types of design reviews. The sampling method was then *Probabilistic Sampling* (Schofield 1996, 28), and more in particular *Simple Random Sampling* (Foster 1996, 28). All reviewers, being academics or practitioners, in all contexts, being interim or final, had all 'equal and independent chance of being chosen' (Schofield 1996, 30), since the question that shaped the research aim and scope for this Phase was 'what are the principal typologies of feedback in architecture design reviews'?

The way to approach this question was *unstructured observation* (Bryman 2011, 163), or *less-structured observation* (Foster 1996, 83-86), because the research at that point required the production of qualitative data, flexibility in recording

them, and providing a comprehensive description of their identity. The objective of defining the identity of feedback typologies in principal is by definition a process that requires an *inductive research strategy* (Blaikie 2007, 9), since initial collection of data and the subsequent analysis would aim to establish universal generalizations (Blaikie 2007, 8). This procedure is similar to the method of Grounded Theory, which was adopted for the needs of this Phase, as suitable for arriving at a new theory, and more in particular in developing principal typologies.

More specifically, the major structure of the Grounded Theory Method involves Coding (Bryant & Charmaz 2007, 17-18) of the collected data that through Constant Comparison Analysis (Bryman 2011, 390-391) lead to the formation of Categories and Concepts (Bryant & Charmaz 2007, 17-18), which constitute the new knowledge. Data coding requires a Coding Scheme (Bryman 2011, 162) based on which data are clustered under a 'title' that captures the meaning of patterns and themes recognized from the researcher, as Lempert suggests (Bryant & Charmaz 2007, 18).

The inductive process of constant comparison gradually reduces the codes to more broad categories that contain all related codes and defines them under a new general 'title' in a cyclical process until theoretical saturation is reached. Bryant and Charmaz claim that, "Emergent categories arise from the researcher's skill in defining these new properties through the successive and analytic comparative processes of comparing data with data, data with code, code with code, code with category and category with category" (Bryant & Charmaz 2007, 25). The new category may perhaps define or be part of an overarching concept.

The coding scheme for this Phase is the recognition of the characteristics that indicate the feedback themes derived from the transcribed data of the audio recordings. These characteristics would gradually result in new principal typologies. There was no predetermined number of reviewers to be the subjects of observations and audio recordings. Rather, observations stopped when sufficient evidence suggested saturation based, firstly, on continuous repetition

of the same characteristics that give identity to typologies, and secondly, when no more characteristics were identified enough to constitute a new typology to the ones already discovered (Stern 2007, 117; Dey 2007, 186). The results derived from audio recordings of seven sessions from the first and second year undergraduates, and depict fifteen different reviewers. The transcripts can be found in Appendix 2.

Results

The results of the principal typologies will be presented in the way they emerged with a short overview of the principal typologies in the beginning. Firstly, the initial clustered data with the characteristics that explain the *codes* and their titles, with examples from the transcripts for better understanding of their identity. Secondly, the formation of *categories* is essentially the identification of the principal typologies with the elements that characterize them. Thirdly, as a final stage of this inductive process, the *concept*, the extracted essence of the principal typology will be presented in the form of a more universal title.

Comments, as part of the reviewers' feedback after the student's presentation, were divided in the universal categories of Questions and Suggestions. These categories emerged out of the principal typologies that follow. Questions were divided in two principal typologies: **Clarifying Questions** and **Reflecting Questions**. Suggestions were also divided in two principal typologies: **Direct Suggestions** and **Abstract Suggestions**.

Clarifying Questions

The recognition of this principal typology was straight-forward from the observations of the first sessions. The audio recordings provided the transcripts from which coding made the typology's characteristics more specific, as to what needed clarification on. Data analysis identified two codes: *Graphical Representation Clarity*, and *Oral Presentation and Graphical Representation Coherence*.

1) **Graphic Representation Clarity.** Reviewers have difficulty in reading drawings, which generates questions that require clarification. This code is mostly met in design reviews of undergraduates. The reason often has to do with line-weight hierarchy coherence, cross-referencing drawings, and idiosyncratic ways of representation outside standard practice. Some examples include the following:

...so what is that little thing, that little structure there, that's on the side of the toilet?

Ok, so on the plans, the paintings are...can you just point where they are in that main 1:20 plan?

Does the staircase go up to the roof level?

2) **Oral Presentation and Graphic/Three-Dimensional Representation Incoherence.** Reviewers have difficulty in comprehending the design scheme or elements of it due to incoherence in oral presentation and graphic/three-dimensional representation. There were either parts of the design scheme representation that had no support of oral presentation, and therefore raised questions with regard to their purpose, or, more often, parts of the oral presentation had no support of design scheme representation, leaving reviewers with no clear understanding of the element of the presented design scheme. Here are some questions as a response to this condition:

So, when you come in to this space, your idea is that you, what is represented about the landscape is represented on the interior, and it's not represented constantly through views outside?

Can you explain again, because I didn't get that at all, what is the purpose of that space, which is a meter below the rest of the exhibition space?

I get a feeling this is a building for night-time, is that fair to say?

The given title of this typology is self-explanatory, and captures the overarching theme for both codes. A *Clarifying Question* is generated when a member of the critics' panel has not fully comprehended elements or sometimes most of the design scheme due to lack of clarity in its communication. A *Clarifying Question* does not constitute feedback, at least not an immediate one, but it refers to the quality of presentation, and therefore its presence in a review is an indirect feedback towards presentation. The concept that refers to this typology is then *communication clarity*.

Presentation, and generally communication of an idea both graphically and orally is of fundamental importance in the training of an architect. The other three typologies, as it will be shortly shown, can be used as direct feedback on issues of communication. Furthermore, they became follow-up comments to a *Clarifying Question*, with direct reference to it, and so it was decided to be part of the recordings as an integral part of a 'crit'. It is therefore classified as principal comment typology, and not principal feedback typology.

Reflecting Questions

This principal feedback typology was the result after the identification and processing of four codes. The first three ones relate to actions made in the past, during the design process, and the last one refers to the present and future, as an act of reflection on the scheme at the moment, and potential actions for future developments.

1) ***Decision Making in Design Process***. Questions in this code seek answers with regard to reasons behind decisions the student made during the design process and affected the design scheme, and explore their level of success or not. A few examples are:

Why the turf roof? I would not say no. But why?

...I would like you to discuss that, how did you decide to put the skylights on the site, and not just above that hole?

So, where did that idea about enclosing the building with plants come from?

I am just curious why you designed the rooms into specific modules rather than keeping it in one continuous space?

2) **Decision Making on the Design Process.** Reviewers ask the student to reflect on the followed process itself, and discover the reasons behind what made it more or less successful. A question that describes this code best is:

So, is that the starting point for, did you set out the 6 by 3 and think, ok this is what I am working with, and then I go right to the border?

3) **Decision Making on Representation.** The title of this code describes questions made to ask the student to reflect on the decision-making regarding representation techniques and explore reasons in points that made the design scheme and the idea behind it well-represented or not. An example of such questions is the following:

I love the idea of your window with the integrated display, and it's a shame you did not chose to model that. Was it because you've already done that in a drawing?

4) **Reflection on the Design Scheme and the Design Process.** Students are invited to reflect on the design scheme in general, and identify positive and negative aspects in it. They are also asked to make suggestions for improvements. Questions that found to stimulate reflection are:

What would you say about the overall design process? Was it difficult, frustrating?

If I was to ask you to point at one thing, what was the most valuable drawing on the wall?

In this typology, questions aim to stimulate reflection, which, as mentioned in sub-chapter 2.2, reflection is an action that refers both to past and the future. Students were asked to reflect on design not only as a product and a process, but also a learning experience. *Reflecting Questions* is a typology of questions that aims to stimulate the students' intellect and emotion, and assist them to think for themselves, and making them active participants of the feedback process. Feedback at that instance becomes a more direct experiential activity, since students are engaged in an assessment process, which offers the experience of assessing and hence understanding it first hand.

The essential characteristic of a *Reflecting Question* is captured as the concept of *student-centred feedback*. As the term suggests, students are the source of feedback in this typology, as they are the centre from which responses derive.

Direct Suggestions

Data analysis identified four codes, which were then reduced to two, before resulting in the principal typology of *Direct Suggestions*. The two codes, which emerged naturally out of the initial four, are *Judgment* and *Recommendation*. Both types of comments express the opinion of the reviewers. The codes below describe what is this opinion on.

1) ***Judgment on Design Scheme***. The theme of this code depicts the opinion of a reviewer on elements of the design scheme based on the expected learning outcomes, which, depending on the year they respond, usually relate to programmatic adaptation, contextual response, and design principles. Examples of such expressions of judgment deriving from the recordings are:

...I really like that idea of some of the cabinets revealing actually what's happening outside, not just the artifacts, and that surprise element, I think it was really successful and the fact that it was furniture, the stools and the meeting point was developing from the ground...

...I find that the geometry of your building, especially that intersection point between where the stair is, and then where these cabinets are, erm, you

know, where you put the boat on the ground floor is really intriguing...

...the space that is least appealing to me is the sleeping platform, erm, and that is for a number of reasons...

2) **Judgment on Representation.** Similar to the code above, this one demonstrates a reviewer's opinion on the methods and techniques the student used to represent graphically and three-dimensionally the design scheme. Judgment refers to the aesthetic appearance of the representation, as well as with technical and practical issues that may affect the overall presentation. Some cases that illustrate such expressions of opinion are:

I think your sections are beautiful. Both the section that shows the study of the existing boat, and the figure, and the boat and the ground, and this section here. I love sections that erm, that are really inhabited, and erm, and particularly at this scale, this 1:20 scale, erm, because I think the more you put that detail in, the more it shows that you understand what sort of space you're making.

A model like that for this stage is vey good, but on your drawing here, you show only the lines of your buildings. You should indicate, something that I have said to you all a couple of times before, you always indicate the line of the context.

They are very good images you did. I didn't say that. I sort of picked at the negative points, but it's splendid. It's also good that the view you are showing there, that you want people to see. I think it a very good there at the first panel.

3) **Recommendation on Design Scheme.** As the title suggests, comments in this code relate to reviewers' opinions on actions a student could follow in order to improve the design scheme, or simply advice for future reference. Some examples of recommendations as recognized in transcripts are:

...perhaps using some small gaps, which can be again modular to, erm, allow for, erm, more light, so, if you turn that, if you turn the model, the actual design of your wall would allow that...

...I would probably consider having a ladder up to the sleeping allowing the sleeping area to be, um, to take up that whole footprint.

And it might be that you can make this a bit more satisfactorily by reducing the amount of storage, or, you know, even, there are opportunities to integrate it into the chimney, the same way you've done into the wall, rather than having this thing, which feels like a piece of furniture you've brought from a different room, you know.

4) **Recommendation on Representation.** Similarly, comments here relate to the reviewers' opinion on ways to improve representation in order to communicate the design scheme more clearly and effectively. Examples of such suggestions are the following:

...another approach would be not to show all the wood grain and so on, and just be more, erm, focused on the form, erm, and then just perhaps scorn the line that would be the joint between the different boards, because that would be enough probably to show that the architecture it's, erm, is developed with boards, rather than being very solid monumental cast, stone, brick or any other kind of material.

...I think you should push it more with the use of a couple of diagrams and photographs that show how it comes from your experience of the site...

It would be a nice to get an idea of the spaces with the light, erm, shining through, and it would be something that represents the screening on the sails.

Direct Suggestion is a typology of comments and suggestions expressed by critics about the presented design scheme as their personal opinion. Feedback

comes directly from them, and directly about the scheme and its representation. Depending on the critic's behaviour and attitude, this typology can often be perceived as direct orders and receive a passive stance, but in other cases as the beginning of dialogue. The concept that characterizes the principal typology of *Direct Suggestion* then is *teacher-centred feedback*.

Abstract Suggestions

The second principal typology of the universal category of Suggestions emerged from two codes.

1) ***Exposition on Design and the Design Process***. This code clusters a number of comments that generally refer to design and the design process at a theoretical level. They do not refer directly to the presented design scheme, but refer to it or aspects of it drawing examples from relevant theory and practice. The following are examples of expositions on design and the design process:

...and in fact one of these earliest sketches, which highlight your intuition, your very first thoughts and ideas, erm, sometimes those remain crucial throughout the whole project, so they become reference points, and erm, they are as finished in their own right, as they are here finished.

...a lot of what you produce is dependent on the experience you've had on spaces, and because of this multi-cultural as well erm, I think it is interesting to see these different perspectives, and that reinforces the need to look at precedents, and make sure you have a very open mind when you start.

Also, I want to, erm, I invite you to, erm, sort of, erm, set up options before you define which way is the best one...

2) ***Exposition on Architecture***. The cluster of comments with the exact same identity to the previous one, but with reference to architecture is the characteristic of this code. Unfortunately, the audio recordings did not provide any evidence of comments that describe this type of exposition. Phase 1

observations showed that discussions on architecture are more common on the graduate years, and because the recordings were from the first two undergraduate years, this result is only based on empirical evidence.

Abstract Suggestions is a typology of comments and views on the subject of design and architecture in general. Usually, critics offer advice for future reference, which relates to the design process and their view on architecture. It is not feedback specifically on the students' work, but a general advice for everyone taking part in the 'crit', and therefore it is abstract. The characteristic that conveys the concept behind an *Abstract Suggestion* is *subject-centred* feedback.

It can therefore be inferred three principal feedback typologies have emerged: *Reflecting Questions*, which is student-centred feedback, *Direct Suggestions*, which is teacher-centred feedback, and *Abstract Suggestions*, which is subject-centred feedback.

7.3.2 Phase 2: Aims, Methods, and Results

Aims and Methods

After identifying the principal typologies and their characteristics, and gaining some level of understanding on how they influence students' participation, the research moved on immediately to Phase 2 between November and December 2011. The next step was to devise a recording method, which would reveal the typologies' frequency and the duration of participation as a response to these typologies.

The aim was to devise a method that would produce codified transcripts, and measure participation time for all parties (critics, presenting student, audience), and more in particular, the duration of student's responses to principal feedback typologies. In a similar way one would read a transcript of the conversation taking place in the feedback part of a design review, in the place of phases recorded from the critics, there would be the an acronym of a principal typology,

and in the place of the students' responses, there would be the duration of that response.

A simple substitution of critics' phrases to acronyms of the identified typologies as they occur, and measuring total feedback duration and the students' responses duration, would suffice as collection of primary data, according to the set research aims and objectives. The method should then be able to capture the sequence of typologies of each critic, and the response time to these typologies in real time.

Since the method would record Principal Feedback Typologies and Participation duration from all parties, it was called PFTP Recording Method. A non-participant observer sitting in the audience, and from a position that would allow visual contact with the critics and the student presenting, would use the PFTP method to record the feedback part of 'crits' in real time. The development of a simple board where the primary data would be filled-in was the initial response. Further observation was then essential, so as to rehearse the method before its actual deployment, and discover whether it produces credible results.

Results

After a short stage of developing the method, the PFTP Recording Method finally took shape and was ready for a few tests before its deployment. It was acknowledged that the method would have a weakness in recording participation from more than four peers, as coding them and being consistent in recording them in real time from one person would be challenging. Had such a condition occurred, and the numbers of participants compromised the recording, it would have not been considered in the data collection. Should this become a more frequent condition, the recruitment of a second person would be considered. There was no occasion though, in any of the recorded sessions where such a condition occurred.

With the use of a stop watch and a pen, an example of the board that was filled in during data collection in Phase 3 is shown in table 7.1 on the next page. The method produces codified transcripts of the principal feedback typologies and

students’ response time. Starting from the top right hand corner, a note of the number of the panel members and the number of the students participating is taken first (*PM No – S No*). Recording time starts counting after the completion of the presentation of the student, and with the utterance of the first comment from the critics.

Critics are then coded with a number (i.e. if there are 2 critics, one is coded ‘1’ and the other ‘2’), and equally, when peers participated they are appointed a number. Phase 1 and Phase 2 observations showed minimal peers’ participation. PFTP was then limited and tailored for this context, and no more than three peers per session were expected to contribute in the feedback.

PM CNo	PANEL	STUDENT	PEERS
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
0			

PM No	S No
0	0

Participation Table			
Ttot	Ttu	Ts	Tp
0	0	0	0
	0.00%	0.00%	0.00%

Summative				
Tot No Q/S	0	%	Response time	
CQ	0	0.00	0	0.00%
RQ	0	0.00	0	0.00%
DS	0	0.00	0	0.00%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Table 7.1. PFTP Recording Method Board and Summative Results Tables.

On the main board, in the first column on the left (PM CNo) is where the code number of each panel member is filled when s/he offers feedback in the course of a session. What is filled in the next column (PANEL), are the coded principal typologies of each critic as noted on the first column. In the ‘STUDENT’ column, the response time, if any, to that typology is noted in seconds. Similarly, in the ‘PEERS’ column, the time of peers contributing to the feedback is also filled in seconds, with an additional note of the feedback typology used.

There are three occasions where time is subtracted from the total one, as it is not part of the actual feedback on the design scheme. These are indicated in the Code Key at the bottom right hand corner as *PR*, *P*, and *T*. The first one stands for 'PRESENTATION', and it occurs when a student starts to present parts of the presentation in the feedback part of the session that have been forgotten during the presentation part. Such responses are usually triggered by *Clarifying Questions*. The second one, 'P', is for an actual pause in the session, and the third one, 'T', stands for technical advice, i.e. about a command for a computer application or a tip for model making.

The last code on the Code Key is 'RS', and stands for 'Request Suggestion'. This type of comment can be met either by critics or students, and is added as a special indication in the process of feedback. Usually, critics use it at the end of a session to prompt peers to contribute, but more often, the student that presents uses this type of comment to ask for a critic's opinion. Principal feedback typologies could then be the response of critics or peers to 'RS'.

The immediate primary data analysis relates to participation. Student and Peer's participation time are all added together and are then subtracted by the total feedback time of the session recorded to result the panel's participation time.

On the 'Participation Table', reading from left to right, 'Ttot' stands for 'Time total', and is where the total time is noted. 'Ttu' stands for 'Time tutors', where the result of subtracting the sum of all students' participation time from the total feedback time is noted in that box. In the two remaining boxes, the sum of the student presenting participation time, and the sum of peers' participation time are added in 'Ts' and 'Tp' respectively.

The total number of critics' comments, as expressed in all four typologies, are added on the Summative Table, next to the box with the indication Q/S, which stands for Questions and Suggestions. Adding the sum of each typology, and the response time to that typology, completes the table, and a primary data analysis of each recorded session.

The PFTP Recording Method was ready to run as a pilot. An example of transcript that can produce, and the subsequent primary results of the collected data is shown in Table 7.2.

PM CNo	PANEL	STUDENT	PEERS
1	DS		
PR		15"	
1	CQ	43"	
2	DS		
2	RQ	44"	
2	RQ	12"	
1	DS		
2	DS		
2	CQ	6"	
2	CQ	2"	
			(CQ) 7"
		21"	
2	DS		
1	DS	3"	
1	DS	8"	
1	DS	12"	
1	DS		
2	DS		
1	AS	2"	
1	DS	3"	
2	DS		
1	DS		

PM No	S No
2	12

Participation Table			
Ttot	Ttu	Ts	Tp
22'45"	22'02"	2'36"	7"
	88.10%	11.40%	0.50%

Summative				
Tot No Q/S	20	%	Response time	
CQ	4	20.00	1'12"	45.80%
RQ	2	10.00	56"	36.10%
DS	13	65.00	26"	16.80%
AS	1	5.00	2"	1.30%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Table 7.2. Example of Filled Transcript and First Sorting of Data.

7.3.3 Phase 3: Aims, Methods, and Results

Introduction

Phase 3 involved data collection using the PFTP Recording Method, from December 2011 to May 2012. At the early stages of the recordings though, the observation of a significant detail, led to the decision of making this new element part of the research, as it would enhance the results qualitatively, and would only create a small shift in the scope of the research.

Certain factors related to students' presentation seemed to affect the frequency of feedback typologies and participation duration. Their characteristics were recognized, and these factors were immediately incorporated in the recording process of Phase 3. These characteristics of one or more of these factors, when recognized in design review sessions, would add an element that would differentiate recorded sessions to each other.

These factors would then be a fixed characteristic in the sessions they appear, and variations in feedback typologies' frequencies could then be linked to these factors. Measuring the frequency of the principal typologies would mostly provide quantitative data, but with the addition of the student presentation factors in the recordings, analyzing their relation would provide more qualitative results, which is an element that would render the research more comprehensive.

The shift in the research's scope occurred since the emerged factors were evident only across the undergraduate years. Graduates' design reviews were then excluded from recordings, and the focus was changed to undergraduate years only.

The emerged factors will be presented first, as they affected the aims and methods of Phase 3 that were determined before their emergence. The revised aims and methods will later be demonstrated in this Section.

Emerged Student Presentation Factors

When data collection began, each session, except for being recorded, was also observed, and notes with regard to the students and their work were also taken. The observations were focused on the ability of the student to participate, based on body language, on having a passive or defensive stance, on being confident or simply stubborn. In addition, general notes on the quality of presentation were also taken, as, for example, the amount of *Clarifying Questions* in some occasions was considerably higher.

Since these factors seemed at the time to affect the frequency of typologies and participation duration, their inclusion in the recordings as fixed factors was considered necessary in order to identify the level of impact they may have in the typologies' frequency and participation's duration.

The student presentation factors' recognition and identification was based on unstructured observation for the same reasons used to identify feedback typologies (7.3.1 p.131). At that stage, the observer adopted the stance of an

'expert', having observed a great deal of design reviews as a researcher, and most importantly, taking part in design reviews as a student, and as a critic. The factors' characteristics were very clear to identify, and a detailed description is following below. The student presentation factors identified were five:

**Well Comprehended Scheme (WCS)
& Poorly Comprehended Scheme (PCS)**

These two factors describe whether critics have sufficiently understood the design scheme as presented. It should be clarified that these factors do not reflect the observer's understanding of the presented scheme, but the observer's understanding of whether the panel has comprehended the scheme enough to begin offering feedback immediately after the student's presentation. The emergence of these factors becomes evident after the first few minutes after the completion of the student's presentation.

Lack of clarity in graphical representation or coherence between oral presentation and graphic representation usually begins the feedback part of the review with *Clarifying Questions*. Quite commonly, a *Well Comprehended Scheme* will most probably not raise more than two to three *Clarifying Questions*, whereas a *Poorly Comprehended Scheme* might raise over 4 *Clarifying Questions*. The number of *Clarifying Questions* is only indicative though, and not the only criterion.

Answers to two or three *Clarifying Questions* may unveil a great deal of information about the scheme that was not part of the oral presentation or evident on the graphic representation. Such responses increase the amount of time in the feedback part of the review spent on clarifications, after which more immediate feedback begins. These conditions also render a scheme poorly comprehended. Similarly, in some occasions, four or five *Clarifying Questions* may be requests for minor clarifications in an overall *Well Comprehended Scheme*.

In addition to these criteria, body language and facial expressions of the panel, in terms of confusion or clarity, is also an indicator that enhances the observer's

understanding of the critics' level of comprehension. Critics, sometimes express their confusion or good level of understanding verbally, making it plain clear for the observer.

**More Communicative Student (MCS)
& Less Communicative Student (LCS)**

These factors depict two different levels of eagerness to participate in the discussion regardless of being prompted. Of all students observed, some characteristics with which a factor could be identified stood out more prominently than others, and differentiated these students to the rest.

All students were communicative, but some of them were more than others or less than others. It is not an attempt for classification of students, since the factors are only used to define a potential variation in the frequency of the principal typologies in relation to these factors. They are simply two extremes that certain characteristics can make them more clearly recognizable in observation, and identifiable as student presentation factors.

There are various reasons that can make a student be more communicative than others. In some occasions, the student appears to be relaxed and confident in the context of the design review compared to the majority that appear to be more intimidated by the context, and with a certain level of anxiety. In other occasions, the student appears to be very defensive, not allowing most of the comments unanswered, and displaying an attitude more of speaking than listening.

On the other hand, a student less eager to participate is generally passive, with high levels of anxiety maintained throughout the session, sometimes made more evident in a body language of shaking hands, sweating and blushing. Regardless of polite attempts from panel members for them to be engaged in dialogue, when the student does, the responses are short, and the vast majority of suggestions are received and accepted without questions. Diffidence appears to overshadow most elements of the student that would otherwise allow a more effective and productive discussion.

Well Developed Scheme (WDS)

Initial observations identified a shift in the overall feedback approach of a substantial number of panel members when presented with a scheme that met the criteria for a comprehensive design, or in case of interim 'crits' the scheme had the potential for a comprehensive design. *Well Developed Scheme* was the last addition in the list of student presentation factors, in order to recognize the level of influence it may have in the principal typologies' frequency.

The School has an assessment system of mark bands with specific characteristics for each one. The observer, who is an architect, is aware of these characteristics, but because assigning a design scheme as *Well Developed Scheme* is a subjective judgment made a few minutes after a student completes a presentation, the assigned schemes are confirmed as such after being cross-referenced with the panel's final decision when marked at the end of the day.

Shift in Focus and Data Collection Method

With their recognition and identification, these five factors become the constants, when applicable, and the feedback typologies become the variables. Results are not then just expected to provide quantitative data of the typologies' frequency, but with the addition of the factors, the variation of typologies' frequency in relation to the factors should provide a more comprehensive understanding of oral feedback in design reviews. Also, their addition in the PFTP Recording Method was decided in order to test their potential effect in typologies as a form of hypothesis, and in this way provide more evidence about their importance.

After the discovery of the student presentation factors, observations and recordings using the PFTP Recording Method occurred only in one full day of design reviews of fifth year, where five design reviews were recorded. The only factors met in this graduates' year were *Well Developed Scheme*, and all sessions were well comprehended, since the students' evident confidence in communication and presentation skills rendered the other factors void.

Furthermore, the general atmosphere appeared more relaxed from both sides. Students seemed generally comfortable in that context, and critics, because of the students' comfort, did not need to adapt their behaviour to a student's discomfort as they would in an undergraduate's design review, and so the whole day appeared as a series of conversations between colleagues.

The context of a graduate year design review and its characteristics was significantly different to a typical one of an undergraduate year, and not all of the factors were evident in it. For these reasons, research shifted its focus to the undergraduate years.

Aims and Methods

The third phase simply involved data collection, which started right after the first successful rehearsal of the PFTP Recording Method in December 2011, and ended at the final term in May of the same year. Recordings stopped when continuous repetitive patterns in data collection began to emerge. As a result of these patterns, there was no significant change in summative results, and therefore saturation was reached when a sample of 59 design reviews had been recorded.

Out of these 59 sessions, 51 design reviews recorded with student presentation factors. 26 were identified as *Poorly Comprehended Scheme*, and 25 as *Well Comprehended Scheme*. In 11 sessions students were identified as more communicative, whereas in 15 less communicative. In total, 15 schemes were considered as well developed.

During Phase 1 and Phase 2, a significant observation influenced the decision to sample a wide variety of different critic's panels. Some critics had generally a more teacher-centred approach in their comments, whereas in others' comments student-centred questions were more evident in their palette.

Since the primary aim was a broad understanding of feedback, the sample was not from specific teachers of specific approaches, and therefore no specific teachers were subjected to continuous observations. The selection was random

and wide across undergraduate years, and aimed to capture the different approaches and offer a comprehensive view on feedback in design reviews.

The sample of all 59 sessions had from Year 1, 10 final ‘crits’, and 10 interim ‘crits’ recorded, from Year 2, 18 final ‘crits’, and 7 interim ‘crits’, and from Year 3, 14 final ‘crits’.

The sample distribution across the three undergraduate years is presented in Table 7.3. From left to right, the table shows the undergraduate year they are from, the design review type, being a final ‘crit’ (FC) or a ‘interim ‘crit’ (IC), the total number of design reviews recorded for each type, and the number of design reviews divided by the different panels that conducted them. In total then, 14 different panels of 30 different critics were recorded in 7 different days, within this period of 6 months.

The set of 7 design reviews, at the very bottom of the table, where part of final reviews at the end of the year, and because all students appeared to be very confident, they were not included with the rest of sessions of the *More Communicative Student* factor.

YEAR	TYPE	Tot No	PANELS	
Y1	FC	10	5	5
	IC	10	10	
Y2	FC	8	4	4
		10	6	4
	IC	7	5	2
Y3	FC	7	3	2 2
		7	5	2

Table 7.3. Identity of the Design Review Recordings’ Sample. From left to right, the table shows the undergraduate year they are from, the design review type, being a final ‘crit’ (FC) or a ‘interim ‘crit’ (IC), the total number of design reviews recorded for each type, and the number of design reviews divided by the different panels that conducted them.

Results

From the 59 recorded design reviews, 51 were recorded including at least one of the emerged student presentation factor. The results of all 59 sessions were firstly sorted in boards by year and type of 'crit' (final or interim), as recorded, and then by the factor, in order to be isolated and studied separately. Both forms served different objectives, which will be explained in the next chapter. The primary results presented in the next pages (Table 7.4 to Table 7.15), offer a first, general view of them, where the dominance of *Direct Suggestions*' frequency, and the duration of the critics' participation is strikingly evident.

On the top left hand corner, there is an indication of the undergraduate year the recording was taken from, and the type of 'crit' it was ('FC' for a final 'crit', and 'IC' for an interim 'crit'). The first column depicts the number of sessions (**NoS**). The factors are indicated on front of every session in their codified form, and different shades of grey represent a band of sessions reviewed by the same panel of critics.

The primary results are grouped in 3 sections: 'Participation', 'Comments', and 'Responses'. In the first section, from left to right, the first column shows the total duration of the feedback part of the review (**Ttot**), and the percentage of participation duration distribution to the student presenting (**Ts**), peers (**Tp**), and the tutors (**Ttu**). The fifth column depicts the student's participation percentage without *Clarifying Questions*, which as explained in Section 7.3.1 p.135, are not immediate feedback on the design scheme.

In the second section of 'Comments', the first column depicts the total number of comments (**NoCtot**). The rest of the columns show the distribution of the comments to the principal typologies as an absolute number and its percentage. The last column shows the questions directed to peers.

The third section of 'Responses', displays the duration of student's responses to the principal typologies, and on the last column, the peers' responses when asked to participate, all as a percentage to the total students' participation time.

Y2 FC	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QIP	CQ	RQ	DS	AS	PR		
		%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%								
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	47.50	20.10	32.40	0.00	0.00		
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	28.00	16.10	53.40	2.50	0.00		
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	42.30	33.30	15.50	1.20	7.70		
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	54.60	5.20	25.70	12.40	0.00		
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	2.50	0.00	93.50	4.00	0.00		
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	75.90	12.00	4.50	7.60	0.00		
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	7.10	67.10	24.30	0.00	0.00		
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	7.40	14.00	78.60	0.00		

Table 7.4 Results' Sample from 8 Design Reviews of a Year 2 Final 'Crit'

Y1 IC	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QIP	CQ	RQ	DS	AS	PR		
		%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%								
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	6.50	0.00	93.50	0.00	0.00		
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	100.00	0.00	0.00	0.00		
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	27.10	0.00	72.90	0.00	0.00		
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	100.00	0.00		
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	100.00	0.00	0.00	0.00	0.00		
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	42.80	28.60	0.00	0.00	0.00		
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00		
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	25.80	43.50	21.00	9.70	0.00		
9. WCS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	32.00	20.00	48.00	0.00	0.00		
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	33.30	66.70	0.00	0.00		

Table 7.5 Results' Sample from 10 Design Reviews of a Year 1 Interim 'Crit'

Y3 FC	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	%	NoCtot	CQ		RQ		DS		AS		QtP	CQ	RQ	DS	AS	PR	
	(min.sec)	%	%	%	%	NoC		%	NoC	%	NoC	%	NoC	%	%							%
NoS	18.00	4.80	1.30	93.80	2.70		24	4	16.60	1	4.20	19	79.10	0	0.00	0	44.20	9.60	46.20	0.00	0.00	
1. PCS, LCS	16.25	22.85	0.00	77.15	15.65		25	5	20.00	0	0.00	20	80.00	0	0.00	0	31.60	0.00	68.40	0.00	0.00	
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70		25	5	20.00	0	0.00	20	80.00	0	0.00	0	45.80	0.00	54.20	0.00	0.00	
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85		17	1	5.90	1	5.90	15	88.20	0	0.00	0	35.90	0.00	64.10	0.00	0.00	
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00		5	1	20.00	0	0.00	4	80.00	0	0.00	0	100.00	0.00	0.00	0.00	0.00	
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00		17	2	11.80	5	29.40	7	41.20	3	17.60	0	22.10	72.10	0.00	5.80	0.00	
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60		22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	100.00	0.00	0.00	

Table 7.6 Results' Sample from 7 Design Reviews of a Year 3 Final 'Crit'

Y2 IC	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	%	NoCtot	CQ		RQ		DS		AS		QtP	CQ	RQ	DS	AS	PR	
	(min.sec)	%	%	%	%	NoC		%	NoC	%	NoC	%	NoC	%	%							%
NoS	15.15	9.80	0.00	90.20	2.00		33	13	39.40	1	3.00	18	54.60	1	3.00	0	80.00	20.00	0.00	0.00	0.00	
1. PCS, LCS	13.50	9.60	0.00	90.40	7.00		31	2	6.50	1	2.50	23	74.20	5	16.10	0	27.10	2.50	70.40	0.00	0.00	
2. PCS, MCS	13.40	11.95	0.00	88.05	5.05		33	9	27.30	5	15.20	17	51.50	2	6.00	0	57.80	21.10	21.10	0.00	0.00	
3. PCS, MCS	9.10	14.40	0.00	85.60	10.90		21	1	4.80	3	14.30	17	80.90	0	0.00	0	24.10	40.50	35.40	0.00	0.00	
4. WCS, MCS, WDS	22.50	23.05	0.00	76.95	11.55		34	8	23.50	3	8.80	20	58.90	3	8.80	0	48.10	16.10	35.80	0.00	0.00	
5. PCS	24.00	23.90	1.20	74.90	19.60		38	1	2.60	12	31.60	25	65.80	0	0.00	0	18.00	56.70	25.30	0.00	0.00	
6. WCS, WDS	22.35	7.75	0.50	91.75	3.50		37	4	10.80	13	35.10	20	54.10	0	0.00	0	54.30	36.20	9.50	0.00	0.00	
7. PCS, LCS																						

Table 7.7 Results' Sample from 7 Design Reviews of a Year 2 Interim 'Crit'

Y2 FC	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR	
		%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%						
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00	
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00	
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00	
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00	
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00	
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00	
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	0.00	0.00	
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00	
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00	
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00	

Table 7.8 Results' Sample from 10 Design Reviews of a Year 2 Final 'Crit'

Y1 FC	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR	
		%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%						
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00	
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00	
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00	
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00	
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00	
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20	
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00	
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00	
9. WCS, MCS, WDS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00	
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00	

Table 7.9 Results' Sample from 10 Design Reviews of a Year 1 Final 'Crit'

Y3 FC	PARTICIPATION						COMMENTS										RESPONSES									
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ		RQ		DS		AS		PR	
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
NoS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00					
1. PCS, WDS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00					
2. PCS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00					
3. WCS, WDS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00					
4. WCS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00					
5. PCS, WDS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00					
6. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20					
7. PCS																										

Table 7.10 Results' Sample from 7 Design Reviews of a Year 3 Final 'Crit'

MCS	PARTICIPATION						COMMENTS										RESPONSES									
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ		RQ		DS		AS		PR	
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
NoS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00					
1	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00					
2	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00					
3	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00					
4	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00					
5	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00					
6	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00					
7	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00					
8	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00					
9	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00					
10	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00					
11																										

Table 7.11. Results of Recorded Design Reviews Assigned with the Factor More Communicative Student

LCS	PARTICIPATION										COMMENTS										RESPONSES						
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ		RQ		DS		AS		PR		
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC
1	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	0	44.20	9.60	46.20	0.00	0.00	0.00	0.00	0.00	0.00	
2	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	0	35.90	0.00	64.10	0.00	0.00	0.00	0.00	0.00	0.00	
3	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	0	80.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	0	54.30	36.20	9.50	0.00	0.00	0.00	0.00	0.00	0.00	
7	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	0	74.60	15.50	7.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	0	33.30	0.00	66.70	0.00	0.00	0.00	0.00	0.00	0.00	
9	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	0	35.90	0.00	64.10	0.00	0.00	0.00	0.00	0.00	0.00	
10	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	0	7.70	0.00	92.30	0.00	0.00	0.00	0.00	0.00	0.00	
12	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	0	57.30	5.50	35.40	1.80	0.00	0.00	0.00	0.00	0.00	
13	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0	0.00	0.00	40.00	0.00	0.00	0.00	0.00	60.00	0.00	
14	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	0	18.80	80.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	
15	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	0	55.70	26.20	18.10	0.00	0.00	0.00	0.00	0.00	0.00	

Table 7.12 Results of Recorded Design Reviews Assigned with the Factor Less Communicative Student

WCS	PARTICIPATION						COMMENTS										RESPONSES							
	NoS	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR		
		(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%						%	%
1	6.05	8.60	0.00	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2	6.40	4.25	0.00	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0	0.00	0.00	100.00	0.00	0.00	0.00
3	6.50	0.50	0.00	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0	0.00	0.00	0.00	0.00	100.00	0.00
4	8.30	0.00	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
5	8.45	11.80	0.00	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	0	0.00	25.80	43.50	21.00	9.70	0.00
6	4.05	10.40	0.00	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
7	6.35	9.10	0.00	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0	0.00	0.00	33.30	66.70	0.00	0.00
8	16.15	12.30	0.00	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
9	8.05	5.80	0.00	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
10	22.40	10.30	0.00	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	0	0.00	22.10	72.10	0.00	5.80	0.00
11	18.10	1.60	0.00	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0	0.00	0.00	0.00	100.00	0.00	0.00
12	9.10	14.40	0.00	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
13	24.00	23.90	1.20	0.00	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
14	22.10	5.40	0.00	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
15	21.25	5.80	0.00	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	0	0.00	33.30	0.00	66.70	0.00	0.00
16	15.25	9.95	0.00	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
17	12.35	2.25	0.00	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	1	7.20	17.70	23.50	29.40	23.50	0.00
18	8.10	2.60	0.00	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
19	15.50	14.30	1.80	0.00	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
20	13.00	14.00	0.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	0	0.00	21.10	78.90	0.00	0.00	0.00
21	9.30	1.50	2.20	0.00	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
22	8.20	17.20	0.00	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
23	15.40	20.85	0.00	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0	0.00	0.00	8.20	83.10	8.70	0.00
24	16.10	26.00	0.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	0	0.00	10.30	47.20	39.70	1.60	0.00
25	14.40	15.20	0.00	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	0	0.00	39.60	43.30	14.90	2.20	0.00

Table 7.13 Results of Recorded Design Reviews Assigned with the Factor Well Comprehended Scheme

PCS	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ		NoCtot	CQ		RQ		DS		AS		QtP	CQ	RQ	DS	AS	PR	
					NoC	%		NoC	%	NoC	%	NoC	%	NoC	%							NoC
1	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00	
2	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00	
3	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00	
4	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00	
5	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00	
6	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00	
7	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00	
8	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00	
9	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00	
10	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00	
11	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00	
12	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00	
13	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00	
14	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00	
15	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00	
16	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00	
17	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00	
18	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00	
19	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20	
20	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00	
21	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00	
22	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00	
23	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00	
24	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00	
25	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00	
26	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20	

Table 7.14 Results of Recorded Design Reviews Assigned with the Factor Poorly Comprehended Scheme

WDS	PARTICIPATION						COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR	
NoS							NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%	
1	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00	
2	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00	
3	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00	
4	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00	
5	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00	
6	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00	
7	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00	
8	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00	
9	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00	
10	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00	
11	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20	
12	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00	
13	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00	
14	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00	
15	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00	

Table 7.15 Results of Recorded Design Reviews Assigned with the Factor Well Developed Scheme

Chapter 8

Data Analysis, Results & Findings

8.1 Introduction

In Phase 4, data were analyzed quantitatively in two stages. Firstly, there was a Univariate Analysis of the frequencies of each typology, as well as the participation duration of students presenting, peers in the audience, and critics demonstrated in frequency tables (Bryman 2001, p.222-223). Secondly, a Bivariate Analysis of the relation of student presentation factors to the principal typologies in contingency tables (Bryman 2001, p.225-227).

The Univariate Analysis aims to analyse each element individually, and the Bivariate Analysis, the relation of two different elements to each other. More specifically, the first stage involved defining the general average frequency separately for each typology from all 59 recorded design reviews, as well as the general average students' response duration to each typology, and the general average participation duration of three individual elements: critics, students, and peers. In the second stage, design reviews were sorted by an assigned factor (see table 15 to table 19), so each of the elements mentioned above could be analysed in relation to each factor, and therefore identify whether, and how much, each factor affects the percentages of each element. In this Phase, all three objectives mentioned in the Methodology Overview in the beginning of the Chapter 7 (p.130), are addressed quantitatively.

In Phase 5 the results were interpreted in relation to the theory investigated in literature review, and the aims and hypothesis of the thesis. A last round of unstructured non-participant observation of design reviews aimed to gather further information in relation to the results, and provide a more comprehensive understanding of them, as a secondary qualitative analysis (Bryman 2001, p.401-402).

The observer, having the collected data in hand and knowing the analysed results, tried to make a better sense of them, by observing new design reviews

once again. This happened during the first term of the new, at the time, academic year 2013-14.

The observations took place during a first and a second year full day of design reviews, and involved keeping notes on several different design reviews. The aim was to describe situations, in a form of short reports that related to findings from Phase 4, with the focus now on the participants and their behaviours, and on how and to what extent they could explain the numbers. In this phase then, the aim is to address the objectives qualitatively.

Quantitative and qualitative analysis of data that occurred in Phase 4 and Phase 5 respectively is going to be presented together in the following unit. The numerical figures of Phase 4 are followed and supported by the findings from the additional observations of Phase 5, and aim to offer a more comprehensive view of the results.

8.2 Quantitative and Qualitative Data Analysis

In the next five units, the analysis aims to demonstrate the results the PFTP Recording Method can produce. The first three sections and the last one, 8.2.1, 8.2.2, 8.2.3, and 8.2.5 will present results that address the three objectives for which it was designed. Further analysis of tables and results though, showed that the method could produce more than expected. With the aid of observation notes, these results and findings are presented in Section 8.2.4.

8.2.1 Feedback Typologies Frequency Distribution

This unit aims to demonstrate the frequency of each typology, firstly on its own, as an average percentage of all recorded design reviews, and secondly, in relation to each of the five student presentation factors in order to identify the level of influence of each student presentation factor, if any, to each typology.

General Average Distribution

The first row of results in Table 8.1 shows the frequencies for each principal feedback typology and *Clarifying Questions* as a general average from all 59 recorded design reviews.

FEEDBACK TYPOLOGIES DISTRIBUTION	CLARIFYING QUESTIONS	REFLECTING QUESTIONS	DIRECT SUGGESTIONS	ABSTRACT SUGGESTIONS
GENERAL AVERAGE	16.09%	10.17%	65.34%	8.40%
WELL COMPREHENDED SCHEME AVERAGE	9.01%	10.17%	71.56%	9.26%
POORLY COMPREHENDED SCHEME AVERAGE	22.08%	8.36%	64.20%	5.36%
MORE COMMUNICATIVE STUDENT AVERAGE	15.99%	11.28%	63.55%	9.18%
LESS COMMUNICATIVE STUDENT AVERAGE	15.02%	6.38%	73.82%	4.78%
WELL DEVELOPED SCHEME AVERAGE	15.25%	15.98%	63.01%	5.77%

Table 8.1 Clarifying Questions and Principal Feedback Typologies Distribution

The most commonly used principal feedback typology in all recorded sessions is *Direct Suggestions* with 65.34%. *Clarifying Questions* is a typology of comments that showed to have a share of 16.09%, whereas the other two principal typologies, *Reflecting Questions* and *Abstract Suggestions*, had 10.17% and 8.40% respectively.

As mentioned in the last chapter, sections 7.3.1 p.135, and 7.3.3 pp.148-149, *Clarifying Questions* are immediately related to the factors of *Well Comprehended Scheme* and *Poorly Comprehended Scheme*, and therefore their share in the rest of the factors do not indicate something noteworthy with regard to these factors, rather, they simply fill the remaining percentage left from the one's of the principal feedback typologies. In addition, the percentage of *Clarifying Questions* in the remaining factors remains very close to the one of the general average.

Well Comprehended Scheme Distribution

Clarifying Questions in reviews with the factor of *Well Comprehended Scheme* assigned to them, show an almost 44% decrease compared to the general average (16.09%), leaving them with a share of only 9.01%. Close to this percentage is the principal feedback typology of *Abstract Suggestions* with 9.26%, whereas *Reflecting Questions* appear to have the exact same share to the one of the general average, 10.17%.

With the typologies of *Reflecting Questions* and *Abstract Suggestions* remaining very close to the percentages of the general average, *Direct Suggestions* seem to 'absorb' most the percentage left from the shift of almost 7 units in *Clarifying Questions*, resulting in a share of 71.56%.

A pattern that was noticed during Phase 5 observations, could explain to a certain extent this rise in the use of *Direct Suggestions* in presence of a well-presented scheme. Critics, having comprehended the scheme fully or to a satisfactory level, move on straight away to express their opinions. This of course is a general pattern, where *Direct Suggestions* usually follow *Clarifying Questions*, which predominantly appear at the beginning of the feedback part of session. With the absence of, or very few *Clarifying Questions*, critics tend to spend more time in exhibiting their thoughts about the scheme and future courses of action, and less in asking questions and engaging the student in conversation.

This engagement in conversation depends on two factors. It is either the general teaching approach of one, and rarely both, of the critics, whom directly includes the students in the feedback process, or because it is the quality of presentation and representation of the scheme that raises more questions. The second case raises issues of bias, since some critics seem to be seduced by a rigorous design process and result, and treat these students differently.

The characteristics of such a discussion greatly resemble the ones occurring in graduate years, where students are treated as colleagues, there are more *Reflecting Questions*, and generally they are engaged in a dialogue, which seems to guide the process. Examples that demonstrate and provide evidence for both teaching approaches will be shown in Section 8.2.4. It is important to mention them as facts at this point of the analysis though, in order to better understand some the results appearing on Table 8.1.

Poorly Comprehended Scheme Distribution

In the occasion of a *Poorly Comprehended Scheme*, critics raise more *Clarifying Questions* than the general average by almost 37%, resulting in a

share of 22.08%, which means that over a fifth of comments in the feedback part of a design review is spent on trying to understand the design scheme. *Direct Suggestions* show a slight drop on 64.20%, compared to the general average of 65.34%. *Reflecting Questions* and *Abstract Suggestions* seem to be affected more in the presence of this factor. The former principal typology presents a drop to 8.36% from the general average of 10.17%, and the later typology shows a more significant decrease from 8.40% to 5.36%.

The rise in *Clarifying Questions* in this factor is naturally expected. The magnitude varied from as low as 5.9% to as high as almost 40% in some reviews. With the percentage of *Direct Suggestions* very near the general average, the reasons for this feature, as well as for the drop in *Reflecting Questions* and *Abstract Suggestions* could be many.

Phase 5 observations assisted greatly in understanding these results. Regardless of the quality of the design scheme, at the initial moments of feedback in a review of a *Poorly Comprehended Scheme*, it is not very clear for the critics to understand it, and so a great deal of time is consumed for this purpose. By the time it becomes clear, the remaining time is not enough, as it usually is, which results in *Direct Suggestions* dominating the remaining of the feedback time. Should *Clarifying Questions* are excluded from feedback, then the new distribution in design reviews in this factor becomes 82.13% for *Direct Suggestions*, and 10.81% and 7.06% for *Reflecting Questions* and *Abstract Suggestions* respectively.

It seems that critics, in order to comply with the time limitation and remain within the prearranged schedule, are left with an amount of time that allows them to offer their opinion and advice mostly in a one-directional way. This of course is a general pattern in teaching approaches, but the pressure of time accentuates this, and critics avoid engaging students in dialogue.

More Communicative Student Distribution

The results for design reviews with the factor of *More Communicative Student* assigned to them do not present a great deal of difference compared to the

general average. *Clarifying Questions* is 15.99% of the comments compared to 16.09% of the general average, *Reflecting Questions* is 11.28% compared to 10.17%, *Direct Suggestions* is 63.55% compared to 65.34%, and *Abstract Suggestions* is 9.18% compared to 8.40%.

From the observations, there is no evidence to explain this slight increase in *Reflecting Questions* and *Abstract Suggestions*, from the general average, and the small drop in *Direct Suggestions*. For the same reasons explained before, with regard to some critic's dialogic approach or bias towards more comprehensive or promising schemes that may raise more questions, as with all recorded design reviews, because of the random selection, the same could apply for the design reviews with this factor.

It is assumed then, that this slight shift does not relate to a particular and well-defined factor that could have caused it, and hence, does not constitute the characteristics of this factor noteworthy so to affect feedback in a design review.

Less Communicative Student Distribution

Results for this factor present a significant shift in the percentage of principal feedback typologies compared to the one in the general average. *Clarifying Questions* were found at 15.02% compared to 16.09%, *Reflecting Questions* at 6.38% compared to 10.17%, which is a considerable drop of approximately 37%, *Direct Suggestions* at 73.82% compared to 65.34%, which is an increase of almost 13%, and *Abstract Suggestions* at 4.78% compared to 8.40%, which is a substantial fall of 43%.

Providing *Clarifying Questions* are excluded from the comments, the new distribution of percentages for the principal typologies would be 7.43% for *Reflecting Questions*, 87.28% for *Direct Suggestions*, and 5.29% for *Abstract Suggestions*.

Observations of design reviews where students met the characteristics of the factor provided sufficient explanations for this shift. Usually, critics become more encouraging and generally more supportive when reviewing a diffident

student. The good elements are praised, and for the ones that need development, advice is given in an as non-negative manner as possible. In both cases though, comments are predominantly one-directional, as the numbers concur. It is worth noting that from the fifteen design reviews of this factor, twelve had *Reflecting Questions* from 0 to 1.

Although behaviour is suitable for the condition, and critics appear to have the best intentions, within this supportive behaviour, some of them assume, in a way, a more authoritative position, in order to certify, the advice they give and make the student more comfortable and confident.

This only explains the shift in the results, but certainly, it is not within the scope of this research to examine to what extent this approach, or any mentioned before is successful in terms of learning or building confidence. The observations show that critics attempt to fill this gap of confidence primarily as an external source to the student, with teacher-centred advice, leaving the students even more passive, and not having them experiencing feedback as active participants.

Well Developed Scheme Distribution

Finally, in design reviews assigned with the factor of *Well Developed Scheme*, a substantial shift is noted in *Reflecting Questions*. *Clarifying Questions* show a minor change to the general average, with 15.25% compared to 16.09%. *Direct Suggestions* present a small drop of 3.56%, from 65.34% of the general average to 63.01%, and Abstract Suggestions show a more significant fall of 31.30%, from 8.40% to 5.77%. *Reflecting Questions* show a remarkable increase of approximately 57%, from 10.17% to 15.98%.

The fact mentioned before that relates to a shift in some critics' behaviour when presented with a *Well Developed Scheme*, explains to a good degree the shift in *Reflecting Questions* in this factor. Observations have shown that for some of those that appeared to be generally more instructive, the teaching approach becomes more dialogic, and the student is more involved in the evaluation process. Again, the condition resembles the one found in graduate years, where

the more experienced students appear to have a discussion with the critics, rather than what is more of a jury in undergraduate years.

The more advanced and perhaps more talented students are the recipients of a different approach from some critics. Some others though, because they note the different level these students are, they consider them needing less assistance and have shorter feedback sessions. This enhances the fact found in literature that has criticism more understood and perceived as 'fault-finding' (4.2.1 p.66). With such a mentality, when problematic issues are few, feedback is generally reduced to praise, and not enough reasons are given as to why the scheme is well developed. Six out of the fifteen design reviews assigned with the factor of *Well Developed Scheme* had from 0 to 2 *Reflecting Questions*, which indicates a less dialogic and more instructive approach. Some critics then, are anyway more instructive regardless of the factor.

This increase in *Reflecting Questions* then, relates more with the critics that change their teaching approach, as neither the ones that are more dialogic nor the ones that are more instructive seem to be influenced by the characteristics of the student presentation factor.

8.2.2 Responses to Feedback Typologies Distribution

As in Section 8.2.1, this Section aims to demonstrate the same objectives. The subject of study here is the presenting student's responses duration to each typology.

Responses as General Average Distribution

The percentages shown on Table 8.2 demonstrate the duration of presenting students' responses to feedback typologies in the feedback part of the recorded design reviews. Peers' responses are not included, and hence the sum of the responses' percentages may not add up to 100% for each factor and the general average. The reason is that peers usually respond at the end of a session when they are asked to provide any suggestions, which most often are direct suggestions. Any comments in the form of the typologies coming form

peers have already been added and shown in the previous unit. Therefore, results here may include responses to comments from peers as well.

RESPONSES TO FEEDBACK TYPOLOGIES DISTRIBUTION	RESPONSES TO CLARIFYING QUESTIONS	RESPONSES TO REFLECTING QUESTIONS	RESPONSES TO DIRECT SUGGESTIONS	RESPONSES TO ABSTRACT SUGGESTIONS
GENERAL AVERAGE	36.15%	21.71%	33.68%	4.53%
WELL COMPREHENDED SCHEME AVERAGE	26.34%	25.31%	34.44%	6.67%
POORLY COMPREHENDED SCHEME AVERAGE	45.93%	19.06%	32.02%	0.53%
MORE COMMUNICATIVE STUDENT AVERAGE	37.14%	24.86%	34.72%	3.28%
LESS COMMUNICATIVE STUDENT AVERAGE	46.51%	12.87%	36.23%	0.12%
WELL DEVELOPED SCHEME AVERAGE	34.67%	41.98%	20.11%	2.15%

Table 8.2 Duration Distribution of Presenting Students Responses to Clarifying Questions and Principal Feedback Typologies

On average, over a third of the students' participation in their feedback involves clarifying their scheme to critics. 36.15% of their time is consumed in further explaining elements of the design process and the design result that were compromised by the presentation or/and representation of the scheme. In Section 8.2.3, where the distribution of the participation duration is shown, this percentage would be able to be represented in actual time, and reflect its real effect in a design review.

The general average of *Reflecting Questions* in absolute numbers in all 59 recorded design reviews is between 2 to 3, which, as mentioned in the previous unit, accounts for about 10% of the comments. Considering this is the average number of times students are invited to participate with a direct question, other than clarifying, 21.71%, which is over a fifth of their participation time, suggests a rather considerable amount of participation. On the other hand, responses, if any, to *Direct Suggestions*, which are approximately 65% of the comments of the recorded reviews, gather almost a third of a student's participation duration.

Direct Suggestions do not necessarily require a response, unless the critics provide them as comments in a way that aims to form a basis for discussion. They are the expression of judgment, and usually, when students do respond to *Direct Suggestions*, they do it rather defensively, or sometimes ask for clarifications on those judgments.

Unless the critic provides a theoretical background that relates to the brief or a precedent with or without visual aids with the aim to provoke discussion, *Abstract Suggestions*, do not necessarily expect oral responses, and therefore this 4.53% of participation time is usually a contribution on the student's behalf regarding the theoretical aspect put forward that relates to architecture or design and designing. It mostly expresses the willingness of the students to participate, although usually they are not directly prompted to do so. This explains the wide variation in percentages throughout the student presentation factors. Regarding responses to *Abstract Suggestions* then, no further comments and analysis will follow.

Responses in Well Comprehended Scheme Distribution

As expected, *Clarifying Questions* in this factor present the lowest figure from all other factor. Even in this factor though, responses to this typology are over a quarter of the total participation duration of a student at 26.34%, given that only 9% of comments are *Clarifying Questions*. In absolute numbers, this 9% is the average of about 0 to 2 questions, whereas for the general average of 16.09%, is about 4 questions.

Responses to *Reflecting Questions* and *Direct Suggestions* showed a small increase compared to the general average, from 21.71% to 25.31%, and 33.68% to 34.44% respectively. The percentage in the comments of *Reflecting Questions* had remained in 10.17%, and in *Direct Suggestions* was 71.56%.

With regard to responses to *Reflecting Questions*, their length may vary and it depends purely on the student and the design scheme. Observations have not indicated any particular pattern or ratio related to such responses other than *Reflecting Questions* produce more participation of all three principal feedback

typologies respectively. What is certain though, is that the percentage of the responses would be at least twice as much to the percentage of the comments that produce it.

Responses to *Direct Suggestions* on the other hand, regardless of the increase in comments in this factor, did not follow this shift and remained near the general average. A pattern in responses to *Direct Suggestions* may then be possible, but this remains to be seen in relation to the other student presentation factors in the following sub-units.

Responses in Poorly Comprehended Scheme Distribution

The average in number of comments in *Clarifying Questions* for this factor is about 6 questions, which is represented as a percentage of 22.08%. This, of course, was the highest percentage in all student presentation factors, with numbers of questions in design reviews as low as 1 and as high as 13. The responses to this typology were quite high, as expected, and reached nearly 46%. This means, almost half of the students' participation was wasted in helping the critics make sense of the presented scheme. The other half was essentially shared between responses to *Reflecting Questions* and *Direct Suggestions*, as responses to Abstract Suggestions was only 0.53%.

Considering the characteristics of this factor, and although comments in *Reflecting Questions* were only 8.36%, the responses to them were 19.06% of participation duration, which is very near the general average. Once more, *Reflecting Questions* produced responses with a percentage, that in absolute numbers, was more than twice the percentage of their comments.

Despite the 64.20% in comments of *Direct Suggestions*, and technically the 82.13% when *Clarifying Questions* are excluded, the percentage of the responses to this principal feedback typology, remained low again, and more particularly, lower than the general average, at 32.02%. Responses to this typology seem to dwell around a third of a student's participation, when comments of this typology in all factors are near or very near two thirds of total comments.

Responses in More Communicative Student Distribution

Similar to the percentages of comments of all typologies, which were close to the ones of the general average, the percentages of responses to the typologies also show no deviation from the respective ones of the general average. It is worth noting though, that responses to both *Reflecting Questions* and *Direct Suggestions* continue to produce results near the established pattern for each of them. A percentage of 11.28% in comments of *Reflecting Questions* resulted in responses of 24.86% in participation, and 63.55% in comments of *Direct Suggestions* produced responses of 34.72%.

Again, responses to *Direct Suggestions* continue to be around a third of the participation duration, and responses to *Reflecting Questions* are, in absolute numbers, more than double of the percentage of the comments that yields them.

Responses in Less Communicative Student Distribution

In this factor the two highest and the two lowest percentages in responses are met. Responses to *Clarifying Questions* and *Direct Suggestions* are the results with the highest percentage, whereas responses to *Reflecting Questions* and *Abstract Suggestions* present the lowest. It should be reminded that comments in all three principal feedback typologies had also the highest and the lowest results respectively.

Nine of the fifteen design reviews assigned with the factor of *Less Communicative Student* were also assigned with the factor of *Poorly Comprehended Scheme*. The other six design reviews, although had very few *Clarifying Questions*, responses in some of them had a high percentage in participation. This explains the rather high percentage of responses to *Clarifying Questions*, which reached at 46.51%.

Although *Direct Suggestions* had also the highest percentage of total comments in this factor, responses to this principal feedback typology resulted in only an approximately 7.5% increase in participation percentage, remaining in this way, again, very near to a third of participation time at 36.23%.

Responses to *Reflecting Questions* resulted in a percentage of 12.87% that, once again, is more than double of the comment's percentage, which was 6.38%.

Responses in Well Developed Scheme Distribution

The percentage of comments in *Reflecting Questions* and *Direct Suggestions* in this factor was the highest and the lowest one at 15.98% and 63.01% respectively. Similarly, the responses to these principal feedback typologies also resulted in the highest and the lowest percentages in a *Well Developed Scheme*. Responses to *Reflecting Questions* have a percentage of 41.98%, and the ones to *Direct Suggestions* only 20.11%. Responses to *Clarifying Questions* remained close to the general average at 34.67%.

The almost 57% increase in comments of *Reflecting Questions* in this factor, as mentioned in the previous unit, resulted in approximately a 100% increase in the responses percentage compared to the general average, and the 41.98% of the responses' percentage, is just over 2.5 times the comments' percentage.

Responses to *Reflecting Questions*, usually, tend to be lengthier than responses to other principal feedback typologies, but it is only in this factor that responses to *Reflecting Questions* are dominant in relation to the rest of responses to the other typologies.

The pattern occurring in responses to *Direct Suggestions* in all other student presentation factors did not apply on this one. Only 20.11% of the participation duration, which is just over a fifth of the participation percentage, was the result of responses to this principal feedback typology.

The 1:3 ratio related to the pattern of responses to *Direct Suggestions*, is met in the general average of responses to *Clarifying Questions* and this factor as well. Six out of fifteen of the recorded design reviews recognised as a *Well Developed Scheme* are compromised by poor presentations, which is almost half of them.

Except for the factor of *Well Comprehended Scheme*, in which by definition responses to *Clarifying Questions* are expected to have fewer share in participation time, this is the only factor, including the general average, where such responses are not dominant ones.

8.2.3 Participation Duration Distribution

As in the previous two sections, this section aims to demonstrate the same objectives. The subject of study here is the students and critics participation duration.

General Average Distribution

The last piece of data analysed was the participation duration between students, presenting and audience, and critics. The middle column of Table 8.3 shows results of participation in feedback from all four typologies, and the column on the right shows results from only the three principal feedback typologies, excluding participation that derived from *Clarifying Questions*. The first row of results shows the results from all 59 recorded reviews, as the general average, and the rest of the table shows the distribution of the average participation duration of reviews with the mentioned factor assigned to it.

STUDENTS/CRITICS PARTICIPATION DURATION DISTRIBUTION	PARTICIPATION DURATION STUDENTS/CRITICS	PARTICIPATION DURATION STUDENT/CRITICS WITHOUT CLARIFYING QUESTIONS
GENERAL AVERAGE	12.96% / 87.04%	8.28% / 91.72%
WELL COMPREHENDED SCHEME AVERAGE	10.13% / 89.87%	7.47% / 92.53%
POORLY COMPREHENDED SCHEME AVERAGE	14.31% / 85.69%	7.74% / 92.26%
MORE COMMUNICATIVE STUDENT AVERAGE	13.87% / 86.13%	8.72% / 91.28%
LESS COMMUNICATIVE STUDENT AVERAGE	7.78% / 92.22%	4.17% / 95.83%
WELL DEVELOPED SCHEME AVERAGE	16.57% / 83.43%	11.21% / 88.79%

Table 8.3 Students and Critics Participation Duration Distribution

The general average participation duration from all recorded reviews is almost 13% for students and almost 87% for critics. When participation duration contributed from *Clarifying Questions* is subtracted, the percentage for students drops to almost 8.3%, and for critics increases to almost 92.5% respectively.

This practically means, that in the feedback part of a design review, which for example could last 20 minutes, a student participates for approximately just over two and a half minutes (2' 36"), and in the second occasion, with the *Clarifying Questions* subtracted, participation duration drops to just over a minute and a half (1' 39'). Therefore, there is a substantial fall of almost 36% in participation duration when responses that relate only to the principal feedback typologies are included, as mentioned in the previous unit.

Knowing that responses to *Direct Suggestions* are almost fixed around 33%, except *Well Developed Scheme*, *Reflecting Questions* generate lengthier responses, between 2 to 2.5 times the percentage of its comments, and responses to *Clarifying Questions* are around 36%, increase 10 units in the factor of *Poorly Comprehended Schemes* and *Less Communicative Student*, and decrease 10 units in *Well Comprehended Scheme* reviews, the results of Table 8.6 can be more clearly understood. With responses to *Abstract Suggestions* almost negligible, and the ones to *Direct Suggestions* almost static, responses to *Reflecting Questions* and *Clarifying Questions* become the main determinants.

Well Comprehended Scheme & Poorly Comprehended Scheme Distribution

Compared to the general average of students' participation duration of all comment typologies ($\approx 13\%$), in a design review of a *Well Comprehended Scheme*, there is a significant drop of almost 32% to 10.13%, and in a design review of a *Poorly Comprehended Scheme*, a small increase of 10% to 14.31%. With the exclusion of *Clarifying Questions*, for the factor of *Well Comprehended Scheme*, there is a decrease of just over 25% to 7.52%, and for a *Poorly Comprehended Scheme* there is a far more significant fall of just over 50% to 7.13%.

Using the example of a typical 20 minutes feedback part of a design review, these percentages for a *Well Comprehended Scheme* translate to just over 2 minutes (2' 02"), and with the exclusion of Clarifying Questions it becomes just under a minute and a half (1'29"). For a *Poorly Comprehended Scheme* student participation duration is close to 3 minutes (2' 52"), and without *Clarifying Questions* participation duration drops at just over a minute and a half (1' 32").

In both factors, students end up participating in actual feedback, without *Clarifying Questions*, for approximately a minute and a half. The drop in *Well Comprehended Scheme* reviews is connected to the substantial drop in *Clarifying Questions*, and the fact that there was absolutely no shift in *Reflecting Questions*. With regard to *Poorly Comprehended Scheme* reviews, the increase to 14.31%, and the drop to 7.74% are, mainly, caused by the same factor, which is the high percentage of *Clarifying Questions*, and secondarily the low percentage of *Reflecting Questions*.

More Communicative Student & Less Communicative Student Distribution

Once again results for the student presentation factor of *More Communicative Student* are very close to the ones of the general average. There is a small increase of 7% for student's participation duration to 13.87%, and a 5.3% increase to 8.72% without *Clarifying Questions*. This translates to 2'46" and 1'44" respectively, using the same example of a 20-minute feedback part of a design review. Since the percentage of responses to *Clarifying Questions* is almost the same to the general average, it is this small increase in responses to *Reflecting Questions* that is responsible to this minor shift.

The factor of *Less Communicative Student* shows the lowest percentage for participation duration in all factors. There is an expected fall that reached approximately 40% and resulted a 7.78%, which became even smaller when responses to Clarifying Questions were removed, with a further 46% reduction the student participation duration ended up being a mere 4.17%. Using the same example, participation time from about a minute and a half (1'33") becomes only 50 seconds!

As much as it explained the results in *Less Comprehensive Scheme*, the highest percentage noted in responses to Clarifying Questions, and the lowest in the ones of *Reflecting Questions*, as described in the previous unit, explains this extraordinary shift for this student presentation factor.

Well Developed Scheme Distribution

The highest participation duration is met in this factor, simply because of the high percentage in comments of *Reflecting Questions*, and consequently of the responses to them. 16.57% translates to 3'19", and without responses to *Clarifying Questions*, is the only factor with a double-digit figure in participation duration at 11.21%, which is 2'15" in a typical 20-minute feedback part of a design review.

8.2.4 Teaching Approaches and Patterns

As it has already been explained in Section 7.3.3 pp.152-153, in a design review day during Phase 3 recordings, the observer was moving from one panel to another either every two to three students were reviewed, or to the end of a full morning or afternoon session. On the one hand, this aimed to capture all the different teaching approaches that were observed during Phase 1 and 2, and include them in a wide sample, and on the other, the intention was for the collected quantitative data from the recording method, and the qualitative from the observations, to provide some insight with regard to these teaching approaches.

The analysis will be carried out with the aid of extracts from the boards of Phase 3 results (see end of Chapter 7 pp.155-162). It should be remembered at this point, that 14 different panels of 30 different critics were recorded and were subject to observations.

Teacher-Centred Comments

Table 8.4 shows an example of a panel of two critics. Both of them had a more teacher centred approach in giving feedback. It is evident, that in all three design reviews, where the total number of comments is almost the same, *Direct Suggestions* dominate their comments, offering no *Abstract Suggestions*, and

only one *Reflecting Question*. In addition, no questions were directed to peers in the audience. What is also noteworthy is the gradual decrease in the duration of each session in the course of time. From one review to the next, *Direct Suggestions* become shorter, more concise and prescriptive, and hence the reduction in the sessions' duration.

The same pattern of duration reduction as reviews progress was also met in a different review panel, but caused by a different reason. Compared to the previous example, the number of comments in this set of sessions, shown on Table 8.5, had an overall significant drop, and after the second reviews an abrupt one. The duration reduction though, was more gradual, as Table 9.6 of the same set of sessions shows.

Y3 FC	Ttot	COMMENTS										
		NoCtot	CQ		RQ		DS		AS		QtP	
NoS	(min.sec)		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
1. PCS, LCS	18.00	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00
2. PCS	16.25	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00
3. WCS, MCS	16.15	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00

Table 8.4 Example of Teacher-Centred Approach. *Direct Suggestions* in all three design reviews dominate principal feedback typologies. There are no questions directed to peers, and although the total number of comments is almost the same in all of the recorded design reviews, the duration from one to the other drops, because, in this case, *Direct Suggestions* become shorter and more prescriptive.

Here the critics were also two, and initially were more dialogical in their approach, although no questions or requests for suggestions were directed to the audience. The first two reviews were poorly comprehended, and they raised many *Clarifying Questions*, which resulted in a larger number of comments for them. Four *Reflecting Questions* were also asked in each of these two reviews, and in one of them five *Abstract Suggestions*.

The third and the fourth review were well comprehended, one of which was well developed as well, and the students were both less communicative. This of course reduced the number of *Clarifying Questions*, and increased the

percentage in *Direct Suggestions*. The duration time was not equally reduced abruptly though. The reason was long monologues.

As explained in Section 8.2.1 pp.165-166, the critics, having understood the design, moved on in expressing their opinions with the students much less engaged. There are clearly two different approaches by the same panel in the first two, and the last two sessions respectively.

Y2 FC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
1. PCS	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00
2. PCS	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00
3. WCS, LCS, WDS	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00
4. WCS, LCS	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00

Table 8.5 Example of Teacher-Centred Approach (Comments). The total number of comments decreases from one design review to another. Similarly, the number of Reflecting Questions and Direct Suggestions drops in this sequence of design reviews (continues below).

Y2 FC	PARTICIPATION				
	Ttot	Ts	Tp	Ttu	Ts wCQ
	(min.sec)	%	%	%	%
1. PCS	24.55	9.50	0.00	90.50	4.30
2. PCS	24.40	24.45	0.00	75.55	12.25
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90

Table 8.6 Example of Teacher-Centred Approach (Participation). Decrease was also noted in their duration as they progressed from the first to the fourth. The reason in this case is long monologues.

One more reason, which will be presented more explicitly further down, is that some critics, in the presence of a *Well Developed Scheme* or a design with potential, do not raise the number of *Reflecting Questions*, as shown in Section 8.2.1 p.169. Instead, they are with the opinion that the student does not need more assistance because of the quality of the work and the abilities displayed, and hence proceed in expounding lengthy monologues.

This also affects the student's participation time, which is evident on Table 8.6. In the last two reviews, both students are more passive, being less communicative, and with the subtraction of responses to *Clarifying Questions*, which were few, their participation is minimal.

The same pattern was met in a different panel during that same day. In the course of five consecutive design reviews, the student's participation duration percentage drops exponentially, as Table 8.7 shows.

Y2 FC	PARTICIPATION				
	Ttot	Ts	Tp	Ttu	Ts wCQ
NoS	(min.sec)	%	%	%	%
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35
7. WCS	12.35	2.25	0.00	97.75	1.85
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55

Table 8.7 Second Example of Teacher-Centred Approach (Participation). Rapid drop of students' participation percentage, especially when *Clarifying Questions* are excluded (continues below).

Y2 FC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
5. PCS, MCS	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00
6. WCS, LCS	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00
7. WCS	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20
8. WCS, LCS	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00
9. PCS, MCS, WDS	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00
10. PCS, LCS	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00

Table 8.8 Second Example of Teacher-Centred Approach (Comments). Comments are primarily given as *Direct Suggestions*, and no questions are directed to peers. The reason in this different panel of critics is again long monologues.

Feedback was delivered predominantly in *Direct Suggestions* and some *Abstract Suggestions*, as Table 8.8 of the same set of reviews illustrates. The fifth and the ninth review raised more comments, as *Poorly Comprehended*

Schemes usually do, but the ninth review raised the number of comments in, what appears in the *Total Number of Comments* column (**NoCtot**), a descending tendency in the number of comments. This is evident in the decline of number of *Reflecting Questions*, within an overall teacher-centred approach. The reason again, was long monologues, a pattern that essentially runs from the sixth review onwards.

Some critics seem to start a set of sessions with a disposition for reviews with more exchange of views between themselves and the students, but for some reason, this disposition shifts to the broad pattern of giving feedback in a one-directional way. With the mentality of ‘fault-finding’, for which suggestions come as either many brief prescriptive pieces of advice, or fewer but lengthier monologues, students become mere observers of their review. For some other critics though, this is their standard way of approaching design reviews from the very beginning of a set of sessions.

Student-Centred Comments

The following examples, shown on Tables 8.9, 8.10, and 8.11, are sets of reviews of three different panels, of eight different critics, from three different years. In these three sets of reviews, the total number of *Reflecting Questions*, in comparison to the other eleven panels, was significantly higher, and made them stand out as examples of a more dialogic approach.

Y1 FC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
6. PCS, LCS, WDS	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00
7. PCS, MCS, WDS	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00
8. PCS, LCS	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00
9. WCS, MCS, WDS	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00
10. WCS, MCS	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00

Table 8.9 Example of More Student-Centred Approach. In this sequence of design reviews the panel consisted of three critics, but it was only one of them that had a different approach, asking 12 out of the 13 Reflecting Questions in total, making a difference in the overall number of comments in this principal feedback typology.

Y2 IC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
NoS		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
1. PCS, LCS	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00
2. PCS, MCS	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00
3. PCS, MCS	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00
4. WCS, MCS, WDS	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00
5. PCS	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00

Table 8.10 Second Example of More Student-Centred Approach. Similarly, in this sequence of design reviews the panel also consisted of three critics, and again it was only one of them that had a different approach, asking 10 out of the 13 Reflecting Questions in total.

Y2 FC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
NoS		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
5	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00
6	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00
7	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00
8	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00

Table 8.11 Third Example of More Student-Centred Approach. In this sequence of design reviews the panel consisted of two critics, but it was only one of them that had a different approach, asking 10 out of the 14 Reflecting Questions in total.

In the examples of Table 8.9 and Table 8.10, each panel had three critics. The total number of *Reflecting Questions* in both sets of reviews is 13. Looking into the codified transcripts of each session though, it is only one of the critics in both sets that ask the majority of questions from this principal feedback typology. In the panel of Table 8.9, one critic asks 12 out of the 13 *Reflecting Questions*, and in the panel of Table 8.10, one of them asks 10.

Similarly, on Table 8.11, of the first recordings before the recognition of the student presentation factors, in a sequence of only four design reviews this time and two critics in this panel, there were 14 *Reflecting Questions* in total. Once more, it was one of the critics that asked the majority of them, which in this case were 10.

Y3 FC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
1. PCS, WDS	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00
2. PCS	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00
3. WCS, WDS	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00
4. WCS	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00
5. PCS, WDS	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00

Table 8.12 Fourth Example of More Student-Centred Approach. In this sequence of design reviews the panel consisted of two critics, and it was the only occasion in all 14 different panels that both critics were generally more dialogic, one more than the other. Of all 29 Reflecting Questions in total, one asked 10, and the other 19.

In the example of Table 8.12 though, which is the only exception of all 14 recorded panels, where both of the critics that consisted it, had a more student-centred approach in feedback, one perhaps more than the other, since one of them asked 10 *Reflecting Questions*, whereas the other 19 of them.

All 19 design reviews were examples of critics with a more dialogic approach in offering feedback can be found in Appendix 1. Two relevant examples in the form of codified transcripts are Table 8.13 and Table 8.14. The former one shows how all 6 *Reflecting Questions* from design review No6 came from one critic, and the latter, how both critics create a more dialogic condition in design review No3, albeit with the presenting student only.

From the 30 critics recorded, it was these 5 critics that displayed an inclination towards asking more *Reflecting Questions* compared to others. It seems that the vast majority of the recorded critics would probably, on average, ask 0 to 1 Reflecting Question per review, whereas any of these 5 critics, with the exception of the one that asked 19 in five reviews, would most probably ask 1 to 3 *Reflecting Questions* per review.

PM/N	PANEL	STUDENT	PEERS
2	RQ	23"	
2	DS		
2	DS		
2	RQ	35"	
2	DS		
1	DS		
3	DS		
3	DS		
2	DS		
3	DS		
1	DS		
3	DS		
2	RQ	14"	
3	DS		
2	DS		
2	DS		
3	DS		
2	DS		
3	DS		
2	DS		
2	CQ	4"	
2	DS		
2	CQ	21"	
3	CQ	3"	
			RQ 2"
		2"	
3	DS		
2	DS		
2	RQ	23"	
2	CQ	2"	
2	RQ	24"	
2	DS		
1	DS		
1	DS		
2	DS		
3	DS		
2	RQ	7"	
2	DS		

Table 8.13 From Table 8.11, Codified Transcript of Design Review No7.

PM/N	PANEL	STUDENT	PEERS
1	RQ	41"	
2	DS	7"	
1	DS		
2	DS	43"	
1	DS		
2	DS	10"	
2	DS	21"	
P		10"	
2	AS		
1	RQ	20"	
1	RQ	9"	
1	DS	17"	
2	DS		
1	DS		
2	DS		
2	CQ	6"	
2	RQ	2"	
2	DS		
		RS 3"	
2	RQ	22"	
2	RQ	4"	
1	RQ		
1	CQ	18"	
1	RQ	6"	
1	RQ	13"	
1	DS		
2	DS		
2	RQ	2"	
2	DS	2"	
1	DS		
2	AS	4"	
2	CQ	2"	
2	DS		
1	DS		

Table 8.14 From Table 8.12, Codified Transcript of Design Review No3.

The Well Developed Scheme Patterns

Two patterns were recognized during observations that relate to the factor of *Well Developed Scheme*, and results from the recordings represent them numerically. As explained in Unit 8.2.1 pp.169-170, some critics change their teaching approach in the presence of a more comprehensive or promising design, from more instructive to more dialogic, and some others consider the students needing less assistance, and reduce the number of comments and consequently the duration of the feedback.

The first pattern is characterized by an increase in *Reflecting Questions* and usually in the overall duration of the feedback part of the review, and the total number of comments. Examples from three panels, shown on Tables 9.14 and 8.15, 8.16 and 8.17, and 8.18 and 8.19 respectively, depict this shift, and provide the data that describe the pattern in the highlighted rows.

Y3 FC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
1. PCS, WDS	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00
2. PCS	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00
3. WCS, WDS	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00
4. WCS	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00
5. PCS, WDS	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00

Table 8.15 Example of Well Developed Scheme Increase Pattern (Comments). Significant increase in total number of comments and Reflecting Questions in design reviews assigned with the factor Well Developed Scheme (continues below).

Y3 FC	PARTICIPATION				
	Ttot	Ts	Tp	Ttu	Ts wCQ
	(min.sec)	%	%	%	%
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70
2. PCS	11.05	22.60	0.00	77.40	10.20
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30
4. WCS	14.40	15.20	0.00	84.80	9.20
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00

Table 8.16 Example of Well Developed Scheme Increase Pattern (Participation). The same pattern is also met in the total duration of these design reviews. In all cases depicted in both tables, critics seem to change their approach to a more dialogic one, and become more talkative, implying a bias towards well-developed design schemes.

The panel depicted in Tables 8.10 and 8.11 is the same as the one of Table 8.12, where both critics had a far more dialogic approach in offering feedback. It is evident though, how the total number of comments, *Reflecting Questions*, and the total duration of the feedback part of the review increase when the factor of *Well Developed Scheme* appears, compared to the other reviews in between.

With the exclusion in the total number of comments, because of long monologues in *Direct Suggestions*, the example of Tables 8.14 and 8.15 show the same characteristics that describe the pattern. Here, there is a substantial increase in the number of *Reflecting Questions*, as well as in the duration of feedback.

Y3 FC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
6. WCS, MCS, WDS	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00
7. WCS, LCS	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00

Table 8.17 Second Example of Well Developed Scheme Increase Pattern (Comments). In this panel, there was a significant increase only in *Reflecting Questions* in design reviews assigned with the factor Well Developed Scheme, and not in the total number of comments due to long monologues. (continues below).

Y3 FC	PARTICIPATION				
	Ttot	Ts	Tp	Ttu	Ts wCQ
	(min.sec)	%	%	%	%
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60

Table 8.18. Second Example of Well Developed Scheme Increase Pattern (Participation). The same pattern also affected the total duration of these design reviews. In all cases depicted in both tables, critics seem to change their approach to a more dialogic one, and become more talkative, implying a bias towards well-developed design schemes.

In the example shown in Tables 8.16 and 8.17, there is a relatively high number of total comments, but no significant increase in the duration of the feedback. When looking at Table 8.16 as a sequence of reviews on the columns of *Reflecting Questions* though, there is a clear shift in figures of that particular principal feedback typology.

Observations during this pattern have identified a general shift in the disposition of critics. They seem to be more content with what has been presented to them, and being in this disposition, they seem to want to find out more about the idea behind the scheme by asking *Reflecting Questions*. Usually they produce long responses, and hence the increase in the feedback duration. Another reason that may make a session lengthier in this pattern is that critics may use long monologues to explain to everyone the reasons for this scheme being of good quality.

Y1 IC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
1. WCS	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00
2. WCS	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00
3. PCS	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00
4. WCS	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00
5. PCS	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00
6. PCS	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00
7. WCS	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00
8. WCS, MCS, WDS	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00
9. WCS	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00
10. WCS	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00

Table 8.19 Third Example of Well Developed Scheme Increase Pattern (Comments). Looking at the column of Reflecting Questions, there is a clear shift in in the number of comments in this principal feedback typology noted in design review No 8, assigned with the factor Well Developed Scheme. The number of comments is generally high, but not the highest compare to the previous two examples of the same pattern (continues below).

A general pattern that could illuminate the reasons behind this particular pattern is that *Reflecting Questions* would most often be used to address a positive aspect of design scheme. The predominant mentality that sees criticism as ‘fault-finding’ has most critics addressing the negative issues of a scheme with *Direct Suggestions* in a prescriptive and one-directional way.

Y1 IC	PARTICIPATION				
	Ttot	Ts	Tp	Ttu	Ts wCQ
NoS	(min.sec)	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05
2. WCS	6.40	4.25	0.00	95.75	4.25
3. PCS	11.25	10.20	0.00	89.80	7.45
4. WCS	6.50	0.50	0.00	99.50	0.50
5. PCS	9.10	1.80	0.00	98.20	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67
7. WCS	8.30	0.00	0.00	100.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75
9. WCS	4.05	10.40	0.00	89.60	7.10
10. WCS	6.35	9.10	0.00	90.90	9.10

Table 8.20 Third Example of Well Developed Scheme Increase Pattern (Participation). Similarly, there was no major shift in the duration of this design review compare to the other two examples of the same pattern.

On the other hand, a well-developed scheme is by definition more rigorous and usually has more depth and breadth in its development and result, a fact that makes it inviting more questions with regard to the reasons behind its approach, as a more comprehensive and occasionally outstanding scheme. The ‘fault-finding’ mentality inhibits a similar approach of exploration with the student into recognizing and understanding the negative aspects.

Once more, this approach does not necessarily impede learning, providing reasons behind opinions are given, and students clearly demonstrate they have understood the feedback they received. It promotes a model of a learning environment though, where students are generally passive in the process of assessment and evaluation, with minimal social and intellectual interaction. This forms an example for evaluation in a public situation for them, and the evidence in the contributions from the peers when asked, as principal feedback typologies, is remarkable. Results related to the peers’ participation would be presented in the next units.

Evidence for the second pattern was found in the recordings twice, although it was repeatedly recognised since the observations of Phase 1 and Phase 2. Tables 8.20 and 8.21 depict the characteristics of a pattern completely opposite

to the previous one. The total number of comments and the total feedback duration drops dramatically, whereas the number of *Reflecting Questions* remains close to the general average, and is the only element that doesn't follow the pattern. In both examples, the critics clearly and very openly expressed that the student 'needed less assistance'.

Y2 IC	PARTICIPATION					NoCtot
	Ttot	Ts	Tp	Ttu	Ts wCQ	
NoS	(min.sec)	%	%	%	%	
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21
5. PCS	22.50	23.05	0.00	76.95	11.55	34

Table 8.21 Example of Well Developed Scheme Decrease Pattern. There is a significant decrease in the total duration of design review No 4, which was assigned with the factor *Well Developed Scheme*. Compare to the Increase Pattern on the same factor, critics explicitly expressed the view that in that occasion the student 'needed less assistance'.

Y1 FC	PARTICIPATION					NoCtot
	Ttot	Ts	Tp	Ttu	Ts wCQ	
NoS	(min.sec)	%	%	%	%	
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26
9. WCS, MCS, WDS	8.20	17.20	0.00	82.80	17.20	9
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21

Table 8.22 Second Example of Well Developed Scheme Decrease Pattern. There is a significant decrease in the total duration of design review No 9, which was assigned with the factor *Well Developed Scheme*. Compare to the Increase Pattern on the same factor, critics explicitly expressed the view that in that occasion the student 'needed less assistance'.

In the second example though, on Table 8.21, before the highlighted review No9, the panel had to review yet another two well-developed schemes. Both were poorly comprehended, in one of them the student was less communicative, and in the other more communicative. Because review No9 was well comprehended and the student more communicative, it seems that the

pattern does not only relate to the quality of the work, as a well-developed scheme, but the students themselves. After all, it is the student that 'needed less assistance'.

The quality of work, its representation and presentation, and the fact that the student appears confident and knowledgeable, is a condition, according to these critics, that doesn't require all of the designated time for feedback. It can be assumed then, that this view is predicated on the mentality of 'fault-finding', and since there are not that many negative elements to comment on, after explaining the reasons the design reached the learning objectives at a high standard, primarily in *Direct Suggestions*, they moved on to the next review.

The RQ-DS Pattern

This pattern is simply a *Reflecting Question* immediately followed by a *Direct Suggestion*. The sequence of comments, and the rapid transition from one to the other, does not allow the student time to respond, cancelling out in this way the question. With regard to this pattern, a suggestion was mentioned in Section 5.2.2 p.99, where Morgan and Saxton recommend teachers to avoid answering their own questions.

This pattern did not become clear from the codified transcripts immediately, until the analysis of results of the following panel, shown on Tables 8.22 and 8.23. The highest student participation time of all recorded reviews was noted in review No6 of this panel of two critics. The total number of comments is almost the same in both, as well as the one of *Reflecting Questions*. Student participation time for review No7 though, considering the number of *Reflecting Questions*, is remarkably low, compared to the one of review No6.

This observation caused a second look at the codified transcript and its notes (Table 8.24). First of all, the student was very diffident and most of the responses to *Reflecting Questions* were short, and in one occasion there was no answer, followed by another *Reflecting Question* from the other critic. In five occasions though, there was no answer to a *Reflecting Question* simply because it was followed immediately by a *Direct Suggestion*.

Y2 IC	COMMENTS										
	NoCtot	CQ		RQ		DS		AS		QtP	
		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%
6. WCS, WDS	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00
7. PCS, LCS	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00

Table 8.23 Example of the RQ-DS Pattern Results (Comments). The highest student participation time of all recorded reviews was noted in review No6 of this panel of two critics. The total number of comments is almost the same in both, as well as the one of *Reflecting Questions* (continues below).

Y2 IC	PARTICIPATION				
	Ttot	Ts	Tp	Ttu	Ts wCQ
	(min.sec)	%	%	%	%
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50

Table 8.24 Example of Results of the RQ-DS Pattern (Participation). Student participation time for review No7 though, considering the number of *Reflecting Questions*, is remarkably low, compared to the one of review No6. The results illustrated in both tables are related to the RQ-DS Pattern, where in this two design reviews of the same panel, in five occasions there was no answer to a *Reflecting Question* simply because it was followed immediately by a *Direct Suggestion*.

The reason for this reaction relates to the general approach most critics have when faced with a *Poorly Comprehended Scheme* and a *Less Communicative Student* together; they become more prescriptive, and as mentioned in Unit 8.2.1 pp.168-169, they assume a more patronising stance that does remain somehow within a supportive behaviour, but extends throughout the session. This stance for this pattern practically means that the critics by the time they ask a *Reflecting Question*, they then answer it for themselves with a *Direct Suggestion*.

PM/N	PANEL	STUDENT	PEERS
2	CQ	16"	
2	CQ	24"	
2	DS		
1	CQ	4"	
1	DS		
1	CQ	13"	
1	RQ		
2	RQ	16"	
2	DS	2"	
2	DS		
1	DS		
1	DS		
2	RQ	4"	
2	RQ	4"	
			7" CQ
2	RQ	2"	
1	RQ		
1	DS		
1	RQ		
1	DS		
1	RQ	3"	
1	DS		
2	DS		
1	DS	4"	
1	DS		
2	DS		
2	RQ		
2	DS		
2	DS		
1	RQ	7"	
1	RQ		
1	DS	4"	
2	DS		
2	DS		
2	RQ		
2	DS		
2	RQ	2"	
2	DS		

Table 8.25 Review No7 Codified Transcript. Example of RQ-DS Pattern. In five occasions there was no answer to a *Reflecting Question* simply because it was followed immediately by a *Direct Suggestion*.

8.2.5 Peers' Participation

The general average of peers' participation duration in all recorded design reviews is 0.34%, which is almost negligible, since in a typical 20 minute feedback part of a design review this translates to a mere participation of 4 seconds.

In all 59 design reviews that were recorded, peers participated 11 times. Some critics, usually at the end of their feedback, will ask the audience to offer their thoughts and questions to the student presenting. Most of the times, there is no response on behalf of the peers. Of all 11 times that peers participated, 2 were responses to the critics' request for their suggestions, which both were *Direct Suggestions*. All the rest of their responses occurred during the feedback part without being asked, and not at the end. In those occasions, 3 were *Clarifying Questions*, 4 were *Direct Suggestions* and 2 were *Reflecting Questions*.

In total of 11 peer contributions then, 6 were *Direct Suggestions*, 3 were *Clarifying Questions*, and 2 were *Reflecting Questions*. First of all, the size of this sample itself is striking evidence of the peers' level of passiveness. Although it isn't big enough for safe conclusions, the tension towards *Direct Suggestions*, leaving *Clarifying Questions* aside, indicates that the predominant use of *Direct Suggestions* from critics, sets an example to students as the most common way to express feedback.

There are two noteworthy aspects relating to peers' participation that came from Phase 5 observations. When a student's session is completed, and s/he returns to sit with the rest of the peers at the audience, depending on the furniture arrangement, the student is most likely to sit at one of the ends, or at the back. When sitting as far away as possible from the critics' panel, it is highly unlikely that they will participate in the feedback of the students presenting subsequently.

The observation just mentioned was noted first, and hence the second observation was only a deduction of the first, since most students are more likely to participate in the feedback of others before they present.

There are of course students that are keen to participate before and after their presentation, and they most likely to be *More Communicative Students*. The pattern mentioned above though, indicates a mentality that sees the 'crit' as an isolated event where, primarily, work is assessed and students are marked, and after the completion of a presentation, the event, for some students, is over.

One more factor that influences this condition is extreme fatigue after working long hours for consecutive days and nights. It is only natural for students to be devoid of any will to participate after their presentation, as the primary purpose is complete.

Students see the design review as an event where the primary source of feedback is expected to be the critics, leaving them with an impression they are less responsible for it. The critics' domination in providing feedback enhances and maintains this impression. Students are reluctant to participate more actively, and when they do, they are most likely to ask a *Clarifying Question*, or their *Direct Suggestion* will be either a positive comment, or a suggestion. They choose a safe way of contributing, with non-negative comments, so they don't look unpleasant to their peers.

Clearly, students do not appear to be active participants in design reviews. The way of abstract invitation they are most often asked to participate, i.e. 'would anyone like to add something?' does not seem to be effective. Experience in participating in assessment should give them the courage to participate more, and learn how to express and exchange with everyone both positive and negative opinions though the process. But their initial engagement itself requires courage.

A shift to a mentality that promotes and encourages a more socially active and experiential participation could change the overall learning experience in design reviews, both in terms of understanding architectural design and representation, as well as offering constructive feedback in a social context.

8.3 Observation Notes

In this Unit, general notes from Phase 5 observations describe some aspects that relate to teaching approaches and feedback, as well as behaviours and mentalities recognised in critics and students during, and right after undergraduate design reviews.

A very recognizable pattern in the observed design reviews relates to the vocabulary critics use to express their views and suggestions. Usually, when they would offer their opinion on positive aspects of a design scheme, they would begin by using the verb 'like' or 'love', i.e. 'I really like what you've done with...' or 'I love this little detail here'. Some critics' feedback would remain within this expression of feeling, as these verbs reflect, and not proceed into explain it with a reasonable argument.

An observation immediately related to this pattern was noticed right after design reviews when students were taking down their work and discussing the outcome of their reviews. A more common question students from different review groups would ask one another after completing their sessions would be, 'Did they like yours?' and less 'How did you do?' or 'How was your work?' Sometimes, even if the question is one the last two ones, a student may reply something along the lines, 'They didn't like [...], so I have to change it'.

It seems that the use of the phrase 'I like' or 'I love' connects the outcome of feedback to critics, and raises it to a matter of liking, instead of reasoned argumentation that relates to design criteria. This only reflects some students' mentality though, and not necessarily the fact that they may have understood the criteria and the reasons behind their feedback. It is a mentality that according to the results of this research, and extensive evidence in literature, can be related to the dominance of teacher-centred feedback and teaching approach.

Words that indicate connection of the feedback to the critics seem to enhance the perception of authority already attached to them by many undergraduate students, as a result of their prior educational experiences.

Furthermore, words that possess an abstract meaning, and would affect the substance of feedback, are also used quite often. Words such as 'interesting', 'amazing', 'horrible', 'successful', 'unsuccessful', 'nice', are used to describe aspects or a design scheme altogether. Again, some critics would not proceed in giving reasons that would clarify the meaning of these words, and hence relate these reasons to the aspects or the whole scheme for which the opinion, expressed in these words, was regarding.

The issue with these words is the fact that they relate to the subject using them. For example, something is 'interesting' to 'someone', in which case this someone is a critic. It is clear then, that the use of these words, further enhance critics as authority figures.

Both examples of use of words in expressing an opinion seem to have an immediate effect on how students express theirs. Results from Phase 5 observations have shown that in these few times where peers participate, and most probably will offer positive feedback, phrases often start with 'I really liked' or 'I loved', and will continue by using a word with a positive, but abstract meaning, i.e. 'I really liked what you did with [...], it was very interesting'.

As mentioned in the previous section 8.2.5 p.195, students prefer to appear nice to their peers with safe contributions, in a way that will not produce further dialogue or debate, since they have a positive character but are inexplicit.

Critics should add reasoned arguments to support claims that initially may appear vague, in order to render the used words more specific and less abstract and broad, and help students recognize the authority of reason as the guide for their feedback.

The same applies for the use of words that express feeling, such as 'like' and 'love'. Critics expressing positive feelings about a student's work is a form of encouragement and an expression of enthusiasm, both important aspects that aim to provide more comfort to a great deal of students for whom a design review is not a relaxing environment to be in. Feeling should also be

accompanied and supported by reason, where together provide the conditions that render the design review a more effective learning environment, and set an example for understanding of how to use both when expressing an opinion.

Conclusion

The results reflect, to a great extent, the general view of design reviews as depicted in literature. This research and its results though, did not aim to be used in order to generalize a condition, as they merely reflect one School at a certain period of time. They aimed to provide insights that would explain and clarify the condition better, in order to improve how it is understood, with regard to oral feedback typologies and how they affect the design review as a social, participatory and experiential activity.

Very broadly, the frequency in use of the principal feedback typologies, and the participation duration of critics in a design review has a significant effect in all of the four aspects just mentioned. As an activity, the action is largely found on the critics' side, as their participation duration indicates that they are the main source of feedback. For students then, it is more of an event where they are passively part of, and less of an activity.

Consequently, participation on their behalf is minimal. Considering that this minor participation duration comes predominantly from the students presenting, leaving peers in the audience with almost negligible participation duration, the aspect of it as a social event loses its potential almost entirely.

Subsequently, with these three aspects appearing to have such characteristics, the experiential aspect of design review can be seen to be less effective in students.

More detailed discussion of the results, as well as in relation to the reviewed literature will be presented in Chapter 9.

Part 3

General Discussion & Conclusion

Chapter 9

General Discussion

9.1 Introduction

This chapter is divided into three units. The first two units involve discussion of results, and the last one, a proposal for architectural pedagogy. Unit 9.2 aims to discuss the results as presented in Chapter 8, and Unit 9.3 aims to compare the results and findings of this research that are relevant to those of Dannels and Martin's research. It is worth noting that their research came to light after the vast majority of this research was conducted. The objectives and the context they conducted their research is very similar to this research, and therefore it was decided to be presented in this Chapter, so the results of both pieces of research may be involved in a comparative analysis.

Based on the results and findings, as well as on the review of the literature, the aim of Unit 9.4 is to propose a concise theoretical framework for teaching and assessing in design reviews as a set of principles.

9.2 Discussion of Results

The results from all 59 recorded design reviews showed that the students' participation duration is almost 13%, and when responses to *Clarifying Questions* are excluded, it becomes almost 8.3%. In a typical 20-minute feedback part of a design review, this practically translates to just over two and a half minutes of participation duration (2'36''), and over a minute and a half (1'39'') with the exclusion of *Clarifying Question* responses (8.2.3 p.177).

Analysing the results by student presentation factors, the largest shift is met in design reviews assigned with the factor of *Well Developed Scheme* where the figures go as high as almost 16.5% (8.2.3 p.179), and almost 11.2%, and the smallest shift in design reviews assigned with the factor of *Less Communicative Student* where figures are as low as almost 7.8%, and almost 4.2% without *Clarifying Questions'* responses (8.2.3 p.178).

The domination of *Direct Suggestions* as the principal feedback typology with the most frequency, in terms of influence of oral feedback, is the main reason for these figures. Generally on average, almost 65.3% of oral feedback is *Direct Suggestions*. The percentages in most of the factors remained around this figure, with the exception of *More Comprehensive Scheme* and *Less Communicative Student*, where the figures increased to 71.56% and 73.82% respectively (8.2.1 p.164).

Reflecting Questions, on general average, are 10.17% of oral feedback. Their lowest percentage is met on design reviews with the factor of *Less Communicative Student* at 6.38%, and the highest percentage of 15.98% is recorded in design reviews with *Well Developed Scheme* assigned to them (8.2.1 p.164).

Clarifying Questions, on general average and across most factors, are approximately between 15% and 16% of oral feedback (8.2.1 pp.164-169). As expected, in design reviews with the factors of *More Comprehended Scheme*, and *Less Comprehended Scheme*, which immediately relate to this typology, the percentages dropped to 9.01%, and increased to 22.08% respectively (8.2.1 p.164).

Abstract Suggestions' percentages seemed to be influenced more from critics personal teaching approach and way of offering feedback, and less affected by the characteristics of the recognized student presentation factors (8.2.2 p.172).

Responses to *Direct Suggestions* are almost fixed around 33% across all factors, except *Well Developed Scheme* (8.2.2 p.170). Considering the percentage of *Direct Suggestions* in total is also fixed in approximately 65%, it could be inferred that there is an almost 1:2 ratio in the percentage of responses they produce (8.2.1 p.164).

The exact opposite ratio, and slightly more, occurs with *Reflecting Questions*. They generate lengthier responses, between 2 to 2.5 times the percentage of its comments, which means that should, for example, the percentage of *Reflecting*

Questions in critics' comments is 15% (8.2.1 p.164), the percentage of responses to this typology in the student's participation duration should be from 30% to 38% (8.2.2 p.170).

Responses to *Clarifying Questions* are around 36% as a general average. They increase 10 units in the factors of *Poorly Comprehended Schemes* and *Less Communicative Student*, and decrease 10 units in *Well Comprehended Scheme* reviews (8.2.2 p.170). In the former case, presentation and representation issues are responsible for questions to which answers contribute almost half of participation duration (46%), whereas in the latter case almost a quarter.

It seems then, that in the best-case scenario, in a well-presented scheme, responses to *Clarifying Questions* should by average be around 25% of the students' participation duration. This means that in a worse case scenario, almost half of the feedback time is consumed in clarifications, rather than more direct and productive feedback. Greater care should then be given in assisting students preparing for their presentations and representation of their proposals.

Consequently, with responses to *Abstract Suggestions* being almost negligible, and the ones to *Direct Suggestions* being almost static, responses to *Reflecting Questions* and *Clarifying Questions* became the main determinants in participation duration shifts. On the one hand then, it is the teaching approach, with more questions that can cause more interaction, and on the other, students' better proposal presentation and representation that can contribute in more time in feedback dedicated to the actual design scheme.

Certain mentalities seem to be behind the frequencies of the principal feedback typologies, which are only their manifestation as oral feedback. The perception that understands criticism as 'fault-finding', and the broad pattern of one-directional delivery of feedback as a teaching approach explains the results to a great extent (8.2.4 p.179).

Observations identified more specific patterns in feedback and teaching approaches, and the combination with the results from the PFTP Recording

Method showed what appear to be three main teaching approaches (8.2.4 pp.179-194). The shifts in principal feedback typologies' frequencies seem to be interrelated to student presentation factors as well as these teaching approaches. These approaches are not quantified, with regard to the number of critics observed in following them, but were merely recognized as a result of the data analysis (8.2 pp.164-179). They only have certain characteristics, and reflect some attitudes and mentalities, but not enough in order to categorize them with precision, and therefore are broadly described.

1) Some critics are predominantly instructive in their approach. This means that they tend to identify the positive and the negative aspects of a design scheme themselves, and offer their suggestions for improvements and corrections to the student in an instructive manner, with minimum engagement in the feedback process of the student presenting, and/or the students in the audience. Regardless of any of the factors, the vast majority of their comments would be *Direct Suggestions*, and their overall mentality would inhibit dialogue with the student presenting or discussion with everyone.

The instructive approach is usually manifested in either many but short responses of opinions and instructions or fewer but longer in duration responses. Generally, it conveys a strong authoritative stance.

2) Some other critics are less instructive than the ones previously mentioned, but nevertheless mostly instructive, but they would engage students, to some extent, in the process of feedback. This seems to be the predominant approach, reflected in the general average of results. Some of the identified student presentation factors appear to affect this teaching approach.

In the occasions of *More Comprehensive Scheme* and *Less Communicative Student* factors, they become more instructive in their feedback, whereas in presence of a *Well Developed Scheme* they tend to be more dialogic than usual, but not more dialogic than instructive, which remains the main form of feedback for them (8.2.4 p.179).

3) Very few critics appeared to have an almost equal share in dialogic and instructive approach. Besides the use of principal feedback typologies though, it was the overall mentality and attitude that provided the conditions for a discussion, since almost any comment was open for debate. They would maintain this attitude regardless the student presentation factors.

These approaches came to surface without being in the research's objective, and since the methods supplied only a certain amount of data and information sufficient for the established objectives, their description remained broad. Further research with a methodological approach tailored for identifying and understanding typologies of teaching approaches in greater depth is demanded to shine light in this aspect of architectural pedagogy.

In addition, although broad in their description and understanding, these teaching approaches as presented, are evidence of lack of a common ground in teaching in design reviews, and therefore assessing and learning. This finding agrees with what appeared in the literature review as a need for training critics for the event of the design review (Attoe & Mungerauer 1991, 42). The establishment of a theoretical framework with certain teaching principles for this purpose should be essential for any School of Architecture. A proposal of such a framework is presented in Unit 9.4 p.209. It should be clarified that this framework does not aim to regularize a specific methodology in a prescriptive way, but proposes common principles around which critics can adapt their own teaching style.

Peers' participation is almost negligible. In these few contributions, the majority were *Direct Suggestions*, expressing mostly positive criticism, and *Clarifying Questions*. They refrain contributing negative criticism, as they seem not to want to appear unpleasant to their peers. They would use phrases beginning with 'I really like' or 'I love', and they would usually continue with the use of a word of abstract meaning in order to express their thoughts, such as 'interesting' or 'nice' (8.2.5 p.195).

Some critics though, very commonly use words that express feeling and abstraction in their feedback. This appears to set an example in students when they express theirs. The use of such words reinforce the authoritative position of critics, since observations have shown that after design reviews students would often discuss about the course of their review with the use of questions and expressions such as 'Did they like it?' or 'I have to change [...], because they didn't like it' (8.3 p.197).

Expressing positive feelings about a work is a demonstration of encouragement, much needed in an environment that is uncomfortable for most students, but feeling should also be accompanied and supported by reason, where together provide conditions for a more effective learning environment, and set an example for understanding of how to use both when expressing an opinion, skills that are essential in their professional, private and public contexts.

9.3 Comparing the Thesis' Results to Dannels and Martin's Feedback Typologies

In a research conducted in five Schools of Design of the United States, (5.3 p.110), Dannels and Martin identified nine types of feedback in design reviews across novice to graduate years (Dannels & Martin 2008, 135-159).

The 9 identified types, as well as their frequencies are: **Judgment** (25.4%), where critics interpret, evaluative and assess a design in the form of statements; **Process Oriented** (20.8%), where statements or questions relate to the design process, as a process of creation and decision making; **Brainstorming** (18.3%), where critics expressed in the form of statements or questions their views on potential aspects that the student could consider; **Interpretation** (12.4%), where critics react to a design and try to make sense of it with a statement or question; **Direct Recommendation** (9%), where critics give specific advice about a design aspect; **Investigation** (5.1%), where critics request more information regarding the design or the design process in the form of questions; **Free Association** (3.7%), where critics immediately reacted to a design by associating it to an example known to them; **Comparison** (2.8%), which is similar to *Free Association*, but the reaction is more intentional and

strategic than spontaneous, and finally, ***Identity Invoking*** (2.5%), where critics, in the form of statements or questions, invited student to consider themselves as designers in the wider context of the profession.

Some of these feedback types fit more clearly into only one of the principal feedback typologies, whereas others fit into more than one, and some others could be part in all three of them. More in particular, *Judgement*, *Interpretation*, *Direct Recommendation*, and *Free Association* are clearly teacher-centred comments and can only fit in the principal feedback typology of *Direct Suggestions*, since the four codes from which this principal feedback typology derived have the characteristics of these types (7.3.1 p.135).

In a similar manner, the type *Investigation* could be part of the principal feedback typology of *Reflecting Questions*, as well as the principal typology of *Clarifying Questions*. *Comparison* and *Identity Invoking* could both be part of *Direct Suggestions* and *Abstract Suggestions*. The remaining types of *Process Oriented* and *Brainstorming* could fit in any of the three principal feedback typologies.

Their study contributes one more aspect in relation to each of the identified types. One or more of them are connected to a notion, which in turn relates to the role of the teacher, in a similar way principal feedback typologies were connected to a concept. Dannels and Martin observed that,

“The experts (critics) were directive (direct recommendation, process oriented) yet reactive and reflective (identity invoking, free association, interpretation), creative (brainstorming, comparison) yet exploratory (investigation) and evaluative (judgement)” (Dannels & Martin 2008, 151).

Most of these notions though, seem to reflect more the purpose and intention of a type, and less that by using it will achieve what the notion reflects. It is the critics' teaching approach and the mentality that will contribute towards that aim. This of course applies to the feedback types that could be part of more than one principal feedback typology.

For example, should *Brainstorming* expressed as a *Direct Suggestion*, a teacher-centred typology (7.3.1 p.135), the notion of creativity will primarily reflect the critic as a creative thinker. It may inspire and trigger more ideas in the student, but that will be depended on the abilities of the student, and whether the critic is aware of these abilities and chooses to express an idea in this manner in order to address this ability. Furthermore, the overall mentality of the design review conduct, as critics set it, may allow more discussion, and ideas that may be proposed as part of brainstorming could appear as a base for dialogue.

On the other hand, should *Brainstorming* expressed as a *Reflecting Question*, a student-centred typology (7.3.1 p.135), the question should aim to invite the student to brainstorm, invoking the student's creative abilities, and together with the critic reflect on the spot more directly, and perhaps with more immediate results, in a way that they may appear during the feedback session of the design review.

With regard to frequencies, and to what extent they could relate to the ones of this research, no clear conclusion can be drawn as most of the feedback types could be part of more than one principal feedback typology, which is expected, given the more specific results of the former and the broad of the latter. The types that can only fit in *Direct Suggestions* though, add up to 50.5%. The fact that a part of another four types, which all together add up to 43.4%, could potentially be part of *Direct Suggestions*, can form one more evidence of the dominance of teacher-centred comments in design reviews, which, as Salama suggests (Salama 2015, 79), appear to be more evaluative than instructive, and feedback, more prescriptive than informative.

Furthermore, with regard to their frequency across years, the 3 types, *Judgement*, *Recommendation* and *Free Association*, which, as mentioned, are teacher-centred comments, dominated the freshman studio with 56.1%, 22% and 12.2% respectively. The types of *Process Oriented* and *Brainstorming*, which have the potential for a more dialogic approach, and could fit in all three principal feedback typologies, as well as the type of *Investigation*, which is

clearly dialogic and could be part of the *Reflecting Questions* typology, did not occur in this studio at all.

On the contrary, in the graduate studio, *Process Oriented* and *Brainstorming* types were more frequent at 37% and 27.2% respectively, compared to *Judgement*, *Recommendation*, and *Free Association*, which did occur, but at the low percentages of 14.8%, 9.9% and 3.7% respectively.

Essentially, these results portray the same pattern and condition mentioned in Section 7.3.3 (p.151), where the critics' teaching approach in graduate years was observed to be more dialogic, and the overall condition looked like a discussion between colleagues that explore a design scheme together.

In addition, the results of this research, especially with regard to the first two undergraduate years concur to a great extent with the general teaching approach observed in the results of the freshman studio at the American Design School, as described above. In both studies, critics are mostly instructive, and engage only to some extent students in the feedback process.

The notions of directedness, reactivity and reflectiveness, creativity, exploration and evaluation, are clearly connected to the notions identified in the nine types of feedback. The way to express them can be the proposed feedback types, but in order to reflect the notions successfully, the choice of approach, being teacher-centred, student-centred or subject-centred relates to the principal feedback typologies in which they are part of, and which should be considered.

The knowledge of such a spectrum, from broad to narrow and vice versa, as part of teaching training for design reviews, could assist teachers in selecting feedback types that respond to an occasion in the most appropriate way, and consequently students in their training, education, and future vocational endeavours.

9.4 A Theoretical Framework for Architectural Pedagogy and the Design Review

Understanding feedback types and typologies is an essential aspect for architectural pedagogy training, not only for the context of design review, but also for tutorials and desk 'crits' in the studio. There are also other aspects critics and university teachers should be trained in, as they immediately influence teaching.

The literature review discussion (6.2 p.115) revealed four major aspects in pedagogy in general that can apply in offering feedback, and critics and that teachers should be aware of. In a broad sense, the tower crane metaphor (Diagram 9.1) depicts these four aspects as a set of principles on to which they could adapt their teaching style, providing they understand its element of interconnectedness and interdependence.

The teachers, as the crane, and the students work together to construct the foundations upon which the students should develop their own superstructure and become whatever they want.

If any of the two elements that provide balance to the crane is not taken into consideration (*Behaviour* and *Attitude*), the crane will collapse, or if the *Site* is not properly prepared, the operation will be difficult to take place effectively. The *Process*, and its reasons for being so as a response to certain learning objectives, should be made clear to the students, and the students should be able to understand it better by being part in it.

All four major aspects, and a good knowledge of feedback types and typologies, should all together provide a learning condition in a design review appropriate for a social, participatory and experiential activity.

The elements that relate to each aspect (6.2 p.115) are summarized in Diagram 9.2.

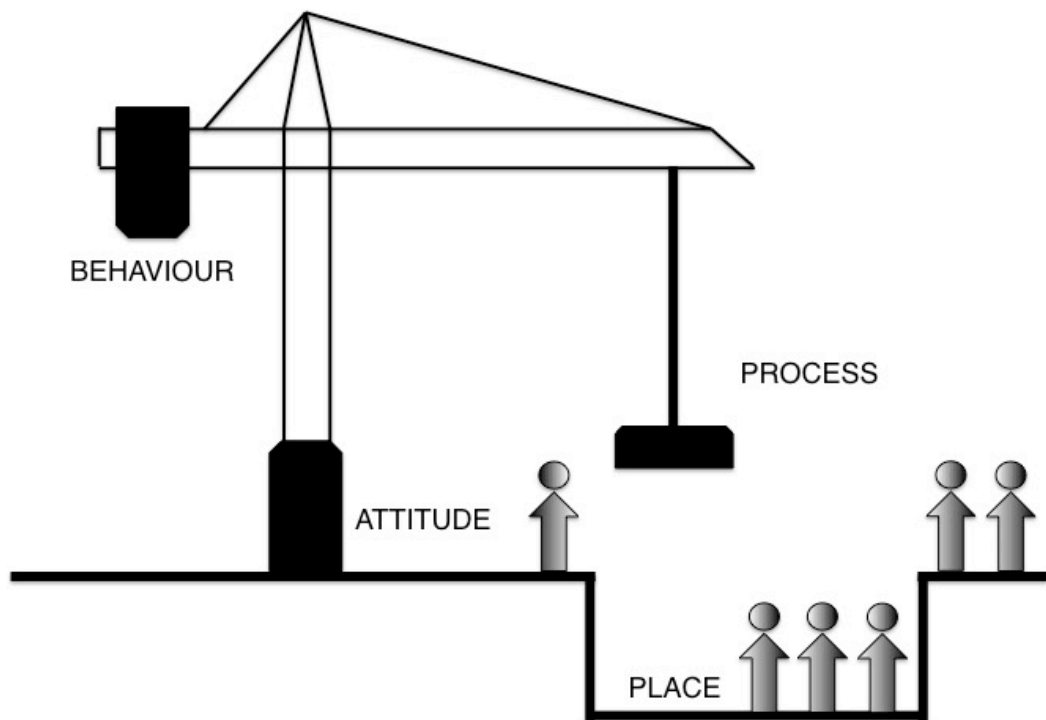


Diagram 9.1. The Tower Crane Metaphor. Part of the stability of a tower crane depends on the central counterweight ballast at the base (*Attitude*), and the counterweight ballast of the counter jib (*Behaviour*). The metaphor represents these two elements' state of equilibrium in relation to the workload and the way it is operated (*Process*). The preparation of the site to a condition suitable for working is essential, and an integral part of the construction process (*Place*).

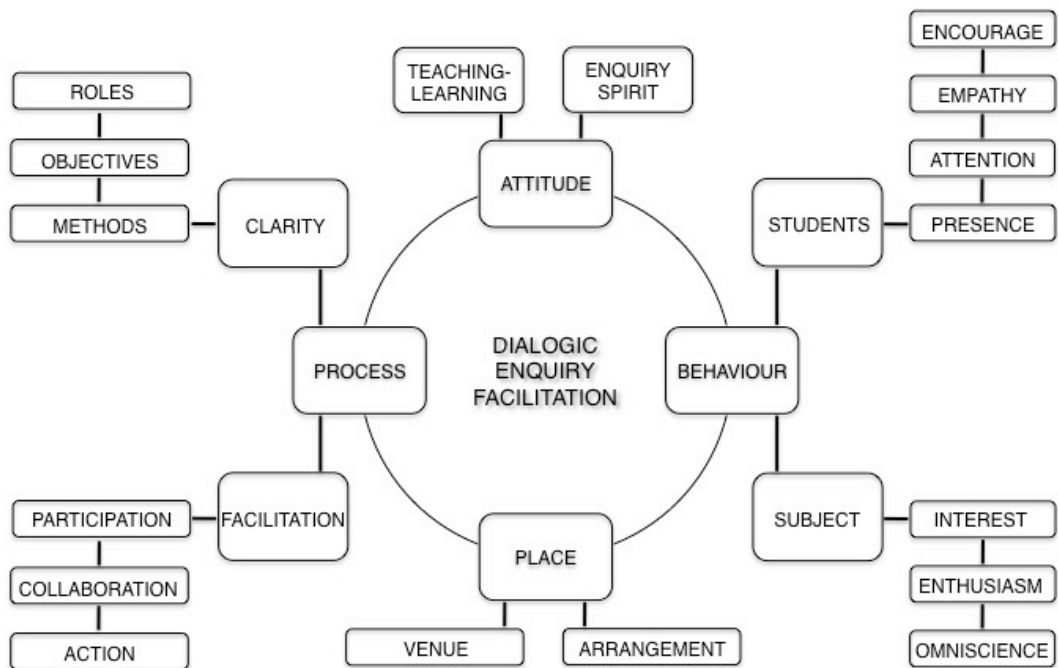


Diagram 9.2. Educational and pedagogical aspects for facilitating dialogic enquiry

It seems that in the early stages of an architect's training and education, feedback appears to be more instructive and evaluative, rather than more constructive and informative. At the centre of this learning situation then, as portrayed and depicted in the diagrams above, there should be more dialogue and more questions that invite students to reflect and participate in the assessment process. Above all, there should be a shift in the general mentality and attitude of approaching design reviews from 'fault-finding' and prescriptive feedback, to a more exploratory situation that leaves a sense of communal achievement in learning to everyone. It is the former mentality, for example, that transforms a *Direct Suggestion* to a direct order, and the latter, to an opinion that can be explored through dialogue and discussion.

The design review should then be setting an example for assessment, and how to be critical on someone's work. On the one hand, it is to understand the four major aspects, as well as feedback typologies and types, and together with the students be in a social, participatory and experiential activity that creates an understanding of them. On the other hand, it is to assist them in understanding that this knowledge of the four major aspects and the feedback typologies and types apply in professional and public contexts, by creating the conditions that set examples of such contexts that are relevant to the reality they are going to find themselves in after their studies.

As broadly depicted in the tower crane metaphor, and in more detail in Diagram 9.2, understanding the universal theoretical framework, as well as understanding feedback typologies and feedback types in relation to this framework for design reviews, is an aim for both teachers and students of architecture, since the same set of principles is essential for teaching, learning and assessing together in group contexts.

For teachers and critics, as well as students then, this understanding should be the result of theoretical grounding, as part of training for the former group, and lectures for the second, and of course practice in design reviews. Further practice can occur in the studio in desk 'crits' between tutors and students, and students between themselves. Design 'crit' or a desk 'crit' then, in the conduct

between a critic and a student or between students, teaching, learning and assessing in these contexts is through offering feedback.

Therefore, it can be argued that the universal theoretical framework in relation to principal feedback typologies, forms two sets of principles for architectural pedagogy suitable for design reviews and desk 'crits' in the studio that aim to provide the conditions for a social, participatory and experiential activity based on dialogue and enquiry.

In a broad sense, on the one hand there is a set of the four principles of Behaviour, Attitude, Site, and Process and on the other, another set of the three principal feedback typologies of *Direct Suggestions*, *Reflecting Questions* and *Abstract Suggestions*. Together they could become one new theoretical framework for architectural pedagogy for contexts where feedback is synonymous to teaching, learning and assessing.

More narrowly seen, the four principles (Diagram 9.1) could be understood better when broken down to the elements they refer to (Diagram 9.2), and equally, the three principal feedback typologies to the nine different feedback types, as explained in the previous Unit 9.3.

Certain principles and aspects of them relate immediately to the feedback types, and other principles and aspects of them are essential for an effective conduct of dialogic enquiry. *Behaviour*, *Attitude* and the *Facilitation* aspect of *Process*, as shown in Diagram 9.3, are manifested through the feedback types and the way they are expressed. *Place* and the *Clarity* aspect of *Process* have an operational character in the conduct, but are fundamental for its effectiveness.

As well as for a School of Architecture, this set of principles could also be appropriate for Design Schools where design reviews, as well as studio tutorials and desk 'crits are central in their pedagogy.

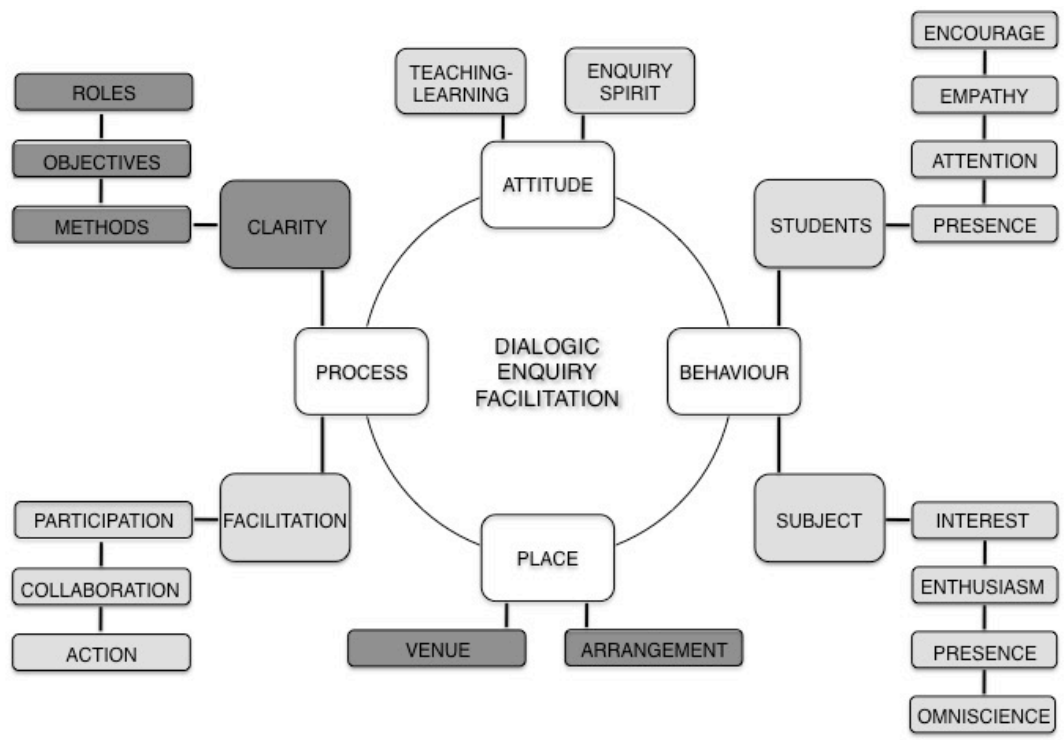


Diagram 9.3. Educational and pedagogical aspects for facilitating dialogic enquiry in relation to feedback typologies and types as a proposal for a theoretical framework design reviews. Feedback typologies and types are immediately connected and manifested in the aspects in the light shaded boxes, whereas the dark shaded boxes show aspects that have a more operational character, but are essential for the conduct and its effectiveness.

Chapter 10

Conclusion

10.1 Implications of Findings

The notion and practice of dialogue and enquiry appears to be present in many aspects related to architecture and architectural training and education. The multifaceted system of parameters that makes up architecture, and the equally complex process of design, is seen as an aim for architectural training and education. Both systems are the subjects of design teaching in the studio, in tutorials, desk 'crits' and design reviews.

The practice of dialogue and enquiry is considered essential for architectural practice or design pedagogy, and is suggested to have a central role in studio teaching, since it immediately relates to the practice and the profession of architecture. Regarding the practice of architecture, dialogic enquiry sets an example in learning to ask the right questions and being critical, and can be a tool for facilitating the dialectic of architecture. Regarding the profession of architecture, dialogic enquiry sets an example in participating in a dialogue, and presenting and expressing opinions in professional and social settings.

The design review is an educational setting with a social aspect, since students have the opportunity to learn to critique work, present an idea and express opinions among colleagues and critics. For the critics, offering feedback in this setting is a way to teach, and set an example that addresses the objectives outlined above.

In design reviews, and more predominantly in the early years of the architects' training and education, dialogic enquiry seems to be overpowered by instruction through monologue, in which the nature of feedback is more evaluative than informative, fear seems to overwhelm students, and their performance in terms of presentation and participation in a dialogue is usually compromised.

The research results corroborate this argument. The identified principal feedback typologies and their overarching concepts revealed more about the identity of oral feedback in design reviews in general, and about Dannels and Martin's nine identified types of feedback in particular.

The discovery of factors that relate to a student's presentation and design scheme representation also contributed in understanding oral feedback more comprehensively, since the relationship between them revealed how and to what extent these factors and their characteristics influence the frequency of the feedback typologies. The documentation of students' and critics' participation duration addressed an aspect that the lack of dialogic enquiry also influences.

The research suggested three principal feedback typologies: *Reflecting Questions*, where the concept of student-centred typology describes them best, *Direct Suggestions*, which is a teacher-centred typology, and *Abstract Suggestions*, which is a subject-centred typology. The typology of *Clarifying Questions* does not offer immediate feedback, and has a more operational character, so it was not considered as a principal comment typology.

The research also suggested five student presentation factors. *Well Comprehended Scheme* and *Poorly Comprehended Scheme* are two factors that describe whether critics have sufficiently understood the design scheme as presented. *More Communicative Student* and *Less Communicative Student* are two additional factors that depict two different levels of eagerness to participate in the discussion regardless of whether the student is prompted. *Well Developed Scheme* refers to a design scheme that met the criteria for a comprehensive design.

The shifts in principal feedback typologies in relation to factors, as well as the results in general, seem to be connected to certain attitudes and teaching approaches. The perception that understands criticism as 'fault-finding', and the broad pattern of one-directional delivery of feedback as a teaching approach, provide some explanation for these approaches, and consequently for the results to a great extent.

With regard to participation duration, the results from all 59 recorded design reviews showed that in a typical 20-minute feedback part of a design review, students' participation duration varies from as long as over two and a half minutes (2'36"), to just fifty seconds (50"). The attitude and teaching approach just explained is reflected in the dominance of the principal typology of Direct Suggestions (65%), and depicts the limited students' participation.

With the duration of responses to *Abstract Suggestions* almost negligible, and the ones to *Direct Suggestions* almost static across all student presentation factors, responses to *Reflecting Questions* and *Clarifying Questions* become the main determinants in participation duration shifts.

With respect to *Clarifying Questions*, the results suggest that greater care should be given in assisting students to prepare for their oral presentation and graphic representation better, so feedback is not consumed by critics trying to understand a design scheme. The facts are worrying, as in the best-case scenario a quarter of the students' participation time would be dedicated to clarifications, and in the worse-case scenario, almost half the time.

On the other hand, with respect to *Reflecting Questions*, the results clearly suggest that more questions would stimulate more involvement in the feedback process. In fact, the duration of responses to *Reflecting Questions* was the longest compared to responses to the other principal typologies.

Some critics are predominantly instructive in their approach regardless of any of the student presentation factors. The vast majority of their comments would be *Direct Suggestions*, and their overall mentality would inhibit dialogue and convey a strong authoritative stance. Some other critics are less instructive than the ones previously mentioned, but nevertheless mostly instructive, but they would engage students, to some extent, in the process of feedback. Very few critics appeared to have an almost equal share in dialogic and instructive approach that would maintain regardless the factors. For them, it was the overall mentality and attitude that provided the conditions for a discussion, since almost any comment was open for debate.

Peer participation is almost negligible. In the few contributions that were recorded, the majority were *Direct Suggestions*, expressing mostly positive criticism, and *Clarifying Questions*. Peers refrain contributing negative criticism, as they seem not to want to appear unpleasant to their peers. They would use phrases beginning with 'I really like' or 'I love', and they would usually continue with the use of a word of abstract meaning in order to express their thoughts, such as 'interesting' or 'nice'.

There seems to be a connection with the use of language from critics, since some of them in their feedback, also used words that express feeling and abstraction. This appears to set an example in students when they express theirs. The use of such words reinforce the authoritative position of critics, since observations have shown that after design reviews students would often discuss about the course of their review with the use of questions and expressions such as 'Did they like it?' or 'I have to change [...], because they didn't like it'.

This thesis argues that the frequency in use of the principal feedback typologies, and the participation duration of critics in a design review has a significant effect on a design review as social, participatory and experiential activity.

As an activity, the action is largely found on the critics' side, as their participation duration indicates that they are the main source of feedback. For students then, it is more of an event where they are passively part of, and less of an activity. Thus, participation on their behalf is minimal. Considering that this minor participation duration comes predominantly from the students presenting, leaving peers in the audience with almost negligible participation duration, the aspect of the 'crit' as a social event loses its potential almost entirely.

Consequently, with these three aspects appearing to have such characteristics, the experiential aspect of design review can be seen to be less effective for students. Providing an experience has better effect and more potential in

learning when there is active involvement, learning to offer constructive feedback in a social context loses most of its potential.

10.2 Recommendations

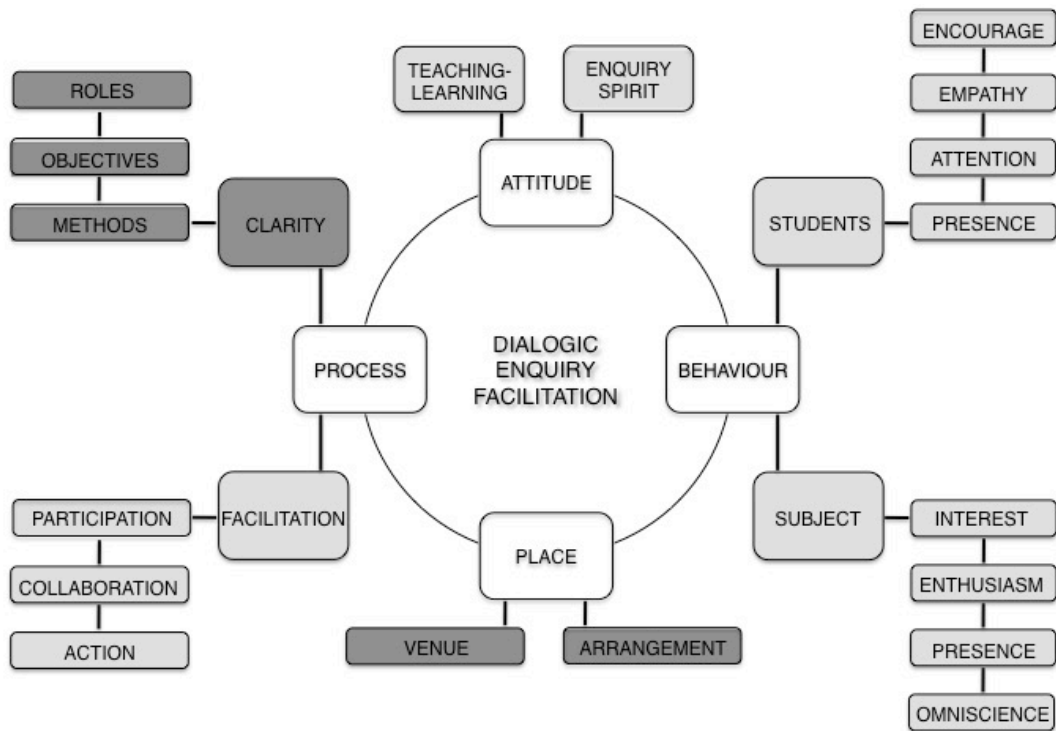


Diagram 10.1. Educational and pedagogical aspects for facilitating dialogic enquiry in relation to feedback typologies and types as a proposal for a theoretical framework design reviews. Feedback typologies and types are immediately connected and manifested in the aspects in the light shaded boxes, whereas the dark shaded boxes show aspects that have a more operational character, but are essential for the conduct and its effectiveness.

The design review is not the most comfortable learning environment for students of architecture to be in. If teaching, assessing and learning are interrelated, interdependent and inseparable, understanding the four principles of *Attitude*, *Behaviour*, *Place* and *Process* and their aspects should be essential for teachers as well as students. It contributes towards integrating the learning aspect of the event more effectively, instead of mainly been seen as assessment by both.

The established knowledge of the nine feedback types, and the new knowledge of the principal feedback typologies can operate in relation to the principles and their aspects as depicted in Diagram 10.1. The aspects in the light-shaded boxes are immediately related to the use of feedback types and typologies, and should be integrated and conveyed in their delivery.

Furthermore, understanding feedback typologies and types in relation to cognitive styles should contribute towards integrating teaching, assessing and learning for teachers and critics, and should assist in setting an example for students on how to critique someone's work and express an opinion; skills that are essential to their professional, private and public endeavours.

Architectural teachers and critics should be better trained. The key principle is to understand that the educational process is something they should be part of together with their students. One way to achieve this is to ask more questions, so students are more engaged in the process, and can have the opportunity to influence it. Instead of suggesting something, they could ask the questions students should be asking themselves, and set in this way an example of enquiry, where they can explore more with the students. Together.

10.3 Proposal for Future Research

Without being this research's objective, the results from the PFTP Recording Method¹ and extensive observation of design reviews suggested three different teaching approaches. Since the identified characteristics from this research could only offer a very broad definition, in order for the teaching approaches to be understood better and defined more accurately, further research, designed for this purpose, could perhaps identify these characteristics in more detail, or even identify more teaching approaches altogether. Feedback typologies and types, as well as the attitude, should then be integral characteristics of each teaching approach, which would be enhanced with new details.

¹ Principal Feedback Typologies & Participation Recording Method

A further parameter, as part of this proposed piece of research, should be learning, so the response of students in relation to each identified teaching approach is recorded after the design review where it occurred. With regard to the learning aspect though, greater detail could provide more information in relation to teaching approaches. For example, details regarding each participating student's cognitive style would provide a better understanding in relation to each teaching approach.

In this research on teaching approaches and their relation to cognitive styles, an aspect that would also be useful to be explored is the association of the approaches to critics/tutors from academia and the ones from practice, since most of the teaching staff in Schools is not trained in teaching (Attoe & Mungerauer 1991, 42).

Results from that research then, could be seen in relation to a new longitudinal research study, where the development of the teaching approaches of the same critics and tutors would be monitored for a certain number of years, but after appropriate training, providing they had not received any when they were subjects in the first research. Part of this training could be the different cognitive styles, so the development of teaching and assessing is monitored in relation to learning. Consequently, students' learning could also be part of this longitudinal research, since their development from year to year on presentation and active participation in the feedback process could be monitored.

Epilogue

The person to whom this work is dedicated, was a teacher of mine. She understood me, and her teaching responded to my aptitudes. Her teaching helped me understand my aptitudes. She helped me understand myself.

In your lifetime, they say, very few people will leave a mark on you, but one of them will most probably be a teacher of yours. She is one of them, and she left the most positive mark on me. I want to be that teacher.

“How does one become a good teacher of architecture?” I asked myself. This is why I did this research. *All in all I just didn't want to be another brick in the wall.*

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Appendix 1. PFTP Recording Method Codified Transcripts from the 59 Recorded Design Reviews.

PM CNo	PANEL	STUDENT	PEERS
1	CQ	4"	
1	DS		
2	RQ	12"	
1	CQ	4"	
1	CQ	2"	
1	CQ	1"	
1	DS	29"	
2	CQ	2"	
2	CQ	30"	
2	CQ	6"	
2	CQ	3"	
2	DS		
1	DS	6"	
1	DS		
1	CQ	25"	
1	DS	10"	
1	DS		
2	CQ	3"	
2	CQ	6"	
2	CQ	6"	
2	DS		
2	CQ	5"	
2	DS		
2	RQ	10"	
1	DS		
1	AS		
2	AS		
2	DS	6"	
2	DS	5"	
2	DS		
1	AS		
1	RQ	16"	
1	RQ	3"	
2	DS	10"	

PM No	S/N
2	11

Participation Table			
Tt	Tpa	Ts	Tpe
17'50"	14'26"	3'24"	0
	80.95%	19.05%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	13	38.20	1'37"	47.50%
RQ	4	11.80	41"	20.10%
DS	14	41.20	1'06"	32.40%
AS	3	8.80	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%					
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS	4"	
1	DS		
1	AS		
2	DS	3"	
1	DS		
1	CQ	3"	
1	CQ	12"	
1	CQ	10"	
1	DS		
1	CQ	2"	
1	DS		
1	CQ	2"	
1	DS		
1	AS	5"	
1	DS	14"	
1	CQ	4"	
1	CQ	3"	
1	DS	8"	
1	DS	12"	
1	CQ	2"	
PR		1'25"	
2	RQ	3"	
1	RQ	16"	
1	RQ	4"	
1	RQ	8"	
1	DS		
1	AS		
2	CQ	16"	
2	DS	46"	
2	DS	16"	
2	DS		
1	DS		

PM No	S No
2	11

Participation Table			
Tt	Tpa	Ts	Tpe
15'35"	12'22"	3'13"	0
	20.60%	79.40%	0.00%

Summative				
Tot No Q/S	31	%	Response time	
CQ	9	29.00	54"	28.00%
RQ	4	12.90	31"	16.10%
DS	15	48.30	1'43"	53.40%
AS	3	9.80	5"	2.50%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES									
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %		NoC	CQ %	NoC	RQ %	NoC	DS %	NoC	AS %	NoC	QtP %	NoC	CQ %	NoC	RQ %	NoC	DS %	NoC	AS %	PR %	
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00					
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00					
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70					
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00					
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00					
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00					
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00					
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00					

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	RS		CQ 2"
1	RS		CQ 4"
		15"	
1	CQ	43"	
2	DS		
2	RQ	44"	
2	RQ	12"	
1	DS		
2	DS		
2	CQ	6"	
2	CQ	2"	
			CQ 7"
		21"	
2	DS		
1	DS	3"	
1	DS	8"	
1	DS	12"	
1	DS		
2	DS		
1	AS	2"	
1	DS	3"	
2	DS		
1	DS		

PM No	S No
2	12

Participation Table			
Tt	Tpa	Ts	Tpe
22'45"	19'57"	2'35"	13"
	87.60%	11.40%	1.00%

Summative				
Tot No Q/S	21	%	Response time	
CQ	3	14.30	1'11"	42.30%
RQ	2	9.50	56"	33.30%
DS	13	61.90	26"	15.50%
AS	1	4.80	2"	1.20%
RS	2	9.5	13"	7.70%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	CQ	10"	
1	CQ	11"	
1	AS		
1	DS		
1	AS	12"	
2	DS		
2	RQ	5"	
2	CQ	32"	
1	DS	7"	
2	DS		
		RS 2"	
2	DS		
1	DS	12"	
1	DS	6"	
1	DS		

PM No	S No
2	7

Participation Table			
Tt	Tpa	Ts	Tpe
9'55"	8'18"	1'37"	0
	83.80%	16.20%	0.00%

Summative				
Tot No Q/S	15	%	Response time	
CQ	3	20.00	53"	54.60%
RQ	1	6.70	5"	5.20%
DS	9	60.00	25"	25.70%
AS	2	13.30	12"	12.40%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot	Ts	Tp	Ttu	Ts wCQ		CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS	3"	
1	DS	29"	
1	DS	1'03"	
1	AS		
1	RQ		
1	DS		
		RS 2"	
1	AS		
1	DS		
1	CQ	3"	
1	DS	9"	
1	RQ		
1	DS	12"	
1	DS	2"	
1	DS	4"	
1	DS		
2	DS	5"	
2	DS		
2	CQ	2"	
2	DS		
2	DS	6"	
1	DS	7"	
1	AS		
1	DS	24"	
1	AS	8"	
1	AS		
1	DS	RS 2"	
1	DS	9"	
2	AS		
1	AS		
1	DS	3"	
2	DS	2"	
1	DS	2"	
1	DS		

PM No	S No
2	8

Participation Table			
Tt	Tpa	Ts	Tpe
24'50"	21'33"	3'17"	0
	86.80%	13.20%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	2	6.10	5"	2.50%
RQ	2	6.10	3'04"	0.00%
DS	22	66.60	0	93.50%
AS	7	21.20	8"	4.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00

PM CNo	PANEL	STUDENT	PEERS
2	DS		
2	CQ	18"	
1	RQ	12"	
1	DS		
1	AS	8"	
1	DS		
1	AS		
2	DS		
2	AS	2"	
1	CQ	1'10"	
1	CQ	5"	
1	DS		
1	CQ	8"	
1	AS		
1	DS		
2	RQ	2"	
1	RQ	2"	
1	AS		
1	DS	6"	
2	AS		
1	AS		
1	DS		
2	DS		
1	DS		

PM No	S No
2	10

Participation Table			
Tt	Tpa	Ts	Tpe
22'30"	20'17"	2'13"	0
	90.15%	9.85%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	4	16.70	1'41"	75.90%
RQ	3	12.50	16"	12.00%
DS	10	41.70	6"	4.50%
AS	7	29.10	10"	7.60%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot	Ts	Tp	Ttu	Ts wCQ		CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00

PM CNo	PANEL	STUDENT	PEERS
2	RQ	19"	
1	RQ	22"	
1	RQ	6"	
1	DS	2"	
1	DS	2"	
1	DS	RS 2"	
1	DS		
2	CQ	10"	
2	DS	8"	
2	DS		
1	AS		
1	DS	4"	
1	DS		
1	RQ	6"	
1	DS		
1	RQ	24"	
1	DS		
2	RQ	17"	
2	DS		
1	DS	18"	
1	AS		

PM No	S No
2	10

Participation Table			
Tt	Tpa	Ts	Tpe
21'00"	18'40"	2'20"	0
	88.90%	11.10%	0.00%

Summative				
Tot No Q/S	21	%	Response time	
CQ	1	4.80	10"	7.10%
RQ	6	28.60	1'34"	67.10%
DS	12	57.10	34"	24.30%
AS	2	9.50	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR	
	(min.sec)	%	%	%	%	NoCtot	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS	5"	
1	RQ	2"	
1	DS		
1	AS	33"	
1	DS		
1	AS	10"	
1	RQ		
2	AS	14"	
1	AS		
1	DS	4"	
1	AS		
1	DS		
2	DS	8"	
1	AS	14"	
1	AS	16"	
1	DS		
1	AS	8"	
1	DS		
2	RQ	7"	

PM No	S No
2	10

Participation Table			
Tt	Tpa	Ts	Tpe
16'15"	14'14"	2'01"	0
	87.60%	12.40%	0.00%

Summative				
Tot No Q/S	19	%	Response time	
CQ	0	0.00	0	0.00%
RQ	3	15.80	9"	7.40%
DS	8	42.10	17"	14.00%
AS	8	42.10	1'35"	78.60%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
NoS							NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1	17.50	19.05	0.00	80.95	10.00	34	13	38.20	4	11.80	14	41.20	3	8.80	0	0.00	47.50	20.10	32.40	0.00	0.00
2	15.35	20.60	0.00	79.40	14.85	31	9	29.00	4	12.90	15	48.30	3	9.80	0	0.00	28.00	16.10	53.40	2.50	0.00
3	22.45	11.40	1.00	87.60	6.60	21	3	14.30	2	9.50	13	61.90	1	4.80	2	9.50	42.30	33.30	15.50	1.20	7.70
4	9.55	16.20	0.00	83.80	7.35	15	3	20.00	1	6.70	9	60.00	2	13.30	0	0.00	54.60	5.20	25.70	12.40	0.00
5	24.50	13.20	0.00	86.80	12.90	33	2	6.10	2	6.10	22	66.60	7	21.20	0	0.00	2.50	0.00	93.50	4.00	0.00
6	22.30	9.85	0.00	90.15	2.35	24	4	16.70	3	12.50	10	41.70	7	29.10	0	0.00	75.90	12.00	4.50	7.60	0.00
7	21.00	11.10	0.00	88.90	10.30	21	1	4.80	6	28.60	12	57.10	2	9.50	0	0.00	7.10	67.10	24.30	0.00	0.00
8	16.15	12.40	0.00	87.60	12.40	19	0	0.00	3	15.80	8	42.10	8	42.10	0	0.00	0.00	7.40	14.00	78.60	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	DS	6"	
1	DS	3"	
1	DS	8"	
1	DS	12"	
1	CQ	2"	
1	DS		

PM No	S No
2	10

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
6'05"	5'34"	31"	0
	91.40%	8.60%	0.00%

Summative				
Tot No Q/S	7	%	Response time	
CQ	1	16.60	2"	6.50%
RQ	0	0.00	0	0.00%
DS	6	83.40	29"	95.50%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	DS		
1	RQ	17"	
1	DS		
2	AS		
1	DS		
2	AS		

PM No	S No
2	10

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
6'40"	6'23"	17"	0
	96.00%	4.00%	0.00%

Summative				
Tot No Q/S	7	%	Response time	
CQ	0	0.00	0	0.00%
RQ	1	14.30	17"	100.00%
DS	4	57.10	0	0.00%
AS	2	28.60	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ	2"	
2	CQ	7"	
PR		35"	
1	DS	2"	
1	DS	17"	
2	DS		
1	DS		
2	DS	2"	
2	DS		
1	DS		
2	DS		
2	CQ	2"	
2	DS	8"	
1	DS	15"	
2	DS	7"	
1	CQ	8"	
2	DS		
1	DS		
1	AS		

PM No	S No
2	10

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
11'25"	10'15"	1'10"	0
	90.30%	9.70%	0.00%

Summative				
Tot No Q/S	18	%	Response time	
CQ	4	22.20	19"	27.10%
RQ	0	0.00	0	0.00%
DS	13	72.20	51"	72.90%
AS	1	5.60	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QIP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	DS		
1	DS		
2	AS	2"	
2	DS		
1	DS		
2	DS		
1	DS		
2	DS		

PM No	S No
0	0

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
6'50"	6'48"	2"	0
	99.50%	0.50%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	0	0.00	0	0.00%
RQ	0	0.00	0	0.00%
DS	8	88.90	0	0.00%
AS	1	11.10	2"	100.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	DS		
2	CQ	5"	
1	DS		
1	DS		
2	AS		
2	DS		
1	DS		
2	CQ	4"	
1	DS		
2	AS		
1	DS		
2	CQ	1"	
1	DS		

PM No	S No
2	10

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
9'10"	9'00"	10"	0
	98.10%	1.90%	0.00%

Summative				
Tot No Q/S	14	%	Response time	
CQ	3	21.40	10"	100.00%
RQ	0	0.00	0	0.00%
DS	9	64.30	0	0.00%
AS	2	15.30	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	DS		
2	AS		
1	CQ	1"	
2	DS		
1	DS		
		RS 2"	
2	DS		
1	DS		
2	DS		
2	CQ	2"	
1	RQ	2"	
2	DS		
1	DS		
2	DS		
1	DS		

PM No	S No
2	10

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
11'40"	11'33"	7"	0
	99.00%	1.00%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	2	13.30	3"	42.80%
RQ	1	6.70	2"	28.60%
DS	11	73.30	0	0.00%
AS	1	6.70	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot	Ts	Tp	Ttu	Ts wCQ		CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	DS		
1	DS		
2	DS		
1	DS		
1	AS		
2	DS		
2	DS		
PR		21"	
2	DS		
1	DS		
1	AS		
1	AS		

PM No	S No
2	10

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
8'30"	8'30"	0	0
	100.00%	0.00%	0.00%

Summative				
Tot No Q/S	12	%	Response time	
CQ	0	0.00	0	0.00%
RQ	0	0.00	0	0.00%
DS	9	80.00	0	0.00%
AS	3	20.00	0	0.00%

- CQ - CLARIFYING QUESTION
- RQ - REFLECTING QUESTION
- DS - DIRECT SUGGESTION
- AS - ABSTRACT SUGGESTION
- PR - PRESENTATION
- P - PAUSE
- T - TECHNICAL
- RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
NoS	(min.sec)	%	%	%	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	RQ	10"	
1	RQ	7"	
2	CQ	16"	
1	RQ	8"	
1	DS	9"	
1	DS		
2	DS	4"	
2	DS		
1	DS		
1	RQ	2"	
2	AS		
1	AS		
2	AS	6"	
2	DS		
1	AS		

PM No	S No
2	10

WCS
MCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
8'45"	7'43"	1'02"	0
	88.50%	11.50%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	1	5.00	16"	25.80%
RQ	4	20.00	27"	43.50%
DS	7	45.00	13"	21.00%
AS	4	20.00	6"	9.70%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	DS		
1	CQ	8"	
2	RQ	5"	
1	DS	12"	
1	DS		
2	DS		

PM No	S No
2	10

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
4'05"	3'40"	25"	0
	10.40%	89.60%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	1	14.30	8"	32.00%
RQ	1	14.30	5"	20.00%
DS	5	71.40	12"	48.00%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	100.00	0.00	0.00
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	RQ	12"	
2	DS		
1	DS	18"	
1	DS	6"	
2	DS		
1	AS		
1	DS		
2	DS		
1	DS		

PM No	S No
2	10

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
6'35"	5'59"	36"	0
	90.90%	9.10%	0.00%

Summative				
Tot No Q/S	9	%	Response time	
CQ	0	0.00	0	0.00%
RQ	1	11.10	12"	33.30%
DS	7	77.80	24"	66.70%
AS	1	11.10	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 IC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES						
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	CQ	RQ	DS	AS	PR
1. WCS	6.05	8.60	0.00	91.40	8.05	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	6.50	0.00	93.50	0.00	0.00		
2. WCS	6.40	4.25	0.00	95.75	4.25	7	0	0.00	1	14.30	4	57.10	2	28.60	0	0.00	0.00	100.00	0.00	0.00	0.00	0.00	
3. PCS	11.25	10.20	0.00	89.80	7.45	18	4	22.20	0	0.00	13	72.20	1	5.60	0	0.00	27.10	0.00	72.90	0.00	0.00		
4. WCS	6.50	0.50	0.00	99.50	0.50	9	0	0.00	0	0.00	8	88.90	1	11.10	0	0.00	0.00	0.00	0.00	100.00	0.00	0.00	
5. PCS	9.10	1.80	0.00	98.20	0.00	14	3	21.40	0	0.00	9	64.30	2	15.30	0	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
6. PCS	11.40	1.00	0.00	99.00	0.67	15	2	13.30	1	6.70	11	73.30	1	6.70	0	0.00	42.80	28.60	0.00	0.00	0.00	0.00	
7. WCS	8.30	0.00	0.00	100.00	0.00	12	0	0.00	0	0.00	9	80.00	3	20.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8. WCS, MCS, WDS	8.45	11.80	0.00	88.20	8.75	16	1	5.00	4	20.00	7	45.00	4	20.00	0	0.00	25.80	43.50	21.00	9.70	0.00	0.00	
9. WCS, WDS	4.05	10.40	0.00	89.60	7.10	7	1	14.30	1	14.30	5	71.40	0	0.00	0	0.00	32.00	20.00	48.00	0.00	0.00	0.00	
10. WCS	6.35	9.10	0.00	90.90	9.10	9	0	0.00	1	11.10	7	77.80	1	11.10	0	0.00	0.00	33.30	66.70	0.00	0.00	0.00	

PM CNo	PANEL	STUDENT	PEERS
1	DS	3"	
1	DS		
2	DS	2"	
1	DS		
2	DS	1"	
2	CQ	13"	
2	CQ	1"	
1	CQ	1"	
1	DS		
1	RQ	5"	
2	CQ	8"	
1	DS	3"	
1	DS	12"	
			CQ 2"
		2"	
1	DS		
2	DS		
1	DS		
2	DS		
1	DS		
			DS 12"
1	DS		
1	DS		
1	DS		
2	DS		
2	DS		
2	DS		

PM No	S No
2	3

PCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
18'00"	16'54"	52"	14"
	93.80%	4.80%	1.30%

Summative				
Tot No Q/S	24	%	Response time	
CQ	4	16.60	23"	44.20%
RQ	1	4.20	5"	9.60%
DS	19	79.10	24"	46.20%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
NoS	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00
2. PCS	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	0.00	100.00	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	CQ	24"	
1	CQ	4"	
1	DS	18"	
1	DS	4"	
1	DS	6"	
1	CQ	6"	
1	DS	12"	
2	CQ	3"	
2	CQ	34"	
1	DS	13"	
1	DS	8"	
1	DS	6"	
1	DS	43"	
1	DS	7"	
1	DS		
2	DS	2"	
1	DS	2"	
1	DS	4"	
1	DS	9"	
1	DS	3"	
1	DS	3"	
1	DS	6"	
1	DS	6"	
1	DS	2"	

PM No	S No
2	4

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
16'25"	12'40"	3'45"	0
	77.15%	22.85%	0.00%

Summative				
Tot No Q/S	25	%	Response time	
CQ	5	20.00	1'11"	31.60%
RQ	0	0.00	0	0.00%
DS	20	80.00	2'34"	68.40%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %		CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
1. PCS, LCS	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00
2. PCS	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	0.00	100.00	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	CQ	32"	
1	DS		
2	DS	3"	
1	DS		
2	CQ	3"	
1	DS	14"	
1	DS	7"	
1	DS	6"	
2	CQ	5"	
2	DS	2"	
2	DS	2"	
			CQ 8"
		5"	
1	DS		
1	DS		
2	CQ		
1	DS		
2	DS		
2	CQ		
1	DS		
2	DS		
2	DS		
2	DS		
1	DS		
2	DS		
1	DS		

PM No	S No
2	4

WCS
MCS

Participation Table			
Tt	Tpa	Ts	Tpe
16'15"	14'07"	2'00"	8"
	87.70%	12.22%	0.80%

Summative				
Tot No Q/S	25	%	Response time	
CQ	5	20.00	55"	45.80%
RQ	0	0.00	0	0.00%
DS	20	80.00	1'05"	54.20%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	
1. PCS, LCS	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00
2. PCS	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	0.00	100.00	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	RQ		
1	DS		
2	DS		
1	DS	25"	
2	DS		
2	DS		
1	DS		
1	DS		
2	DS		
1	DS		
2	CQ	14"	
1	DS		
2	DS		
1	DS		
1	DS		

PM No	S No
2	2

PCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
14'35"	13'56"	39"	0
	95.55%	4.45%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	1	5.90	14"	35.90%
RQ	1	5.90	0	0.00%
DS	15	88.20	25"	64.10%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00
2. PCS	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	0.00	100.00	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	CQ	28"	
1	DS		
2	DS		
1	DS		

PM No	S No
2	2

WCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
8'05"	7'37"	28"	0
	94.20%	5.80%	0.00%

Summative				
Tot No Q/S	5	%	Response time	
CQ	1	20.00	28"	100.00%
RQ	0	0.00	0	0.00%
DS	4	80.00	0	0.00%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00
2. PCS	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	0.00	100.00	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	RQ	18"	
1	CQ	9"	
1	DS		
1	RQ	16"	
1	DS		
1	RQ	54"	
2	AS	6"	
2	RQ	13"	
1	RQ	12"	
1	CQ	22"	
1	DS		
3	AS		
1	AS		
3	DS		
1	DS		
2	DS		

PM No	S No
3	3

WCS
MCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
22'40"	20'20"	2'20"	0
	89.70%	10.30%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	2	11.80	31"	22.10%
RQ	5	29.40	1'01"	72.10%
DS	7	41.20	0	0.00%
AS	3	17.60	6"	5.80%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
NoS							NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00
2. PCS	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	0.00	100.00	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS	2"	
1	DS	12"	
1	DS		
2	DS		
1	DS		
2	DS		
1	DS	3"	
1	DS		
3	DS		
3	DS		
2	RQ		
1	DS		
P15"			
2	DS		
1	DS		
2	DS		
1	DS		
2	DS		
1	DS		
2	DS		
1	AS		
2	AS		
1	AS		

PM No	S No
3	3

WCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
18'10"	0	17"	0
	98.40%	1.60%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	0	0.00	0	0.00%
RQ	1	4.60	0	0.00%
DS	18	81.80	17"	100.00%
AS	3	13.60	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	18.00	4.80	1.30	93.80	2.70	24	4	16.60	1	4.20	19	79.10	0	0.00	0	0.00	44.20	9.60	46.20	0.00	0.00
2. PCS	16.25	22.85	0.00	77.15	15.65	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	31.60	0.00	68.40	0.00	0.00
3. WCS, MCS	16.15	12.30	0.00	87.70	6.70	25	5	20.00	0	0.00	20	80.00	0	0.00	0	0.00	45.80	0.00	54.20	0.00	0.00
4. PCS, LCS	14.35	4.45	0.00	95.55	2.85	17	1	5.90	1	5.90	15	88.20	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
5. WCS, LCS	8.05	5.80	0.00	94.20	0.00	5	1	20.00	0	0.00	4	80.00	0	0.00	0	0.00	100.00	0.00	0.00	0.00	0.00
6. WCS, MCS, WDS	22.40	10.30	0.00	89.70	8.00	17	2	11.80	5	29.40	7	41.20	3	17.60	0	0.00	22.10	72.10	0.00	5.80	0.00
7. WCS, LCS	18.10	1.60	0.00	98.40	1.60	22	0	0.00	1	4.60	18	81.80	3	13.60	0	0.00	0.00	0.00	100.00	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	CQ	2"	
1	CQ	2"	
2	CQ	2"	
2	CQ	4"	
2	CQ	7"	
2	CQ	5"	
2	CQ	17"	
2	CQ	6"	
2	RQ	18"	
1	DS		
1	DS		
1	DS		
2	DS		
1	DS		
1	DS		
1	CQ	10"	
1	CQ	4"	
2	CQ	4"	
1	CQ	2"	
1	CQ	7"	
2	DS		
1	DS		
1	DS		
1	DS		
1	DS		
2	DS		
2	DS		
1	DS		
2	DS		
1	DS		
2	AS		
2	DS		

PM No	S No
2	8

PCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
15'15"	13'45"	1'30"	0
	90.20%	9.80%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	13	39.40	1'12"	80.00%
RQ	1	3.00	18"	20.00%
DS	18	54.60	0	0.00%
AS	1	3.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 IC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %		NoC	CQ %	RQ %	DS %	AS %	QtP %	CQ %	RQ %	DS %	AS %	PR %				
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
5. PCS	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ	4"	
2	CQ	18"	
1	DS	21"	
2	DS		
1	DS		
1	DS		
1	RQ	2"	
1	DS		
1	DS	9"	
2	DS		
2	DS		
2	DS		
2	AS		
2	DS	3"	
2	AS		
2	DS		
1	DS	12"	
1	DS		
1	AS		
2	DS		
1	DS		
2	DS		
1	AS		
2	DS	4"	
2	DS		
2	DS	5"	
1	DS		
1	AS		
2	DS	3"	
1	DS		
1	DS		

PM No	S No
2	8

PCS
MCS

Participation Table			
Tt	Tpa	Ts	Tpe
13'50"	13'45"	1'21"	0
	90.40%	9.60%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	2	6.50	22"	27.10%
RQ	1	3.20	2"	2.50%
DS	23	74.20	57"	70.40%
AS	5	16.10	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 IC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot	Ts	Tp	Ttu	Ts wCQ		CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
5. PCS	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	RQ	19"	
1	DS		
2	DS		
1	CQ	20"	
2	DS		
1	AS		
1	DS		
2	DS	8"	
1	DS		
1	AS		
1	RQ	11"	
1	DS		
2	DS		
1	CQ	10"	
1	CQ	2"	
1	CQ	8"	
1	CQ	3"	
1	RQ		
2	CQ	12"	
2	CQ	14"	
1	CQ	9"	
2	DS		
2	RQ		
2	RQ		
2	DS	11"	
1	DS		
2	DS	3"	
2	DS		
1	DS		
2	DS	5"	
1	CQ	4"	
1	DS	4"	
1	DS	9"	

PM No	S No
2	8

PCS
MCS

Participation Table			
Tt	Tpa	Ts	Tpe
13'40"	11'08"	2'32"	0
	81.40%	18.60%	0.00%

Summative				
Tot No Q/S	33	%	Response time	
CQ	9	27.30	1'22'	52.60%
RQ	5	15.20	30"	21.10%
DS	17	51.50	40"	26.30%
AS	2	6.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
5. PCS	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	DS	3"	
1	DS		
2	DS	4"	
1	DS	2"	
1	RQ		
2	DS		
1	DS		
1	DS	12"	
2	DS		
2	DS		
2	DS	3"	
1	CQ	19"	
1	RQ	8"	
1	DS		
2	DS	2"	
1	DS		
1	DS		
1	RQ	24"	
1	DS		
1	DS	2"	

PM No	S No
2	8

WCS
MCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
9'10"	7'51"	1'19"	0
	85.60%	14.40%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	1	4.80	19"	24.10%
RQ	3	14.30	32"	40.50%
DS	17	80.90	28"	35.40%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
5. PCS	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	CQ	17"	
1	CQ	24"	
1	CQ	3"	
1	DS	2"	
1	DS	12"	
2	DS	2"	
1	DS	11"	
1	DS		
2	CQ	12"	
1	DS		
1	DS	6"	
1	RQ	39"	
2	DS	7"	
2	DS		
1	DS		
1	DS		
2	DS		
1	DS		
1	CQ	38"	
PR		1'09"	
1	CQ	7"	
1	RQ	6"	
2	CQ	1"	
1	RQ	6"	
PR		30"	
1	DS		
1	AS		
1	DS	38"	
1	DS		
1	AS		
2	DS	21"	
1	DS		
2	CQ	52"	
1	DS		
2	DS	22"	
1	AS		

PM No	S No
2	8

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
22'50"	17'34"	5'16"	0
	76.95%	23.05%	0.00%

Summative				
Tot No Q/S	34	%	Response time	
CQ	8	23.50	2'32"	48.10%
RQ	3	8.80	51"	16.10%
DS	20	58.90	1'53"	35.80%
AS	3	8.80	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
5. PCS	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	RQ	21"	
2	DS		
2	RQ	32"	
2	DS		
1	DS		
1	RQ		
1	DS		
2	RQ	23"	
2	DS		
2	RQ	10"	
2	RQ		
1	RQ	13"	
1	RQ	35"	
1	RQ	5"	
1	DS	12"	
2	DS	19"	
1	DS		
1	CQ	1'02"	
2	RQ	21"	
2	RQ	2"	
1	DS	6"	
1	DS	3"	
2	DS	12"	
2	DS		
2	DS	2"	
2	RQ	33"	
2	DS		
1	DS	16"	
1	DS		
2	DS		
1	DS		
2	DS		
1	DS		
2	DS		
1	DS		
1	DS	14"	
1	DS	3"	

PM No	S No
2	8

WCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
24'00"	17'19"	5'44"	17"
	74.90%	23.90%	1.20%

Summative				
Tot No Q/S	38	%	Response time	
CQ	1	2.60	1'02"	18.00%
RQ	12	31.60	3'15"	56.70%
DS	25	65.80	1'27"	25.30%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 IC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QIP		CQ	RQ	DS	AS	PR
NoS	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
5. PCS	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ	16"	
2	CQ	24"	
2	DS		
1	CQ	4"	
1	DS		
1	CQ	13"	
1	RQ		
2	RQ	16"	
2	DS	2"	
2	DS		
1	DS		
1	DS		
2	RQ	4"	
2	RQ	4"	
			CQ 7"
2	RQ	2"	
1	RQ		
1	DS		
1	RQ		
1	DS		
1	RQ	3"	
1	DS		
2	DS		
1	DS	4"	
1	DS		
2	DS		
2	RQ		
2	DS		
2	DS		
1	RQ	7"	
1	RQ		
1	DS	4"	
2	DS		
2	DS		
2	RQ		
2	DS		
2	RQ	2"	
2	DS		

PM No	S No
2	8

PCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
22'35"	20'43"	1'45"	7"
	91.75%	7.75%	0.50%

Summative				
Tot No Q/S	37	%	Response time	
CQ	4	10.80	57"	54.30%
RQ	13	35.10	38"	36.20%
DS	20	54.10	10"	9.50%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 IC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot	Ts	Tp	Ttu	Ts wCQ		CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, LCS	15.15	9.80	0.00	90.20	2.00	33	13	39.40	1	3.00	18	54.60	1	3.00	0	0.00	80.00	20.00	0.00	0.00	0.00
2. PCS, MCS	13.50	9.60	0.00	90.40	7.00	31	2	6.50	1	2.50	23	74.20	5	16.10	0	0.00	27.10	2.50	70.40	0.00	0.00
3. PCS, MCS	13.40	11.95	0.00	88.05	5.05	33	9	27.30	5	15.20	17	51.50	2	6.00	0	0.00	57.80	21.10	21.10	0.00	0.00
4. WCS, MCS, WDS	9.10	14.40	0.00	85.60	10.90	21	1	4.80	3	14.30	17	80.90	0	0.00	0	0.00	24.10	40.50	35.40	0.00	0.00
5. PCS	22.50	23.05	0.00	76.95	11.55	34	8	23.50	3	8.80	20	58.90	3	8.80	0	0.00	48.10	16.10	35.80	0.00	0.00
6. WCS, WDS	24.00	23.90	1.20	74.90	19.60	38	1	2.60	12	31.60	25	65.80	0	0.00	0	0.00	18.00	56.70	25.30	0.00	0.00
7. PCS, LCS	22.35	7.75	0.50	91.75	3.50	37	4	10.80	13	35.10	20	54.10	0	0.00	0	0.00	54.30	36.20	9.50	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	CQ	3"	
1	CQ	8"	
2	CQ	23"	
2	CQ	16"	
2	CQ	3"	
2	CQ	3"	
1	CQ	5"	
1	CQ	3"	
1	DS		
2	RQ	7"	
1	AS		
2	RQ	23"	
1	CQ	3"	
1	DS	6"	
1	DS		
1	DS	8"	
1	DS		
2	DS	2"	
2	RQ	4"	
2	DS	5"	
2	DS		
1	DS		
2	DS		
1	DS	6"	
1	AS		
1	DS		
1	AS		
1	AS		
1	RQ	10"	
2	DS		
2	DS		
1	DS		
1	DS	5"	
1	DS		
2	DS		
2	AS		
2	DS		
2	DS		
1	DS		

PM No	S No
2	10

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
24'55"	22'32"	2'23"	0
	90.50%	9.50%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	9	23.10	1'03"	44.00%
RQ	4	10.30	44"	30.80%
DS	21	53.80	36"	25.20%
AS	5	12.80	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ	34"	
2	CQ	3"	
2	CQ	18"	
2	CQ	28"	
2	CQ	20"	
1	DS	6"	
1	CQ	7"	
1	RQ	1'30"	
2	DS		
2	DS	14"	
2	DS		
2	CQ	23"	
2	DS		
2	RQ	9"	
2	CQ	7"	
2	DS		
2	CQ	18"	
2	CQ	11"	
1	DS		
2	DS	2"	
1	DS		
1	DS	8"	
1	DS		
2	RQ		
2	DS		
2	RQ	34"	
1	DS	6"	
1	DS		
2	DS	3"	
2	DS	8"	
1	DS	4"	
1	DS		
2	DS	9"	
1	DS		
2	DS		

PM No	S No
2	10

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
24'40"	18'38"	6'02"	0
	75.55%	24.45%	0.00%

Summative				
Tot No Q/S	35	%	Response time	
CQ	10	28.60	2'31"	41.80%
RQ	4	11.40	2'13"	36.70%
DS	21	60.00	1'18"	21.50%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	NoS	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ	2"	
2	CQ	24"	
1	CQ	20"	
1	DS		
1	DS	5"	
1	DS		
1	DS		
2	RQ	11"	
2	DS		
1	DS		
2	DS		
2	CQ	2"	
1	DS	RS 2"	
1	DS		
2	DS		
1	DS		
2	DS		
2	DS		
2	DS		
2	DS		
1	DS		

PM No	S No
2	10

WCS
LCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
22'10"	20'59"	1'11"	0
	94.60%	5.40%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	3	15.00	53"	74.60%
RQ	1	5.00	11"	15.30%
DS	16	80.00	5"	7.00%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ	8"	
2	CQ	42"	
1	DS		
1	DS	4"	
1	DS	18"	
1	AS		
2	AS		
2	DS		
1	DS		
2	RQ		
2	DS	3"	
1	DS		
2	DS		
1	DS		
2	DS		

PM No	S No
2	10

WCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
21'25"	20'10"	1'15"	0
	94.20%	5.80%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	2	13.30	50"	33.30%
RQ	1	6.70	0	0.00%
DS	10	66.70	25"	66.70%
AS	2	13.30	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					NoCtot	COMMENTS										RESPONSES				
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %		NoC	CQ %	NoC	RQ %	NoC	DS %	NoC	AS %	NoC	QtP %	NoC	CQ %	RQ %	DS %	AS %
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	CQ	5"	
1	CQ	17"	
1	CQ	12"	
1	CQ	2"	
1	DS	20"	
1	CQ	47"	
1	CQ	31"	
2	RQ	13"	
2	DS		
2	DS	8"	
1	RQ	12"	
1	CQ	23"	
2	DS		
2	DS	13"	
1	CQ	5"	
1	CQ	3"	
1	AS		
1	AS	22"	
1	DS		
1	AS	4"	
2	DS		
2	DS		
1	DS		
1	RQ	2"	
2	DS		
1	AS		

PM No	S No
2	10

PCS
MCS

Participation Table			
Tt	Tpa	Ts	Tpe
20'20"	16'46"	3'34"	0
	80.80%	19.20%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	9	34.60	2'25"	66.20%
RQ	3	11.50	27"	12.30%
DS	9	34.60	21"	9.60%
AS	5	19.30	26"	11.90%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ		
1	CQ	12"	
1	CQ		
1	DS	8"	
1	DS	21"	
2	DS		
1	DS		
PR		34"	
1	DS		
1	DS	3"	
1	DS	2"	
1	CQ	31"	
1	DS		
2	DS		
1	DS		

PM No	S No
2	10

WCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
15'25"	14'53	1'32"	0
	90.05%	9.95%	0.00%

Summative				
Tot No Q/S	14	%	Response time	
CQ	2	14.30	33"	35.90%
RQ	0	5.00	0	0.00%
DS	12	85.70	59"	64.10%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	NoS	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	DS		
2	AS		
1	DS		
1	RQ	5"	
1	DS		
2	DS		
2	CQ	3"	
2	AS		
2	DS		
1	AS	4"	
1	DS		
1	DS	5"	
1	DS		
1	RS		

PM No	S No
2	10

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
12'35"	12'28"	17"	0
	97.75%	2.25%	0.00%

Summative				
Tot No Q/S	14	%	Response time	
CQ	1	7.20	3"	17.70%
RQ	1	7.20	5"	29.40%
DS	8	57.20	5"	29.40%
AS	3	21.40	4"	23.50%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QIP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	DS		
1	DS		
1	DS		
2	DS		
1	DS		
1	DS	14"	
1	AS		
2	AS		

PM No	S No
2	10

WCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
8'10"	7'56"	14"	0
	97.40%	2.60%	0.00%

Summative				
Tot No Q/S	8	%	Response time	
CQ	0	0.00	3"	0.00%
RQ	0	0.00	5"	0.00%
DS	6	75.00	14"	100.00%
AS	2	25.00	4"	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	CQ	18"	
2	DS		
1	CQ	4"	
1	CQ	5"	
1	DS		
1	CQ	37"	
1	CQ	6"	
2	DS		
1	DDS		
1	DS		
2	DS		
1	DS		
1	AS		

PM No	S No
2	10

MCS
PCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
12'00"	10'50"	1'10"	0
	90.30%	9.30%	0.00%

Summative				
Tot No Q/S	13	%	Response time	
CQ	5	38.50	1'10"	100.00%
RQ	0	0.00	0	0.00%
DS	7	53.80	0	0.00%
AS	1	7.70	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
NoS	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
2	DS	1"	
PR	AS	30"	
1	DS		
2	RQ	12"	
1	DS		
2	DS		
2	CQ		
1	AS		

PM No	S No
2	10

PCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
12'30"	12'17"	13"	0
	98.30%	1.70%	0.00%

Summative				
Tot No Q/S	7	%	Response time	
CQ	1	14.30	1"	7.70%
RQ	0	0.00	0	0.00%
DS	6	85.70	12"	92.30%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y2 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	
1. PCS	24.55	9.50	0.00	90.50	4.30	39	9	23.10	4	10.30	21	53.80	5	12.80	0	0.00	44.00	30.80	25.20	0.00	0.00
2. PCS	24.40	24.45	0.00	75.55	12.25	35	10	28.60	4	11.40	21	60.00	0	0.00	0	0.00	41.80	36.70	21.50	0.00	0.00
3. WCS, LCS, WDS	22.10	5.40	0.00	94.60	1.40	20	3	15.00	1	5.00	16	80.00	0	0.00	0	0.00	74.60	15.50	7.00	0.00	0.00
4. WCS, LCS	21.25	5.80	0.00	94.20	3.90	15	2	13.30	1	6.70	10	66.70	2	13.30	0	0.00	33.30	0.00	66.70	0.00	0.00
5. PCS, MCS	20.20	19.20	0.00	80.80	6.50	26	9	34.60	3	11.50	9	34.60	5	19.30	0	0.00	66.20	12.30	9.60	11.90	0.00
6. WCS, LCS	15.25	9.95	0.00	90.05	6.35	14	2	14.30	0	0.00	12	85.70	0	0.00	0	0.00	35.90	0.00	64.10	0.00	0.00
7. WCS	12.35	2.25	0.00	97.75	1.85	14	1	7.20	1	7.20	8	57.00	3	21.40	1	7.20	17.70	23.50	29.40	23.50	0.00
8. WCS, LCS	8.10	2.60	0.00	97.40	0.00	8	0	0.00	0	0.00	6	75.00	2	25.00	0	0.00	100.00	0.00	0.00	0.00	0.00
9. PCS, MCS, WDS	12.00	9.70	0.00	90.30	0.00	13	5	38.50	0	0.00	7	53.80	1	7.70	0	0.00	100.00	0.00	0.00	0.00	0.00
10. PCS, LCS	12.30	1.70	0.00	98.30	1.55	7	1	14.30	0	0.00	6	85.70	0	0.00	0	0.00	7.70	0.00	92.30	0.00	0.00

PM CNo	PANEL	STUDENT	PEERS
1	RQ	7"	
1	CQ	1"	
1	CQ	1"	
1	CQ	25"	
1	DS		
1	DS		
2	DS		
1	DS		
1	RS		
2	CQ	3"	
1	DS	9"	
1	DS		
2	DS		
1	DS		
2	DS		
1	CQ	45"	
1	DS		
1	RQ	10"	
1	AS	22"	
1	DS		
2	DS	6"	
2	DS		
1	DS		
1	DS		
1	DS		
2	DS		
2	DS		
2	DS		

PM No	S No
2	10

WCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
15'50"	13'02"	2'32"	16"
	83.90%	14.30%	1.80%

Summative				
Tot No Q/S		%	Response time	
CQ	5	17.70	1'15"	51.70%
RQ	2	7.20	17"	11.70%
DS	19	67.90	15"	10.40%
AS	1	3.60	22"	15.20%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR	
	(min.sec)	%	%	%	%	NoCtot	NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	CQ	7"	
1	DS		
1	RQ	20"	
2	DS		
1	DS		
1	RQ	37"	
1	RQ	29"	
1	CQ	16"	
1	AS		
2	DS		
2	DS		
1	DS		
1	AS		
1	DS		
2	DS		
1	DS		
2	DS		

PM No	S No
2	10

WCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
13'00"	11'11"	1'49"	0
	86.00%	14.00%	0.00%

Summative				
Tot No Q/S	18	%	Response time	
CQ	2	11.10	23"	51.70%
RQ	3	16.70	1'26"	11.70%
DS	11	61.10	0	0.00%
AS	2	11.10	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00

PM CNo	PANEL	STUDENT	PEERS
1	RQ	32"	
2	DS		
1	DS		
1	RQ	56"	
1	CQ	3"	
1	CQ	2"	
1	CQ	27"	
1	DS		
2	CQ	4"	
1	DS		
2	DS		
1	DS		
1	DS		
P 1'30"			
1	DS	30"	
2	DS		
1	DS		
2	DS		
1	DS		
2	DS		
1	DS		
1	AS		

PM No	S No
2	10

PCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
17'20"	14'46"	2'34"	0
	85.30%	14.70%	0.00%

Summative				
Tot No Q/S	21	%	Response time	
CQ	4	19.00	36"	23.40%
RQ	2	9.50	1'28"	57.10%
DS	14	66.70	30"	19.50%
AS	1	4.80	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES										
	NoS	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ		RQ		DS		AS		PR
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00					
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00					
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00					
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00					
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00					
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20					
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00					
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00					
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00					
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00					

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	CQ	2"	
1	DS		
1	CQ	3"	
1	DS		
2	DS		
1	DS		
1	CQ	4"	
1	CQ	9"	
1	CQ	6"	
1	DS	10"	
1	CQ	2"	
1	DS		
1	CQ	3"	
1	DS		
2	DS	2"	
2	DS	3"	
2	DS		
1	CQ	5"	
1	CQ	11"	
1	DS	16"	
1	DS	RS 2"	
1	DS		
1	AS	2"	
2	DS	2"	
2	DS	4"	
2	CQ	6"	
2	DS		
2	CQ	10"	
1	CQ	2"	
1	DS		
2	DS		
1	RQ	6"	
1	DS		

PM No	S No
2	10

PCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
17'35"	15'45"	1'50"	0
	79.60%	10.40%	0.00%

Summative				
Tot No Q/S	34	%	Response time	
CQ	12	35.30	1'03"	57.30%
RQ	1	2.95	6"	5.50%
DS	20	58.80	39"	35.40%
AS	1	2.95	2"	1.80%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
1	DS		
2	DS	8"	
1	DS		
1	DS		
2	DS		
2	DS		
1	DS		
1	AS		
1	RS		DS 12"

PM No	S No
2	10

WCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
9'30"	9'10"	8"	12"
	96.30%	1.50%	2.20%

Summative				
Tot No Q/S		%	Response time	
CQ	0	0.00	0	0.00%
RQ	0	0.00	0	0.00%
DS	8	88.90	8"	100.00%
AS	1	11.10	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00

PM CNo	PANEL	STUDENT	PEERS
2	RQ	23"	
2	DS		
2	DS		
2	RQ	35"	
2	DS		
1	DS		
3	DS		
3	DS		
2	DS		
3	DS		
1	DS		
3	DS		
2	RQ	14"	
3	DS		
2	DS		
2	DS		
3	DS		
2	DS		
3	DS		
2	DS		
2	CQ	4"	
2	DS		
2	CQ	21"	
3	CQ	3"	
			RQ 2"
		2"	
3	DS		
2	DS		
2	RQ	23"	
2	CQ	21"	
2	RQ	24"	
2	DS		
1	DS		
1	DS		
2	DS		
3	DS		
2	RQ	7"	
2	DS		

PM No	S No
3	10

PCS
LCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
22'10"	19'30"	2'38"	2"
	87.90%	12.00%	0.10%

Summative				
Tot No Q/S	36	%	Response time	
CQ	4	11.10	30"	18.80%
RQ	6	16.70	2'08"	80.00%
DS	26	72.20	0	0.00%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES											
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ		RQ		DS		AS		PR		
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%	%	%	%	%		
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00						
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00	0.00					
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00						
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00						
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00						
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20						
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00						
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00						
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00						
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00						

PM CNo	PANEL	STUDENT	PEERS
3	DS	6"	
1	DS		
2	DS		
1	DS		
2	CQ	7"	
2	CQ	12"	
3	DS		
3	CQ	4"	
2	DS	3"	
2	DS	5"	
3	CQ	40"	
2	DS		
1	DS	4"	
1	DS		
2	DS		
3	RQ	52"	
3	DS		
3	DS		
3	DS	25"	
2	DS		
3	DS		
2	DS		
3	DS		
3	DS		

PM No	S No
3	10

PCS
MCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
15'45"	14'16"	2'29"	0
	84.70%	15.30%	0.00%

Summative				
Tot No Q/S	24	%	Response time	
CQ	4	16.60	59"	39.60%
RQ	1	4.20	52"	34.90%
DS	19	79.20	38"	25.50%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%					
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS		
2	CQ	38"	
1	DS		
3	CQ	9"	
3	CQ	22"	
1	DS		
2	DS		
3	CQ	2"	
3	CQ	12"	
3	RQ	15"	
2	DS	27"	
3	RQ	21"	
3	DS		
1	DS		
3	DS		
3	AS		
2	RQ	3"	
2	DS		
1	DS		
3	DS		
1	DS		
2	DS		
3	DS		
1	DS		
2	DS		
3	DS		

PM No	S No
3	10

PCS
LCS

Participation Table			
Tt	Tpa	Ts	Tpe
13'15"	10'46"	2'29"	0
	81.10%	18.90%	0.00%

Summative				
Tot No Q/S	26	%	Response time	
CQ	5	19.30	1'23"	55.70%
RQ	3	11.50	39"	26.20%
DS	17	65.40	27"	18.10%
AS	1	3.80	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00

PM CNo	PANEL	STUDENT	PEERS
1	RQ	16"	
1	RQ	17"	
1	DS		
2	DS	34"	
3	DS	14"	
1	DS	3"	
2	DS		
1	DS	RS 2"	
1	DS		

PM No	S No
3	10

WCS
MCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
8'20"	6'54"	1'26"	0
	82.80%	17.20%	0.00%

Summative				
Tot No Q/S	9	%	Response time	
CQ	0	0.00	0	0.00%
RQ	2	22.20	33"	38.40%
DS	7	77.80	53"	61.60%
AS	0	0.00	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00

PM CNo	PANEL	STUDENT	PEERS
1	DS	16"	
3	DS	12"	
1	DS	40"	
2	DS	3"	
1	DS		
2	DS	19"	
1	DS	22"	
1	DS		
1	AS	2"	
3	DS	5"	
2	DS	3"	
2	DS		
1	AS	15"	
1	DS		
3	DS	11"	
PR		30"	
1	DS	18"	
2	DS	2"	
2	DS		
1	RQ	16"	
1	DS	12"	
1	AS		

PM No	S No
3	10

WCS
MCS

Participation Table			
Tt	Tpa	Ts	Tpe
15'40"	14'16"	2'29"	0
	79.15%	20.85%	0.00%

Summative				
Tot No Q/S	21	%	Response time	
CQ	0	0.00	0	0.00%
RQ	1	4.80	16"	8.20%
DS	17	80.90	2'43"	83.10%
AS	3	14.30	17"	8.70%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y1 FC	PARTICIPATION					COMMENTS										RESPONSES										
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ		RQ		DS		AS		PR	
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%	%	%	%	%	%
1. WCS, WDS	15.50	14.30	1.80	83.90	6.90	28	5	17.70	2	7.20	19	67.90	1	3.60	1	3.60	51.70	11.70	10.40	15.20	11.00					
2. WCS, WDS	13.00	14.00	0.00	86.00	11.05	18	2	11.10	3	16.70	11	61.10	2	11.10	0	0.00	21.10	78.90	0.00	0.00	0.00					
3. PCS, WDS	17.20	14.70	0.00	85.30	11.30	21	4	19.00	2	9.50	14	66.70	1	4.80	0	0.00	23.40	57.10	19.50	0.00	0.00					
4. PCS, LCS	17.35	10.40	0.00	79.60	4.45	34	12	35.30	1	2.95	20	58.80	1	2.95	0	0.00	57.30	5.50	35.40	1.80	0.00					
5. WCS, LCS	9.30	1.50	2.20	96.30	1.50	10	0	0.00	0	0.00	8	80.00	1	10.00	1	10.00	0.00	0.00	40.00	0.00	60.00					
6. PCS, LCS, WDS	22.10	12.00	0.10	87.90	9.75	36	4	11.10	6	16.70	26	72.20	0	0.00	0	0.00	18.80	80.00	0.00	0.00	1.20					
7. PCS, MCS, WDS	15.45	15.30	0.00	84.70	9.25	24	4	16.60	1	4.20	19	79.20	0	0.00	0	0.00	39.60	34.90	25.50	0.00	0.00					
8. PCS, LCS	13.15	18.90	0.00	81.10	8.40	26	5	19.30	3	11.50	17	65.40	1	3.80	0	0.00	55.70	26.20	18.10	0.00	0.00					
9. WCS, MCS	8.20	17.20	0.00	82.80	17.20	9	0	0.00	2	22.20	7	77.80	0	0.00	0	0.00	0.00	38.40	61.60	0.00	0.00					
10. WCS, MCS	15.40	20.85	0.00	79.15	20.85	21	0	0.00	1	4.80	17	80.90	3	14.30	0	0.00	0.00	8.20	83.10	8.70	0.00					

PM CNo	PANEL	STUDENT	PEERS
1	CQ	1'27"	
1	RQ	34"	
2	DS	18"	
1	DS	29"	
1	CQ	8"	
1	CQ	12"	
2	DS	8"	
1	CQ	8"	
1	RQ	23"	
1	CQ	1'04"	
1	CQ	7"	
2	DS	3"	
2	DS		
1	DS	16"	
2	DS	2"	
2	DS		
1	DS		
1	DS	3"	
2	DS		
2	DS		
1	RQ	10"	
1	CQ	8"	
P		10"	
1	DS		
2	DS		
2	RQ	16"	
2	DS		
1	DS		
2	DS		
2	AS		
1	DS		
1	RQ	21"	
1	CQ	4"	
1	RQ	30"	
2	DS		
1	DS		
1	CQ	2"	
2	DS		

PM No	S No
2	10

PCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
17'10"	10'17"	6'53"	0
	59.90%	40.10%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	9	24.30	3'20"	51.60%
RQ	6	16.20	2'14"	29.30%
DS	21	56.80	1'19"	19.10%
AS	1	2.70	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%					
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00
2. PCS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00
4. WCS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00
6. PCS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00
7. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20

PM CNo	PANEL	STUDENT	PEERS
1	CQ	19"	
1	CQ	7"	
1	CQ	12"	
1	DS	3"	
1	DS		
2	DS	3"	
1	RQ		
1	DS		
1	RQ	22"	
1	DS		
1	CQ	7"	
1	RQ	12"	
1	CQ	2"	
1	CQ	17"	
2	DS		
1	CQ	18"	
1	AS		
2	DS	2"	
2	DS	6"	
2	DS	6"	
1	DS	9"	
1	RQ		
1	DS		
2	DS	5"	

PM No	S No
2	10

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
11'05"	8'35"	2'30"	0
	77.40%	22.60%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	7	29.20	1'22"	54.60%
RQ	4	16.70	24"	22.70%
DS	12	50.00	34"	22.70%
AS	1	4.10	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00
2. PCS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00
4. WCS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00
6. PCS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00
7. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20

PM CNo	PANEL	STUDENT	PEERS
1	RQ	41"	
2	DS	7"	
1	DS		
2	DS	43"	
1	DS		
2	DS	10"	
2	DS	21"	
P 10"			
2	AS		
1	RQ	20"	
1	RQ	9"	
1	DS	17"	
2	DS		
1	DS		
2	DS		
2	CQ	6"	
2	RQ	2"	
2	DS		
		RS 3"	
2	RQ	22"	
2	RQ	4"	
1	RQ		
1	CQ	18"	
1	RQ	6"	
1	RQ	13"	
1	DS		
2	DS		
2	RQ	2"	
2	DS	2"	
1	DS		
2	AS	4"	
2	CQ	2"	
2	DS		
1	DS		

PM No	S No
2	10

WCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
16'10"	11'58"	4'12"	0
	74.00%	26.00%	0.00%

Summative				
Tot No Q/S	32	%	Response time	
CQ	3	9.40	26"	10.30%
RQ	10	31.30	1'59"	47.20%
DS	17	53.10	1'40"	39.70%
AS	2	6.20	4"	1.60%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot (min.sec)	Ts %	Tp %	Ttu %	Ts wCQ %	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00
2. PCS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00
4. WCS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00
6. PCS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00
7. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20

PM CNo	PANEL	STUDENT	PEERS
1	RQ	41"	
2	DS	7"	
1	DS		
2	DS	43"	
1	DS		
2	DS	10"	
2	DS	21"	
P 10"			
2	AS		
1	RQ	20"	
1	RQ	9"	
1	DS	17"	
2	DS		
1	DS		
2	DS		
2	CQ	6"	
2	RQ	2"	
2	DS		
		RS 3"	
2	RQ	22"	
2	RQ	4"	
1	RQ		

PM No	S No
2	10

WCS

Participation Table			
Tt	Tpa	Ts	Tpe
14'40"	12'26"	2'14"	0
	84.80%	15.20%	0.00%

Summative				
Tot No Q/S	22	%	Response time	
CQ	3	13.60	53"	39.60%
RQ	3	13.60	58"	43.30%
DS	15	68.20	20"	14.90%
AS	1	4.60	3"	2.20%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00
2. PCS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00
4. WCS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00
6. PCS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00
7. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20

PM CNo	PANEL	STUDENT	PEERS
1	CQ	11"	
1	DS	47"	
PR			
1	DS		
1	RQ	28"	
1	DS		
2	AS		
1	CQ	22"	
1	DS		
2	DS		
2	AS		
2	DS	25"	
1	CQ	7"	
2	CQ	5"	
2	DS	12"	
2	DS		
1	DS	29"	
2	RQ		
1	CQ	7"	
1	CQ	1"	
1	CQ	4"	
1	DS		
2	RQ	8"	
P 10"			
2	AS		
1	DS		
1	AS		
		RS 2"	
1	DS		
1	RQ	4"	
2	RQ		
2	DS	10"	
1	CQ	8"	
2	CQ	6"	
2	DS		
2	RQ	9"	
2	AS		
1	CQ	5"	
1	DS		
2	DS		
2	CQ	4"	
2	DS		

PM No	S No
2	10

PCS
WDS

Participation Table			
Tt	Tpa	Ts	Tpe
20'48"	3'25"	17'23"	0
	16.40%	83.60%	0.00%

Summative				
Tot No Q/S		%	Response time	
CQ	11	28.20	1'20"	39.00%
RQ	6	15.40	49"	23.90%
DS	17	43.60	1'16"	37.10%
AS	5	12.80	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%					
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00
2. PCS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00
4. WCS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00
6. PCS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00
7. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20

PM CNo	PANEL	STUDENT	PEERS
1	DS	14"	
2	CQ	2"	
1	CQ	8"	
1	CQ	3"	
2	DS		
1	DS		
2	CQ	2"	
2	DS	4"	
1	DS	2"	
1	DS	6"	
1	CQ	2"	
			RQ 2"
1	DS		
2	DS	3"	
1	DS		
1	DS		
			DS 3"
1	DS		
2	DS	3"	
2	DS		
1	DS	12"	
1	DS	7"	
1	DS		
1	DS	19"	
1	RQ	2"	
1	DS		
1	AS		
1	DS		
2	DS	9"	
1	RQ		
1	DS		
2	DS		
2	DS		
1	DS	1"	
2	CQ	1"	
1	DS	2"	
P15"			
1	DS		

PM No	S No
2	10

PPS

Participation Table			
Tt	Tpa	Ts	Tpe
17'45"	16'03"	1'42"	5"
	89.90%	9.60%	0.50%

Summative				
Tot No Q/S	35	%	Response time	
CQ	6	17.10	18"	17.60%
RQ	2	5.70	2"	2.00%
DS	26	74.30	1'22"	80.40%
AS	1	2.90	0	0.00%

CQ - CLARIFYING QUESTION
RQ - REFLECTING QUESTION
DS - DIRECT SUGGESTION
AS - ABSTRACT SUGGESTION
PR - PRESENTATION
P - PAUSE
T - TECHNICAL
RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QIP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00
2. PCS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00
4. WCS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00
6. PCS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00
7. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20

PM CNo	PANEL	STUDENT	PEERS
1	CQ	12"	
1	CQ	14"	
1	DS	8"	
2	CQ	8"	
2	CQ	19"	
2	RQ		
1	DS		
1	CQ	12"	
1	CQ	4"	
1	CQ	16"	
2	CQ	18"	
2	DS	7"	
1	DS		
2	DS	1'22"	
			DS 1'10"
2	DS		
1	DS		
1	DS		
			DS 22"
1	DS		
2	AS		
2	DS		
			RQ 12"
1	DS		
2	DS		
1	DS		
2	DS		
1	DS		

PM No	S No
2	10

PCS

Participation Table			
Tt	Tpa	Ts	Tpe
18'20"	14'16"	3'20"	1'44"
	72.30%	18.20%	9.50%

Summative				
Tot No Q/S		%	Response time	
CQ	7	28.00	1'25"	28.00%
RQ	1	4.00	0	0.00%
DS	16	64.00	1'55'	37.80%
AS	1	4.00	0	0.00%

- CQ - CLARIFYING QUESTION
- RQ - REFLECTING QUESTION
- DS - DIRECT SUGGESTION
- AS - ABSTRACT SUGGESTION
- PR - PRESENTATION
- P - PAUSE
- T - TECHNICAL
- RS - REQUEST SUGGESTION

Y3 FC	PARTICIPATION					COMMENTS										RESPONSES					
	Ttot	Ts	Tp	Ttu	Ts wCQ	NoCtot	CQ		RQ		DS		AS		QtP		CQ	RQ	DS	AS	PR
	(min.sec)	%	%	%	%		NoC	%	NoC	%	NoC	%	NoC	%	NoC	%	%	%	%	%	%
1. PCS, WDS	17.10	40.10	0.00	59.90	20.70	37	9	24.30	6	16.20	21	56.80	1	2.70	0	0.00	51.60	29.30	19.10	0.00	0.00
2. PCS	11.05	22.60	0.00	77.40	10.20	24	7	29.20	4	16.70	12	50.00	1	4.10	0	0.00	54.60	22.70	22.70	0.00	0.00
3. WCS, WDS	16.10	26.00	0.00	74.00	23.30	32	3	9.40	10	31.30	17	53.10	2	6.20	0	0.00	10.30	47.20	39.70	1.60	0.00
4. WCS	14.40	15.20	0.00	84.80	9.20	22	3	13.60	3	13.60	15	68.20	1	4.60	0	0.00	39.60	43.30	14.90	2.20	0.00
5. PCS, WDS	20.48	16.40	0.00	83.60	10.00	39	11	28.20	6	15.40	17	43.60	5	12.80	0	0.00	39.00	23.90	37.10	0.00	0.00
6. PCS	17.45	9.60	0.50	89.90	7.90	35	6	17.10	2	5.70	26	74.30	1	2.90	0	0.00	17.60	2.00	80.40	0.00	0.00
7. PCS	18.20	18.20	9.50	72.30	10.50	25	7	28.00	1	4.00	16	64.00	1	4.00	0	0.00	28.00	0.00	37.80	0.00	34.20

Appendix 2. Audio Recordings' Transcripts

(The examples chosen to demonstrate feedback typologies in Chapter 8 are highlighted)

Transcript 1, Y1, Final Crit

Critic 1: There's a framed structure that looks like it's printed on acetate, and then the main wall behind it. How does that work?

Student: What I'm trying to do is, erm, over here, the way the beams are, you would have little models, compasses and stuff that resemble the boats, erm, or displayed in, erm, depending on priority or size it would be displayed in a different cavity, sort of a cabinet, you can open it also and get a feel of it, pick it up and look at it, and I've also tried, there is a view that was really good which opens up to this view here, and so I kind of included this view in my cabinet, erm, and that's really where this idea came from.

Critic 1: yeah, ok.

Critic 2: I found that idea about looking at the site, erm, analysing the site in terms of the environmental factors really interesting. Can you tell us what was the result of that analysis, so what did you come up with.

Student: Well, for this idea, it gave me a lot of decisions on where to place things, where I wanted the models to be, because I also wanted, erm, almost like a sandpit, where all the things can be modelled and see where things were, and just generally get a nice scaled model of the whole site, because is a quite large site, and I don't think that most people will be able to cover it in, erm, a space of couple of hours, which is what they'll spend there, so, I get a lot of evening light here, which I thought it would be quite nice for the bedroom, which was why my orientation was changing and that's the main factor the site analysis was giving in, and also how people would access it and, erm, also where it would be in relation to the other boats surrounding it, and whether I can use that in my actual museum, for example, capturing the view. That's how it helped me, because I thought it was quite symbolic of the area, so thought...

Critic 2: You mentioned, sun damage...

Student: What? Sorry.

Critic 2: Sun damage, on the paintings.

Student: Ok, yeah.

Critic 2: So, what was the criterion then used in your, so can you relate your final result to that mapping, because we don't see the North sign.

Student: My building is faced on that direction, so, you enter through here, and then you leave on this side, coming out to this view.

Critic 2: Alright, yeah.

Student: And on that corner over here, that's where I decided to put my paintings, as you only get the morning sun, which be quite shaded, is, there wont be morning sun, there will still be light, but not the sun light, and so, erm, I decided to keep it in this corner here, because you'll get a lot of shade from this tree as the sun moves, but descent amount of morning light.

Critic 1: Only if the qualities of that you shown in your perspective view up there, what corner are you fixing onto that perspective?

Student: More or less this corner, it has changed, and, but the window has stayed the same, but I was going to have a piece of glass over here, so you can see through, but then I though for privacy reasons, if I was going to make it, erm, quite versatile so you could sleep there as well, I didn't think that this would be very sufficient.

Critic 1: Ok, so on the plans, the paintings are...can you just point where they are in that main 1:20 plan?

Student: Sorry, where is the...

Critic 1: The painting display, that one there

Student: You would have the painting and my models in almost like a sand pit.

Critic 1: Ok, and the toilet is, erm, you would just access it from the outside?

Student: Yeah, you access it from the outside, I did originally had it, the access from the inside, but what I felt about that was, it is going to smell, and I didn't want make this the main museum unpleasant or the social and meeting room unpleasant, and I thought it's probably best, and also, for purpose is more practical best left for public use. So you wouldn't have to worry coming in to the building, and potentially crowd this area. So they could access it from the outside without disturbing what's going on here.

Critic 2: So, it's beneficial for the public, but not so much for someone who is staying overnight.

Student: No, for a person staying overnight, he would have to go outside. That was the only flaw that I find as well. But I could see a way out. I tried to keep it very versatile, and also in one floor, 'cause I thought it would be more accessible if everything was in one floor, so, and having the door inside, it just felt that it was going to smell, so I didn't want it to ruin it and make the whole museum feel awful.

Critic 1: Erm, and then the access ladder is on the side of the toilet there, and...

Student: Access ladder? No, you don't need...there's no...

Critic 1: No, of course, cause it just folds out there, yeah, so what is that little thing, that little structure there, that's on the side of the toilet?

Student: Oh, that's the fireplace.

Critic 1: Oh, I see, ok.

Student: The stove, I thought it would be quite nice in the social area, in the social meeting area, so you get that warmth, which I didn't display it here, but I tried to show the warmth that would be inside.

Critic 1: So, even though, you, earlier on in your design work were thinking about two levels, you at the end decided that you could just concentrate into one level.

Student: Yeah, after looking a lot of, playing with the design basically, I realised that two floors wasn't to versatile, and I wasn't actually getting sufficient room, even having the top floor, because if I was to try keep them into the museum, so, also, while having their meeting they are also reflecting on the museum. The spaces weren't quite working out as they were only getting about 1.4 metres of space, and I don't think that this is sufficient for meeting, for people to be standing, to actually being there, I don't think that was actually going to work very well.

Critic 1: So, the length of your little building is that, is it 6 metres by 3?

Student: 6 by 3, yes.

Critic 1: Ok, so you've translated the 18m² quite literally?

Student: Yeah.

Critic 1: So, is that the starting point for, did you set out the 6 by 3 and think, ok this is what I am working with, and then I go right to the border?

Student: Yeah, and then I also, thought about bit that didn't, spaces that I didn't need, if I need to move out, what spaces can I, what spaces I don't need, what is going to just waste space in there, what can I do better with.

Critic 1: So, it could have been 4 by 4.5, couldn't be?

Student: Yeah, it could have been anything, whatever I could, is, what could have enhanced what I was trying to show. And so, that was what I really tried to show. The 18m² worked perfectly, I don't know. After trial, because, some of these are 20m², but in fact, it all worked, and actually it didn't need to bulge out, because I don't think, shapes such as these had much to do with the actual landscape, what was there, there wasn't...

Critic 2: But it had to do, I thought, with the flow that you wanted to achieve, so by moving from that shape to something more orthogonal, and perhaps if missed something which was, is that true, or is it just my impression?

Student: Well, the only reason I wanted. I wanted to have that flow, but I felt, from the outside it wouldn't have a linear look if it had these zig-zag bulges, and so, as well as the interior I wanted the exterior to also be quite linear.

Critic 1: So, ok, so it's a desire to have that linearity it's not just the constraint to the 18m², making a straightforward decision about how to...

Student: Oh no, from the start, when I first read the brief, and tried to look into the details, that's when I, erm, I wanted it to be a learning curve, and that's why I wanted, you know that actually not learnt something, you always continue to learn, you know you'd head back, and that was kind of the idea that I wanted, which I why I had an entrance and a separate exit, and not that you came in and left form the exit, I mean entrance, sorry.

Critic 1: Though we are talking about, erm, have you actually paced out what is 6 by 3, do you know how big it is?

Student: I did, I did it in the studio.

Critic 1: Because it is from me to that wall, isn't it, 3 metres, and so from that wall to about the back of the chairs, so its tiny, tiny, tiny. Erm, and I think it's quite easy to then have grand ambitions for this exit and that entrance and so on. Erm, whereas, I think what can happen with that is that you end up undermining the wall space and creating a sense of flow, whereas, in fact it's a, you know, all you can create in a room of that size is a focus, focus for activity, erm...

Critic 2: ...I think you experimented quite well at the beginning, so we didn't want to interrupt you, and because the way you started, and you were consistent with that intention you had about the flow, and that helped, the fact that you had splited into two levels helped you in that, because you had a more narrow space, so it was about scale, it wasn't almost about how much space you had, it was the impression you would give to someone going in to that space, but then, it was as if you were scared by the resulting space, the shape of it, but you went into a more, erm, generic form at the end.

Student: Yeah, what I felt about the shape was that I didn't really like, it fit in, sat into, erm, the actual landscape, compare to what the boats had to offer. Because for the boat it was more like it was sticking out, which is why at first I wanted to have, erm, these beams just bulge out to give a bit of a structural (inaudible), and I didn't feel this was going to give it, what I felt like it was just going to be something that has just been put there, and I didn't feel like it sat in the actual site.

Critic 1: But then again, erm, I mean in theory in a site like that, you could have had any shape, and shape is not the issue here the way it would be perhaps if you had a more constraint urban context, which you will probably have in the next project, erm, where you've got edges of other buildings and other open spaces and perhaps pavements, and, you know, all the complexity of been in an urban site, here the thing that is difficult for you is that is so open, that, erm,

that that implies that it could be anything, erm, and so the 18m2 is an important constraint to stop just from spreading out to the whole landscape, but it also, erm, offers some freedoms, and some freedoms to be contextual, so I don't think that, erm, looking at that plan down there, that it's, erm, that it's random and it doesn't fit into the site, but rather what would I see is the potential to have a, the element, which is the meeting area, but also it could be transformed to the steeping space, to really pop out to the landscape, and to, therefore, be more expressive, than the resultant form that you ended up with, allows, erm, I mean it's not to say that that kind of minimalist form that can't allow for expression, but, erm, there is real possibilities to (inaudible) in any way, in that, that just by kind of moving and jarring these different elements against one another, you can have a more, a quainter sense of connection with the landscape. Because it's of those is a decision you've made with the geometry of the building that relates to the view and the orientation. We need to move on, do you have any final points?

Critic 2: Last thing about the environmental factors again, maybe you could reconsider that's good quality light in that case, maybe we are not looking for shadows actually, but you are looking for natural uniform light levels, which is northern light, so if you would go back to that site plan you could rethink about how you could use northern light, your exhibition space is what I am talking about.

Critic 1: Ok, good, well done for being the first person, and I know that it's the first proper 'crit' that you've done on your own, so that was very good, well done.

Transcript 2, Y1, Final Crit

Critic 1: Ok, thank you, so, some comments from the floor? (no reply) What about human scale?

Peer 1: Well, there is no human scale, but the point is there, it didn't have to...we can see.

Critic 1: Yeah, so there is an issue of scale there, which of course it's just reflective of the fact that you are learning about scale through this project for the first time, but nonetheless you managed to hold on to your idea. What about, erm, if somebody asks, erm, do you understand whether (inaudible) in the site? (no reply) Come on!

Peer 2: I've got something about practicality, if I, I think if the bedroom and the toilet was in the same box, erm, I was just thinking how muddy the site is especially, erm, going in to the bedroom space with muddy boots or whatever you are wearing, that will cover the floor with mud, which later on, if a person is staying overnight and the floor is going to be covered in mud, and it won't be practical enough, in that sense.

Critic 1: Hm, yeah, cause you would have to kind of launch yourself into the bed, don't you, because the room is only in the size of a single bed. I mean, I think that's a really good point, and I was wondering about, erm, whether you considered making the sleeping space a sleeping platform, more in the way it's described in the brief, that could sit on top of the toilet. So, you go up the ladder and then you actually get to benefit from the whole space that you've devoted to that area.

Student: Yeah, at the beginning this was just the bathroom, and my sleeping place was in one of the cabinets.

Critic 1: Ok, yeah.

Student: Yeah, and I was considering this at the beginning, but I thought climbing up in the ladder, and I thought that the ladder would be also visible from the outside, just like these cabinets, so the ladder would be like little boxes cabinets and that would lead you up to the floor, but then, for people may be uncomfortable and dangerous at the same time.

Critic 2: I think, separating the two, the, a serious decision in terms of how much that affects the footprint, and it was in your brief that you had to go for a minimal intervention on your site so, it would be useful to look at timing there, when is the sleeping space used, and when the museum is occupied at the same time so, it could be a matter of (inaudible). I think there are very good points in your presentation, erm, you were fascinated with some things, erm, that you've experienced in the site, and you've managed to bring these forward, that idea about the playfulness, you've mentioned in the beginning, it's very successfully realized on the collage and then on your idea on the model, and I really like that idea of some of the cabinets revealing actually what's happening outside, not just the artifacts, and that surprise element, I think it was really successful and the fact that it was furniture, the stools and the meeting point was developing from the ground, and that was on your memento as well, and you were experimenting quite a lot, erm, one thing you might have missed or you might have considered it and rejected it already, would you consider using natural light for these cabinets?

Student: Yeah, I didn't mention that there is actual light in some windows; you can see it on this pattern. You've got a section here, which is looking on this wall, you have two windows here...

Critic 2: oh yeah, no, no, mostly in the same way that you are using artificial light, perhaps using some small gaps, which can be again modular to, erm, allow for, erm, more light, so, if you turn that, if you turn the model, the actual design of your wall would allow that, because you have, yes you have, opportunities for daylight to come in, so I think that would be an opportunity that you haven't consider yet.

Student: Maybe have gaps here.

Critic 1: Yes, because there's something slightly curious about, erm, having all this light available from the site, and then creating these very internal environment for display, I think you could probably create an interesting counter point between those, because after all in the winter, when it gets dark so early, then might be a reason for saying that the illumination comes from the interior, and sort of flips over the illumination from the outside. But how can you control natural light as well, because that's not just a question of opening up a window, and then let the light flood in, but of controlling how you use it, whether it is by putting, erm, a wall on one elevation, a north elevation instead of south elevation, and, erm, lots of architects have used devices likes baffles and, erm, up-stands and so on, the technology may not be clear about yet, but in order to make sure that the light comes in, in a very diffused way, erm, rather than a very bright way, intense way, which might be to much, I mean if you had light coming very, from behind, then what you would end up with is all your artifacts being in silhouette, which is not what you would want.

Critic 2: And the choice of the materials would allow you to do that

Student: It could be even more playful, it could open the ceiling

Critic 1: That's right, yeah, exactly, yeah, so you could get light into the space itself, erm, or at the top of each little cabinet, cause you popped them off outside, erm...

Critic 2: I think it was really successful the way you've, erm, presented the materials, erm, on your drawings, on your collage, and then, erm, the drawings there, but I think maybe you could have reconsidered the choice of the materials for the model, so, you've put lots of effort on that but then, the material itself does not allow for that feeling, so maybe next time...

Student: This is showing a different experience than this, it's a shame, but then...

Critic 2: Although you've added a lot to that, I must say, I would reconsider, so I would think before selecting the material.

Critic 1: Yeah,

Student: I wanted to make it to a card, but I didn't have time for this, maybe it would have been a bit better, but...

Critic 1: Hm, in some ways you could be even more restrained, I mean one approach would be to go, erm, to make it, erm, more like the collage, which is what you are suggesting, and an other approach would be not to show all the wood grain and so on, and just be more, erm, focused on the form, erm, and then just perhaps scorn the line that would be the joint between the different boards, because that would be enough probably to show that the architecture it's, erm, is developed with boards, rather than being very solid monumental cast, stone, brick or any other kind of material. One of the things that I really enjoyed, erm, is, in the drawings I think the materiality comes across, because

although you haven't yet, erm, got to grips with construction, and that's absolutely fine at this stage in your first year, you've, nonetheless, been able to communicate through these technical drawings that the building is a framed timber clad structure, erm, and the other thing that I really enjoyed in terms of the architecture is the way you have separated these elements out. It reminds me a little bit of the Richard Leplastier, I don't know whether you did one, that project for your, it was one of the houses that was included in the list of houses...

Peer 2: The Lovett Bay House.

Critic 1: was that the one you did, well yeah, exactly, well, there is a timber deck that forms the ground, or kind of an artificial ground, and then the different elements of the house, are kind of distributed around it, which means that these elements are quite open to the landscape, and it really helps to create communication between the functions of the house and the landscape that is sat into.

Student: I was also inspired by that cube there, because it's also left there by the tiny...

Critic 1: Oh, that little building there?

Student: Yeah.

Critic: What is that?

Student: It's a (inaudible) cabin, I just randomly...

Critic 1: It's beautiful...

Critic 2: And I was just going to ask you...

Student: And it's also 2.5 by 2.5 metres.

Critic 2: Sorry, I totally ignored that side of your presentation and I was about to ask you if you have seen any precedents with stilt, erm, structures.

Student: Also they used 2.5 diameter beams...

Critic 2: So, that idea about the balcony and the ladder, you haven't discussed that further, so, how did that come about?

Student: (describing intention about circulation and layout with respect to the ladder)

Critic 1: I think the idea that your architecture is very, erm, although you've got some strong forms here that your architecture is about some particular elements, erm, there is a cabinet, there's this thing that's in the floor of the building, erm, which is, erm, which could be used for the meetings, but is a

flexible element that , erm, moves up and down effectively and can be configured in different ways, erm, and then you've got this cabin here which is for the toilet and the sleeping area, erm, I think there is a lot in that...

Critic 2: ...a lot

Critic 1: because I think although you started off with quite grand ambitions in the end, you've really, have got the sense of the scale of it, and haven't tried to, erm, do meeting room, bedroom, and museum in a more conventional sense, you've tried to bring them together, and also tried to distribute them in the landscape, in an interesting way, erm, so I really commend you for that, but I think the thing for me that is still problematic, although I know you moved it around, is the sleeping element, which your colleague here identified, erm, and I think it's interesting that this little building here is 2.5 metres, did you say it was 2.5 metres square?

Student: It's 2.5 metres square.

Critic 1: Yeah, erm,

Student: This is 3.8, the main space.

Critic 1: Yeah, exactly, but your little structure there, which is the toilet, and it's much smaller than that, and erm, I think it would be really good to develop that little bit, if there is one thing to develop from this crit...

Critic 2: ...Yes.

Critic 1: ...It would be that, because it is a bit of a disappointment, and I don't think it needs to be, because I think that the act of separating these things apart is really positive, and definitely you want to make sure that that has the same, sort of practicality.

Student: So, really, will separate the toilet, bathroom from the sleeping room.

Critic 1: No, I wouldn't. Keep it more or less as it is, but I would probably consider having a ladder up to the sleeping allowing the sleeping area to be, um, to take up that whole footprint. So what about making this two stories, and then, that would mean then, that you could just be a little more generous about everything, erm, because it's one thing to be minimalistic because you have got spacial constraints, the other thing is you might end up being (inaudible) because you created poor quality environment. I think, you know, you do want to come in and take your shoes off, to have this as an area that the public can access and so on, but then you want to go up to somewhere that is more private.

Student: You see, because I also did draw it as two stories, but it looked to me, kind of, that it took over this cube because it would be higher, and it didn't look nice.

Critic 1: Ok, but in a sense is like a little tower, isn't it, you could almost see it as being a water tower or, in fact that could be a little water, rain collecting roof and, erm, and then you would have two different elements, you would have this little tower with its water collector and perhaps a solar panel or whatever, a really functional little element, and erm, and then you would have a slightly bigger space but lower to the ground, erm, which would, which I think you've really developed.

Critic 2: And I think what you just mentioned about the fact that the need to make sure that the elements of your design really work is very important for your design. So you design for creating a comfortable space. So, the first consideration at the end, erm, when you are checking how well you've done is to look at that and say, would that be a comfortable space? Do I need to allow for something extra?

Critic 1: Ok, great, thank you.

Transcript 3, Y1, Final Crit

Critic 1: That's very good. I think your sections are beautiful. Both the section that shows the study of the existing boat, and the figure, and the boat and the ground, and this section here. I love sections that erm, that are really inhabited, and erm, and particularly at this scale, this 1:20 scale, erm, because I think the more you put that detail in, the more it shows that you understand what sort of space you're making.

Critic 2: And by putting these together, one is a skill that you already had from before I assume, sketching, and now a new skill, and how you've used the one to improve the other, I think is really successful. And your idea is clearly presented from the beginning, before you even started. We could see that balance between the earth sheltered and the free space and moving then from discussion to a private space and the exhibition space and a meeting room. I think it had a lot of flow. You presented it quite well.

Critic 1: On the other hand, I find that, erm, with the exception of these sketches, that there is rather little exploration of the three dimensional form. Because this, erm, sketch here suggests that your building is erm, do you know what I mean by an extrusion, so you can take a shape and pull it up...

Student: (Describing the proposal using a model. Explanation on some design decision in relation to site views.)

Critic 2: But I agree with you, I think you should be a bit more, erm, you should have more confidence with your sketches, because I think that part of the analysis wasn't well communicated, as it was at the previous thing we mentioned. So I couldn't see exactly how that shape was derived from the site analysis you've made. Perhaps that could be a point that you could, erm, review.

Critic 1: I think the model is a bit of a missed opportunity, erm, because although you've used it in order to convey your thoughts about, erm, not so much to explore, but at least to represent your views about the materiality and how they relate to the site, erm, but I think you could have actually communicated that, with that image, that precedent study, and with your two dimensional drawings, and I think that the real opportunity with the model would have been to show some of the richness of the spaces that you've shown in the section, now in a more three-dimensional sense. Because, I find that the geometry of your building, especially that intersection point between where the stair is, and then where these cabinets are, erm, you know, where you put the boat on the ground floor is really intriguing, erm, and perhaps doing the model of that part would have also helped you to explore whether, erm, the three-dimensional form really does need to be that the ground floor and then just taken up to the next floor directly, or whether perhaps, erm, there are opportunities to slightly change it in order that you can express the differences between those floors by adjusting the profile, and perhaps the way which the cabinets or windows pop outside, have a different relationship with the outside of the landscape.

Critic 2: But of course in saying all this, if you had to choose between, erm, doing a model that really explains how your design is and, erm, simplifying it actually, erm, to be able to do that, I am more satisfied with the fact that you've found that being difficult and, but you decided to, erm, to move on with your ideas about that and resulting, erm, in a complex space. So it is all right, it's still a learning process, so that's missing, but the rest is there.

Critic 1: Yeah, yeah, exactly, I just think that, erm, that the model is the thing that is not as developed, it doesn't have that kind of richness that I find in that section and the problem with plans and sections is that sometimes they can appear as though they are most, and indeed they are, some of the most vital tools to exploring, erm, a design challenge, erm, but somehow the fact that you are doing it two dimensionally all the time can help to hide problems where there are mismatches between the section and the plan, or there are aspects that just wouldn't really work in three dimensions, and it's quite difficult for us to see, erm, what some of those issues are, when you are just showing us plans and sections, so, yeah, I am really encouraging that three-dimensional exploration, and certainly in the next project to, I mean, thinking about this as a learning process, to model throughout your design process. The collage is very interesting.

Critic 2: Hm, perhaps it should have presented at the beginning.

Critic 1: Yeah, it's kind of off to the one side, isn't it?

Critic 2: And the human presence there is really strong.

Critic 1: Definitely, yeah.

Critic 2: I like that idea about the texture of the light, so, it's just, I thought that maybe, it wasn't, if you had only one opportunity to present something with a

model it could be something else, but then, I think that was interesting as well, it worked well with your memento concept.

Critic 1: I think spiral staircases are real temptation, but also quite dangerous, because they take up a lot of space, and erm, and they often work best when there is, when there is either really constraint space, which means you just erm, you haven't got the length to have a normal staircase, erm, you've only got, erm, you know something that has more, erm you know, even proportions, erm, or when you have a big generous space, where you can allow it to occupy the space and be an element to that space, a real, erm, but I am not sure whether you really worked out how many steps you would need in order to get from one floor to another, and it looks to me that you might be bumping your head.

Critic 2: Another thing I've noticed. You have a double height space, so you have communication between the first floor and the ground floor.

Student: (Describing the created detail in that space.)

Critic 2: Ok, erm, it could be a better, and I would like you to discuss that, how did you decide to put the skylights on the site, and not just above that hole? So if the skylights were here, I assume that this would offer the opportunity for a skylight, erm, to reach your underground, your ground space.

Student: (Describing the reason why the skylight was positioned over the meeting area and not the created void of the double height. Natural light was preferred for the meeting.)

Critic 2: I see. I just wanted to check whether this was intentional and if there was an argument.

Critic 1: It really feels that this is a cabinet, erm, this whole little building is a cabinet, erm, and is a cabinet that doesn't communicate that much with views to the outside, erm, your windows, you've only got, well part of it is subterranean, but then on the upper level, where is only one little opening.

Student: Pointing on the windows and the related views.

Critic 1: So, when you come in to this space, your idea is that you, what is represented about the landscape is represented on the interior, and it's not represented constantly through views outside?

Student: (Explaining why there is limited visual connection with the site and how this defines the character of the space, or at least the intention about it.)

Critic 1: So before I ask your colleagues to contribute a bit, erm, one other thing that I find a little curious is that you've got this study of the boat here, and then you've shown that, how is that located on the section across the site, erm, and then on your proposal the boat is not there any more, and neither is your building.

Student: Pointing at the map where the building and the boat should have appeared.

Critic 2: One last thing about that discussion you had about the 3-D aspect of that. If you would trace where that void on the floor is, on both plans, and also where the skylight are, it will start linking the sections to the plans, so make sure you do that in the future. Because, then perhaps you can see that maybe a window and a skylight might not be necessary for example, could be that one of them was enough.

Critic 1: What do other people think, what questions do you have about the project, what you liked about it, what didn't you understand.

Peer 1: I didn't really understand the idea of the model. Maybe explain it a little bit.

Student: I did it to show this idea about this corridor, and these walls that are imitating the texture of the mud, that's why I wanted to do it.

Critic 1: To show the materiality, so it was about the materiality.

Critic 3: (a tutor that walked in the review room, along with another one appearing later on): What would you say about the overall design process? Was it difficult, frustrating?

Student: Hm, no, it wasn't frustrating, it was just, erm, I don't know, all the steps (inaudible, something about time)

Critic 1: It's the challenge of fitting them all in a very limited amount of time.

Critic 3: I think I teased you a bit. Because there was a moment for me, standing outside of this, observing the process. There was a big (inaudible) when you went from two weeks from the sketches and the sketchbook to suddenly, look, I'm declaring the scale, I'm declaring where exactly this piece of concrete sits, erm, and for me that was almost a revelation to see you rise and say 'oh, I've got a project'. Did you have that sense that suddenly 'oh, there it is'?

Student: Yeah, well...

Critic 2: Are there sun patches on the collage, the white areas?

Student: I just knew that I wanted light on the second floor so I just...

Critic 1: ...indicated it. Although you suggest more light on that floor, than you've actually shown.

Student: Yes.

Critic 1: It's quite curious to have a building that looks as though in it's (inaudible) communicates with the landscape on different orientations, but it

only has one opening. I think that perhaps makes it feel, you might get more out making more of a contrast between that subterranean space and the upper level. That's not just because you've got light in from the sky, but, that means that the cabinets or the fireplace or some different elements that are just picked out by the way you let light in. Although having said that, I do quite enjoy the way you have created this little world here, it looks like and old man, I haven't stood up to look at him. He is old isn't he? (laughs) prematurely bold!

Critic 3: What I love about your work is, it's really engaging with the people.

Critic 1 & 2: Yeah!

Critic 3: These two corners of the scheme...

Critic 1: They are really nice aren't they?

Critic 3: It's what's declaring your interests as an architect, and I am really interested in knowing how people use these spaces, how they experience the artifacts, how they move the furniture...

Critic 1: ...The interiority of it.

Critic 4: For me, not knowing the project, I'm wondering whether you worked in books, whether you could make a book of drawings that gave a narrative of the way that you moved forward. The idea that there is always got to be forward movement, isn't necessarily so. Sometimes the movement forward is very slow, and that's what [Critic's 3 name] is alluding to, in the fact that you worked for a long time, at this level of action, and in a funny way, if we were to say when we are presenting the work, actually most of the time and a lot of the thinking went on in this, sort of grabby bit, and you presented it on the wall at a very low level, your pin up is really peculiar, and quirky or idiosyncratic and I am wondering how you value those things? If I was to ask you to point at one thing, what was the most valuable drawing on the wall?

Student: Erm, this one.

Critic 4: And what's it doing down there? [laughs] That's your drawing touchstone. And in a way that's the one you should be referencing back and forward to, that's the thing everything else is having a dialogue with. Yeah?

Student: Yeah.

Critic 2: So, that needs to be involved in the story telling.

Critic 3: You've got a sketchbook full of sketches, but there are one or two that are the critical ones, that deserve to be blown up.

Critic 4: Because I love this intimacy in this, you know, it's really hard work going on in here, yeah? There is an interesting thing here about disclosure, and what you are willing to disclose to yourself, and what you are willing to disclose

to others, yeah? And you are thinking, this is like a diary, this whole thing is like a diary of thinking.

Critic 3: That's where the attention lies I think, to what extent you share your diary, or do you reformat your diary, do you keep it close to yourself and let other people know that you are keeping a diary, it's really difficult this. I haven't seen a student nailing this, what they keep privately and what they present publically.

Critic 1: That's partly because there is this sense, even though in this project you've been encouraged to think about the process in a non linear way, so starting with the perspective rather than starting with a plan and section, there is always the feeling that, these things are working, and that's to do with process, and these things are finished, and this is the finished product, erm, and then if you receive critique, then you go back to that, you don't go back to these particular drawings, you do another set of sketches, that build on these finished things, and then you progress from those to more finished things and so on and erm, and in fact one of these earliest sketches, which highlight your intuition, your very first thoughts and ideas, erm, sometimes those remain crucial throughout the whole project, so they become reference points, and erm, they are as finished in their own right, as there are finished here.

Critic 3: Maybe what you've got is, beginning of discovering your own practice, your own preferred way of working, and it could be that in future presentations you treat these as miniatures and make each of them into a card, and pass them maybe as a flick book, and maybe we get a little glimpse into your private world, if you will allow us.

Critic 1: We need to move on, so thank you very much, that was really good.

Transcript 4, Y1, Final Crit

Critic 1: Right from your first site studies, erm, of the boat, and erm, less site studies of the broader view, I don't think you gave us a real sense of what the landscape is like, but erm, but I think in general, right from the beginning, through to the detailed proposals of the project, you've given a lot of thought, and that's really an evidence, so well done for that.

Student: Thank you.

Critic 2: And a lot of attention as well in the way you communicated all those ideas, so I really liked the fact that you had a model, which is as detailed as you wanted it to be. But at the same time you gave us snap shot of that model, because, I agree, it's sometimes, it shows something different, so it communicates an other aspect of the model that we can...that we might miss if you don't remember to show that; and the shadows as well on those pictures are really interesting, and the fact that you've done a detailed model of that idea about the table, I think it also had to develop that idea, but it also had, erm, communicating it to us.

Critic 1: Yeah, absolutely, I think the space that is, even though that I really enjoy the idea of the desk and so on, the space that is least appealing to me is the sleeping platform, erm, and that is for a number of reasons, but I think the main one is how it ends up being expressed three dimensionally, that erm, it feels like erm, a bit of a disappointment to have the sleeping platform, which is elevated, and from which you would get the best views, erm, over the building itself with this interesting landscape of plants that you've suggested, to the broader landscape, and in fact you've made it look like very cellular, like a little train carriage, you know, a little cubicle, it feels mean, whereas it could just feel like a, somewhere between a room and a bunk bed isn't it? And that could be quite special, erm, and elevating it up like that, and allowing all the side of that little space to be external, erm, rather than being, so it's not a bunk bed in a larger space, it's a whole little enclosure in itself, erm, and so it feels a bit mean or a lost opportunity, to just have these three little slot windows there, erm, rather than giving the person who is in that space this kind amazing panorama, which they should be able to get...

Critic 2: Even if they are laying on the bed...

Critic 1: Yeah, a view of the stars. What about that! You know, you are in a remote place, where you haven't have the light spill, or much light spill rate from any nearby city, erm, you'd almost have the experience of camping, because it's erm, you know, it's certainly not a hotel room, there is not luxury here, erm, so it's a bit like camping, erm, but, what privileges do you have? You've got the view of the stars at night, and erm, and the sense of being in a rather sort of wilderness, and so it would be good to be able to express that in the way that you designed that with your space.

Critic 2: Can you explain again, because I didn't get that at all, what is the purpose of that space, which is a meter below the rest of the exhibition space?

Student: Because, erm, I wanted for people to view...to have a different eye level view of it.

Critic 2: So where is that boat? (student pointing at the boat on model.) I really like your paper shaped boat.

Student: (Describing how visitors experience the boat model in the exhibition space from different floor levels.)

Critic 2: Ok, so the boat is floating into space?

Student: Yeah.

Critic 2: And you have a lid which imitates nature, so you said something about being, having grass on it.

Student: Yes, it looks like grass on this ground plain.

Critic 2: Ok, now I see.

Critic 1: Erm, I wonder whether a different approach to that, that would allow you to do the same thing, would be to just make that, because it's a tiny little space that we are talking about there, and having two levels in that space, erm, it's already quite a lot, and putting just a little ladder, to communicate between the two, erm, I am not quite sure about, erm, in terms of the experience of going down there and looking up at the boat. I wonder whether, if the main thing about that space is to have a boat that is displayed, and that you want people to be able to not only walk around, but also see from below, from different levels, if the whole space shouldn't be a sort of floor that is profiled, either a gentle ramp that takes you to the lowest level, erm, or some bigger steps, so you are coming to that space and then you walk around and go down at the same time, erm, and then gradually see the boat at different levels.

Student: (Trying to explain the visitor experience as intended through the proposal.)

Critic 2: But I think is difficult to understand how would that really work without adding the boat into the model in the right scale. Because I don't know what the real scale of the boat is. It looks to me that it wouldn't fit.

Student: (Giving dimensions of the boat.)

Critic 1: It's a model boat isn't it?

Student: Yeah.

Critic 2: Don't you think that the lid would cause a problem, so it would make it look quite big in relation to the size of the boat? It could be, actually hitting the ceiling, so things like that, you can only understand them if you put them together with the rest of the building. Erm, one thing that stroked me at the beginning was the fact that you've shown in your collage a different outer environment that you would expect.

Student: At the beginning I didn't think about the levels, I didn't know about the ship or what to display...

Critic 2: No, no, I didn't mean about that, I meant what happens outside your structure.

Student: It's more of a canopy with grapes, more for density.

Critic 2: So you wanted to achieve that, that's why you have that structure to support the...

Student: (Inaudible).

Critic 1: The first image at the top, gives a sense of the context, in what the view is outside, whereas in the second image down below, suddenly the context is all disappeared and become covered in planting, is that what you wanted to happen? Isn't it?

Student: (Describes the different views of the building and from the building as depicted in these two images.)

Critic 1: So, where did that idea about enclosing the building with plants come from?

Student: It's like my memento; I want to show how life covers...

Critic 2: So it's about nature overtaking the structure. So would it make sense then, that the kind of nature that is overtaking the structure is on that site, I mean having things like peaches and grapevines and so on, perhaps isn't the right approach.

Student: This part here is different from this structure.

Critic 2: Yeah, but I wonder whether an alternative approach might be, erm, make the roof able to grow some of the kinds of grasses and other sorts of plants that are on that site.

Student: In, erm, this view, erm, I think the grass, erm, actually, erm, a little bit change, it doesn't change the whole year, so, erm, you can't feel that...

Critic 1: ...The seasonality if it. Because it's quite a harsh environment as well isn't it? The wind and the rain and the cold, you know, the intensity of being in that very exposed location it's quite harsh for plants; and plants grow in certain places because they can actually live there; conditions that favour certain plants rather than others. I think it's worth thinking about it, because it's an important part in your project, it's worth giving some thought to it, because it's key to how you approach the context.

[Pause]

Critic 1: I, a bit, like the scheme that we saw, the second scheme that we saw, erm, I quite like the way you've got this relationship between outside and inside, and that you've got the circulation on the ground floor, as effectively outside, but it's raised so it's on a deck, erm, but it would be cold, and muddy shoes and boots and so on, so it would be, erm, probably quite dirty all the time, and I think that means that you need to give some careful thought to the thresholds, because don't just have one threshold between the inside and the outside; you've got three or four, erm, well you've got three main ones, but you've also got the point where you raise to the sleeping platform as well, which is very close to the threshold next to your meeting space, and erm, those thresholds are important if you think about your house, erm, how you come in, erm and especially in a weather like this; when you come in and you take off your coat and your wet things and so on, you don't come straight into your living room, do you? Because otherwise you'll just drip everywhere, erm, you come into a hallway, and hallways are designed specifically in order to be able to provide that threshold between the outside and the most cozy interior spaces, and erm, and on a project like this, where your circulation is outside, erm, well what you've shown is, erm, the sliding door, which is the only thing that makes the, that

defines the gap between the outside and the inside. And I think it will be just good if you think about that a little bit more, erm, what's the minimum that you need. Maybe it's just somewhere where you can crape the mud off your shoes, maybe that is a little cabinet that you can take your shoes off and put them in so that the museum space is clean and protected from the elements, well you know, the muddy booted friends of Purton, walk their muddy boots across the meeting room. But I think if you want to create more of a sense of an interior, an interior that is still connected to the landscape, then erm, then the thresholds are really important.

Critic 2: And I think that is related to the fact that the analysis of the site was weaker, in comparison to the rest, so maybe you need to think a bit more time about that, before you move on to the design.

Critic 1: So what about thoughts from the floor, we've got five more minutes. What comments do people have? What do they think about this project? Any questions?

[Long pause]

Critic 2: Come on, you must have more ideas than me, and I sit here for the first time. [Long pause]. They must be shy...

Critic 1: ...and tired!

Peer 1: I am just curious why you designed the rooms into specific modules rather than keeping it in one continuous space?

Student: (Inaudible).

Peer 1: So is your idea to use the meeting space as a general area of the public as well? Otherwise it will be a redundant space, apart from a short period of time.

Critic 1: That's a really good point actually, thinking about how spaces can be multipurpose, what the advantages of that are, especially when you put a very tight, erm, tight constraints on how much space you can have, erm, I mean that's an issue that relates to a little project of this size and it relates to the city as well, erm, I mean if you think about in terms of the city, you have areas that are just for one use, so just work or just living, erm, then it crates, it raises issues of what kind of uses you could have in the same area, can you have shops in an area which is only one use, what kind of shops could be in an area which is only for work, or what kind of shops and amenities you could have in an area which is only for home, erm, whereas if you mix all these uses together then you get a sense of more spaces being used throughout the 24h period, and even with a tiny little project like this, you have a sense that erm, perhaps the exhibition spaces could be used between 11 in the morning and 3 in the afternoon because it's so remote, erm the meeting spaces used during those times, but only twice a month perhaps, erm, and the sleeping space is used even less that frequently, erm...

Critic 2: You can almost not even to afford to design for a single use nowadays, so, this is very important. And something else based on what you said, I think so far we've seen very different erm, approaches to the same brief, which make it very interesting, because this first year you all bring, erm, a lot of what you produce is dependent on the experience you've had on spaces, and because of this multi-cultural as well erm, I think it is interesting to see this different perspectives, and that reinforces the need to look at precedents, and make sure you have a very open mind when you start.

Critic 1: Yeah, I mean at this point of your training there is no right or wrong, nothing to say that is wrong to separate spaces like that, in fact I think it's an interesting approach to take, because it can be quite a strong landscape approach, you put these different things in the landscape and you allow the landscape to come in, to the circulation, so, why not, explore it, it's fine, erm, but I think the point made about use and when use happens is really good, something to bear in mind in the future projects.

Critic 2: Ok, thank you very much.

Transcript 5, Y2, Interim Crit

Critic 1: A model like that for this stage is vey good, but on your drawing here, you show only the lines of your buildings. You should indicate, something that I have said to you all a couple of times before, you always indicate the line of the context. Same here on your drawing, of your study of the waterfalls you show very nice, always indicate the zero line. It could be very thin, but people could understand what the context is in every direction. So, your main idea is this alleyway where you made your study, and I think you should push it more with the use of a couple of diagrams and photographs that show how it comes from your experience of the site, first thing. So, that was your inspiration. And now I think you should take your inspiration seriously, and you should carry it through, and you should measure your final design against your initial idea. And whatever decision you take, you should ask yourself, 'Does that idea is true to my initial idea. Because I have a feeling that all the study that you've dome there, on the top level, you take away something from your initial idea.

Student: Yeah.

Critic 1: But I think this is nice. Because we had that before, with this very early idea, this idea of this narrow, very dark and dingy space, which is still kind of Jack the Ripper space, you know, but I think it's interesting, and if you can create something nice around it, people should understand, 'Why they should enter down that lane?' And see if you can make a whole scenario out of this, but then you should have to stay true to this idea. And if you want a dark and dingy alleyway, to be used as an exhibition space, I feel, this is totally counter productive. That's my feeling. Other people might say that you have to put a point of interest in there, so people find it attractive. I think you need to make it very discrete, 'cause the question is 'How long does is staying?' 'Do you want enough light?' or do you want to keep this feeling and want to just have a light

at the very end of that tunnel that attracts people, like some sort of pink, for example, so people may think...well maybe not pink, but anyway, I don't know how you play with that. But it is a place that is forbidden, and people are kind of drawn in to it or not. But play with it, stage this.

Critic 2: I was really hoping to see some visuals about this space, because I think it's crucial. Because the way you talked about it, sound like a vibrant and lively space, which is something different to what you are talking about now...

Critic 1: I had a different picture in mind as you probably have as well. So it's important that you define that. And if it this, what I have in mind as a dark and dingy thing, and then you come up to that, that will be something light and great, then I think you should go and study what is called the Church in Paris, called the Church of Sainte-Chapelle, a very old church, which does exactly that, you know, you go into a very narrow entrance, dark, dingy, you have a spiral staircase going up, and then you have stained glass, overwhelming and beautiful. But it's really, that the architect played that out very well. So, if it's that what you want, you know, use that as a study, erm, arrangement wise. Coming up the staircase, passing by the toilets, then going to the café and kitchen, I think you can find a bit of a more, erm, elegant arrangement here. Clearly. Because it's not nice passing by the toilets. You always try to hide the toilets, it's kind of more sensible to do that. That is also the question, that I felt you should measure your initial idea against that, 'How do you enter the cinema?' 'Is it that you really want to enter the cinema in the centre of the seating?' or 'Do you want to enter at the back or on the front?' That's the kind of question of the spectacle. I open the drawer, I go in, first thing I see is what? A line of chairs here, and a line of chairs there. It is a very undecided point in your design. And if it is this idea of dark and dingy, then you should enter your cinema space like that as well. You know, either from the back, or directly from the front door. I don't know how, but this isn't either or.

Student: Ok yeah, I was experimenting with the entry from the back, but I was also playing around with cards here so to define...

Critic 1: I am sure you will sort that out, it's not a big deal. One technical thing, I feel really bad when I see your façade here. Not because I think is an ugly façade, but because of the way you did that, so that goes to all of you in the first year, that never use a cutter that isn't sharp, and always cut your models on a straight surface, a cleared of surface, and one with a rubber mat underneath. You have no idea how much blood I have seen come across. It's not nice. And these cutters are really serious instruments. You can hurt yourself badly with it. So, do it precisely, and always on a clean surface. It's crucial. It's just a footnote, but it might be important, because with such a cutter might cut your finger off.

Critic 2: OK, I think, well done for tackling something quite challenging. You've given yourself a real challenge to get that access right, It has been a really difficult thing to overcome, and I think you managed it. Well, getting close, erm, and there are weeks to go, so there is room to improve. Think what [Critic's 1 name] said about the loos and the kitchens and so on.

Student: Yeah, I know.

Critic 2: I think you've come a long way in the last couple of weeks and we've seen them in the right scale now, and size, and I think [Critic's 1 name] is right about the arrangement, and you ought to look into that. And another great tip about the entrance of the cinema actually, which is quite right I think, you enter it and have that spectacle, that feeling of the view, 'cause you have it on the café level. You've got the opportunity to do it once again there. I think these are top tips there. And I am enjoying seeing an elevation study. We don't a first year, we said we don't expect them, erm, I think is terrific, that you've got this far, all week, and done six or seven of them...

Critic 1: They are very good images you did. I didn't say that. I sort of picked at the negative points, but it's splendid. It's also good that the view you are showing there, that you want people to see. I think it a very good there at the first panel.

Critic 2: Absolutely, it's worth a look. Very clear drawings. I think there is room to push it a bit further, make it a bit more about the materials. And I really want to see what is like inside.

Student: Yeah.

Critic 2: 'Cause you've been thinking about this quite a while now, about the alleyway particularly, and I am sure you had that idea from the trip in Rotterdam straight away. I'm gonna need to see this, to understand what is like.

Critic 1: I really love the idea that you worked with the site. I think this is the first project that really touches, literally touches on the existing buildings, and I think that's quite great. But, I mean, this pillar isn't terribly successful, about the infill.

Critic 2: Oh, this one here.

Critic 1: Yeah.

Critic 2: I think you've drawn what you intend to finish with, you should have done the surfaces, as opposed to the outline. I think this is the case in many of you, I think you see so many, in a number of sections. I think you need to see something that is useful to you, and understand it better, and actually push the drawing a bit further. A key one here, this section, I think, that cuts through the alleyway, cuts through the cafe.

Student: Yeah, it's cut slightly angled, because I wanted it to show more about the street.

Critic 2: But I think this section needs to cut through the alleyway to show us that story.

Student: Yeah, I was going, but I wasn't sure whether what I was going to do was right or not, but yeah...

Critic 2: But for your scheme, I think that's a key drawing. It might actually need to face the other way, 'cause you can see the staircase rising here, and so that would be a really exciting section, at which point you would see how someone can get access from the street, up the stairs, and into the lobby, and to each level. It could explain the whole, you know, quite a lot of it in one drawing, you know, 'cause you get to see the context as well.

Student: Yeah, I started to do it here, but yeah, I'll do it in another drawing.

Critic 1: So, what I think would be nice, if you take this, your study of the façade and those renderings, and you light the windows up, I don't know, you can feed it in your computer, I don't know, in photoshop, and then you look at your building, your contribution to that image, and then play with light and see, how does it look in the evening, all this light, all these openings, and then measure your openings that you use against the ones that are in the surroundings, and then you will find out what these windows should be like, whether they are bigger or smaller. And then you measure that against the feeling that you wish for the people to have when they are inside the building. So it is always a bit of negotiation, you know, between the façade and what you want for the person inside to experience.

Student: Yeah, alright.

Critic 2: Any thoughts from you guys? You are very quiet. No? You are hungry, you want some lunch. Ok then, well done [student's name], you gave yourself a challenge, and you have progressed a long way, and I think it's going to be exciting to see what will you develop in the next few weeks. Terrific.

Transcript 6, Y1, Final Crit

Critic 1: Why did you lift it off up, with a gap underneath it?

Student: The brief asked for stilts.

Critic 1: Right. Weak answer.

Student: OK.

Critic 1: Do you know what I mean? Because what you are saying is like, 'I don't have a reason, I was told so'. So, did you find it satisfactory?

Student: I think so, yeah. I didn't imagine this be right on the floor. I suppose you could talk how the level of the ground would change, and the building would stay the same, at the same height.

Critic 1: Alright. Thank you.

Critic 2: I suppose, erm, we were talking all the morning about the idea of a, erm, which is the principal space, and what are the servant spaces. Regarding the served space, it's seems like your scheme, erm, has two possibilities. One

is, erm, access from the narrow part, and then go to a series of stages or, erm, some kind of a procession, erm, you go to a transitional space and then this sort of a service buffer, and into something you could call a principal space. I just making a sort of a rough three-dimensional calculation, if I take your access toilet and office meeting room, I end in a space bigger than the actual display. So, I find it challenging, as I said in previous discussions, erm, stop a little bit at this point of your layout, and explain if you have investigated some other options before you end up in this one?

Student: Erm, I talk with my tutor, I his was quite consistence in saying that the meeting room has to be separate.

Critic 2: OK, but your opinion, your position of this design.

Student: I could have, erm, there could have been one sliding door, maybe a cabinet that could rotate, to separate the space.

Critic 1: So, one response to what [Critic's 2 name] is saying would be, 'Well, I did it because I think is great, and I don't think there is any problems with it.' Do you think is true or can you see now that...

Student: I think I am a bit torn. I think, to me, this space should be separate. I can also see that it could be just one main space.

Critic 1: To give it that generosity, yeah. Or to put it in another way, I, erm, I think this is a brilliant thing to have done, this model, because I think it shows quite clearly that there is a bit of a problem with this space. Would you agree?

Student: Yeah

Critic 1: It's like erm, by the time you put the cabinets in there, there is no space to swing a small kitten in there. And I think, erm, it's pretty subtle, you could make it work with a bit of moving around, but at the moment it's just, erm, you know, I don't mind this place to sit by the fire, it's like, 'Here I am, there is the fire, my knees are too hot.' Also, when I walk into a room I don't tend to choose to sit here. If I am interpreting what [Critic's 2 name] is saying here, I feel this is very generous, perhaps, and actually you could, by taking this back, to here, which you could easily do, it might be enough, to give a sense of space to here. I think it might be enough. At the moment I think this is a brilliant investigation, 'cause it shows that it's not working yet, and this is a bit troubling. I love the idea of your window with the integrated display, and it's a shame you did not chose to model that. Was it because you've already done that in a drawing?

Student: I would have done it in both, but I run out of time really.

Critic 1: OK. I mean, there is no particular, erm, there are no rules that you must have this many cabinets, you must have these sort of things. In a sense you can chose that. And it might be that you can make this a bit more satisfactorily by reducing the amount of storage, or, you know, even, there are

opportunities to integrate it into the chimney, the same way you've done into the wall, rather than having this thing, which feels like a piece of furniture you've brought from a different room, you know. I don't see how one is sitting there, that's all I'm saying. So, I am almost wondering how actually that might come to here, so it has to do with the meeting room, I don't know, what do you think?

Student: I've thought about that.

Critic 1: And you decided...

Student: I decided that I want to keep the fireplace and the chimney next to the sleeping area.

Critic 1: I can see that, I can see that. Well, it's a question of priorities here really, isn't it?

Critic 2: Also, I want to, erm, I invite you to, erm, sort of, erm, set up options before you define which way is the best one, so then we can track your process. I mean, in another way we can say that, erm, you want to achieve something like this, maybe a sequence, a transformation that, erm, so you explain better how you define this. Again, if you go to, erm, primitive architecture, to any Mediterranean ruin, for example, and then you see how they play with this sort of, erm, axiality, but also forcing this character, that if you do this you give some interesting opportunities. So, it's like, I don't know, I am thinking as well of the house, the Italian one we analysed, that has this sort of funny stairs that are going like that, the villa Mallaparte,

Critic 1: It's the one that sits on a rocky cliff, and it's all about the roof.

Critic 2: Yes, it is like a Baroque trick, but is very lucid; you would see it in a church.

Peer: False perspective.

Critic 2: Yeah, a false perspective. So, if you do that, and I don't say you should, but if you want to do that, you want to accentuate and disport the sense of the space. So that the space, the squary one, it amplifies the effect. So the logic is, if I want to make a small space, compact, big, then what do you do? So the Baroque, offered these sort of tricks. So, it makes a little chapel, huge. You see what I mean?

Student: Yeah.

Critic 2: And also accentuate this monumentality by putting it on a pedestal, a pontium, that the perspective goes like this, and it's all dramatic. So then the logic of the program, for me, it's not the most, erm, adequate, 'cause I will probably offer the major, the principal space, here, where the little one, subordinated, the servant space, and I would simply ignore it, because it's subordinated, you k now, it's not the most important space. The most important one is, not this all space, but all this space that you should have enhanced. And

also, erm, celebrate better. But at the moment it's sort of trapped in a conventional office and the toilet. It's terrible for me.

Critic 1: Sorry, just so you understand, you start with something that will bring more delight that would be better here, do you see what he is saying? And then this you somehow bring it back in here.

Critic 2: Yeah, and also this might be part of your furniture, you might, like, do the same with this, take that one, take out the cabinet, or make it your table, and then you meet, you see what I mean? You can also do you brainstorming drawing, whatever, yeah, erase this, yeah, ok, done, but the meeting can last, maybe three or four minutes, or thirty minutes, it may be a very rapid meeting, but is not this sort of secretary office with the guy over there...

Critic 1: I mean you are going with this very interesting idea [Critic's 2 name] suggested, about making the partitions, divisions, erm, you've got two orders of construction here, you've got something very solid for the chimney, you've got something else which is the roofs, and walls, which are more or less the same, and then finally, you've got the furniture. How I understand what [Critic's 2 name] is being talking is, that this separation, at the moment you've made it from the same stuff as that, sort of a wall, definitely a wall. What would happen, like, instead of that, whatever partition you need you make it out as furniture, you see what I mean? You this can be something very moveable...

Critic 2: Adjustable, portable...

Critic 1: It might even be something huge that the doors can literally come back somehow, very very different, so that you get something simple, wedge-shaped perspect type of thing going to be an amazing type of window, and then inside it you have bits and pieces of beautiful joinery maybe, you know, things made out of wood that can move, which are cabinets', which are dividers, and so on. This is a slightly different way of thinking about it, but it might just unlock the problem of it.

Critic 2: You know Nordic maps, you know, cartographic maps about the routes, you know, it's your story, but what I want simply to clarify as independent reviewer is, erm, try to see more options before you set up a strategic allocation of the uses, and be aware about, erm, there is a clear distinction between the principal space, and the subordinated ones. So, it can't be that the servant spaces occupy more space than the served ones. That it shouldn't be possible, especially in a compact building. So, this is not a museum yet, this is something else, maybe and info box, an administration centre, but it's not a museum yet. You see my point?

Student: Yeah, yeah

Critic 2: Too much administration, too much, erm, celebration of bureaucracy and erm, sanitation. So I think it's not about administration, it's not about sanitation, it's purely about display, yeah, it's a museum. So what about that, is very clear to me.

Critic 1: Can you see how it helps if you can get these categories of thinking sorted. I mean there is a million different ways of organizing it. I am enjoying what you are saying, but be very clear about it. It's a museum. Ok, why is it a museum?

Student: I think it's something we all struggle with.

Critic 1: Right, ok

Critic 2: I did as well, like you guys, because we've got fascinations towards things. We think we are cool, and you are, there is no doubt. But the other question is that, you can also be a bit more like, erm, [inaudible], you can say I can play a lot of things, within these constraints, you know, and it's your constraints, you put this for, I am not questioning that you put this for, but I am interested in the articulation.

Critic 1: It's very interesting that I didn't spot what [Critic's 2 name] was talking about this perspective, false perspective, and actually I work on the Baroque, I should have a lecture on this stuff, so, it's definitely there, embedded in what he says, very interesting to me I didn't pick it up. And of course it is very strong as a possibility, and when I look at your scheme, I immediately relate everything to vernacular, to a traditional building, with a sense of, erm, and then I was confused when you said it was all on stilts, because I interpreted your drawings as load bearing walls, in which case it becomes the logic in these very small cells, 'cause the walls don't hold together very easily, and you haven't got very long bits of timber, and, you know, it looks like a kind of cottage in plan, and it's because of the constructional constraints, so, you know, but I think you are free of them, 'cause you've got a modern construction system.

Student: OK

Critic 1: But I'd like to just say, I think your drawings are pretty clear, erm, and without any, erm, and you've done quite a lot in a number of different levels, you've got quite a lot of material there, and without that we couldn't have had this conversation, so, congratulations for putting together a decent display. It's good. And I am quite enjoying this strange thing of unfolding the cabinet. I think that's not a drawing I think I've ever seen in a WSA crit, and I think this is a quite interesting thing to do.

Critic 2: Any questions?

Peer: Is there any way that you followed any ideas from your touchstone into your museum?

Student: No, I don't think so. I don't think there is a link. I started looking, well, maybe for the exterior, the way in the cladding would decay, as I did try to convey the decay on the touchstone. But I think I moved away from that, with the other projects.

Critic 1: Why the turf roof? I would not say no. But why?

Student: I thought it would go with the landscape more, it was more an aesthetic thing. I wasn't sure what I would do with the roof for a while. I thought that would be more appropriate.

Critic 1: I don't mind it. It's just look strange, as if you took a piece of land and put it on your head. I think that sometimes people think that, erm, the grass roofs make their building disappear, or make their building neutral, and I think this is really not the case. It's almost it becomes more of an obvious object, that why I said it looks strange. It certainly doesn't camouflage. Not in this situation. Maybe like in the [precedent name] where it goes like this.

Student: I thought of it in term of insulation as well for the roof.

Critic 1: Oh yeah, practically I think they are very good for that.

Critic 2: Yeah, it's also a practicality of the inclination of the roof that matters, so if it is too tilted, you can't have it. Or if you can, then you need to understand the traditional ways of Norwegians for example, they are really really thick, you know, a lot of layers, soil, rafters, and end up being almost as it they are Palaeolithic. Very primal. But OK, I found that you have a, you are quite elegant in representing, you are very neat, person, probably too much, so I will invite you maybe be a little more funky. Which is like, it doesn't matter if this line is like erm, too perfectionist. I think that's a problem. I think you have to be more transformable, that allows you these adaptations.

Transcript 7, Y2, Interim Crit

Critic 2: So, you are talking about holographic projection, so you can make three-dimensional figures or something?

Student: Yeah

Critic 1: Is that so you could tie to the public space on the other side as well, so that space can become a cinema at certain times of the day and night?

Student: Yeah, at the moment, the idea for the public space is as, erm, there are stairs already here, erm, because this is kind of a help for the docking of the ships, erm, the sailing boats I guess, erm, kind extending here the stairs, and creating more sittings for screenings to the sails. And underneath it will be a café and restaurant. That's kind of the idea.

Critic 2: So you can project holographic people wandering around the rooftop [laughs]

Student: Why not.

Critic 1: I get a feeling this is a building for night-time, is that fair to say?

Student: Maybe, because I discovered it during night-time, that has that feeling. And all my pictures are night-time. And yeah, it's quite small, so, I don't know, I tried really hard not to make it claustrophobic, erm, because I could get to that trap very easily, because I used too much of the space, then I would become [inaudible] and stair leading up to the second floor. So, erm, hopefully, it won't.

Critic 1: Does the staircase go up to the roof level?

Student: Yes, we are allowed to have a roof terrace, so, the roof is also to be designed, so I am thinking of creating some levels so they can also be sittings for screenings.

Critic 1: I'd like to understand the cinema a bit [walking towards the drawings], oh I see, I thought it was quite faint from where I was seating.

Student: Oh ok, I've got an interesting scheme about that, because, [laughs] because what happened was that, this is a slope obviously, and I had this idea that since I had the steel structure I had to make adjustable and then played around with it, and then my technology tutor said, 'No you can't do it like this, it's not feasible', so, he said, 'Just keep the slope as it is, and whenever you want some other kind of thing to go on, then you can have a little platform where people can go on, because I wanted to have theatre plays as well, because in regular cinemas you have the big chairs, very comfy and stuff, I thought I'd have the chairs folding in the floor, so I kind of, created my portable chairs.

Critic 1: So they can be completely flattened and then pulled up vertically, and the seat pops down, right?

Student: Yeah, I am sure I am not the one who invented that, but I think it makes sense that it works. That's why I haven't really shown them, because I haven't got to their detail yet.

Critic 1: So lots of ideas! And a dynamic presentation

Critic 2: And you talked about it very well.

Student: Hopefully you understood what I...

Critic 2: Well, it's nice that you described the building with the ideas, and not as separate things, and come back to them again.

Student: Yeah, I don't want to give too much emphasis to, like, to the plans sections, because, kind of a free space, and I think I am still experimenting with it, so I don't want to give so much emphasis on the cinema, but more about the idea with what I want to do with it.

Critic 1: It would be nice to see an idea of these light effects coming through. I think you started that on your film gallery.

Student: Yeah.

Critic 1: It would be a nice to get an idea of the spaces with the light, erm, shining through, and it would be something that represents the screening on the sails. So, I think that's a lovely concept, but I don't see it on the wall yet. So maybe, it could be an extension of that section, that takes you out to a barge, as the sail going up. Or maybe the sail going up is part of your public space, or maybe it's a hologram, I don't know, but I am excited by that idea of projecting out through the windows, and having multiple viewpoints, and screenings on the sails.

Critic 2: I think I can see what your intervention becomes, and that is quite important, and the language is so vital, so fascinating. I think it would be lovely to have something there that sells beverages, but don't you think that it would be too much?

Student: As I am keeping the façade as it is, I am not touching anything, so while you are approaching the building you could be oblivious to the fact that there is a new public space here, so I have to, erm, come up with a scheme a kind of public space that attracts people.

Critic 2: Even since you've been working with your ideas for quite a long time now, and in the last couple of weeks, trying to get the drawings to work has been a bit of a struggle, hasn't it? To get everything to fit. Because there isn't enough space...

Critic 1: No, it's a tiny little site.

Critic 2: And it looks like it does fit.

Student: Yeah, I mean, the archives it's just a bookcase you would have in your room.

Critic 2: Well, you need to know a bit more about them. Because the archive doesn't need to be very much. I can imagine it be a couple of flat screen, erm, monitors, some headphone, that sort of thing, and then some storage. You've got to tell us what's in there, what's been stored, what's archived.

Critic 1: I think you show in your scheme that this is a very specialist cinema. It doesn't have masses of seats. It only has twenty or...

Student: 36

Critic 1: Is it 36?

Student: It has to be 36.

Critic 1: Does that fit? [laughs] Challenge! It's a challenge! Well, just about. I wouldn't like to seat on the front row.

Student: It's the minimum possible, two and half meters from the screen.

Critic 1: Well, congratulations for making it work in such a tight space. It's a challenging site that you chose. And I think it's challenging to, not to draw people's attention too much, because I think you wanted it to be a little bit tucked in and secluded, but you've got a little battle to bring it into the public realm, and this front square is going to do that. Because otherwise it's quite remote from the cityscape, and even walking along the canal you can't notice it's there, unless you have some device. It might be something like a café in the corner, where people can stop and realize that the park has music.

Student: I feel a little bad, because right next to my building there is another café-restaurant, and I feel I'm going to steal all their customers.

Critic 1: I am sure it's a big enough city to have two cafés on the same road.

Critic 2: Cardiff can support 30 art galleries; you'll be all right.

Critic 1: Well you seem to know where you are going next. You seem to have a very clear strategy for the way forward.

Student: If I had another day, I'd probably had photomontages from the model.

Critic 1: Yeah, the model is quite strong, hiding over there, and it shouldn't.

Critic 2: So, I think now you've past the mid point of your project, you've got your ideas together, it's great, but you've got to keep pushing them. Really need to see some context on your plan, and sections too. It needs a little bit more, 'cause it's such a contextual scheme. It's lovely to see your photographs, and particularly that top one there, and this photomontage here is great, I am not sure you need to show public screenings so much, I think you can also show a hologram or something, that tells us the story.

Critic 1: It's like a watermark, like, confidential 'not yet done' watermark.

Critic 2: I still got the sense, and it might be unfair, and correct me if I'm wrong, you are slightly hiding away from resolving the elevation.

Student: Well, that's mostly because of the steel structure, and, like, the beams and the columns.

Critic 2: You can use whatever you like. It could be the back of that elevation.

Student: Oh! Yeah, OK. That's something we haven't talked about. Well, there is a new idea then.

Critic 2: You've got enough ideas. [Laughs]

Student: This façade was the only one actually I could work on. I needed it to be special. So apart from this, which has got the glazing and the screen behind it, I thought I could place the staircase, and the entrance, where is basically the foyer as a double height space. I thought it would be really nice if it could open up during summer. And giving emphasis on the public functions.

Critic 1: What are your thoughts on the views from the staircase into the main entrance space? 'Cause I am in two minds in looking at it, 'cause I think you've got glazing in here. But if that were a white wall, then your light coming through would be pretty spectacular going up that space at daytime.

Student: Then won't these spaces here become boring?

Critic 1: Depends what you do with this elevation. Most of the light comes from this way.

Student: Yeah, West is that way.

Critic 2: You could use a screen, like a canvas screen. There are some projection screens you could project on the one side, and see it on both sides. It might be possible to find something.

Student: You mean on this side?

Critic 2: Yeah, I am just wondering if you had it here, and have some of the light coming through here, you would see it on this side, but it would illuminate on this side as well. That sort of dynamic effect. It's just a suggestion.

Critic 1: I assume this wall here would be solid, to your cinema?

Student: Well, actually that's why I put the dark glass, because when we went to Amsterdam, to the film museum, there was an Oscar film exhibition, and the space where we were in was actually, erm, it had a dark glass. It didn't affect the screening, so I really liked the fact that I could see the skyline of Amsterdam, and the sun looked like the moon. It was very cinematic.

Critic 1: So you might leave that open?

Student: Yeah, here, this is glass. As I said, this not really a traditional cinema, it's a more experimental I'd say, and multifunctional as a space, the cinema space itself. So, I don't know if it's OK for the brief, but that's what I am thinking.

Critic 2: I am sure it's fine. I think we need to wrap things up now. Are there any questions you might have for us? It seems quite clear that you are on your own path, you know where you are going. No? Well, I think the key to your scheme is to resolve the volume, and you've got a very strong idea about what is going to be like, and you need to push it all the way to the detail of the materials.

Critic 1: OK, thank you very much!

Appendix 3. Ethics Committee Approvals

Ethics Committee approval for Phase 1 Observations

EC1204.115

**WELSH SCHOOL OF ARCHITECTURE
ETHICS APPROVAL FORM**

WS

Tick one box: STAFF project POSTGRAD project UNDERGRAD project
 Title of project: Thinking CRITically: Socratic Dialectic in the Review Session

Name of researcher(s): VASSILIOS VOLAKOS
 Name of supervisor (for student research): Dr ANDREW ROBERTS
 Contact e-mail address: volakos@hotmail.com

The purpose of this form is for you to think about ethics issues in your research. Please answer 'YES' 'NO' or 'NOT APPLICABLE' (N/A) to each of the following questions. A negative response does not automatically result in non-approval of the research, but should be explained in Box A.

	YES	NO	N/A
• Will you describe the research process to participants in advance, so that they are informed about what to expect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Will you tell participants that their participation is voluntary?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Will you tell participants that they may withdraw from the research at any time and for any reason?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Will you obtain valid consent from participants? (specify how consent will be obtained in Box A)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• If the research is observational, will you ask participants for their consent to being observed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• If the research involves photography or other audio-visual recording, will you ask participants for their consent to being photographed / recorded and for its use/publication?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• With questionnaires, will you give participants the option of omitting questions they do not want to answer?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Will you tell participants that their data will be treated with full confidentiality and that, if published, will not be identifiable as theirs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Will you allow the participants the option of anonymity for all or part of the information they give in an interview or documentary form?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Will your project involve deliberately misleading participants in any way?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Will you debrief participants at the end of their participation (i.e. give a brief explanation of the study)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort? If 'yes', give details on a separate sheet and state what you will tell them to do if they should experience any problems (e.g. who they can contact for help).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do participants fall into any of the following special groups? If yes, clearly describe in Box A how you intend to handle ethical issues arising with research on these vulnerable groups.			
• Children (under 16 years of age)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• People with learning difficulties	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Patients	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• People in custody	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• People engaged in illegal activities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Vulnerable elderly people	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Does the research meet the requirements of the University's Health and Safety policies? (see http://www.cardiff.ac.uk/osheu/complete_risk_assessment/index.html)	<input checked="" type="checkbox"/>		

You MUST Bring to the attention of the School Research Ethics Committee any issues with ethical implications not clearly covered by the above checklist

FOR STUDENT PROJECTS: THE SUPERVISOR MUST INITIAL ONE OF THE FOLLOWING STATEMENTS:

- The supervisor believes this research project has **negligible** ethical implications and the student can proceed with the research immediately.
- The supervisor believes this research project has **some minor** ethical implications. **Box A** clearly describes the supervisor's recommendations to follow and/or issues that the student needs to address in order for the research to proceed.
- The supervisor believes this project may have **significant** ethical implications and should be brought before the Ethics Committee. **Box A** clearly describes the ethical issues arising the research. The student **SHOULD NOT** proceed until the project has been approved by the

School Research Ethics Committee.

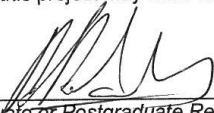
Box A The Project (provide all the information listed below in a separate attachment)

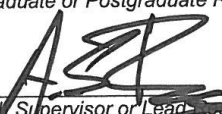
1. Title of Project
2. Purpose of the project and its academic rationale
3. Brief description of methods and measurements
4. Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria
5. Consent and participation information arrangements - please attached consent forms if they are to be used
6. A clear and concise statement of the ethical considerations raised by the project and how is dealt with them
7. Estimated start date and duration of project

All information must be submitted along with this form to the School Research Ethics Committee for consideration

Box B Researcher Statement. (In all cases **Box A** should clearly describe how you plan to deal with ethical issues in your research).

- I believe this research project has **negligible** ethical implications.
- I believe this research project has **some minor** ethical implications.
- I believe this project may have **significant** ethical implications.

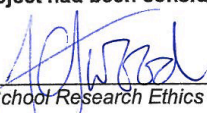
Signed  Print Name VASSILIOS VOLAKOS Date 29-3-12
Undergraduate or Postgraduate Researcher

Signed  Print Name ANDREW ROBERTS Date 3/4/12
Research Supervisor or Lead Researcher

Box C Comments from the School Research Ethics Committee

STATEMENT OF ETHICAL APPROVAL

This project had been considered using agreed Departmental procedures and is now approved

Signed  Print Name CHRIS TWEED Date 11/4/12
Chair, School Research Ethics Committee

Ethics Committee Approval for Phase 1 Audio Recordings

EC1211.135

WELSH SCHOOL OF ARCHITECTURE ETHICS APPROVAL FORM FOR STUDENT PROJECTS	WS3
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Tick one box:	<input type="checkbox"/> UNDERGRADUATE <input type="checkbox"/> M.ARCH <input checked="" type="checkbox"/> MASTERS	Ph.D
Title of project:	Thinking CRIT ically: Dialogue Stimulated Reflection in the Design Review	
Name of student(s):	Vassilios Volakos	
Name of supervisor:	Dr. Andrew Roberts	
Contact e-mail address:	volakos@hotmail.com	
Date:	06/11/12	

Participants	YES	NO	N/A
Does the research involve participants from any of the following groups?			
• Children (under 16 years of age)		x	
• People with learning difficulties		x	
• Patients (NHS approval is required)		x	
• People in custody		x	
• People engaged in illegal activities		x	
• Vulnerable elderly people		x	
• Any other vulnerable group not listed here		x	
• When working with children: I have read the Interim Guidance for Researchers Working with Children and Young People (http://www.cardiff.ac.uk/archi/ethics_committee.php)			x

Consent Procedure	YES	NO	N/A
• Will you describe the research process to participants in advance, so that they are informed about what to expect?	x		
• Will you tell participants that their participation is voluntary?	x		
• Will you tell participants that they may withdraw from the research at any time and for any reason?	x		
• Will you obtain valid consent from participants? (specify how consent will be obtained in Box A) ¹	x		
• Will you give participants the option of omitting questions they do not want to answer?			x
• If the research is observational, will you ask participants for their consent to being observed?	x		
• If the research involves photography or other audio-visual recording, will you ask participants for their consent to being photographed / recorded and for its use/publication?	x		

Possible Harm to Participants	YES	NO	N/A
• Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort?		x	
• Is there any realistic risk of any participants experience a detriment to their interests as a result of participation?		x	

Data Protection	YES	NO	N/A
• Will any non-anonymous and/or personalised data be generated or stored?	x		
• If the research involves non-anonymous and/or personalised data, will you:	• gain written consent from the participants	x	
	• allow the participants the option of anonymity for all or part of the information they provide	x	

Health and Safety	YES	NO	N/A
Does the research meet the requirements of the University's Health & Safety policies? (http://www.cf.ac.uk/osheu/index.html)	x		

If any of the shaded boxes have been ticked, the supervisor must explain in Box A how the ethical issues are addressed.

The list of ethical issues on this form is not exhaustive; if the supervisor is aware of any other ethical issue s/he should make the SREC aware of it.

¹ If any non-anonymous and/or personalised data be generated or stored, *written consent* is required.

Box A The Project (provide all the information listed below in a separate attachment)

1. Title of Project
2. Purpose of the project and its academic rationale
3. Brief description of methods and measurements
4. Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria
5. Consent and participation information arrangements - please attached consent forms if they are to be used
6. A clear and concise statement of the ethical considerations raised by the project and how is dealt with them
7. Estimated start date and duration of project

All information must be submitted along with this form to the School Research Ethics Committee for consideration

Supervisor's declaration (tick as appropriate)

- | | |
|---|-------------------------------------|
| <ul style="list-style-type: none"> • I consider this research project to have negligible ethical implications and the student can proceed with the research immediately (can only be used if none of the grey areas of the checklist have been ticked). | <input type="checkbox"/> |
| <ul style="list-style-type: none"> • I consider this project research to have some ethical implications. Box A clearly describes the ethical issues and how they are addressed. The student has to await feedback whether the research has been approved by the SREC Chair or whether it will have to be considered by the Committee. The student will receive feedback within 7-10 days. | <input checked="" type="checkbox"/> |
| <ul style="list-style-type: none"> • I consider this project to have significant ethical implications and should be brought before the Ethics Committee. Box A clearly describes the ethical issues and how they are addressed. The student MUST NOT proceed until the project has been approved by the Ethics Committee. | <input type="checkbox"/> |

Signature *A. Roberts* Name *Andrew Roberts* Date *7/11/2012*

Advice from the School Research Ethics Committee

Consent form not attached. Please ensure that students can withdraw at any time & ask for relevant transcripts ~~etc~~ and other research recordings to be deleted. It should also state that taking part will not affect their right of appeal etc.

STATEMENT OF ETHICAL APPROVAL

This project had been considered using agreed Departmental procedures and is now approved

Signature *A. Tweed* Name *CHRIS TWEED* Date *11/14/12*
 Chair, School Research Ethics Committee

3p.

