Design Research Report

The Deconstructor: An Online Film Analysis Tool

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Introduction

In the spring of 2002, the Columbia Center for New Media Teaching and Learning began working with Professor Larry Engel, Adjunct Professor of Film at the Columbia School of the Arts, to develop and implement a new computer mediated tool that allows him to bring his unique method of shot-by-shot film analysis to his students. In the past Prof Engel found difficult to present, model, and engage students in understanding and applying his film analysis methodology. This methodology, based on the work of former Columbia professor Stephen Sharff, involves the integration of mathematical formulas and graphs with more traditional methods of film analysis. Professor Engel, a former student of Sharff’s, enlisted the help of students enrolled in his spring 2002 Analysis of Film Language class in the development of this project.

The resulting tool, the Deconstructor, was tested in beta form during the spring session of Professor Engel’s Analysis of Film Language course, and was implemented in the fall 2002 semester in his Introduction to Film course. The development process was heavily informed by CCNMTL and Professor Engel’s intent to implement the Deconstructor during the fall session of Engel’s Introduction to the Study of Film class. Introduction to Film course materials, lectures, and discussion sections include concepts that chronicle film technology from a historical perspective and examine the presentation of film within the context of cultural, social, and historical realities and the filmmakers’ motivation and desired audience effect. Professor Engel’s methodology and the Deconstructor served as additional avenues through which students were able to realize and understand these broader concepts.

This report will introduce and discuss the purposes and challenges of this project, its design, development and implementation process, and a discussion of the research findings.
A Design Research Approach for Studying Purposeful Uses of Technology in Higher Education

The Columbia Center for New Media Teaching and Learning is currently approaching the study of purposeful uses of technology in higher education through a Design Research framework (Edelson, 2002; Bereiter, 2002; Collins, Joseph & Bielaczyc, in press.)

CCNMTL Design Research approach can be summarized as the identification of educational problems or challenges and the iterative design, development, and assessment of interventions to address them. By working within this approach CCNMTL seeks to create a context-based understanding of how certain innovative practices unfold in educational settings and what lessons can be learned from them. This process involves partnering with faculty members and discussing their teaching practices thorough a series of design conversations that unfold around the following stages:

1. Initial Understanding of Curriculum: this involves understanding the context, content, purposes, and activities involved in the course.
2. Problems and Challenges: this involves exploring teaching and learning challenges involved in achieving course purposes or developing course activities.
3. Design Hypothesis: this involves discussing pedagogical principles and activities that could address the course challenges.
4. Design of Educational Experience: this involves defining and developing a pedagogical intervention based on the identified hypotheses.
5. Educational Experience: this involves implementing and monitoring the intervention in the classroom.
6. Discussion of Research and Evaluation: this involves assessing the process and articulating conclusions for its improvement.

It is important to stress that as the research unfolds, the process becomes flexible and iterative: for example, the more we discuss hypotheses to address teaching challenges the more we understand the curricular context, and then more refined interventions can be developed. Following this cycle, as we engage in implementing the envisioned intervention we gain information to re-orient possible drawbacks of the experience in the classroom.

The collaborative nature of the research experience with faculty partners is one of the central features of CCNMTL’s Design Research approach. One of the Center’s missions is to create a culture of use of new media in education, one that is rooted in meaningful pedagogical uses of technology. Approaching the development of technology-based projects from Design Research perspective allows the Center to explore and disseminate innovative practices. This contributes to the creation of a repertoire of pedagogical uses of technology that represent the university experience with new media in education.
Part I: Project Context, Purposes, and Challenges

In this section we introduce the first four stages of the design research process: the understanding of the curricular context of Professor Engel’s Introduction to Film course and his analytical methodology, the definition of the central challenge he faces when teaching it, the main design hypothesis to address this challenge, and the description of the designed intervention.

I.1 - The Course: Curricular Context and Pedagogical Framework

I.1.a - Content, purposes, and activities

Introduction to the Study of Film is an introductory level course offered for both undergraduate and graduate students. Its purpose is to introduce students to the history of cinema and the myriad ways through which film can be analyzed and understood. Students’ experiences in the introductory course are framed within exposure to varied course concepts through class lectures, mandatory participation in discussion groups led by course TAs, and supplemental course readings. These concepts include:

- Theories on how audiences read text and experience film, and the ways in which film is constructed to illicit these experiences.
- Advances in film technology and the effect these changes had on filmmakers’ understanding of the aesthetic possibilities of film.
- The aesthetic or grammatical components of film, the language used to identify and describe these components, and how they can manipulate, contribute to, enhance, and shape narrative and dramatic elements of film.
- Narrative/language components of film, which include character, period, plot, set-up.
- Cultural, historical, and contextual background of specific films and film genres and how, combined, these elements can produce disparate film experiences.
- Interpretation of film, specifically the impact on audience and how all of the above concepts combine to affect creation of film text and the experience that text produces for the audience.

Lectures, held for three hours each week, typically consist of a presentation of course concepts and film/clip screenings. As the films screened were considered seminal works and in some way were representative of the concepts and themes presented, Professor Engel often makes comments during the screening to draw students’ attention to certain film elements, pieces of dialogue or other areas of interest.

Discussion sections, led by graduate TAs, are mandatory and held weekly as well. This hour-long class session is devoted to discussion of required reading, concepts and topics brought up in lecture, and further exploration (both visual and oral) of film clips.
Students are required to keep a journal where they are expected to record observations and reactions to films. Additionally, a take home exam, a midterm exam (in class or take home), and final project with corresponding paper are required assignments.

I.1.b - Pedagogical framework, assumptions, and challenges

One of Professor Engel’s articulated goals for this course is to provide an educational experience that facilitates a change in the way his students view film. He intends, through exposing students to course materials and concepts, to help them become more critical and knowledgeable viewers of film. In addition, Professor Engel believes that engaging in their own film analysis helps to lead students to this new way of thinking. According to Professor Engel’s methodological tenet, this analytical process makes explicit cinesthetic patterns, helps to identify specific patterns that contribute to the overall effect, and encourages students to adopt and utilize a common language in discussion and analysis. Discovery of these patterns and engaging students in active oral and written discussion contributes to identifying the numerous ways in which these patterns influence the experience and to the synthesis of course concepts.

Engel’s applies and teaches a film analysis methodology based on the work of former Columbia professor Stephen Sharff. This methodology involves parsing scenes into shots, and analyzing elements such as shot duration, camera movement, shot type, subject movement, and action movement within each shot. By isolating the narrative and dramatic content from film through the dissection of film scenes into a series of shots enables students to focus more closely on the cinematic elements within the scenes. Once these elements have been identified and described, they can also be quantified and then plotted graphically to exemplify patterns that can then be further analyzed. Reorienting some focus back on narrative and dramatic content adds another lens through which these patterns can be discussed and explicated.

Professor Engel created an Excel template to aid in the practice of this methodology and to automate the mathematical process. This template allowed him to address the need to quantify and summarize elements identified and described within a film shot, and to produce a graph representing the relationship between these elements. It also allowed Professor Engel to both show students the graphical results of this type of analysis and the cinematic relationships and to provide them with the template that partially automated the process if they wanted to utilize this type of analysis for their final project. Using this as a presentation tool, he would introduce the graphs in lecture and discuss the scene that was analyzed. Upon screening that scene, Professor Engel would continue to point out the analyzed elements. Students were exposed to the concepts behind this methodology, and the cinesthetic elements through the professor’s ongoing commentary. However, the spreadsheet was remote from the primary source material: the scene being analyzed. The template did not allow students to work within the scene while deconstructing it. These constraints created a situation in which students were introduced to this methodology and the template in Professor Engel’s lecture, but generally found it difficult to engage in an ongoing process that included data integration, variable manipulation, or graph construction related to specific scenes. Although a good and opportune start in which
students were able to gain introduction to this methodology, the template failed to provide a real opportunity in which students could conceptualize the application of this methodology. In other words, Professor Engel found it difficult to convince students of the usefulness of this approach to film analysis and to provide them with an active and compelling learning experience through which they might come to understand this method and the relationships it elucidates.

I.2 - Design Research Problem

Based on the considerations introduced above, together with Professor Engel, we have identified the following pedagogical challenges in his course:

a) Difficulty in presenting and modeling faculty’s approach to film analysis: logistical constraints have an important impact in faculty’s opportunities to demonstrate and model his methodological work. Issues such as identification of spots within tape or DVD containing desired clips, manipulation of these materials in class, among others, pose several problems and challenges in presenting the methodology in the class. The difficulties associated with presenting methodology to students also prevented faculty from requiring the incorporation of its use within course content, thereby removing opportunities for meaningful discussion of concepts elucidated by the analysis.

b) Lack of opportunity for students to engage in methodology: even with access to the clips, engaging in this analysis means that graphing had to be done by hand or produced through the Excel template, all separate physically and visually from the film clips. Without engaging in this analysis, the acquisition of the specific language that facilitates the types of discussion where synthesis of how this analysis relates to course concepts cannot take place.

These two challenges for faculty and students generate a third difficulty for the configuration of the course experience throughout the semester:

c) Lack of opportunities to implement class activities: Without meaningful presentation of this methodology or student access to opportunities to employ this methodology, instructors cannot plan for the meaningful implementation of this analysis. Providing students with the ability to engage in this method, and requiring evidence of the acquisition of concepts and language that accompanies it, either through written assignments, or class discussions or both, would be in line with Engel’s pedagogical goal for his course.

These three problems reflect the importance of active presentation of and engagement in this brand of film analysis and the incorporation of this analysis within the educational experiences of students within this course. This involves amending the implements employed by Engel to present this methodology in the past, and providing students with the opportunity to perform their own analysis and to reflect on the results of that analysis and the ways they relate to other course concepts.
I.3 - Design Hypotheses

The following hypothesis was proposed through an analysis of the pedagogical framework of the course to lead the design of this project:

*If we can provide a means of analysis that facilitate the selection and parsing of film clips; the identification of film elements and their description; the graphing of these descriptions; and the comparison of results (graphs) between and among film segments; and if all the work done could be shared with instructor and other students, then we create an opportunity where the instructor can better model this methodology and students can engage in the analysis.*

Central to this hypothesis are two underlying assumptions.

In order to facilitate this learning experience, it is important that the instructor be provided with the opportunity to present this methodology in a meaningful way to the students and to anchor the methodology within the curricular context. The presentation of this type of analysis is vital as it is an unusual means of discussing film and is likely to be met with much resistance by those skeptical of its mathematical nature. As this mathematical approach to film analysis is unusual given the medium, students are apt to resist this way of looking at film. In providing a means to better model the methodology, the instructor is able to present this analysis in a way that minimizes the resistance to the methodology while standing as an example of the standard of use necessary to receive consistent, meaningful results.

Also, providing students with the opportunity to engage in this analysis creates, then, the necessity for defining and applying the language of film analysis and the opportunity to engage in discussions where the various ways these patterns represent techniques that affect response to the film can be articulated.

I.4 - The Pedagogical Intervention: Main Design Decisions

In order to supply a means of analysis that represented an improvement over the current presentation method employed by Professor Engel and created a more accessible opportunity for students to engage in their own analysis, CCNMTL and Professor Engel decided to design a digital film analysis tool.

We assumed that this tool would be a dynamic, integrated space where students would have access to film clips, gain the ability to parse those clips, and engage in analyzing elements and graphing that analysis.

It was also our assumption that allowing students to copy and paste or drag those graphs into a word document would allow them to be used as primary source material for a final project or paper that required discussion of the analysis, the elements and their patterns, and the cinematic affects of the ways film grammar and syntax intersect to underscore film scenes. In addition to the newly created opportunity to require work within this tool
for the final project, we recognized the importance of careful implementation of this tool into the curriculum, including organized activities and partnering with the instructor and class TAs. The resulting intervention, the Deconstructor, its design features, and their rationale are discussed in the following paragraphs.

I.4.a - The Deconstructor: design features

Developed during the spring semester 2002, the Deconstructor was conceived as a tool that would be utilized by students while completing the requisite work for their final project for Engel’s Introduction to Film, Analysis course. In the next paragraphs we describe the general configuration of the working space created in The Deconstructor, as well as explain specific elements and decisions behind it.

- **Introduction**
  Because the Deconstructor is a tool that allows users to employ a method of analysis they likely have not encountered before, we concluded that an introductory page or cover sheet should precede the log in page. A letter from Professor Engel welcomes the learner, introduces the tool, its purpose and his experience with Sharff’s methodology. Although not an adequate introduction to the methodology itself, or the intricate ways in which it is employed, this cover sheet not only provides a brief preview of the work to come, but also suggests support from the most important person: the students’ instructor. Students can only access the log in screen from this page, regardless of how many times they’ve previously worked within the tool.

- **Logging In**
  An administrator’s password has been setup to allow TAs and instructors access an administrator’s screen where they can manage and create user accounts, view and comment on students’ work, and upload film clips. This allows each instructor to obtain ownership over his students. Also, it was decided that successful work in this type of analysis would follow consistent feedback where students and instructors could identify and correct early mistakes. We decided to include an administrative access level to not only address the issue of managing user accounts, but more importantly, to allow instructors to view students’ work and insert comments and feedback.

  Account access would allow for the creation of a personal space where users could manage more than one analysis. When accounts are created for students, they receive an email notification that includes their user ids and passwords to the tool and inviting students to visit the site. Once users log into the Deconstructor, they are automatically taken to the “view/select scenes” screen. However, there are several other options from which to choose: “my databoard”, “graph databoard”, and “change password” (see below for more details.)
• **View/Select Scenes**

The decision to incorporate these two important functions; view any uploaded scenes and select a scene to analyze, into one page followed the desire to reduce the number of steps users would have to complete in the tool.

Before students can begin their analysis, they must first choose a scene to analyze, and create a databoard. Databoard is the term used within the Deconstructor to refer to one collection of shots and that collection’s corresponding analysis. Many names were batted about, including storyboard, before databoard was picked. In Professor Engel’s view, a databoard is analogous to a storyboard (which is a collection of still images representing the visual flow of a film) in that it is a collection of data representing that film. The term storyboard was reserved for a more fitting screen where still images of the identified shots are displayed (we explain this in detail above.) Each scene may be previewed from this “View/Select Scene” page by clicking its corresponding Quicktime icon. Students click a radio button next to the desired scene, and at the bottom of the page select an existing databoard listed in a drop down menu if they desire, or enter a name for a new databoard.

• **Extract Shots**

Once students select the scene to be analyzed, they must extract their shots and perform the analysis. The extraction of shots is kept on the same page as the subsequent identification of elements to preserve the association between breaking down the scene into discrete parts and the analysis of isolated elements. The screen provides an opportunity for students to watch the scene in Quicktime, pausing at, and advancing and reversing to key moments to determine the time code for each shot. Students can continually refer to the Quicktime video by clicking on the picture and playing the entire scene or by clicking the “preview shot” button and watching the shot that corresponds to the selected time code.

Because we were unsure of appropriate value scales for certain variables, some variables are merely descriptive and cannot be graphed. Similarly, drop down boxes were included because we did not want to force students to memorize values and decided that providing them with that choice would minimize any interference having to type in values might cause.

A relation/narrative space was included to allow students to enter text during their analysis. Originally it was thought that this space would serve simply for description (ex. Shot 1 of 5 or scene where character A packs), but conversations with Professor Engel suggested that it should be a space where students begin discussion of their analysis, relate cinesthetic elements to dramatic content, or present their value scale for customized fields. Consequently, it was decided to increase the size of this field to allow for more text insertion.

The Deconstructor does not contain variables that address sound or tone/color in the scenes. We made a conscious decision to omit these elements, as Professor Engel thought they increased the level of analytical detail and would catapult the
tool and its use to a more expert level. To make up for their omission, it was decided to include two fields for customized analysis. These text boxes allow users to identify their own elements for analysis and assign values to them. Because they have corresponding values, these fields are graphable.

- **Glossary**
  Although we originally wanted to embed content within the tool, time constraints and the assumption that users would come with some level of expertise from the curriculum brought about the inclusion of a separate glossary. The glossary contains definitions for the terms and elements used within the tool, which were written by CCNMTL and revised by Professor Engel.

- **Graph Dashboard**
  Upon completing the extraction of shots and corresponding analysis, students must go to the graph dashboard screen in order to produce their graphs. Two design decisions are inherent in the creation of this process. First, as designers wanted to start a new process on a new page, this part of the methodology was separated out in the design. Additionally, as it was thought that students would have more than one dashboard in the system, it was important to allow them to graph any dashboard regardless of whether it was the last analysis to be completed.

  Originally, graphs were presented in bar form, but it was determined that this did not best present the types of patterns exemplified in this analysis. The decision to include line graphs followed. This allowed us to always include shot duration, a feature that helps elucidate that differences over time impact the effect as well as cinesthetic elements. Space precluded the desire to include the corresponding values next to each point, but allowed us to list the duration of each shot. As the graphs were intended for use as the primary source material for final papers, the decision was made to allow them to be dragged on the desktop or into a word processing application or to copy and paste.

- **My Databases**
  This screen allows students to choose one of two views of one of their databases:
  - Storyboard view is presented as a collection of still images (first frame of each shot) representing each shot in the dashboard. It is the best representation of how the part (shot) relates to the whole (scene).
  - Detail view presents the dashboard as a collection of the forms in extract shots. This view allows students to change and update their dashboards. Again this process is separate as it was assumed that students would have at least two dashboards, we wanted students to have access to them both. Additionally, as navigation was kept to a global level, this process of viewing completed analyses should be kept separate from all others.
I.4.b - Key curricular activities

The course curriculum was shaped into several important class-wide events throughout the semester as well as a series of assignments. These events and the rest of the class intervention took place in lecture and the discussion sections and involved not only student use of the tool and engagement in the methodology, but discussions about the tool, the work that was done in it, or analysis that could be completed in it, and the ways the tool’s existence shaped Professor Engel’s presentation of concepts and films during lectures.

As the mathematical nature of the Deconstructor’s analytical method would potentially be met with some resistance by many of Professor Engel’s students, it was decided that a series of introductions to the tool and its methodology be constructed in a way that presents the conceptual goal of the analysis. In other words, in addition to serving as the initial introduction to how to engage in the analysis, these presentations had to address why one engages in the analysis.

Students’ introduction to the Deconstructor involved the following:

- Mention of tool and its purpose on course syllabus
- Engel’s presentation of methodology during lecture #1
- Engel’s presentation of the Deconstructor during lecture #2
- Hands-on introductory activity during discussion section meeting #3 [see appendix 1]

This stepped introductory process was aimed at allowing CCNMTL and its teaching partners to address several concerns in designing the educational experience.

1. Creating situation where analysis in tool was seen as central to work in course
2. Providing Professor Engel with an opportunity to explain how the methodology works and why, as film students, it is useful to them.
3. Providing Professor Engel with an opportunity to model how one engages in the type of analysis while demonstrating the tool.

Providing students with a structured environment in which they learn the tool’s navigation in conjunction with negotiating the language and the crux of the analytical methodology.

In addition to these introductory activities, students were asked to work with the Deconstructor for the midterm exam, and they were also given the option of using their work within the environment for their final projects. Finally, each TA was given the flexibility of requiring students to prepare for class discussion using The Deconstructor, or just including the environment in their session as they saw fitted their students’ needs (a detailed description of these activities is provided in the next section.)
I.4.c - Feedback opportunities

An administrator access level had been created to allow the instructor and teaching assistants to manage the user id creation process and to access students’ work. Administrative access enabled Prof. Engel and the TAs to attach comments to the students’ databoards. Each shot in the database included the relation/narrative field, which was intended to be a reflection space where students could make textual notations about their decision-making and thinking process while engaging in their analysis. Prof. Engel and the TAs could read these fields in viewing students’ databoards. With administrator access, Prof. Engel and the TAs could provide initial feedback to these thoughts, identify early mistakes, and offer insight on the direction of individual analyses.

Tool use in the first hands-on activity and mandatory assignments throughout the semester were also aiming at creating opportunities for Prof. Engel and the TAs to provide oral and written feedback on students’ work and the ways they wrote about the patterns seen in their graphs.

Part II: Implementing and Assessing the Project

In order to ensure the successful implementation of the Deconstructor in Larry Engel’s class, the CCNMTL project team actively sought to become equal partners with the professor and his assistants in creating the teaching and learning experience. This partnership, of course, began during the planning and development stages, but continued in the weeks prior to the start of the semester. In this section, we will describe the implementation and assessment strategies developed in partnership with Professor Engel and his TAs during the fall 2002 semester. First, we will describe the ways the project was implemented and assessed in the classroom. Second, we will summarize the findings and understandings garnered through this implementation.

II.1. The Intervention in the classroom

Recognizing that creating an educational experience with the Deconstructor that would achieve Professor Engel’s pedagogical goals was dependent upon a certain level of use and understanding of the teaching staff, as we were designing the digital environment we also engage in designing relationships with Professor Engel’s teaching assistants in order to create the appropriate curricular frame to support students work with The Deconstructor. In designing the teaching and learning experience that would support students learning, the following took place:

• Creating teaching partners
  Given the curricular structure of the Introduction to Film Analysis course and the role of the discussion sections in providing a space where students could talk about readings and lecture concepts we identified the TAs as important partners in the learning process. Successful modeling of The Deconstructor analytical process is tantamount to students consistent and successful understanding of the concepts involved in the methodology, thus activities and conversations in the
discussion sections would be important components in creating a key experience for the acquisition and use of the methodological language. We sought, through meetings and other methods of communication, to make Professor Engel’s three teaching assistants our partners in designing the educational experience.

- **Orienting teaching partners**
The first task in designing the educational experience was effectively introducing the teaching partners to the tool so that they could correctly model the process. The project team thought it prudent to make sure that the teaching partners could work confidently within The Deconstructor themselves, thereby being better prepared to anticipate and solve students’ possible questions and issues.

Over the course of several meetings, Professor Engel familiarized himself with the new version of the tool, demonstrated its use, and guided the TAs as they engaged in a similar process of familiarization and demonstration. These meetings provided us with an opportunity to observe the tool and its methodology in use, identify areas of opportunity in presenting this to students, and begin to design implementation strategies for the fall semester.

**II.2. Assessment questions and strategies**

The main purpose that guided our assessment strategies throughout the implementation process was to assess the adequacy of the intervention and its design decisions in the classroom. In other words, we were interested in understanding the Deconstructor as it was being used in the classroom in order to identify the adequacy in the design of the tool in achieving our design goals and using that understanding to guide the process of identifying possible suggestions for improvement. Answers to the following questions were of interest to us:

- How did the Deconstructor allow Professor Engel to present and model the methodology?
- How did the Deconstructor provide students with opportunities to engage in their own analysis?
- How did the Deconstructor support the acquisition and use of the language needed for this film analysis process?
- Did the intervention support the inclusion of the methodology in the course content and course activities?

The following strategies were implemented in pursuit of the answers to these questions:

- **Class observations:** CCNMTL conducted observations of class lectures and discussion sections in an attempt to gather insight into the ways the project supports the curricular goal. Additionally, observations helped us to understand the ways students were using the tool and the language within these contexts.
- **Periodical meetings with Professor Engel and class TAs:** Before the beginning of the semester we held three meetings with Professor Engel and several of his TAs to
identify implementation strategies and introduce them to the Deconstructor. Casual meetings were held throughout the semester with class TAs to assess their perspective on the project in the classroom and of students’ progress. Two additional meetings were held with Professor Engel to validate our understandings of the project progress and to discuss the focus group activity held at the end of the semester.

- **Student Focus Group:** We held a focus group in which randomly selected students were asked to respond to questions regarding graphs produced in the Deconstructor from an undisclosed film. A discussion about their reaction to the exercise was held as well.

- **Analysis of students’ work:** Throughout the semester, CCNMTL observed students discussing course concepts, including those in the Deconstructor, student presentations (in the case of one discussion section), and analyzed the work of several students’ take home exams. Additionally, the responses to focus group questions and transcripts of the discussion were analyzed as well.

II.3. Summary of Findings

II.3.a - Introducing and modeling the methodology in classroom activities

From both class observations and conversations with Prof. Engel it was possible to identify not only the way in which The Deconstructor supported in-class presentations, but also the nature of these classroom experiences.

The presentations during the first lectures represent a change in the way Professor Engel approached introducing his methodology to students. The Deconstructor allowed Professor Engel to engage in an introductory process that spanned two lectures. It was during the first lecture that students were introduced to the concept of parsing film scenes into a series of shots, to the vocabulary integral to work in the Deconstructor, and to the expectation that the Deconstructor would be an integral part of their work in the course.

During this presentation, Professor Engel made an interesting, and effective choice to project a graph for students, talk briefly about the analysis he did and the scene he performed it on before screening the scene for students. This choice served to underscore the idea that this analysis allows the student to remove the scene from its dramatic and narrative content and concentrate solely on the elements being analyzed. Although brief, the first lecture provided an effective introduction the both the methodology employed in the film analysis tool and the vernacular and conceptual context central to it.

The existence of the Deconstructor placed the opening of Prof. Engel’s course in a unique context and provided him with a new opportunity that was not possible without the digital tool. This year’s introduction was a beginning for Professor Engel when in the past it would be the end. The looming prospect of providing his students with a tool that would allow them to engage in their own analysis changed the nature of this presentation to one that was a prelude of future opportunities. During the following lecture, Professor Engel
treated the students with another demonstration of his analysis and more in-depth discussion of the Deconstructor.

The two lectures where this professor introduced the Deconstructor to his students stand as evidence that the creation of this tool gave the instructor an opportunity to create a new way to introduce this methodology, provide a more comprehensive introduction to the analysis and the concepts behind it, and set the expectation with his students that they would be performing their own Deconstructor analyses as well.

This presentation facilitated another faculty goal: the successful inclusion of his methodology in the overall course content. As noted previously, the challenges presented with Professor Engel’s previous method of presenting and performing his analytical approach to film made it almost impossible to effectively incorporate it into his curriculum or to design any activities that required his students to employ it. Although students were required to read Stefan Sharff’s book on which the methodology is derived, students were not required to perform the analysis. In the next sections we will discuss these issues in more detail.

II.3.b - Inclusion of the methodology in the course content and activities

In addition to specific activities throughout the semester, there were times when students were exposed to use of the language central to the analysis, references to the analysis and the tool, and discussions involving the cinematic techniques and their possible effects. These took place in the lectures, discussion sections, and in the course reading material. These opportunities depicted new ways in which this methodology of film analysis was intertwined with the course content in an articulated and meaningful way.

- **Lectures**
  After his introductions to the analysis and the Deconstructor, Professor Engel continued to mention the tool during lectures. Throughout the semester Professor Engel identified cinesthetic elements and film techniques and posited their impact during full length and film clip screenings. Although this did not require the actual use of the Deconstructor as a presentation and analysis tool, he could suggest that these patterns would graph out if a completed analysis was done in the tool. This did not represent a change in the ways Professor Engel talked about the films he screened, but again, this time he could point out elements with the knowledge that students could perform their own analyses and make these discoveries on their own.

- **Discussion sections**
  Each TA had his or her own perspective regarding the way to include the Deconstructor in the discussion section agenda. One TA required each student to complete a short analysis and make a 5-10 minute presentation of his or her findings to the class. Another TA made specific references to cinesthetic elements of specific films and suggestions regarding work in the Deconstructor, much like Professor Engel did in lecture, without requiring supplemental analyses
in the tool. Another TA approached the Deconstructor like the course reading materials, discussion regarding the tool and the concept of cinesthetic affect came up where appropriate while the language central to the analysis was omnipresent. These three different approaches to the use of the tool in the classroom share the common recognition of its centrality in students understanding of the methodology and the need for integrating their experiences in discussions and reflections in class. Undoubtedly, the presence of The Deconstructor shaped the way in which students and TAs were able to represent and refer to their film analysis experiences, and set expectations for the learning purposes of their sessions.

II.3.c - Students’ opportunities to engage in their own analysis

Almost every student enrolled in the Introduction to Film Analysis course has at least one databoard created under his or her user name, which supports that the tool was accessible to all students. The average number of databoard per student was 4.5 and half of the students use The Deconstructor to provide the primary source material for their final project.

Following are a few quotes from students in discussion section #2 regarding their analyses within the environment¹.

“These are the graphs that I made. So scene 1, which is this, we start with a long shot and a slightly high angle. We’re observing from a distance and we’re not really involved. The next shot, it goes from a full shot back to a long shot, brought in and taken back out again.”

“So I started my analysis from when he hears the car and he runs out... A lot of the scenes are from medium to medium long. Then you look at him at a high angle and her at a low angle. So the longest shot is that one.”

Clearly the existence of the tool provided students with the opportunity to engage in their own analysis when in the past this was difficult. Moreover, the integration of The Deconstructor in students’ activities generated the opportunity to talk about the methodology itself, helping them reflect about their learning of film analysis while engaging in actual film analysis. The following quotes were extracted from students’ discussions about The Deconstructor:

“Student A: Well, it’s really interesting too, but The Deconstructor seems to apply fully to only a certain group of filmmakers like Hitchcock, I would say, all this seems to be there, and maybe Kurosawa. And like couple of filmmakers like in the ’40s, ’50s, and ’60s. All these elements really seem to be there, but some of the filmmakers before then, it is not really apparent and especially after them, I don’t

¹ These students were required to perform a short analysis and make a brief 5-10 minute presentation in class.
know, it doesn’t seem like the directors have the same goals as those filmmakers did.

Student B: Yes, that’s right. Like for the M scene...it had no pattern at all. And I kept trying it thinking I was wrong, but I don’t know...

Student C: I don’t know, I think it is a little bit more universal than that. Because I think, it kind of does pin down some of the basic of film language in general that kind of applies to everyone, obviously you don’t have to follow any rules but there are some general ideas that can be reflected in the graphs. So I mean, I think it is useful for a lot of things but not for all things, especially not for all new stuff we have been watching recently.”

As this sequence of students’ conversation depicts, The Deconstructor allowed them to reflect on the nature, purposes, and meaning of the methodology being studied, as well as generate their own perspectives regarding film analysis. It is important to note that before the introduction of The Deconstructor in the course students were skeptical of the methodology without genuine chances of experiencing it in their own analysis. During the fall semester 2002, students were able to develop their own appreciation of the methodology through the actual application of its language and techniques. In the following section we discuss in detail students’ learning experiences regarding these language and techniques.

II.3.d - Acquisition of film analysis language

As aforementioned, the methodology in the Deconstructor is based on a book that has been required reading for the introductory course. It was the project team’s hypothesis that the work performed in the Deconstructor would facilitate the acquisition of this language, eliminate the need for memorization, and free students to utilize this language to discuss their analyses and those of others and synthesize the concepts presented throughout the course. As accurate analysis of film scenes requires an understanding of the terms employed, students must navigate the terminology as early as they begin to navigate the tool and it’s method. In addition to understanding the language in the Deconstructor and performing an analysis accordingly, students also had to show some understanding of the terms and concepts inherent to Sharff’s methodology. Evidence of this language acquisition can be found in the student activities:

“Well analyzing the duration of the shot, the difference between the two films is clear. Eisenstein’s scene batters the viewer with quick, two-second shots interspersed with even quicker, one-second shots. The tension of the phrase is released later on in the scene when the camera pulls away to a slightly longer shot of people running down the stairs, but the shot length in this sequence agitates the audience and represents frenzy.”

“Eisenstein seamlessly combines long shots with medium and close shots. This creates the chaos in the phrase.”
“Lang uses short shots but periodically through the scene uses longer shots to create suspense because the viewer wants confirmation on what they suspect happened and allows the audience to feel emotionally connected to the characters.”

As the following quotes from students’ papers reveal, they gained accuracy in using the film analysis language not just to describe their understandings of scenes, but also to perform more interpretative comparisons among films. Thus, they developed an understanding of film analysis language while applying this language in complex interpretative tasks.

“There is one similarity between the two phrases and that is that the longest shot, proportionally speaking, in each is the beginning and both are establishing shots. In Potemkin, the shot establishes a view of the chaos on the steps and in M, we are exposed to the fear of the community that will drive the rest of the plot.”

“Whereas a more pulling tension is created in M through the use of camera movement, in Battleship Potemkin it is rather the editing which creates a certain tension. When we look at the Deconstructor graphs it is clear how big the difference is between the lengths of the shots in both movies. In Battleship Potemkin, movement is created through fast-paced montage and the actor’s movement instead of through camera movement (as is the case of M).”

During the final weeks of the semester, CCNMTL held a focus group with a random selection of students from each discussion section. During the one-hour focus, students were presented with three graphs produced from a Deconstructor analysis performed by the research team. With only the graphs as reference (students were not told the film that was analyzed), students were asked to respond to several questions regarding the graphs, the impressions they had regarding the graphs, and the conclusions that they could draw based on the information provided, their knowledge of the methodology, and concepts presented in the course. After writing their answers to these questions, students engaged in a group-wide discussion with a facilitator. This discussion was geared to elicit general impressions of and problems with the methodology, but more importantly, we hoped to gain some insight into the process these students utilized when contemplating the graphs. The following are comments made during the discussion part of the focus group:

“I think it is definitely really helpful for the general thing like in terms of shot types you can see, you know, it goes more towards close up and then there is extreme close up towards the end. So in terms of looking at the scene as a whole you can see general trends...”

“Like it starts out with an establishing shot and then it goes a little bit closer, and then towards the end it gets really close. And you can say that it’s building tension and releasing it. And then, things like shot angle like when it switches
from high to low, high to low, you can say there is a separation, like looking at two different characters, one high, one low…”

“Because you see how three different elements, or I don’t know if you can refer to them as elements or devices that the director uses. The one that really struck me was the shot angles- how he would go from high to low, high to low- so you know that he has carefully crafted the scene to give off some type of feeling. And with those shots you could tell there was some kind of tension.”

In answering the questions pertaining to the graphs, students employed the language while discussing their interpretations and drawing inferences regarding the possible effects of the graphed techniques:

“In the scene the filmmaker seems to be building up tension with the switching shot angle and getting closer, and at the end he might resolve the tension by moving back out and coming back to eye level and giving us a long shot as the final and longest shot in this scene.”

“Beginning with a long shot, then sticking mostly to more intimate views, this scene moves from an establishing shot of its elements, then focuses on each until reaching a climax at shot 19 with an extreme close up.”

These quotes taken from students’ work and discussions of film analysis reveal not only their acquisition of specific film analysis language, but their capacity to apply this language to make interpretations of the effects of film grammar and syntax in viewers emotional reactions. This is indeed one of the most important learning objectives established for the course that seems to be supported by the integration of The Deconstructor in students’ learning activities.

Discussing students’ activity in the focus group, Prof. Engel reflected:

“…If they [students] can get a gestalt of, or sense of the scene, and immediately relate it to story, that’s really good. And, maybe more sophisticated than what I’ve been doing, which is, looking at the different element and try to come up with what the underlying cinematic structure is. Because they are not used to it. Which makes sense because they are used to stories. So if they see this, and connect it to beats and stuff, which I have harped on in class, so much the better…So, that’s cool, good news. Because if they can create the story, that would be very cool. That was what I was trying to do.”

All in all, students’ capacity to relate the structure of the scene to the story seems to depict a sophisticated understanding of this film analysis methodology.

II.3.e - The Deconstructor: design affordances and constrains
Overall, while engaging in working within The Deconstructor, students identified the value of the tool in helping them conceptualize the film analysis methodology studied in the course:

“It was helpful in that now I have a much better understanding of shot type, length, and all of the other things we look at with The Deconstructor, but it was more helpful in helping me understand the importance that each of these elements had on the film.”

“The Deconstructor truly revealed a new level of cinema that I didn’t believe existed.”

“I really thought it helped understand Stephan Sharff’s methodology.”

“[The Deconstructor] Helped understand the complexities and planning a director must look at when designing a shot.”

However, throughout the evaluation process we have identified some design features of The Deconstructor that seemed problematic or challenging for students. In the following paragraphs we introduce and describe these issues.

II.3.e.1 – Speed

Although the overall functioning of the tool was satisfactory, speed was among the main challenging aspects of its performance. When students engaged in analyzing scenes involving many shots, the databoard page was often slow to load due to the number of extracted shots. In addition, speed problems downloading their databoard made it hard for students to update the information stored in them. Although this difficulty did not prevent students from developing their analysis, it did occasion some frustration.

II.3.e.2 - Graphing

Two challenges were identified regarding the graphing capabilities of the environment:

- The graphing function did not support more than 30 shots. Once exceeding that amount of shots, the graphs started to become indecipherable.

- The graph scale was not along a time continuum, but rather according to shot number and shot length. This made it difficult at times to see each shot in proportion to the whole film.

II.3.e.3 - Level of analysis

Students comments allowed us to identified two main constrains that the environment posed to them regarding their opportunities for analytical activities:
- Students wanted to be able to sub-divide specific shots down into their core components. This was not possible using The Deconstructor because there was no way to note whether something was a shot or a sub-shot.

- Students were unable to take their preliminary analysis in The Deconstructor and elaborate within the databoard.

### II.3.e.4 - Glossary and Content Scaffolding

The introductory hands-on activity, and subsequent observations of students working within the environment allowed us to recognize some limitations in the support provided by The Deconstructor as students developed their understanding of the methodology. The environment includes a glossary of terms to function as a reference resource for students when developing their analysis of scenes. However, as in any language use, the context – in this case – the scenes, may involve nuances and difference not addressed in the glossary. Students ask for additional support from TAs in order to interpret the contextual application of some of the terminology used for the analysis of scenes. We believe that the glossary was an important but not sufficient to scaffold students independent analyses.
Part III: Discussion

The digital working space generated by The Deconstructor, in which students were able to manipulate and interact with their source material over time, allowed Prof. Engel and his TAs to engage in deeper conversations in class regarding the value and challenges of the methodology itself. We believe that all these possibilities are the consequence of the way in which this digital working environment was integrated into the curricular context of the course. In the following paragraphs we discuss this curricular integration, recommendations for the next iteration of the course, and improvements needed in the environment.

III.1. - Introduction of the methodology in the course and learning activities

Both the two introductory lectures and the hands-activity in discussions sessions proved to be successful strategies to introduce students to the film analysis methodology supported by The Deconstructor. These activities helped establish the framework for students work as well as set expectations and learning objectives for students.

The collaborative work developed with TAs before and during the project was a crucial strategy for the successful integration of The Deconstructor in the course activities. Meetings and discussions with TAs are essential in the process of designing learning activities and a shared understanding of students’ experiences within the environment. During the next iteration of the project (Fall 2003) it is recommended to continue with this collaboration, particularly since it is expected that the course will have new teaching assistants.

Class observations, interviews, and a deeper understanding of the possibilities generated by the environment allowed us to identify different types of learning activities to be discussed with Prof. Engel and the course TAs for the next implementation of the project.

- **Hands-on activities in discussion sessions.** The introductory hands-on activity was an important opportunity for students and teaching assistants to engage in a approaching the environment for the first time. From students’ perspective, this activity allowed them to collaborate with their peers in applying some of the concepts introduced in lectures to concrete examples of film analysis. This collaboration allowed them to express and clarify doubts in a safe environment, as well as learn from other students’ understandings. From the teaching assistants perspective, this activity allowed them to assess their students understanding of the methodology and identify potential problems or misconceptions. TAs were also able to provide meaningful feedback and model the analysis based on students’ questions and concerns. In addition, this experience with common analysis and discussions allowed the class to share an experience that they used to refer to when discussing cases and examples of this film analysis methodology. We would recommend consider the possibility of requiring TAs to implement not just an introductory hands-on activity but also a series of more complex in class activities within The Deconstructor.
- Discussion session presentations. The experience of some discussion session where students presented their analysis allowed us to identify the value of these activities in the process of developing accuracy in the use of the film analysis language and methodology. Students were able to engage in meaningful discussions as well as to develop consistent arguments and explanations that supported their analysis. In the next iteration of the project, it would be important to encourage TAs to integrate students’ presentations in discussion sessions. These presentations could be the outcome of either homework assignments or in-class hands-on exercises. Students’ presentations could also be planned around peer feedback opportunities (see below.)

- Peer feedback. As mentioned earlier, students’ collaboration in approaching this methodology is an important learning opportunity. We believe that in class presentations could be planned in a way that supports students’ collaboration in the form of peer feedback. Students could be assigned to review each other’s analysis or even work with the same scenes and compare their analysis in class. This type of feedback could also represent valuable opportunities for discussions about the methodology itself.

- From graph to story. Students’ activity during the focus group allowed us to experiment with an activity that takes the graph as a starting point requiring students to engage in a sophisticated interpretative task. We believe that this learning activity demonstrated to be an interesting way of not only applying key concepts of the methodology, but also allowing students to recognize what they have learned about film analysis. In other ways, students awareness of what they were able “to see” in these graphs was a powerful entry point for engaging in a synthesis of course concepts. We recommend to seriously considering include this activity as a final exercise in discussion sessions.

III.2. – Affordances and Constrains

The following recommendations attempt to address the challenges identified in the environment:

II.3.e.1 – Speed

In order to address issues of speed downloading databoards, we suggest creating a text only view of all the data for a particular database collection. In this way, students will be able to easily select the shot that he/she wants to modify and do it without having to download all the shots.

Limiting the number of shots displayed in the storyboard view and only displaying on shot at a time in the database view would decrease loading time.
II.3.e.2 – Graphing

To support students understanding of the graphs in The Deconstructor, it would be important to label with appropriate information each film element and its descriptive value (i.e. if shot type = extreme long shot = 5) explicitly as a film legend in the graphing section of the tool.

II.3.e.3 - Level of analysis

To allow students to work within different levels of analyses, The Deconstructor should provide them with the option of further distinguishing between shots and sub-shots such as: Shot 1 – sub-shots: 1a, 1b, 1c, etc.

II.3.e.4 - Glossary and Content Scaffolding

As mentioned earlier, the film glossary available in the help section was useful to students but could be significantly improved and more accessible to students. The definitions could be place more appropriately near the term in question. That is, the database could contain references to the glossary that make help more readily available to students. The references could be noted by a hyper-lined question mark near each of the film terms. This type of approach may provide easier and more frequent access to the films terms.

Additionally, the content within the glossary could be improved. By providing students with the definition of the term, a video example of the application of the term and the numeric representation of the term, students may have a clearer understanding of the term and it’s application in The Deconstructor and in a larger film context.

Lastly, by providing students with a completed expert analysis they may begin to see the purposes and applications of The Deconstructor and ways in which it can aid in film analysis.

Conclusion

The introduction of The Deconstructor in Prof. Engel’s course generated a truly new teaching and learning opportunity. Prof. Engel was able to demonstrate and model the different aspects involved in analyzing films and require students to engage in their own analysis. Students were able to engage in a hands-on process of understanding and implementing the film analysis methodology addressed in the course.

In addition, the design and implementation of this curricular innovation involved a model of collaboration between faculty, teaching assistants, and educational technologists that represent one of the most important design practices involved in this project. We believe this type of practice to be a significant strategy when developing purposeful uses of technology in higher education.

Throughout this first implementation of the project it was possible to better understand the challenges and opportunities introduced by the Deconstructor in the course. We
expect to carry on a new iteration cycle of this project during the Fall semester 2002, informed by the understandings and insights generated in this research process.

References


Appendix 1

Deconstructor Hands-on Activity

- **Learning objective**

To have introductory film students understand and use the inherent grammar of film in constructing a scene analysis and interpretation.

- **Analysis of learning challenges**

To be able to understand the language and syntax to describe and analyze narrative film students have to practice and internalize the grammar for scene analysis. The purpose of this exercise is to introduce students to practical scene analysis through hands on exercise using a film analysis tool. This activity seeks to have students learn the grammar of scene analysis and the technical aspects of the Deconstructor in a group-learning environment. It is more sensible to analyze short segments for students to understand the process for the first exercise due to the time constraints of the learning environment.

- **Activity Procedures and tools**

Deconstructor is the means for putting shot by shot analysis into practice by asking shot specific questions and probing analysis through graphical re-representations of film scenes. Students will work in groups to following a simple assignment as described below.

- All students view a scene [TAs need to identify the scene they want to show] together as a large group
- Students are divided up into groups of 3-5 students
- Each group works at one computer
- Each group is given a segment of the scene to analyze
- Students are asked to have one person from each group record 2 things that were particularly difficult to identify or interesting in the exercise.
- Students use the Deconstructor to analyze the film segment of approximately 30 seconds
- Students will be asked to focus on elements such as:
  - Shot Time
  - Shot Type
  - Shot Angle
- For each element the term will be defined
- At the end of the scene analysis the graphs of each group of students will be shared and projected on the screen in class – for synthesis and discussion by TAs and students
- Focused on the part and the whole (scene vs. segment, film vs. scene)
- At the end of the class we will ask the TAs what they thought of the exercise and ask a select number of the students what they learned from the activity.
- **Type of assignment**
  In class assignment (discussion section)

- **Format**
  Groups of 3-5 students

- **Time**
  50 minutes

- **Student’s production**
  A shot by shot analysis of a scene segment focused the shot time, type and angle.

**Activity 1 (to be distributed to students)**

Work with your group to deconstruct the following segment (00:30.0 - 01:00.0) from the scene you just watched. Describe the type and angle for each shot.

**Steps**
- Assign one group member to record what the group found particularly difficult or interesting in the exercise.
- Assign one group member to use his/her login to record the activity in the Deconstructor.
- Go to the Deconstructor:
  - Login with your user name and password
  - Preview the segment you were asked to analyze
  - Review the terms: Shot In and Out, Shot Type, and Shot Angle
  - Create a new databoard- name it *Group Activity 1*
  - Begin extracting the shots and describing shots in terms of shot time, angle and type.
  - Graph Databoard using a line graph for shot type and shot angle
  - Share what the group found interesting or difficult with the rest of the class

Please review the help file if you are having trouble using the Deconstructor: [http://www.columbia.edu:8888/deconstructor/help.jsp](http://www.columbia.edu:8888/deconstructor/help.jsp)

**Terms**

*Shot*
A shot is a single graphic arrangement, connected to another shot through cut, camera movement, action within the frame, or some form of special effect.

*Keyframe* (Storyboard): Please note that each scene has a default keyframe that will be displayed. In future version of this tool, you'll be able to upload a more meaningful keyframe/storyboard image. You may want to structure your scene analysis as if it were a
lab report containing an introduction, a description of the data and how it was collected (methodology), an analysis, and conclusion.

**Shot Angle**
The high/low combinations within the camera frame as the camera relates to the main subject of the shot, determining the vertical point of view of the shot. High/Low combinations within sequences can be labeled as follows. Bird's Eye View=15, High Angle=10, Slightly High Angle=05, Eye Level=0, Slightly Low=-05, Low Angle=-10, Under Angle=-15

**Shot Number**
The number of a shot extracted from a clip, as it appears in a scene. This order will be based on the order that you added them to your databoard. A Shot Number is assigned to each shot based on its position in the sequence of shots. It is a chronological number and ascends over the course of the scene. This order will be based on the order that you added them to your databoard. (If you are analyzing a scene with long single takes or lots of camera movement (“sequence” shots), then you may do a sub-scenic or single shot analysis in which the “shot number” is assigned to each discrete segment of that single shot.)

**Shot Time**
The length (in seconds and frames thereof) of a shot in a scene or movie clip. Normally, 30 frames per second for American video format; in the Deconstructor, 15 fps is the default compression standard for QuickTime.

**Shot Type**
A classification of the proximal (distance) relationship between camera and subject. How large or small the main subject appears in the frame Extreme Long Shot=05, Long Shot=10, Full Shot=15, Medium Shot =20, Close Up=25, and Extreme Close Up=30. Each shot type has a value associated with it. The values represent the proximity of the camera to the subject. The closer the camera is to the subject the higher the value. This will be especially meaningful when you begin to graph your scene.