THE DESIGN AND DEVELOPMENT OF AN

INTERACTIVE MEDIA TUTORIAL FOR

PRESENTATION AUTHORING

BRENT K. SIMONDS

A Dissertation Submitted in Partial
Fulfillment of the Requirements
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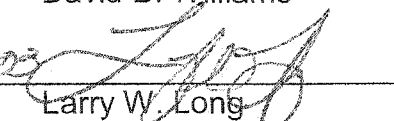
THE DESIGN AND DEVELOPMENT OF AN

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Brent K. Simonds

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A recent institutional mandate called the Instructional Technology Passport System (ITPS), has stipulated that all Com 110 students at Illinois State University must demonstrate competency with presentation authoring software during their informative speech assignment. However, this poses a significant instructional problem for course instructors because there is little room in the Com 110 curriculum to train students to use this software. To address this problem, the researcher designed and created an interactive media tutorial to teach those skills.

This project made use of Rhodes' (1998) problem-directed instructional design model. This model consists of five stages: preparation, formulation, execution, review, and revision. During the preparation stage the researcher identified the instructional context and the performance problem with further analysis of the tasks and participants. Part of this pre-design analysis included surveying a sample of the intended audience and reporting those results. The formulation stage included the definition of the instructional design problem and

the proposed resolution for that problem (in this case an interactive CD-ROM). Execution consisted of developing a working prototype and reporting on the processes that led to its completion. The review stage was comprised of beta testing of the prototype with a group of students drawn from the target population and focus group interviews with the same students to solicit their reactions. The study concludes with recommendations for product revision and future research.

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Thanks also to my wife, Cheri Simonds, for having "been there" before and to my children, Dylan and Addison, who have never known not having a parent in graduate school.

<div align="right">B.K.S.</div>

CONTENTS

iii

TABLES

v

FIGURES

CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Introduction

Repeatedly, research has shown that oral presentation ability is one of the

top skills needed by college graduates to obtain employment and then succeed

on the job (Curtis, Winsor, & Stephens, 1989; Winsor, Curtis, & Stephens, 1997).

An important aspect of oral presentations is development and use of visual aids.

Most, if not all, public speaking textbooks devote entire chapters to visual aids

and recommend their use because they enhance oral communication

effectiveness (see e.g., Andrews, Andrews, & Williams, 2002; Daly & Engleberg,

2001; Lucas, 2004, Osborn & Osborn, 2003). Furthermore, the use of information

technology to create visuals for public speaking has become an expectation in

business, government, and education. It is clear that representing one's ideas

visually during a presentation is an important skill that should be a core

competency of any public speaking class at the university level. Recent

technological innovations in the presentation software field (e.g., PowerPoint,

Keynote, and Astound) have made it possible for public speakers to create a

variety of visuals without resorting to using artists and graphic designers.

However, most speakers have not had any formal training in visual

communication design. Many students at the university level may take a public

1

speaking class during their college careers – though the use of modern technological tools often lags behind the latest developments and standard practices in business and other institutional settings.

In spite of little formal training in visual communication design, the use of presentation software by business, government, and educational speakers has proliferated almost to the point of ubiquity in recent years. So much, in fact, that scoffing at these types of presentations is quite common. Mason and Hlynka (1998) in two short pieces in Educational Technology ask "PowerPoint in the Classroom: Where is the Power?" and "PowerPoint in the Classroom: What is the Point?" Recently the Chicago Tribune Magazine (Keller, 2003) asked on its cover "Is PowerPoint the Devil?" Amusing as the titles may be, a careful reading of these articles reveals that the criticisms are not really levied at the software itself – though the authors try to make it seem so – rather it is poor presentation design or inappropriate use that is to blame for the legion of mediocre presentations that many people have to endure. These criticisms are usually aimed at "bullet" thinking – the overuse of an easy-to-produce text effect. Many speakers do not make use of appropriate photos, diagrams, charts, and graphs; all of which are within the capabilities of presentation software.

At Illinois State University, Communication 110 (Language and Communication) is required of all first-year students. Course curriculum includes providing instruction for making informative, persuasive, and group presentations. For most students, this will be the only public speaking class they will have before entering their chosen professions where electronic presentations

are often the norm. However, training in the use of presentation authoring software is not covered in Com 110, and there is little room in the curriculum for such training. To complicate matters, a recent institutional mandate called the Instructional Technology Passport System (ITPS), has stipulated that all Com 110 students must demonstrate competency with presentation authoring software during their informative speech assignment.

Given these circumstances, the problem for study addressed in this dissertation was the design and development of an interactive media tutorial to teach presentation authoring that enables students to acquire the required competency without formal classroom instruction. Since this study was rooted in solving a context-specific problem, several factors had to be examined to determine the proper design and development goals:

- Educational context

- Institutional context

- Interactive design principles

What follows is the analysis that placed the instructional problem into its larger institutional and educational context. Design principles for creating effective instructional interactive media were also examined.

<u>Educational Context</u>

Several professional, educational, and governmental agencies are calling for increased technological competence from university graduates. Toward that end these agencies have compiled recommendations that they hope universities will implement as part of the educational experience for their students. The

argument is that information technology has exploded into our everyday lives suddenly and most of us do not have any formal training to understand or use it effectively. Additionally, its rapid diffusion has resulted in a glut of information that ironically requires effective use of the same technology to manage, organize, retrieve, and communicate this information. While some students may have experience using information technology, some do not. University graduates should be able to use information technology to accomplish personal and professional goals and many of them cannot. For example, Kemp (2000) found that pre-service teachers in the Minnesota university system possessed basic computer skills such as word processing but lacked significant skills with emerging technologies such as digital imaging and projection. Universities must then seek to ensure that students can use technology in a contextually-appropriate manner and document their performances compared to stated criteria required for graduation.

The Association of College and Research Libraries division of the American Library Association (2003) advocates "information literacy" – the ability to find, evaluate, and use information. The ALA argues that their conception of information literacy is larger than just print, computer, or media literacy. It means information in all its forms. The ALA has drafted six competency standards for students in higher education.

Likewise, the National Research Council (1999) has conceived of information technology competencies that encompass more than mere computer literacy. The NRC has adopted the phrase "Fluency with Information Technology"

or "FITness." Its argument is that "fluency" connotes a higher level of competence than "literacy." Though the NRC lists 10 contemporary computer skills university students should possess, it also calls for knowledge of 10 foundational concepts and possession of 10 intellectual capabilities. The NRC claims that the concepts and capabilities are timeless, whereas the skills approach will always call for revision because of the introduction of new hardware and software. The NRC also explicitly cites the difference between FITness and the ALA's notion of information literacy. It views information literacy as primarily dealing with the content of information whereas FITness focuses on "a set of intellectual capabilities, conceptual knowledge, and contemporary skills associated with information technology" (p. 3-5). It argues that both information literacy and FITness are essential for making use of technology.

Educause, a non-profit association that is committed to advancing higher education by promoting the intelligent use of information technology, also has recommendations about what students should look for in the way of competencies required at universities (http://www.educause.edu/ consumerguide/academic.asp). It should be noted that the ALA, the NRC, and Educause's recommendations are for all university students.

Particular professions or vocations may have explicit technological standards for the training and/or educating of its future practitioners. For example, the National Council for Accreditation for Teacher Education (NCATE, 2000) has specified the technological competencies public school teachers should have and the standards that teacher education programs must adhere to

for certification (with recommendations by the International Society for Technology in Education, the Association for Educational Communication and Technology, and the International Technology Education Association). The Illinois State Board of Education has also made recommendations in its Technology Standards for All Teacher Candidates (Illinois State Board of Education, 1999). At Illinois State University, the University Liaison Faculty Concerns Committee (2000), reviewed the ISBE document and proposed an even more extensive version now known as ISU Technology Standards for All Teacher Candidates.

Underlying the arguments these organizations and groups make is the assumption that technological competencies are necessary life skills that will enhance the performance of both individuals and society. With our growing information society and the ubiquity of technological devices in our everyday lives, these arguments are justified on utilitarian grounds.

Broadly defined, the ability to create and deliver an electronic presentation is consistent with all of ALA's recommendations for information literacy. It also specifically fulfills the National Research Council's recommendation calling for the ability to create image-based expressions or ideas. Furthermore, Educause explicitly recommends the ability to do technology-enhanced presentations.

The next section explains how the institutional requirements for presentation authoring came about and how it fits in with the rest the technological competencies called for by the Instructional Technology Passport System (ITPS).

Institutional Context

      Because of the recommendations of outside agencies and the University Liaison Faculty Concerns Committee (2000), the Technology Learning Circle (TLC) at Illinois State University began work to address these demands. The TLC, a group formed in 2000 as part of the Illinois Professional Learners Partnership grant, developed and instituted an Instructional Technology Passport System (ITPS) with the goal of ensuring that graduating teacher candidates at ISU would be able to use instructional technology in ethical and effective ways in compliance with national, state, and institutional standards. The TLC examined both internal (i.e., ISU Technology Standards for All Teacher Candidates from the University Liaison Faculty Concerns Committee) and external technology standards and derived ten consolidated indicators that addressed the multitude of elements presented in the various standards (see Table 1). The TLC made the choice to associate each of these consolidated indicators with an authentic performance-based assessment task as part of students' normal coursework. Classroom teachers could then document student performance and ensure program compliance with adopted indicators.

      Teachers in these courses are under no obligation to teach any particular skill, only to require that students demonstrate it. Therefore, the responsibility for learning and then demonstrating each competency falls on the teacher candidates. To aid these students, the TLC constructed a web site that serves as a clearinghouse of information about the ITPS and directs them to training and software both on and off campus (http://www.itps.ilstu.edu).

Table 1

A Comparison of ITPS Competencies with External & Internal Recommendations

Competency	ITPS Descriptions	External Recommendations
Ethics	apply ethical standards to the use of instructional technology	ALA: understands the economic, legal, & social issues surrounding the use of information & accesses & uses information ethically & legally. EDUCAUSE: familiarity with major ethical, legal, and security issues in information technology. ISU STANDARDS: understand the social, ethical, and human issues related to computing and technology.
Telecommunications	ability to use asynchronous and synchronous telecommunications effectively	EDUCAUSE: ability to engage in electronic collaboration. NRC: Using a computer to communicate with others. ISU STANDARDS: know to access telecommunications resources to support instruction.

(table continues)

Competency	ITPS Descriptions	External Recommendations
Presentation Authoring	ability to use presentation authoring tools	EDUCAUSE: ability to do technology-enhanced presentations. NRC: Using a graphics and/or artwork package to create illustrations, slides, or other image-based expressions of ideas ISU STANDARDS: use productivity tools for basic multimedia presentations
On-Line Searching	ability to effectively use web browsers and online databases	ALA: accesses needed information effectively & efficiently. EDUCAUSE: ability to use appropriate electronic tools for research and evaluation. NRC: Using the Internet to find information and resources. ISU STANDARDS: use web browser applications for research to support instruction. Use automated on-line search tools and intelligent agents to identify and index desired information resources.
Web Page Development	ability to create and edit the content of ADA-compliant web pages, and post his/her results to a web server	EDUCAUSE: the ability to use and create structured electronic documents. ISU STANDARDS: Design and publish simple on-line documents that present information and include links to critical resources.

(table continues)

Competency	ITPS Descriptions	External Recommendations
Idea Development	ability to use idea development software	ISU STANDARDS: Develop instructional units that involve compiling, organizing, analyzing, and synthesizing of information, and use technology to support these processes.
Spreadsheets	ability to use spreadsheets	EDUCAUSE: ability to use spreadsheets and databases. NRC: Using a spreadsheet to model simple processes or financial tables. ISU STANDARDS: use productivity tools for spreadsheet applications
Desktop Publishing	ability to perform desktop publishing	EDUCAUSE: the ability to use and create structured electronic documents. NRC: Using a word processor to create a text document. ISU STANDARDS: use advanced features of word processing, desktop publishing, graphics programs, and utilities to develop professional products.
Assistive Technology	ability to use a range of assistive technologies to work effectively and equitably with students with disabilities	ISU STANDARDS: Design learning experiences and utilize adaptive devices/ technology to provide access to general curriculum content to individuals with special needs.

(table continues)

Competency	ITPS Descriptions	External Recommendations
Database Management	use of LiveText or other software (e.g., Filemaker Pro) to create and manage an information database	EDUCAUSE: ability to use spreadsheets and databases. NRC: Using a database system to set up and access useful information. ISU STANDARDS: design and manipulate databases and generate customized reports

Note. ISU Standards are derived from a document produced by the University Liaison Faculty Concerns Committee (2000). ISU's Technology Standards for all Teacher Candidates are in response to the Illinois State Board of Education's Standards.

The ten competencies have also been associated with gateways through which teacher education majors must pass:

- Admission to Professional Studies

- Admission to Student Teaching

- Completion of Student Teaching

The ITPS stipulates that the first four competencies (ethics, telecommunications, presentation authoring, and on-line searching) must be demonstrated before students can be admitted into the teacher education program. Institutionally, it was decided that *all* students (not just teacher education) would need to demonstrate these four competencies. This is consistent with the main action plan for the University, Educating Illinois (Illinois State University, 1999). It states as a goal that all students will acquire essential technological competencies that will allow them to succeed not only in their

academic careers but in their chosen professions as well. Several initiatives outside of the ITPS are in place to realize these goals:

- expanding University and Internet electronic services through high-speed connections in the residence halls and wired and wireless laptop connections in study and meeting areas

- upgrading library and computer lab facilities

- hiring of student Residential Computer Consultants who provide technological services to students in residence halls

- the opening of TechZone to provide technology support resources to faculty, staff, and students as well as discounted hardware and software

- more training opportunities through Faculty Technology Support Services (FTSS)

- expanding HelpDesk support

- creating iCampus personalized web portal

These activities are part of an overall effort by the University to become by 2007 "the first choice public university in Illinois for high-achieving, motivated students who seek an individualized educational experience combined with the resources of a large university." Initial documentation of students' competencies began in the fall semester of 2002.

To demonstrate the ethics and on-line searching competencies, students must score 90% or better on an on-line exam after being introduced to the information in the inner core of general education at ISU:

- Foundations of Inquiry (IDS 100)

- Language and Composition (Eng 101)

- Language and Communication (Com 110)

The ITPS calls for the telecommunications competency to be demonstrated in Eng 101 (Eng 145 for honors students). During the course of the semester the students are required to complete and submit assignments that make use of telecommunications technology. For example:

- use of e-mail

- sending of an attachment

- use of an address book

- use of a web-board

- participation in an on-line discussion group

- use of a list serve

Eng 101 course directors have agreed that a grade of "C" or above in this course would reflect competency with telecommunications since it is closely tied to course assignments.

The ITPS committee has mapped the presentation authoring competency to Com 110 (Language and Communication), a class that is required by all first-year students at Illinois State University. This class typically services around 3,000 students a year and is taught by tenure and non tenure track faculty as well as graduate teaching assistants. The curriculum for the course is fairly rigid as stipulated by the academic senate and everyone who teaches the course must undergo extensive training in an effort to ensure consistent content across

all sections. Among other requirements, students in this course must deliver both an informative and persuasive presentation.

Course directors agreed to document students' use of presentation authoring software during their informative presentations since use of a visual aid was already a requirement of the assignment. Since the classrooms in which Com 110 is delivered are not equipped with computers and data projectors, the criteria that the students had to meet reflected a very minimal skill set. The requirements for the visual aid are to use presentation authoring software (e.g. Microsoft PowerPoint) to create an overhead transparency that contains:

- a design template

- title text

- bullet points

- at least one graphic (e.g., photo, diagram, chart, or graph)

Currently, if students meet these simple criteria they have demonstrated the competency. If they do not successfully demonstrate the skill in the informative presentation, they can try again in their persuasive presentation. If they again fail the task, a deficiency will be reported which they will have to resolve before being admitted to the education major (professional studies). Obviously, it is a very dubious assumption to grant competency to such a meager demonstration. The present study seeks to determine and train for a skill set that is truly indicative of presentation authoring competence.

Again, it should be pointed out that persons who teach Com 110 are not required to teach these skills, and there is little room in the curriculum to do so.

Their role is to verify whether or not students possess the required competency. For that reason, training for the competency had to come from another source outside the classroom.

<u>Interactive Design Principles</u>

To solve this particular instructional problem a computer-based interactive media tutorial was proposed. To be effective, the tutorial was created with sound design principles in mind. Park and Hannafin (1993) argue that interactive media design typically is not "based on empirical evidence, but on the intuitive beliefs of designers" (p.63). To address this problem they organized what they believed to be the most relevant research and theory into an overarching framework for the instructional design of IM. They divided the research and theory into three areas: psychological, pedagogical, and technological. In each of these categories they examined general, component, and primary theory and research. General principles were taken from basic generalizable research and theory (e.g., schema theory in psychology). Component principles were taken from work involving specific technologies such as computer-based instruction (CBI). Primary principles involved theory and research specifically aimed at IM. From this process Park and Hannafin developed 20 principles and their implications for the instructional design of interactive media (see table 2).

Table 2

Twenty Interactive Media Design Principles and Their Implications

Principle	Implication
Related prior knowledge is the single most powerful influence in mediating subsequent learning.	Layer information to accommodate multiple levels of complexity and accommodate differences related prior knowledge.
New knowledge becomes increasingly meaningful when integrated with existing knowledge.	Embed structural aids to facilitate selection, organization, and integration; embed activities that prompt learners to generate their own unique meaning.
Learning is influenced by the supplied organization of concepts to be learned.	Organize lesson segments into internally consistent idea units.
Knowledge to be learned needs to be organized in ways that reflect differences in learner familiarity with lesson content, the nature of the learning task, and assumptions about the structure of knowledge.	Linkages between and among nodes need to reflect the diverse ways in which the system will be used.
Knowledge utility improves as processing and understanding deepen.	Provide opportunities to reflect critically on learning and to elaborate knowledge.
Knowledge is best integrated when unfamiliar concepts can be related to familiar concepts.	Use familiar metaphors both in conveying lesson content and designing the system interface.
Learning improves as the number of complementary stimuli used to represent learning content increases.	Present information using multiple, complementary symbols, formats, and perspectives.
Learning improves as the amount of invested mental effort increases.	Embed activities that increase the perceived demand characteristics of both the media and learning activities.

(table continues)

Principle	Implication
Learning improves as competition for similar cognitive resources decreases and declines as competition for the same resources increases.	Structure presentations and interactions to complement cognitive processes and reduce the complexity of the processing task.
Transfer improves when knowledge is situated in authentic contexts.	Anchor knowledge in realistic contexts and settings.
Knowledge flexibility increases as the number of perspectives on a given topic increases and the conditional nature of knowledge is understood.	Provide methods that help learners acquire knowledge from multiple perspectives and cross-reference knowledge in multiple ways.
Knowledge of details improves as instructional activities are more explicit, while understanding improves as the activities are more integrative.	Differentiate orienting activities for forthcoming information based upon desired learning; provide organizing activities for information already reviewed.
Feedback increases the likelihood of learning response-relevant lesson content, and decreases the likelihood of learning response-irrelevant lesson content.	Provide opportunities to respond and receive response-differentiated feedback where critical information is involved, but avoid excessive response focusing when incidental learning is expected.
Shifts in attention improve the learning of related concepts.	Differentiate key terms, concepts, and principles through cosmetic amplification, repetition, and recasting.
Learners become confused and disoriented when procedures are complex, insufficient, or inconsistent.	Provide clearly defined procedures for navigating within the system and accessing on-line support.
Visual representations of lesson content and structure improve the learner's awareness of both the conceptual relationships and procedural requirements of the learning system.	Provide concept maps to indicate the interrelationships among concepts, and hypermaps to indicate the location of the learner relative to other lesson segments.
Individuals vary widely in their need for guidance.	Provide tactical, instructional, and procedural assistance.

(table continues)

Principle	Implication
Learning systems are most efficient when they adapt to relevant individual differences.	Interactive multimedia must adapt dynamically to both learner and content characteristics.
Metacognitive demands are greater for loosely structured learning environments than for highly structured ones.	Provide prompts and self-check activities to aid the learner in monitoring comprehension and adapting individual learning strategies.
Learning is facilitated when system features are functionally self-evident, logically organized, easily accessible, and readily deployed.	Employ screen design and procedural conventions that require minimal cognitive resources, are familiar or can be readily understood, and are consonant with learning requirements.

Note. From "Empirically-based guidelines for the design of interactive multimedia," by I. Park and M. J. Hannafin, 1993, Educational Technology Research and Development, 41 (3) p.68-69. Used with permission of the publisher.

Palmer and Rhodes (1997) established 10 categories for evaluating interactive media used for training based on adult learning theory, motivation theory, and task analysis (see Table 3). They suggested using these principles as a way of ascertaining interactive media program quality. They assumed that when using their framework for evaluation, training objectives had already been determined and that the features inherent in interactive media were appropriate to meet those objectives. Their work is based on assumptions as to how and why adults choose to learn. They also stressed the importance of knowing the nature of the task, the characteristics of the learners, and the context in which learning will take place. Any interactive development project must consult these principles for both design and evaluation since these principles are based on relevant research and theory.

Table 3

Evaluative Principles for Multimedia Training

Evaluative Principle	Examples
Supportive Environment	Support features found in the program.
Meaningful Application	Familiar situations or those likely to be encountered.
Opportunities for Choice	User selection and control.
Manageable tasks	Tasks expected to be performed in workplace, prerequisite skills, content & procedures clearly stated.
Examples of Performance:	Performance tasks demonstrated.
Performance Opportunities	Can users engage in the activity themselves?
Knowledge of Progress	How well are users progressing?
Opportunities for Success	More than one opportunity to succeed. Able to make errors without always facing a penalty.
Multisensory techniques	Alternative perceptual modalities.
Intuitive appeal	Emotional, intellectual, & aesthetic appeal

Note. From "An evaluative framework for selecting training multimedia," by T. M. Palmer and D. M. Rhodes, 1997, International Journal of Training and Development, 1 (2) 128-135. Used with permission of the publisher.

Now that the educational and institutional context for the instructional problem has been examined, and the necessary design principles have been explored, this study now turns to a fuller discussion of the:

- problem for study

- objectives for the study

- research questions

- methodology proposed for the current study

Problem for Study

As stated earlier, the problem for study addressed in this dissertation was the design and development of an interactive media tutorial to teach presentation authoring that enables Com 110 students to acquire the required ITPS competency without formal classroom instruction.

Com 110 course directors and other university personnel are working to get all classrooms for the course equipped for electronic presentation, so that students may deliver presentations much as they would in most professional contexts. If those resources materialize, then much more realistic criteria will be required for students to demonstrate competency with presentation authoring software. This study drafted a new set of criteria based on recommendations from external agencies and public speaking textbooks and will be implemented as an ITPS requirement when the necessary classroom equipment has been installed. However, this presents significant difficulties for the instructors. As mentioned previously, the curriculum for Com 110 is fairly rigid and there is little time to train students in the advanced features of the software. These features

include transitions, animation, drawing tools, graphing and charting. Also, basic instruction in visual design is outside the purview of the course. Being able to deliver a speech with modern presentation tools is a central skill in a public speaking class, but unfortunately the course has little room to teach that content. The problem for study was how to give students the instruction they need outside of the course so that they can demonstrate this competency within the course. Specifically, there was a lack of training and resources for students to prepare themselves to demonstrate competency with presentation authoring tools.

<div align="center">Objectives of the Study</div>

The broad objectives of this study were two-fold:

1. to design a computer-based instructional module to train students in the technological functions of PowerPoint software and

2. to provide basic principles of visual communication design that will allow them to enhance their informative presentations.

The specific objectives of the study were to:

- Objective 1 – Draft a skill set that will serve as the criteria for successful demonstration of the presentation authoring competency

- Objective 2 – Identify relevant visual design principles to be included in the instructional module

- Objective 3 – Design a computer-based tutorial to be made available to all students

  o 3A – Determine the appropriate authoring system for creating the tutorial

     o   3B – Determine the appropriate distribution medium for delivery

- Objective 4 – Develop a working prototype according to design specifications and test its usability with a focus group drawn from the target audience.

Research Questions

- RQ1: To address Objective 1: What level of proficiency with PowerPoint can be deemed competent?

- RQ2: To address Objective 2: How much visual design theory should a non-designer be expected to know?

- RQ3: To address Objective 3: What is the appropriate authoring system and distribution medium for delivering this training?

- RQ4: To address Objective 4: What are the demographics and current skill levels of the intended users?

- RQ5: To address Objective 4: What are the reactions of the students in the focus group to the usability of the interactive tutorial?

- RQ6: To address Objective 4: Do students in the focus group believe that this approach (interactive media training) makes sense and is worthwhile for the task that is required of them?

- RQ7: To address Objective 4: Can students in the focus group use this tutorial to create a PowerPoint presentation that contains all of the elements stipulated in the skill set drafted for this study?

Methodology

The answers to research questions 1 and 2 were determined from a review of relevant research literature, recommendations from professional organizations, and textbooks on public speaking and visual design.

- RQ1: What level of proficiency with PowerPoint can be deemed competent?

- RQ2: How much visual design theory should a non-designer be expected to know?

Research question 3 required analyzing existing authoring software packages to determine which program allowed for the creation of the features and content that the instructional design stipulated and that most students would be able to utilize without special hardware or exotic software plug-ins. The most economic distribution vehicle was also identified.

- RQ3: What is the appropriate authoring system and distribution medium for delivering this training?

Research questions 4-7 required a research design that made use of both quantitative data and qualitative information. The instrumentation for RQ4 was a survey administered in Com 110 courses. There are approximately 75 sections of 22 students each fall and spring semester. Every 15th section was chosen to participate for a total of five sections.

- RQ4: What are the demographics and current skill levels of the intended users? (see appendix A for survey questions)

To address RQ 5-7, students were recruited from two summer Com 110 sections that began in mid June, 2003. Participants interacted with the tutorial in

a Communication Department computer lab and were given the task of completing a presentation according to the skill set defined for this study. Since this study was only concerned with the technical criteria for competence, the participants were given "dummy" information, data, pictures, etc. to complete the presentation. The investigator observed the participants use of the program and recorded whether or not the students included all of the elements listed in the skill set defined by this study. Participants were also asked to complete an on-line survey form (Mallard) that asked for demographic data as well as Likert-type scale answers. Additionally, the users answered open-ended questions where they elaborated on their experience. Guided discussions led by the investigator were videotaped for qualitative analysis.

- RQ5: What are the reactions of the students in the focus group to the usability of the interactive tutorial?

- RQ6: Do students in the focus group believe that this approach (interactive media training) makes sense and is worthwhile for the task that is required of them? (see appendix B for survey and focus group questions)

- RQ7: Can students in the focus group use this tutorial to create a PowerPoint presentation that contains all of the elements stipulated in the skill set drafted for this study?

Morgan (1998) argued that focus group data is very useful when there is a gap between people such as those who provide products and services and those who use them. In this case there was an obvious gap between the students and faculty and each group's perceived need for technological training. Krueger and

Casey (2000) suggested that focus groups should be used when researchers wish to pilot test ideas, materials, plans, or policies. Information gleaned from the focus group users help refine the usability and viability of the interactive instructional module being tested.

The following sections describe how data from the surveys and focus groups will be used in the design and development of the interactive media tutorial for presentation authoring.

Design

Descriptive statistics computed from the initial data from the student surveys served as audience analysis that drove the design of the tutorial (past computer usage, current skill level, etc.). Analysis consisted of computing various descriptive statistics (e.g., frequencies, measures of central tendencies, etc.). Using these data, Rhodes' (1998) Problem-Directed Instructional Design model was employed to design the interactive tutorial. This model is advantageous in that it requires the designer to define several problems regarding the setting, participants, and goals under consideration. The process is both linear and recursive and serves to focus the designer's attention on the question at hand. This model has five components: preparation, formulation, execution, review, and revision. The preparation stage included identifying the instructional context and performance problem with analysis of the tasks and participants.

Formulation is the definition of the instructional design problem and the proposed resolution for that problem. Three areas were considered when designing the innovation that was the problem for study.

Conceptual. First, a skill set was proposed based on the external recommendations of the ALA, NRC, Educause, ISBE, and NCATE as well as recommendations from within ISU. Second, the researcher determined how many visual design concepts were to be included by consulting the relevant literature.

Instrumental. According to recommendations by Clark (1983), the most efficacious delivery medium is the one that allows designers and developers to transmit the content to the specified audience in the most economical manner. Therefore, the interactive instructional module was designed and delivered using a technology that allows for the broadest access to the content.

Performative. The tasks contained in the tutorials represented the minimum level of competence required when using presentation authoring technology. Therefore, student performance was set at 100%. That is, they either performed the task or they did not. However, while interacting with this module, there was no penalty for failure. It is assumed, though, that future students will recognize the need and importance of mastering these skills, so they will continue until they are successful. The tutorial was designed to allow students unlimited opportunities for success. During the informative presentation, Com 110 instructors will determine whether or not the student has demonstrated competency in accordance with public criteria.

Development

The execution, review, and revision phases of this instructional design method followed the initial design.

After development (execution) of the prototype, a focus group was drawn from the target audience and interacted with the tutorial in a computer lab. Beta testing of the prototype included analysis of the focus group's reactions to the usability of the tutorial and the usefulness of its content, as well as their ability to demonstrate competence with presentation authoring tools (review). A qualitative content analysis of the open-ended questions and guided discussion allowed themes to emerge from the participants' own perspective (Lindlof, 1995). Armed with the descriptive user data and the themes that arose from the open-ended answers, the results are reported here and will prove useful in guiding any new designs or modifications (revision).

An advantage to this research design was that it targeted the actual end users. Specifically, the training was designed for Com 110 student population at ISU. Furthermore, designing and implementing an on-line form to capture data from the focus group was a fairly simple, inexpensive process. The videotaped interviews were instructive and applicable to the interactive design though the data is not generalizable in a technical sense because the focus group does not represent a scientific sample from the Com 110 population. Additionally, it could be argued that these students were not in a position to judge or evaluate the content or design of this system. Though they were not in a position to judge quality, their reactions might be indicative of the success of the program.

Definitions

Interactive Media: A human/computer interface that allows for some level of interactivity under the user's control to access various media including text, sound, drawings, photos, video, and animation. Its unique characteristic is its ability to dynamically link information from a variety of representations or symbol systems at the command of the user. Other terms often used synonymously are interactive multimedia and hypermedia.

Media Effects: In instructional technology research literature this refers to any hypothesized effect various media have on the same content. The question is whether or not the medium chosen for delivery has a measurable effect on learning or some other instructional problem. In mass media research literature, media effects researchers tend to look at the content of the media for any measurable effects.

Medium Theory: A culturally and/or historically derived mass media theory that postulates that any given communication medium has an effect apart from its content.

Limitations

This dissertation did not evaluate the design in practice. That is, summative (or product) evaluation was outside the scope of this project. However, alpha and beta testing guided the development of the interactive tutorial. This research is also limited by the nature of the content of the training. That is, the software skills and visual design principles taught were based mostly on recommendations from professional organizations and/or expert authors.

Significance of Study

Currently, all Com 110 students are required to demonstrate a minimal level of competence with presentation authoring tools. This dissertation produced a skill set that is more indicative of true competence in line with the technological recommendations of the internal and external agencies. And, it provides the necessary training for students to gain that competence so they can then demonstrate it in their Com 110 classrooms. These students can then hone these skills throughout their college careers when making class presentations. Specifically, this research produced a product to address the presentation authoring competency that many internal and external agencies advocate. Hopefully this effort will produce technologically-competent communicators ready to use their skills to solve problems in business, government, and industry.

According to the design/development research paradigm, this project also allows for the refining of the design principles employed and the reporting of the "lessons learned" from this project. That is, by documenting and describing the design/ development process, future projects can use the insights gained from this effort.

CHAPTER II

CONCEPTUAL FRAMEWORK

Developmental Research Design

This dissertation is aimed at solving a context-specific instructional problem and is therefore developmental research. This chapter will describe the developmental research model and will place the problem for study into its conceptual and theoretical context.

Richey and Nelson (1996) conceive of developmental research as either one of two types (see table 4). According to this conception, this dissertation is clearly type 1 and will result in context-specific conclusions. Richey and Nelson report that:

> Typically the entire design, development, and evaluation process is documented. Consistent with pre-dominant practice in the field, the procedures employed usually follow the tenets of instructional systems design (ISD), encompassing a form of front-end analysis through summative evaluation and the ongoing maintenance of the system (p. 1218).

30

Table 4

A Summary of the Two Types of Developmental Research

Developmental Research		
	Type 1	Type 2
Emphasis	Study of specific product or program design, development &/or evaluation projects	Study of design, development, or evaluation processes, tools, or models
Product	Lessons learned from developing specific products and analyzing the conditions that facilitate their use	New design, development, and evaluation procedures &/or models, and conditions that facilitate their use

Context-specific conclusions => => => => Generalized conclusions

Note. From "Developmental Research" by R. C. Richey and W. A. Nelson, 1996, in the Handbook of Research for Educational Communications and Technology, First Ed. (ed. D. H. Jonassen). Used with permission of the publisher.

Reeves (2000) describes developmental (or design) research as having dual objectives. It is aimed at solving specific performance problems while at the same time developing a body of generalizable design principles. In contrast to his conception of development research, he describes action (or evaluation) research much the same way as Richey and Nelson (1996) describe Type 1 developmental research. His distinction is that action research is always context-specific whereas a developmental research project, while solving a specific design problem, can yield new design principles or refine existing ones to inform future decisions. Reeves advocates a research model that is socially responsible in that it addresses specific real world problems, yet adds to the design principles

body of knowledge. He specifically contrasts his model of development research

with the typical empirical model (see Figure 1).

Empirical Research

```
┌──────────────┐     ┌──────────────┐     ┌──────────────┐     ┌──────────────┐
│ Hypotheses based │   │ Experiments  │     │ Theory Refinement │  │ Application of │
│ upon Observations │→ │ Designed to Test │→ │ based on Test │→   │ Theory by    │
│ and/or Existing │    │ Hypotheses   │     │ Results      │     │ Practitioners │
│ Theories     │      │              │     │              │     │              │
└──────────────┘      └──────────────┘     └──────────────┘     └──────────────┘
```

Specification of New Hypotheses

Development Research

```
┌──────────────┐     ┌──────────────┐     ┌──────────────┐     ┌──────────────┐
│ Analysis of  │     │ Development of │   │ Evaluation and │   │ Documentation and │
│ Practical Problems │→ │ Solutions with a │→ │ Testing of Solutions │→ │ Reflection to │
│ by Researchers │    │ Theoretical  │     │ in Practice  │     │ Produce "Design │
│ and Practitioners │  │ Framework    │     │              │     │ Principles"  │
└──────────────┘      └──────────────┘     └──────────────┘     └──────────────┘
```

Refinement of Problems, Solutions, and Methods

<u>Fig. 1.</u> Empirical & Development Approaches to Educational Technology
Research

<u>Note.</u> From "Socially Responsible Educational Technology Research" by T. Reeves, 2000, in
<u>Educational Technology,</u> November-December. Used with permission of the author.

Media Effects

A significant question to be resolved in the design and development of the

instruction is whether some form of interactive media is the best way to deliver

the training. Media comparison studies have typically yielded "no significant

difference" results despite the excitement and speculation that accompanies new

technological developments (Clark 1983, 1994). Researchers who have sought

to establish causal media effects on learning have not had much success,

leading Clark to assert that media will never influence learning under any

conditions. Of course, there are instructional problems other than learning such

as cost and distribution. Clark recommends media choice based on an economic model. That is, designers should use whichever medium provides the cheapest way of delivering instruction to the intended audience. This "cost/benefit" or "return on investment" model should please most administrators.

One particular research area that has received much attention is "learner control" studies. This type of research seeks to establish computer-based interactive media as a superior medium since it allows learners to control the type, amount, and sequence of information they desire. Reeves (1993) has labeled most of this research as "pseudoscience," because he argues that it does not meet the theoretical and methodological assumptions of the positivist, quantitative paradigm that it claims to follow. One particularly damning aspect of many these studies is the brief treatment time (often less than 30 minutes) that is allowed for learners to interact with the system. Any learning effect from such a short treatment is probably too slight to observe and measure. This may explain the lack of significant difference in the studies that Clark references. Perhaps the ability to observe any measurable effect would require a longitudinal research design.

The guiding assumption behind most media effects research in the instructional technology field is behavioral. That is, researchers provide stimuli (lessons encoded into various media) and hope to measure and compare learner response (learning), with the goal of isolating the most "effective medium." Recent scholarship has called for reframing the basic research question from "what do we learn *from* media?" to "what do we learn *with* media?" (Jonassen,

Campbell, & Davidson, 1994; Jonassen & Reeves, 1996; Reeves, 1998). This view of learning acknowledges that students are active participants in the learning process and that various media such as video or computers become cognitive tools by which users can resolve problems. Lowther, Bassoppo-Moyo, and Morrison (1998) refer to this practice as computer-supported instruction (CSI). That is, technology is conceptualized as a tool for learning rather than solely as an instructional delivery system.

Some mass media researchers have asked similar questions. Originally articulated by Katz (1959), uses and gratifications theory asks "what do people do with media" rather than the traditional media effects question "what does media do to people." This change of focus allows researchers to attack the problem from a different perspective by asking different questions. Cross-fertilization between these two fields may prove beneficial since both are concerned with mediated messages. One problem to overcome is how the two fields use the term "media effects." Instructional technology scholars tend to use the term to test and/or describe any supposed effect different media may have over the same content. As mentioned earlier, those studies have typically yielded no significant differences. Many mass media researchers, on the other hand, have developed theories based on research results that support relatively strong effects. However, these theories are based primarily on the content of mass media.

For example, Gerbner and his colleagues (Gerbner, Gross, Morgan, & Signorielli, 1980) conducted a long-running and extensive program of research

on the effects of television. They were primarily interested in the effects of violent programming on viewers. They found that heavy viewers of television over long periods of time develop similar worldviews, roles, and values as opposed to light viewers. It should be noted that heavy viewers were defined as those people who watched four or more hours a day, as opposed to two hours or less a day for light viewers. These effects were manifested over a period of several years. The amount of time research participants interacted with media in these mass media studies far exceeds the one-time, 30-minute treatments often used in instructional technology media comparison studies. Perhaps the extreme differences in the interaction times helps explain mass media's fairly strong effects theories with "the lack of significant difference" in the instructional technology studies.

Medium Theory

Mass media scholars who investigate the effects of a given medium (as opposed to its content or message) are known variously as media determinists, media ecologists, and medium theorists. Medium theory owes its origins to Innis (1951), McLuhan (1962, 1964), and Ong (1982) though none of these scholars used this term. Meyrowitz (1985, 1994) has drawn from these earlier works to frame a theory that argues that, though not the prime mover of all effects, the medium certainly does influence the content of a message. Meyrowitz refers to his work as medium theory to avoid confusion with other media effects research that examines the content of messages rather than the medium that carries them. Scholars who investigate medium effects typically use cultural and

historical analysis to make their arguments as opposed to experimental and quasi-experimental methods. The effects that they report are usually at the societal level as opposed to studies that seek to establish effects at an individual level.

Simpson's (1994) work sought to provide a rationale as to why interactive media (IM) should be used as an instructional device. He examined IM from the dual perspectives of neurophysiological and mass communication research. He argued that there may be both cognitive and neurological reasons that justify IM use. His review of neurological conceptions of memory revealed long-term memory involves permanent changes in the brain's biochemistry (e.g., synaptic connections of neural groups). To effect biochemical changes in the brain, the object of perception must be interacted with over a long period of time. The mere presence of a stimulus may not be sufficient to cause biochemical changes. His review of mass communication literature found that people tend not to learn much from television news even though it is representationally rich. This may be due to low channel correspondence (audio and video information not closely linked) or the fact that people perceive television to be an easy medium and do not invest much effort in processing the information. Simpson argued that since IM requires more interactivity and mental effort than television it stands a better chance of causing biochemical changes in the brain. He admitted his claims were speculative and suggested further studies and experiments that utilized new imaging techniques of brain activity. His analysis may again shed light on why researchers have failed to establish the efficacy of one medium over another –

any effects probably take many years to manifest themselves. Short of any conclusive evidence that "proves" one medium better than another, Clark's (1983) recommendation to make media selections based on economics a sound one.

While the researcher acknowledges that interactive media is a medium of communication, this study instead chose to conceptualize the interactive tutorial primarily as a cognitive tool. That is, this study was concerned more with what students do "with" the medium rather than what the medium does "to" them. Furthermore, it was acknowledged that while computers in education probably do have wide-ranging medium effects (especially at the societal level), this dissertation did not seek to experimentally establish interactive media as a superior medium for instruction. Rather, the goal was to solve a context-specific instructional problem in a timely and cost-effective manner and to test the proposed solution for its usability.

The proposed tutorial was designed to provide a modest amount of interactivity. It, of course, used a variety of symbol systems (text, photos, video, and audio) in an interactive format. The learning content was broken into smaller segments that allowed users to non-linearly access the information they desired. A quiz section was included that prohibited users from advancing to the next question until the correct answer had been obtained. External hyperlinks to more learning resources were also provided. The researcher also hoped to provide a video controller to allow non-linear access to video segments; however, technical constraints prohibited its inclusion.

Within this conceptual framework concerning the role of interactive media in learning and instruction and with full view of the desired goal, this study now turns to the design and development of the interactive media prototype.

CHAPTER III

DESIGN AND DEVELOPMENT OF PROTOTYPE

Drafting a Skill Set

To address RQ 1 (what level of proficiency with PowerPoint can be deemed competent?), relevant public speaking and presentation textbooks were consulted (Andrew, Andrews, & Williams, 2002; Daly & Engleberg, 2001; Lucas, 2004; Osborn & Osborn, 2003). Each of these books contains chapters on presentation aids and the visual elements that go into their construction. Though the terminology differed slightly in each chapter, common elements were identified that PowerPoint handles appropriately. These visuals include textual lists, photographs, illustrations, diagrams, and charts/graphs. Charts and graphs are sometimes defined differently and sometimes used interchangeably depending on the author. For example, the Lucas (2004) text, which is the basis for the custom published text that Com 110 students use at Illinois State University, refers to line graphs, bar graphs, and pie graphs while PowerPoint labels them as charts. The Lucas definition of charts is what PowerPoint labels as tables. Because sources differ on the use of the terms, the researcher decided early on that the CD-ROM tutorial would use charts and graphs interchangeably but would make that clear to the user.

39

Using the common recommendations of these widely adopted textbooks, visual criteria were developed for the presentation authoring skill set. As reported earlier, the current ITPS skill set reflects a minimal competence due to the lack of computers and projection systems in the Com 110 classrooms. The new skill set could be implemented as soon as it is technologically feasible to do so. The newly proposed ITPS criteria (skill set) are to design and deliver an informative presentation with PowerPoint software that includes the following:

- a design template

- transitions between slides

- bulleted text

- animation of at least one screen element

- photographs, diagrams/illustrations, or graphs/charts (at least two of the three types)

Future Com 110 instructors will make note of the presence or absence of these visual elements in their students' informative speeches to determine whether or not they have fulfilled the presentation authoring competency.

Visual Design Principles

Since Com 110 instructors are judging many aspects of their students' speech performances, the ITPS criteria are meant to be extremely low inference. That is, the instructors only note the presence or absence of the visual elements. However, an effective presentation aid relies heavily on good visual design. For this reason, visual design principles must be included in the CD-ROM to aid the user.

Since Com 110 is a general education course taken by all first-year students, it is assumed that most of them are neophytes when it comes to visual design. There is no shortage of good books and resources for graphic artists and other visual specialists that go into great detail on the visual design process. However, most of them are too in-depth and unwieldy to work satisfactorily with the present project. So, to address RQ 2 (how much visual design theory should a non-designer be expected to know?), a source that condensed the extensive design literature down to a few manageable principles was located. Williams (1994) offers four easy-to-understand and implement visual principles:

- proximity – group related items together

- alignment – items should have visual connection with other items

- repetition – repeat aspects of the design throughout

- contrast – if two items are not the same, emphasize the difference

The answers to RQ 1 and 2 (the proposed skill set and the four design principles) provide insight into what skills and content the interactive tutorial should address.

Surveying Intended Users

Every 15th section of Com 110 for a total of five sections was surveyed in the spring semester 2003 about their presentation authoring skills. This survey (see Appendix A) addressed RQ 4 (what are the demographics and current skill levels of the intended users?).

Students' ages were 19 (66%, n=62), 18 (27.7%, n=26), 22 (1.1%, n=1), 24 (1.1%, n=1), and 32 (1.1%, n=1). Three cases were missing. The number of females was 64 (68.1%) and the number of males 30 (31.9%). Freshmen made

up 96.8% (n=91) of the respondents, sophomores 1.1% (n=1), juniors 1.1% (n=1), and seniors 1.1% (n=1). Education majors accounted for 35.1% (n=33) with the remainder classified as "Other" (68.1%, n=64) with one missing case.

To determine the internal consistency of scale items on the survey, a reliability coefficient was computed (alpha=.90). Hocking, Stacks, and McDermott (2003) recommend a reliability coefficient of at least .70.

Education majors differed significantly from other majors in one area (survey item #7). This question dealt with the frequency of delivering presentations using a computer and projector (see Appendix A). Education majors reported having used a computer and projector slightly more often than the other majors (t=2.049, df=91, p<.05).

To determine if students had a preferred method of learning computer/software skills (survey item #5), a χ^2 statistic was computed. If the response items are considered as discreet categories then respondents showed a statistically significant preference for attending a class/workshop. See Table 5. If however, class/workshop is considered one category and the other items are collapsed to create a "self-study" category, then two-thirds of the students can be served by methods other than a class or workshop.

Table 5

Com 110 Students Preferred Method of Learning of Computer Skills

	Observed N	Expected N	Residual
class/workshop	32	18.8	13.2
printed instructions	20	18.8	1.2
web/CD-ROM	11	18.8	-7.8
figure it out on own	21	18.8	2.2
other	10	18.8	-8.8
Total	94		

Note. (χ^2=16.957, df=4, p=.002). Students who answered "other" frequently mentioned learning from a friend or someone else one-on-one.

Regarding their comfort level with creating electronic presentations (survey item #6) , 60.6% (n=57) of the respondents said they were "very comfortable" or "comfortable", while 14.9% (n=14) reported that they were "very uncomfortable" or "uncomfortable." The remaining students were undecided. Table 6 lists the frequency of computer/projector and PowerPoint software use (survey items 7 & 8) and Table 7 shows results for survey items 9-13.

Table 6

Frequency of Computer/Projector and PowerPoint Software Use

	Computer/Projector	PowerPoint
Regularly	15	7
Occasionally	49	66
Never	30	21

Table 7

Self-Perceived Skill Level with PowerPoint Software (Survey Items 9-13)

	Frequency				
Variable	Definitely Yes	Probably Yes	Undecided	Probably Not	Definitely Not
#9 Template, Text, Photos	42	39	4	8	1
#10 Transitions	34	31	13	13	3
#11 Animation	31	33	8	16	6
#12 Drawing Tools	21	39	15	16	2
#13 Data Graphing	28	41	11	10	3

The results of this survey reveal that most Com 110 students are traditional college freshman and that over one-third of them are education majors – the primary audience for the CD-ROM tutorial. Furthermore, the survey revealed that most of the students are confident in their ability to both design and deliver an electronic presentation using PowerPoint software. However, there are still many students who currently lack these skills. It should be noted that the students did not receive any PowerPoint training in their Com 110 classes. Any expertise they may have had was obtained from another training source.

As noted earlier, if the response categories for training preference are considered discreet, then students expressed a preference for class/workshop training which is the most expensive and time-consuming method for delivering this type of training. Since this is not economically possible at the current time, and using Clark's (1983, 1994) argument that it is method and not medium that enables students to learn, alternative and more economical forms of instruction must be created. The proposed CD-ROM may not be the first choice of survey respondents, but those that expressed a preference for printed instructions can be accommodated with this medium as well. Class/workshop respondents numbered 32, while "printed instructions" and "web/CD-ROM" respondents total 31 when summed. Ostensibly, the rest of the respondents could rely solely on themselves or friends to learn the required tasks (see Table 5). These findings contributed to the interactive tutorial design by suggesting the need to include printed instructions. Printed instructions for the PowerPoint tasks were included on the prototype CD-ROM under the "Resources" section.

The Development Process

Armed with data about the intended audience for the training, this research then shifted into the development process with reference to the design and evaluation principles listed in Tables 2 and 3. The rest of this chapter will describe this process. Here were the development stages:

- Producing the Presentation Video

- Designing the CD-ROM Interface and Non-Video Content

- Producing the Instructional Videos

Producing the Presentation Video

Park and Hannafin's (1993) tenth interactive media design principle (see table 2) is "transfer improves when knowledge is situated in authentic contexts' (p. 68). Palmer and Rhodes (1997) also recommend meaningful application and examples of performance (see table 3). Therefore, a sample speech was written and a PowerPoint presentation was designed to address these principles. This speech (that met both Com 110 and ITPS expectations) was videotaped and later included on the CD-ROM. Other videos on the CD-ROM demonstrated how the electronic presentation was created.

In order to maintain consistency across all sections of Com 110, course directors have developed extensive criteria for what constitutes an "A" presentation (Metts, Simonds, & Hunt, 2003). Therefore, the speech was written with close adherence to these criteria so that students who use the CD-ROM will not only view the performance the ITPS expects but that of their Com 110 instructor as well. Furthermore, the PowerPoint presentation that was created

rigidly adhered to both the proposed ITPS requirements and the four visual design principles outlined in the previous section. Three types of visual communication were used to support the content in the presentation: a diagram, a line graph, and several photographs. It was decided that the tutorial should train for the Windows Office XP version of PowerPoint since it was the latest version at the time and the one most likely to be found in university computer labs.

A speaker was then recruited to deliver the speech while using PowerPoint in a Com 110 classroom. A graduate teaching assistant who had previously taught the course and was a past national champion speaker on the ISU Forensics team was available. Prior to videotaping, he was given the manuscript and PowerPoint file to rehearse. Since the speech was supposed to be extemporaneous rather than delivered from a manuscript, the speaker created an outline from which to speak. Writing a speaking outline is part of the informative speech assignment in Com 110, so the researcher decided to include the outline as a printable document on the CD-ROM. Again, this was to adhere to the design principle of providing examples of expected performance. The dual column aural/visual script provided to the speaker is included in Appendix C. The outline that was included on the CD-ROM can be found in Appendix D.

Since the CD-ROM would revolve around the informative speech performance; writing the script, creating the PowerPoint presentation, and videotaping the speech became the first tasks in the development process. The

software for designing the CD-ROM interface and a video delivery system were yet to be determined.

After the speaker had a few days to rehearse and the PowerPoint presentation was completed, the speech was videotaped in a Com 110 classroom. Lighting had to be carefully controlled to keep the video lights from spilling onto the projected computer image on the screen. The video was shot with a Sony DSR-PD150 camcorder. This is a semi professional three chip camera that uses the DVCAM tape format. Audio was recorded with a Sony ECM-77B electret condenser – a high quality lavaliere microphone.

The speech was videotaped several times so that alternative takes would be available during the editing process. A Com 110 course director was at the shoot to ensure that the speaker fulfilled all of the requirements for an "A" presentation. Because the informative speech is supposed to be extemporaneous rather than read or memorized, course directors do not expect an "A" speech to represent a flawless performance. Rather, it addresses all of the criteria for form, content, and performance as outlined in the students' course packet. The speech, as videotaped, did include a few vocal mistakes, but it still met the "A" criteria and thus was a good example of expected performance.

The video was then captured in a personal computer running Windows XP utilizing a Sony DSR-11 DVCAM digital videocassette recorder and an IEEE 1394 computer port. Adobe Premiere 6.5 software was used for video capture and editing. The video was captured at the DVCAM native resolution of 720 x 480 non square pixels at 29.97 frames a second. Compression to a data rate and

resolution suitable for CD-ROM playback would come after completion of editing.

By working in this manner there are several distribution options for

"multipurposing" of content. By retaining the original resolution, the video could

also be distributed on videotape or DVD and then compressed for smaller

bandwidth delivery such as CD-ROM and the internet later.
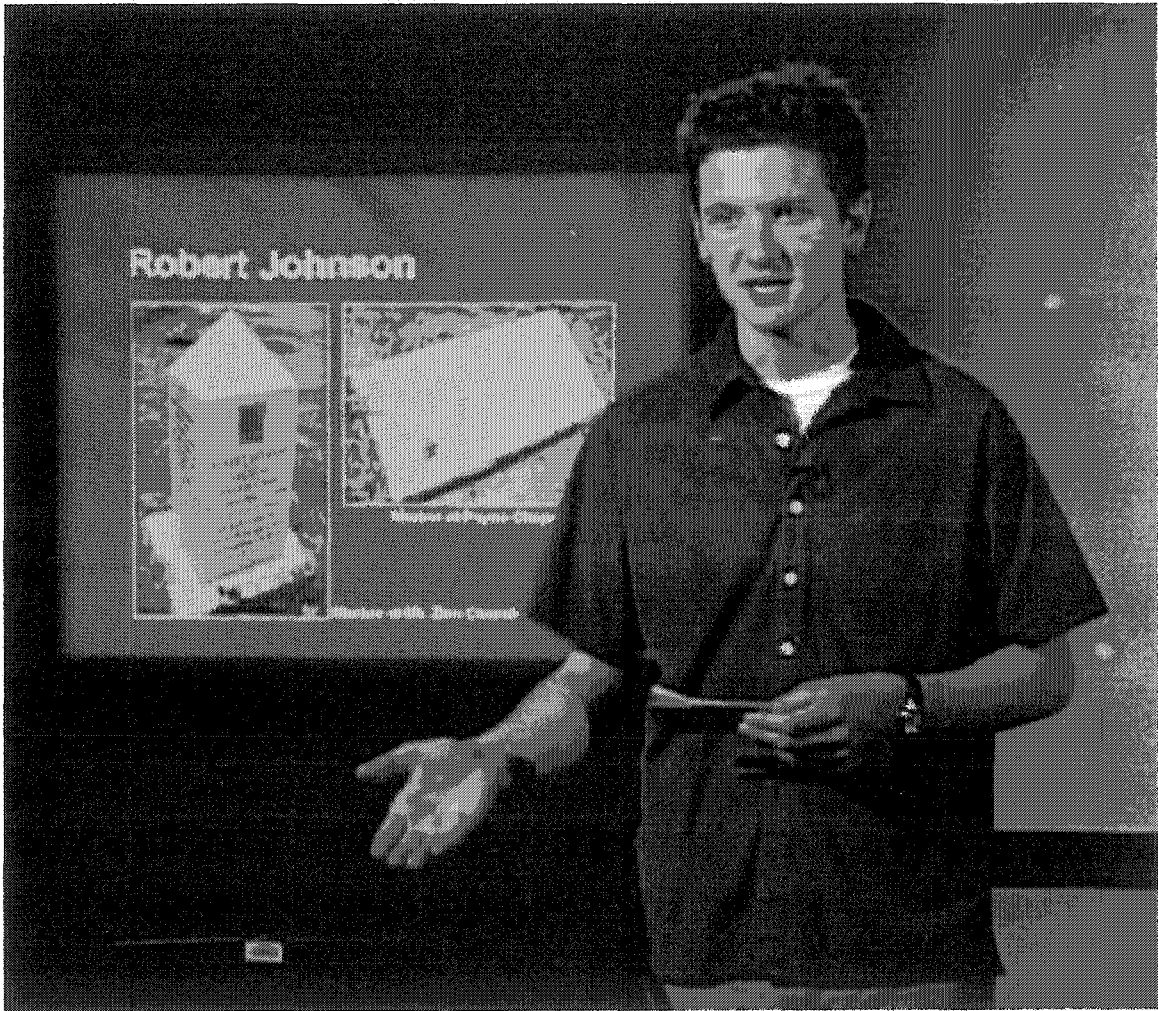
Fig. 2. Speaker Delivering Informative Presentation with Laptop Computer and

Projection System in a Com 110 Classroom

Prior to video editing, the each slide in the PowerPoint presentation was exported as a TIFF file so that they could be edited into the speech performance. However, when the researcher tried to use Adobe Photoshop for further processing of the slides, the files would not open. Slides were then exported from PowerPoint as BMP files. The files were then opened and sized to 720 x 540 square pixels in Photoshop for importing into Adobe Premiere. Recall that the DVCAM footage is 720 x 480 non square pixels. The 720 x 540 graphics imported into Premiere are resampled to the project's resolution and pixel ratio resulting in the proper aspect ratio with no image distortion.

After editing was complete, the timeline was exported at the full DV resolution to create a movie file that could then be compressed for CD-ROM playback. The resulting AVI file was 1.8 GB. It is possible to compress right from the timeline using the export options built into Premiere, but better results can be obtained by using stand-alone compression software. The AVI movie was imported into Sorenson Squeeze 2.02 for compression into a QuickTime movie suitable for CD-ROM playback. The file was first compressed using the default parameters for CD-ROM in Squeeze. See Figure 3.
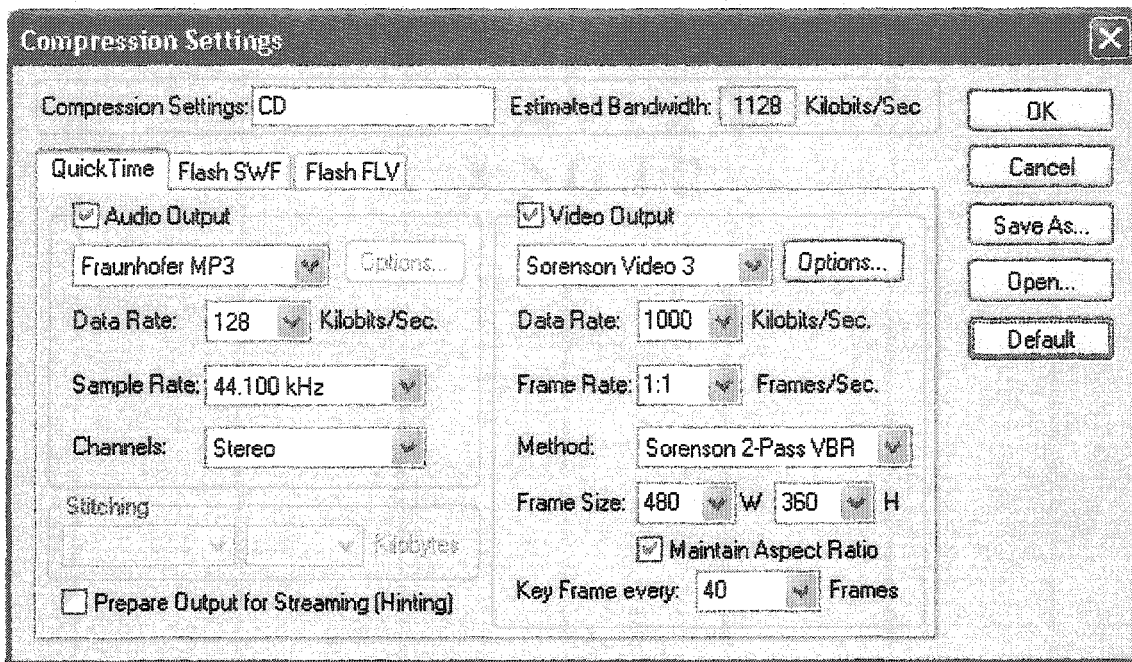
<u>Fig. 3.</u> Default Compression Settings in Sorenson Squeeze for CD-ROM

Playback

The default method of compression is two pass, variable bit rate encoding.

It is this feature that makes stand-alone compression software such as Squeeze

superior to the tools built into Premiere. Basically, compression works by getting

rid of redundancy in the picture. High motion video contains very little redundant

material. By using this method the software first examines the file and makes

note of where different amounts of motion occur. It can then selectively apply

differing amounts of compression in different parts of the video. Premiere only

allows for constant bit rate encoding – applying the same amount of compression

to each and every frame. Notice that the default audio output is stereo and that it

is the same sample rate used for audio CDs. For video, the frame rate is 1:1 (or,

in this case, 29.97 frames per second). The frame size is 480 x 360 square pixels

and the video data rate is 1000 kilobits per second. The resulting file was almost

70 MB. The quality was good, but it was feared that some users' machines might

have trouble with smooth playback of a file that large. Therefore, the output

settings were edited to reduce bandwidth and file size. See Figure 4.
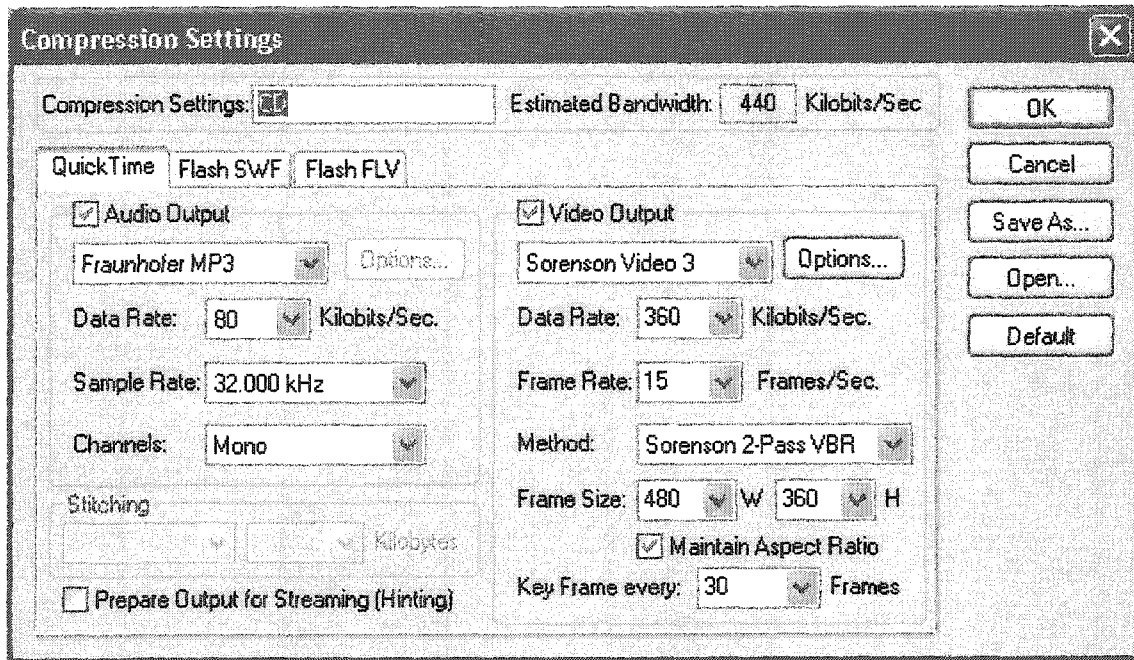
Fig. 4. Edited Settings in Sorenson Squeeze for CD-ROM Playback

The data rate for both the audio and video were reduced as was the audio

sample rate and video frame rate. Audio was converted to mono since it makes

little sense to have a single human voice as a stereo file. The method of

compression and frame size were held constant. The resulting video file was just

under 27 MB and did not appear to differ drastically from the much larger 70 MB

file. Because the smaller file would take less computing power on end users'

machines and did not negatively alter the content, the researcher decided that all

of the video segments in the CD-ROM would use the edited settings just described.

<u>Designing the CD-ROM Interface and Non-Video Content</u>

Originally, the researcher planned to create an interface for the CD-ROM that would run inside a web browser and would play QuickTime movies right inside a web page. The thought behind this was that the interactive tutorial could be migrated onto the web with minimal effort at a later date. JavaScript would be used to lock the window size and to hide browser controls so that the end user would perceive the CD-ROM to be an enclosed environment. This method would enable the researcher to control the look and feel of the interface.

Thus, the original design was laid out in Photoshop 6.0 at a pixel ratio of 760 by 570. This would allow the whole window to be viewable on a minimum screen resolution of 800 x 600 and it would retain the 4:3 aspect ratios of both the computer monitor and the video segments. The layout was designed to have navigation areas and a content area that would contain the 480 x 360 videos as well as graphics and text. The layout was sliced in Adobe Image Ready and the slices converted into tables to import into an HTML page. See Figure 5.
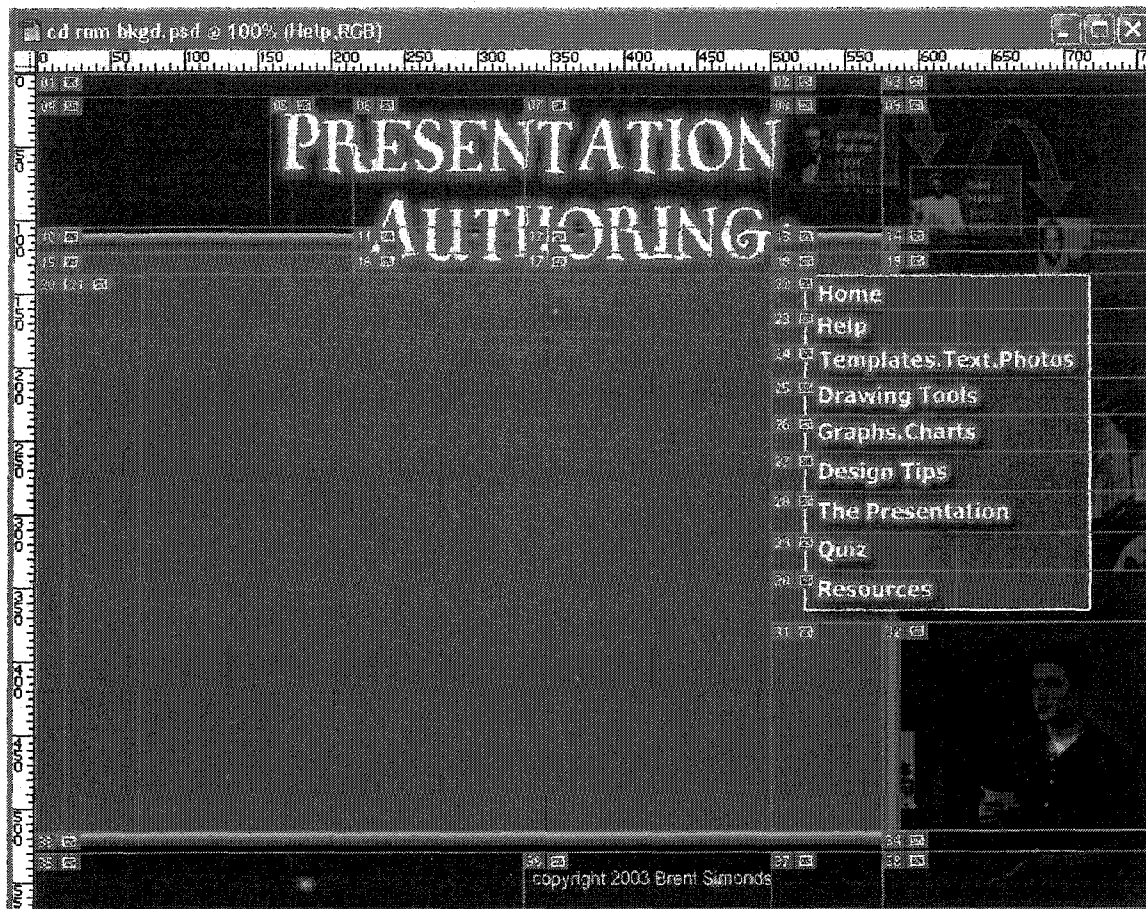
Fig. 5. Layout for CD-ROM Interface Designed in Photoshop and Sliced for HTML Tables

Dummy pages with navigation intact were mocked up in Macromedia Dreamweaver 4.0 and the presentation video file was inserted. Though the look and navigation worked as expected, video performance did not. Any time a user would enter or leave a page that contained the video file, it would take several seconds for the video to appear. Several workarounds produced no usable results. This type of delivery would have to be abandoned.

Macromedia Director is often used for this type of work and is a good choice, but the software was not available to the researcher. Macromedia Flash

MX has recently added the ability to play video files within its player, so it was considered as an option. However, most video tutorials on the Macromedia web page do not use this method, but rather use QuickTime movies, indicating that the Flash player cannot deliver that much video. In fact, the Macromedia web site suggests keeping video clips extremely short and to limit each Flash file to only one clip. Clearly, the Flash player could not deliver the amount of video required for this CD-ROM.

Another option was to import QuickTime movies into Flash where the interface could be built and additional text and animation could be created. The resulting Flash file could then be saved as a QuickTime movie to be played back in the QuickTime player. The QuickTime player and architecture not only allow for QuickTime video playback, but can playback a Flash track (among others) as well.

The original artwork created in Photoshop was imported into Flash (without the textual navigation elements) as a PNG file. The QuickTime movie of the informative presentation was also imported. Text buttons and navigation were created in Flash and dummy pages for the various sections of the tutorial were built. Basic controls for the video were also created (play, pause, and rewind). The Flash MX file was then exported as a QuickTime movie. The movie was opened in QuickTime player and its navigation and performance tested. Video playback was solid and responsive. Navigation was quick and performed as expected. See Figure 6.
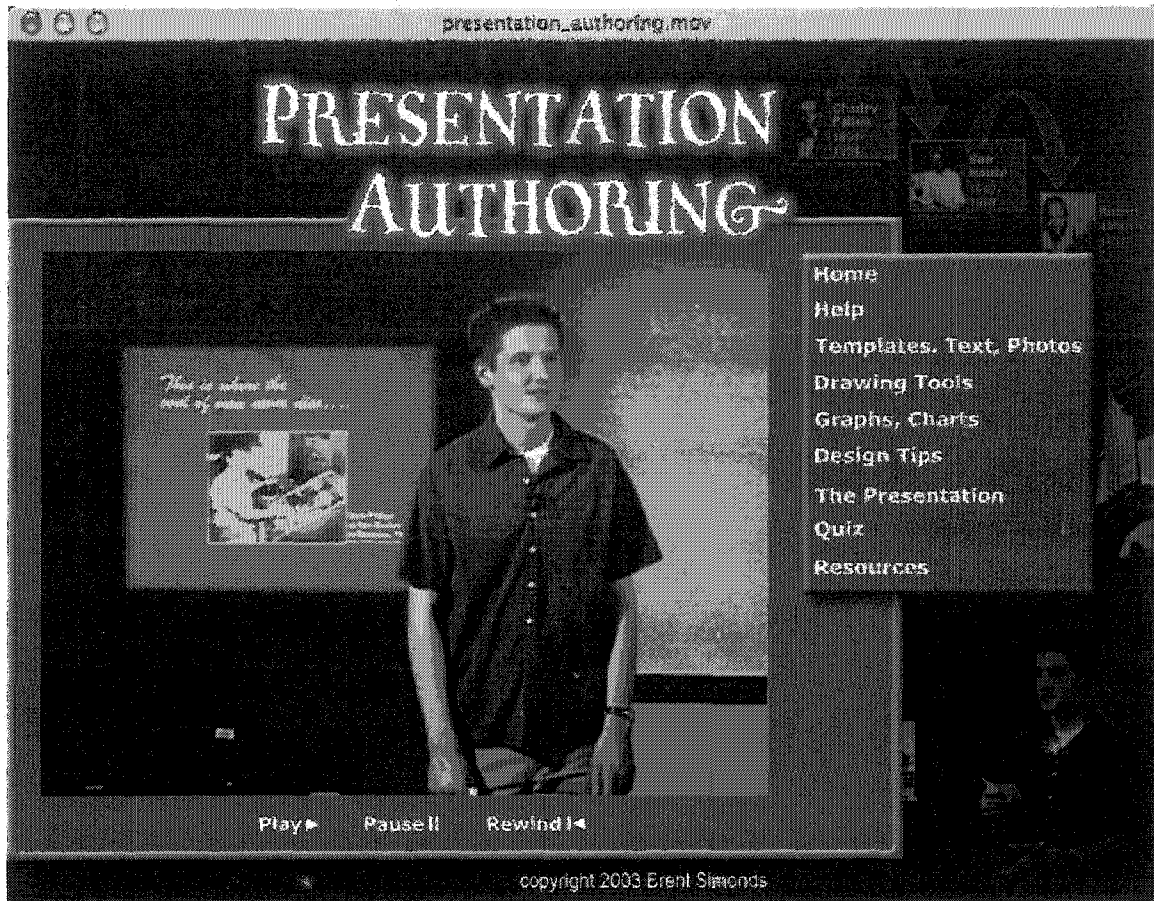
<u>Fig. 6.</u> QuickTime Movie with Flash Track that Enables Interactivity and

Navigation

One drawback to this method is that the QuickTime player only supports

Flash 5 features and not the latest features found in Flash MX. Some of these

features include advanced video playback controls that allow users to jump to

any portion of the video they desire, as well as advanced quiz interactions. It was

also noted during preliminary tests that when positioning the cursor over a button

that the cursor did not change its shape (into a hand for example) as it did in the

Flash player. This anomaly only occurred on Windows machines. The cursor did

change as expected on Macintosh machines. However, text links did not exhibit

any visual feedback properties on either Windows or Macintosh machines. At this point RQ 3 was tentatively answered (what is the appropriate authoring system and distribution medium for delivering this training?).

The only thing necessary on the user's end for playback is the latest QuickTime player available for free on-line. In the event that the end user did not have the necessary player, a "readme" file was included on the CD-ROM giving instructions about where to find and download the player. The cover of the CD-ROM also directs users to the readme file should they encounter problems.

At this point, content was created in Flash for pages that did not require video. The "Home" section explains what the ITPS requirements are, covers the contents of the CD-ROM, and directs students to view the "Resource" section for more information and other CD-ROM features. The "Home" section is comprised of two separate screens. See Figures 7 and 8.

Fig. 7. Screen 1 of 2 in "Home" Section
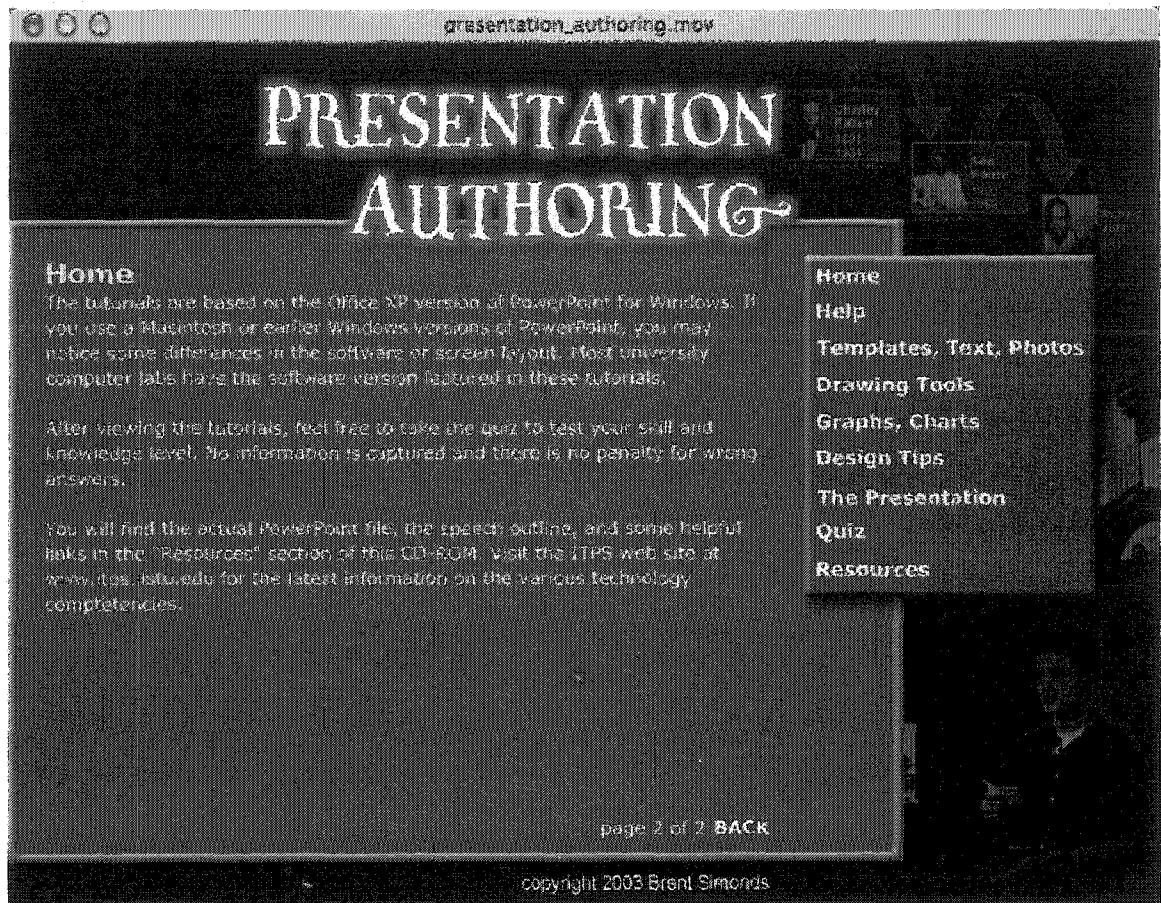
Fig. 8. Screen 2 of 2 in "Home" Section

The "Help" section contains information on downloading the QuickTime

and Flash players as well as the Adobe Acrobat reader, so that users can access

the speech outline and printable versions of the tutorials covered in the video

sections of the CD-ROM. A link is also provided to the ISU Help Desk. See

Figure 9.
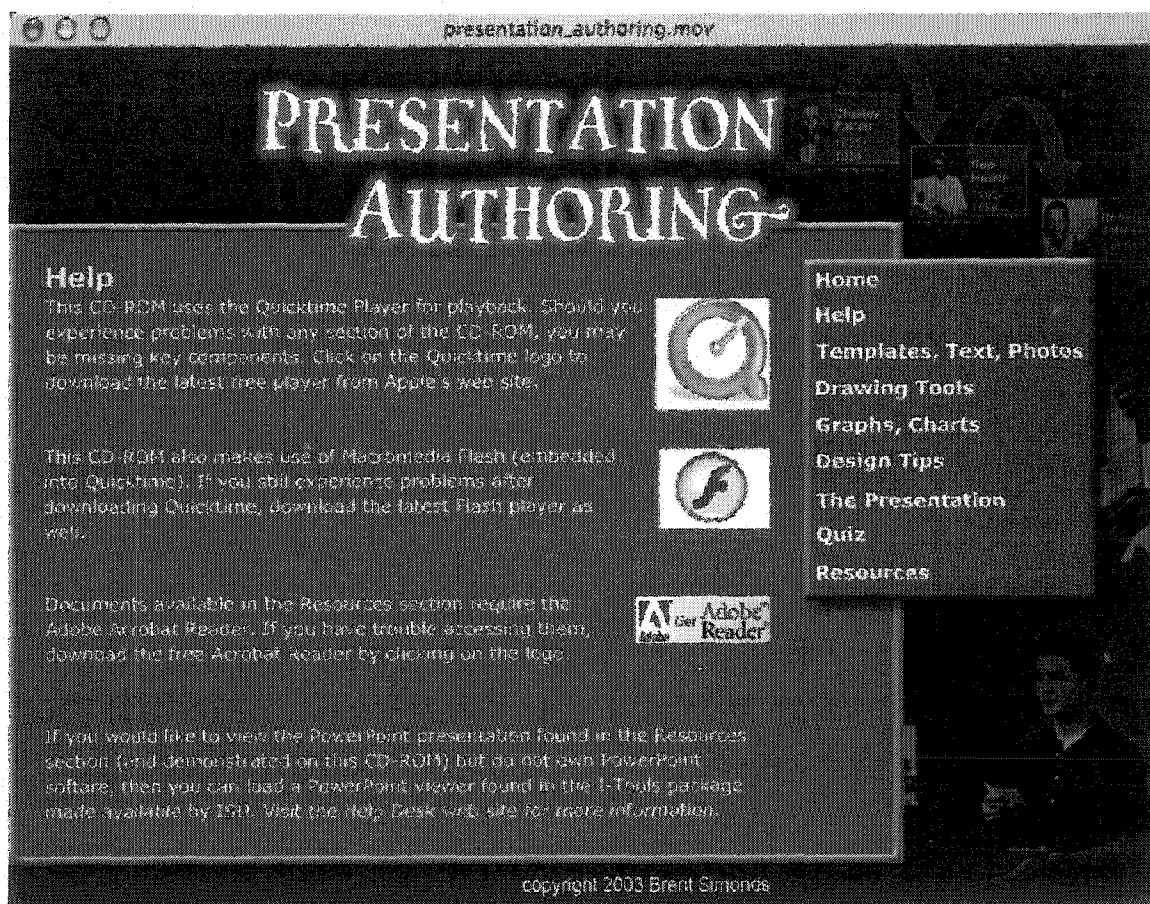
Fig. 9. "Help" Screen Directs Users to Web Sites for Free Downloads

The "Design Tips" section is comprised of five screens — an introductory screen and one for each of the four design principles covered: proximity, alignment, repetition, and contrast. See Figure 10.
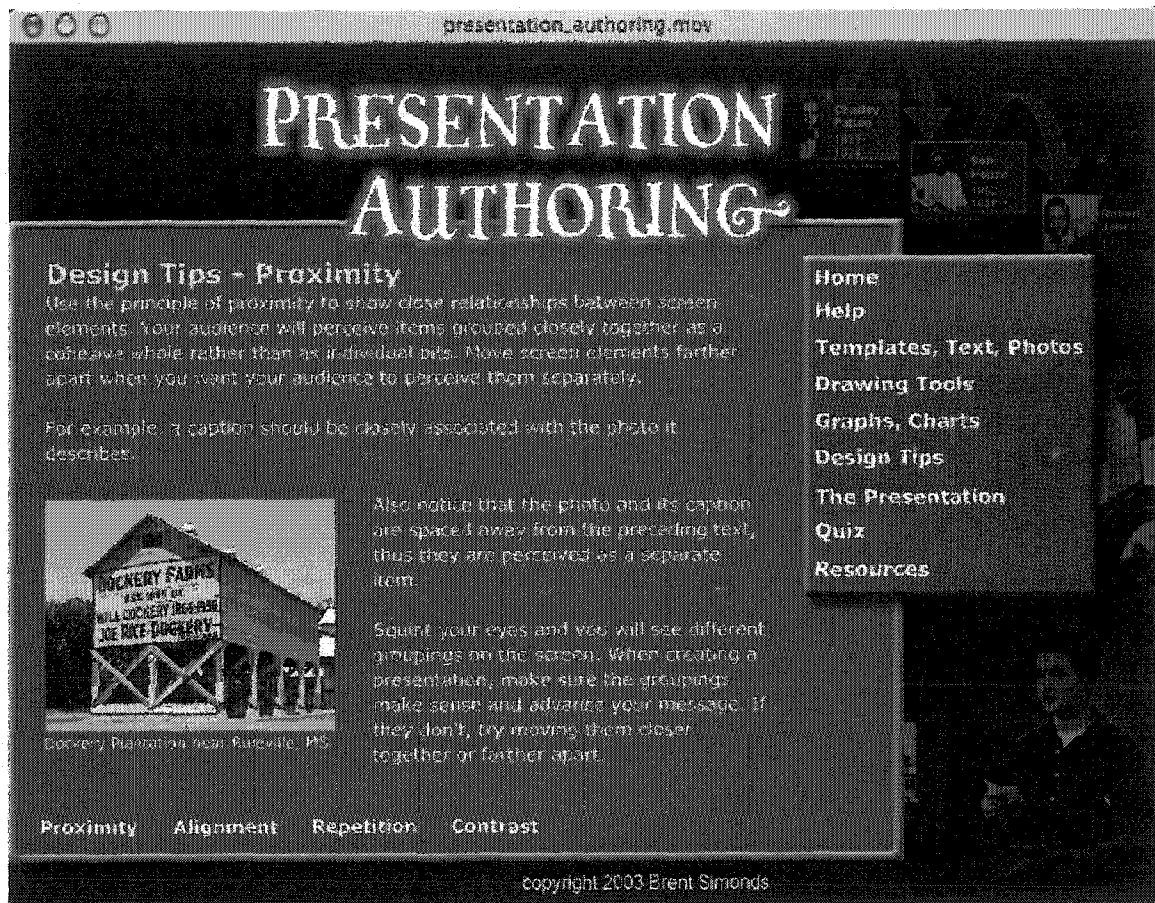
Fig. 10. "Design Tips" Screens Illustrate Four Visual Design Principles

The quiz section contains 10 questions drawn from the four videos on the CD-ROM:

- Templates, Text, Photos

- Drawing Tools

- Graphs, Charts

- The Presentation

Questions are drawn from the "Design Tips" section as well. Question types include true/false, multiple choice, and clickable areas of the screen. An incorrect response will prompt feedback for the user to try again. A correct response will give them additional information plus an opportunity to continue. None of the quiz data is captured and users are not penalized for incorrect responses. This is consistent with Palmer and Rhodes' (1997) principle "opportunities for success." That is, users should be able to make errors without incurring a penalty (see Table 4). Figure 11 shows a correct response after a user clicked on the correct menu item.
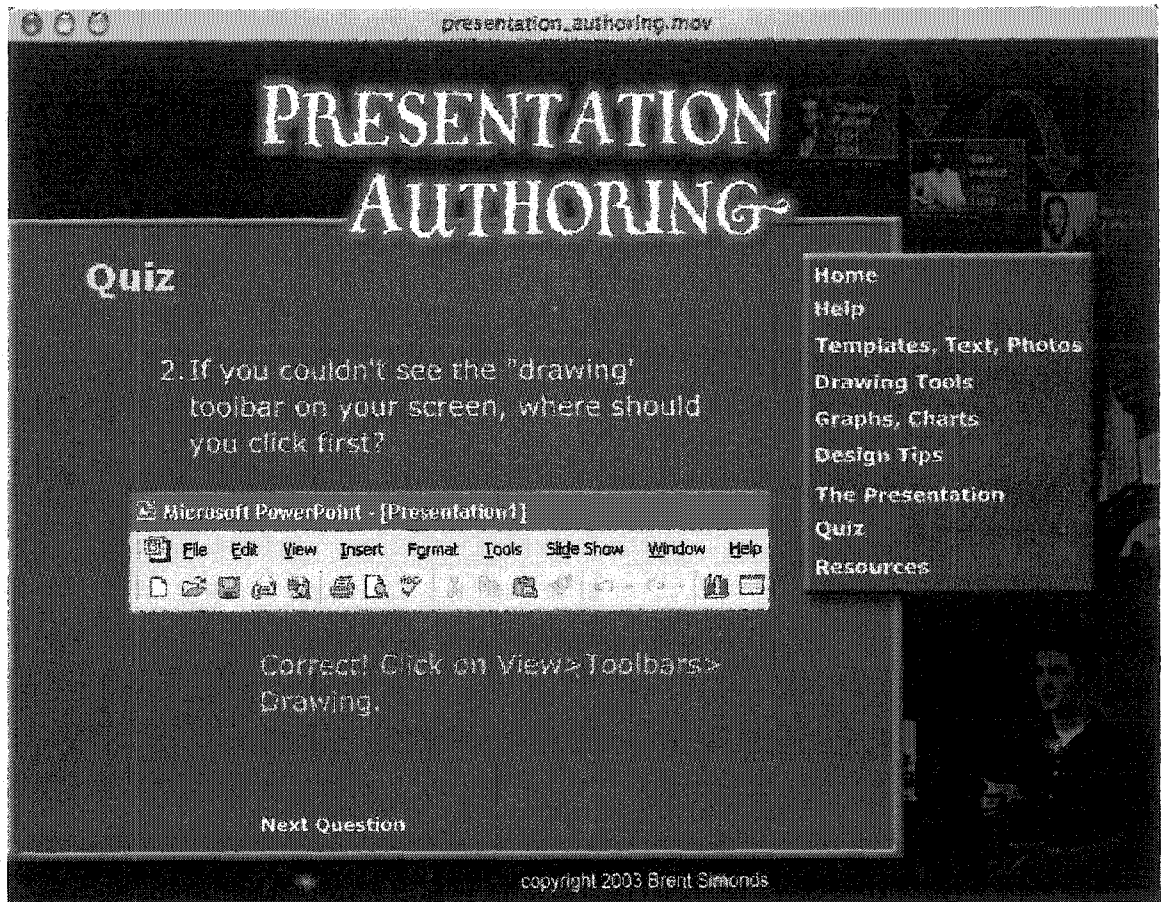
Fig. 11. Users Cannot Advance in "Quiz" Until They Select Correct Answer

The "Resources" section provides links to additional items on the CD-ROM as well as to web links that will aid users in creating electronic presentations. CD-ROM resources include the PowerPoint file used in the informative presentation (so users can see more closely how it was constructed), the speech outline (appendix D), and printable tutorials that teach the same skills as the videos (appendix E). See Figure 12.
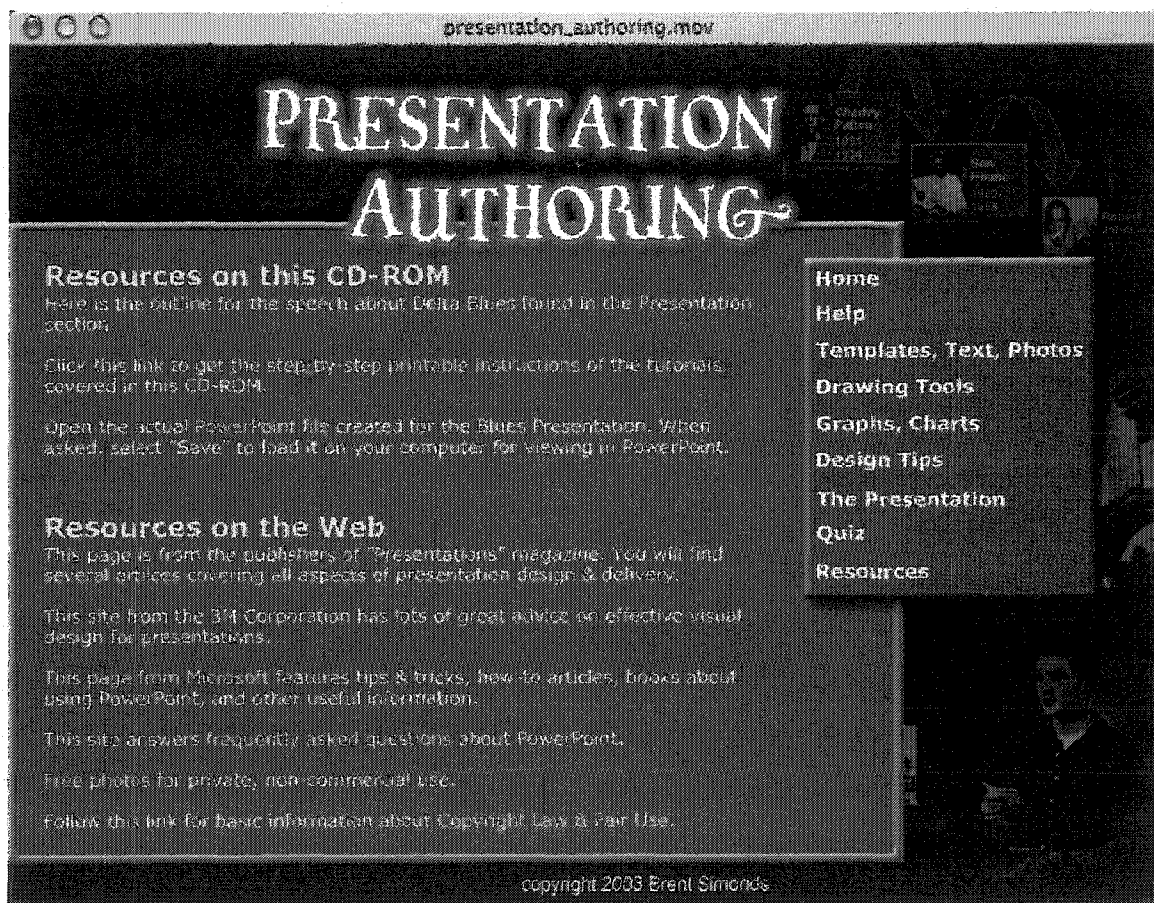
Fig. 12. "Resources" Screen Directs Users to Resources on CD-ROM & Web

<u>Producing the Instructional Videos</u>

After completing the Home, Help, Design Tips, Quiz, and Resources sections in Flash, the development effort turned toward producing three videos that would instruct users how to create the visuals included in the presentation video. The instruction was grouped into three units to address each type of visual support that is required by the new ITPS skill set: photos, diagrams/illustrations, and graphs/charts. Three separate video scripts were written that would address how to accomplish the criteria called for by the presentation authoring competency (see appendixes F, G, & H).

The audio for these three videos was recorded with an AKG C 2000B condenser microphone running into an M-Audio Duo microphone preamplifier. The Duo is an audio device that connects to a personal computer via a USB port. Sonic Foundries Sound Forge 5.0 was the audio recording/editing software used. The audio was recorded at 48,000 hertz to match the audio from the Sony DVCAM camcorder so that the tutorial videos could be distributed on videotape or DVD in addition to the CD-ROM. The audio sampling rate was reduced to 32,000 hertz during the video compression stage. After editing, files were also burned to an audio CD to use as reference during videotaping.

To capture the screen activity necessary for the tutorials, the researcher videotaped a flat screen computer monitor to avoid issues with rasterizing on cathode ray tube (CRT) monitors that give the appearance of a rolling screen. The same Sony camcorder that was used to record the informative presentation was used. Screen capture software was considered for creating the movies, but

ultimately rejected because it would not be feasible to distribute the tutorials on videotape if this method was used. Many elements on computer monitors exhibit jitter when exported to video and the colors are often out of the legal gamut of NTSC video. Videotaping the flat screen with a video camera avoided these pitfalls and allowed for easy framing of different parts of the computer screen.

After videotaping was completed, the audio and video tracks were captured in Premiere for editing. The edited movies were compressed in the manner used for the informative presentation. The compressed movies were imported into Flash and placed into their proper locations. The completed Flash file was then exported as a QuickTime movie. The completed movie was 107 MB. Alpha testing revealed that all of the navigation, content, and videos were ready to move to beta with a focus group drawn from summer 2003 Com 110 classrooms. See Figures 13, 14 and 15 for screen shots of the instructional videos.

The next chapter describes the procedures, tasks, and reactions of the focus group users to this interactive media tutorial.
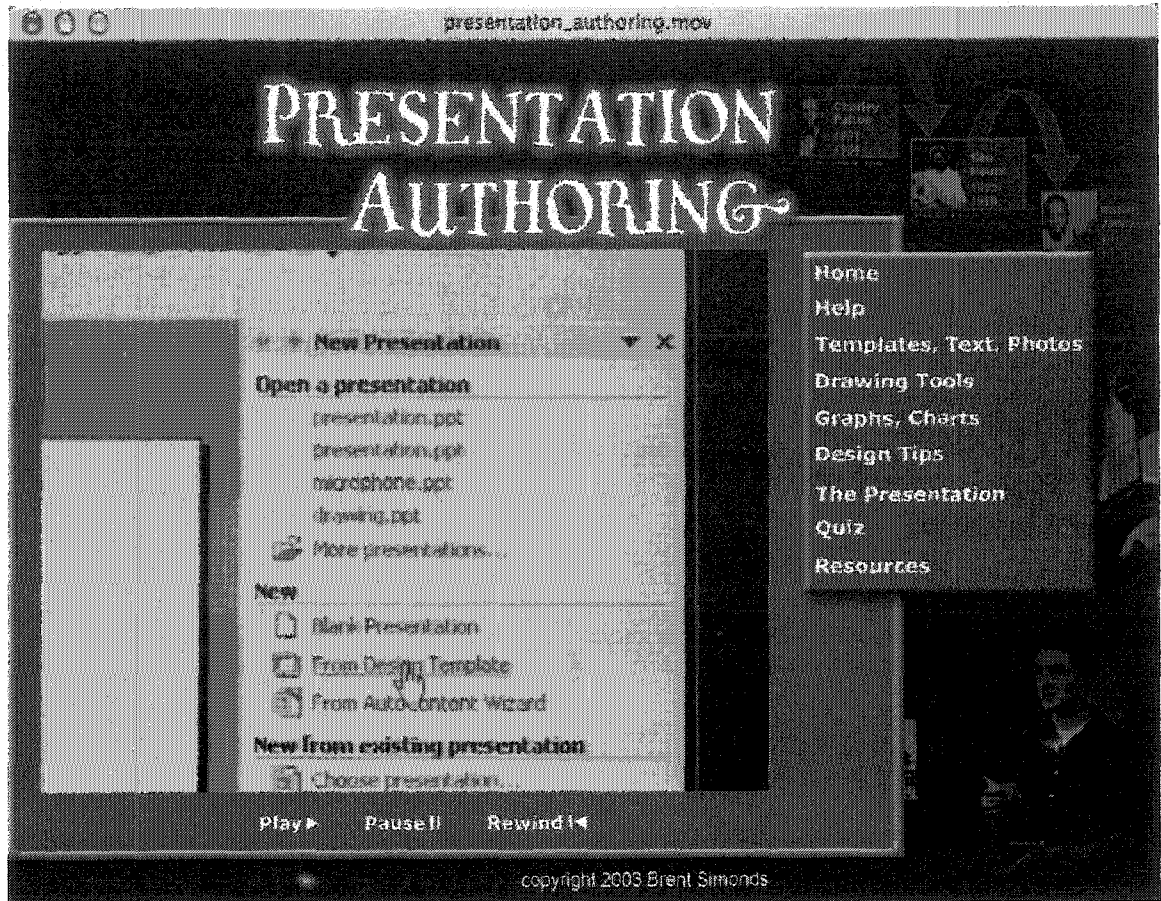
Fig. 13. Screen Shot from "Templates, Text, Photos" Video
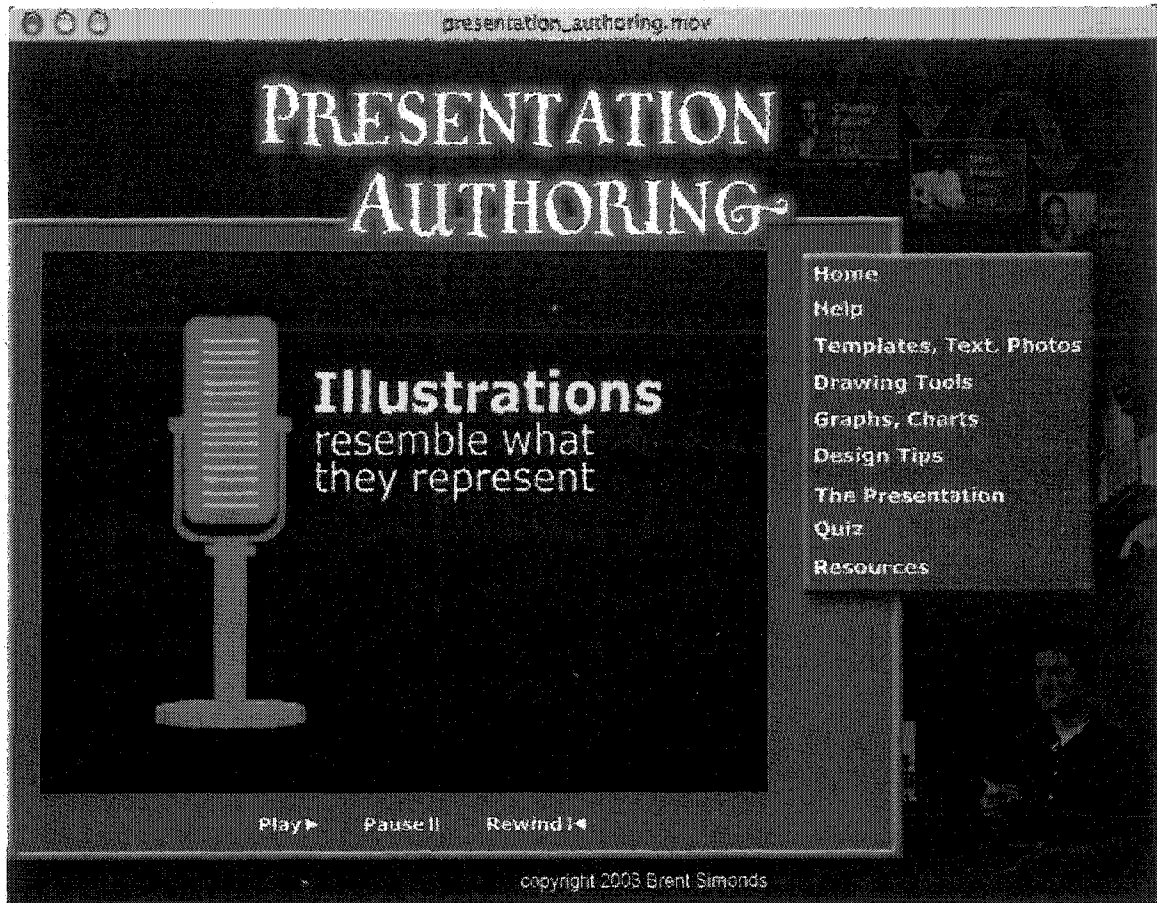
Fig. 14. Screen Shot from "Drawing Tools" Video
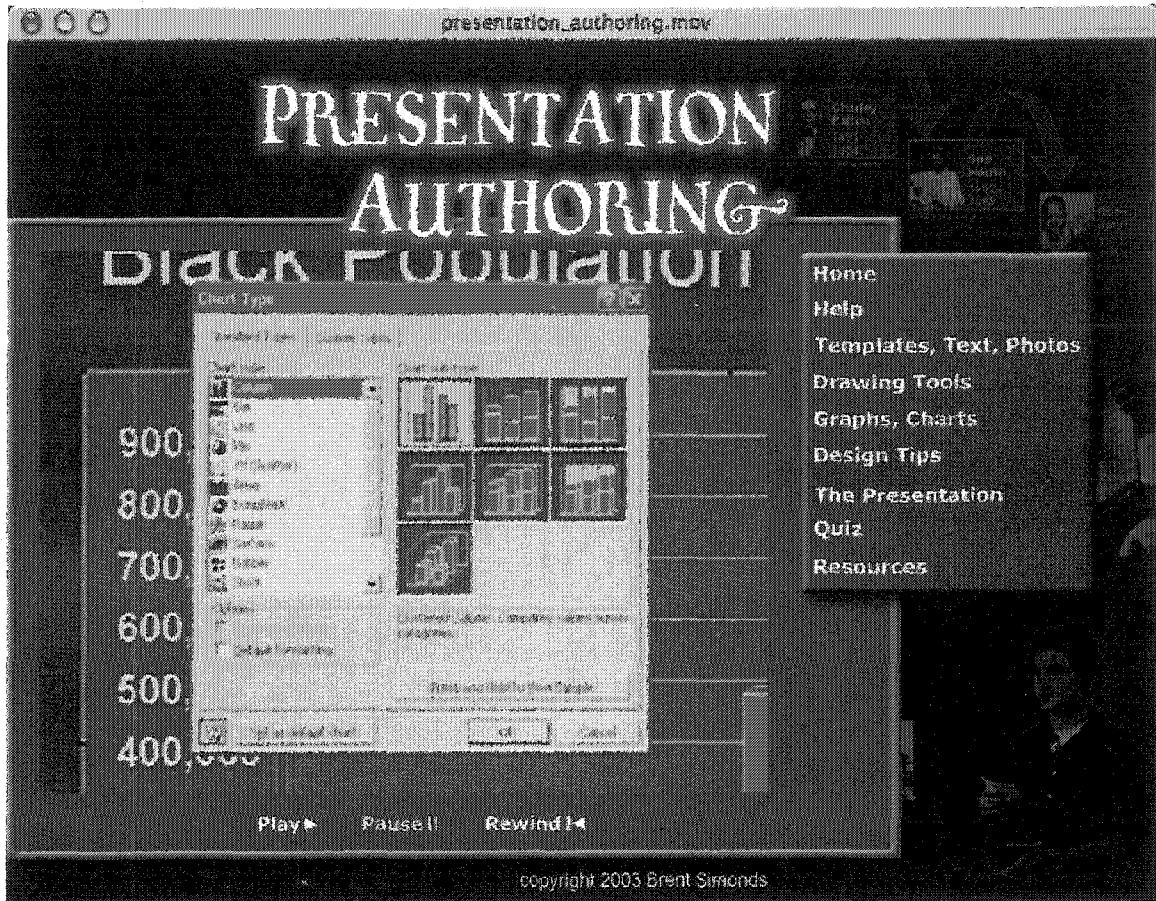
Fig. 15. Screen Shot from "Graphs/Charts" Video

CHAPTER IV

USABILITY TESTING WITH FOCUS GROUP

Interacting with the Prototype

To test the prototype, a focus group was drawn from Summer 2003, Com 110 classrooms. Users were recruited from two sections on the second day (Tuesday) of the semester. Course instructors had gone over the ITPS requirements with the students on the first day of class (Monday) and mentioned that the researcher would be recruiting participants the next day. Recruitment involved visiting the classes and informing students about the nature of the research. They were told that the testing would take two hours (from 10:00 a.m. until noon) the following Friday. As an incentive, the researcher told classes that laptop computers and data projectors would be made available in their classroom for their use during informative presentation days – a benefit not usually made available to Com 110 students. Also, lunch would be served after testing. A total of nine students signed up to participate in the focus group. On Thursday, the course instructors again reminded those students that had signed up about the testing. An e-mail was sent out Thursday afternoon by the researcher to thank volunteers and to give them times and directions.

On Friday, four students came to the computer lab to participate. The researcher read the informed consent form to those present and told them the

70

order of events. First, they would use an interactive tutorial on CD-ROM and then complete a short on-line survey about the experience. At that point, they would be given the task of creating a short electronic presentation (see Appendix I). Finally, they would be interviewed on videotape about their reactions to the program.

Each participant was given a CD-ROM that contained written instructions on its cover about how to start the program. Three of the users inserted the CD-ROM and began the interactive tutorial with no problems. One user inserted the CD-ROM and began clicking around the desktop to no avail. At this point, the researcher intervened and indicated that instructions were printed on the CD-ROM cover. The user complied and was soon using the program. The researcher observed the participants as they used the system and noted that they all accessed the information in a linear manner. That is, they started with the top link and followed the links down in a step-wise fashion. Once they began using the tutorial, no questions were asked and no one had trouble with navigation. The researcher did note that at the end of "The Presentation" video that instead of stopping, the video looped into the first tutorial, "Templates, Text, Photos." This was a programming error not caught during Alpha testing. It did not seem to bother the participants as they just paused the movie and then moved to a different section that they had yet to view. The total time the users interacted with the program ranged from 38 minutes to 45 minutes.

Mallard On-Line Survey Results

The participants were then directed to an on-line Mallard survey to answer questions about the program anonymously (see Appendix B for survey questions). The survey results revealed that none of the users were education majors. Reactions to the program were highly favorable. Two found the printed instructions to start the program "extremely easy" and the two others found them "easy." Three users found the on-screen directions "very helpful" with the fourth finding them "helpful." Three users said it was "extremely easy" and one said "easy" to find the information they needed on the CD-ROM. Three users said the program "always" behaved predictably and one said "occasionally." Three users "strongly agreed" and one "agreed" that the videos prepared them for the quiz section. See Table 8 for the rest of the results on closed-ended items.

Table 8

Results of Focus Group On-Line Survey Closed-Ended Questions

	Definitely Yes	Probably Yes
Using this tutorial to guide you, could you:		
• create an electronic presentation using PowerPoint that contained a design template, text, and a photo?	4	
• add transitions between slides in a presentation?	4	
• animate elements on a slide in a presentation?	4	
• use PowerPoint's drawing tools to create an illustration such as a diagram?	3	1
• use PowerPoint to create a graph if you had data to present?	4	
If you tried to run this CD-ROM on a different computer and ran into a problem, do you think you could use the given resources to resolve the problem?	3	1

The participants also answered short open-ended questions on the Mallard survey. The results are in Table 9.

Table 9

Results of Focus Group On-Line Survey Open-Ended Questions

Questions	Users Answers
Strengths of this program?	• Well organized, lots of information
	• The program was very user friendly. Instructions were very informative on styles of presentations and slides.
	• The program moves at the perfect speed to follow along with each and every step of the process of creating a PowerPoint presentation. Also, I appreciate the feature of being able to go back to previous information if I missed or did not clearly understand something.
	• Very thorough. Laid out in a logical and sensible manner, very easy to follow and easy to navigate to whatever section you are looking for.
Weaknesses of this program?	• The weakness was my lack of computer literacy.
	• I do not believe that it is a matter of weakness. The program is very well put together.
	• The only weakness I can think of is that when the on screen mouse is completing a step while voice directions proceed to another point or give more information, it can be distracting.
	• A lot of info thrown at you at once, but if you run into difficulties, you can always refer to the appropriate section and find the solution.

(table continues)

Questions	Users Answers
Any other thoughts?	• I found the tutorial of be eye-opening and see it as a great tool to build on as well.
	• None at this time.
	• I think that this program is great. I use PowerPoint for almost every class and I think that PowerPoint should be more involved in every class at ISU. I was fortunate enough to have gone to a PowerPoint-crazy high school in which after my sophomore year there, PowerPoints were required for speeches, presentations, and sometimes as follow-up to a research paper. When I came to ISU, I was shocked at how few people knew how to work with PowerPoint, and I feel that with this program, students who weren't lucky enough to have gained the experience I had in high school to catch up with the times.
	• Very useful program, very informative for someone with no prior knowledge to PowerPoint, like me. Extremely professional program.

Focus Group Presentation Task

After the four users completed the on-line survey, they were handed a

sheet of paper describing a presentation task that if completed successfully

would fulfill the proposed skill set for presentation authoring competency

(appendix I). The participants were provided the information and data to place in

their electronic presentations. The assignment required a presentation based on

a design template and consisted of three slides that contained headings, bullets,

a photo, a diagram, and a vertical cylinder bar chart. The photo was placed on

the desktops of the computers in the Fell 108 computer lab. The users were

required to group the photo and its caption and add an entrance animation effect to the group. Transitions were required between all slides.

All users were instructed to work alone and try to find answers to their questions on the CD-ROM without consulting each other or the researcher. Three of the users set about the task without going back to consult the CD-ROM. One user, a male, would work on the presentation for a while and then go back to the CD-ROM to gather information. When this user went to access particular movies, the researcher noted that he would try to click on the preview graphic in the movie to try and navigate the movie itself (see Figure 16). Unfortunately, for this user, the only video controls available were play, pause, and rewind. He was unable to skip to the section of video he desired. As noted in the previous chapter, Flash MX has an advanced video controller available, but this feature is not yet supported in QuickTime and consequently did not make it into the prototype. What this user perceived the preview graphic to be was a hyperlinked index that would allow him to jump to different parts of the video. A hyperlinked index is within the capabilities of the software used but unfortunately was not part of the prototype's design.
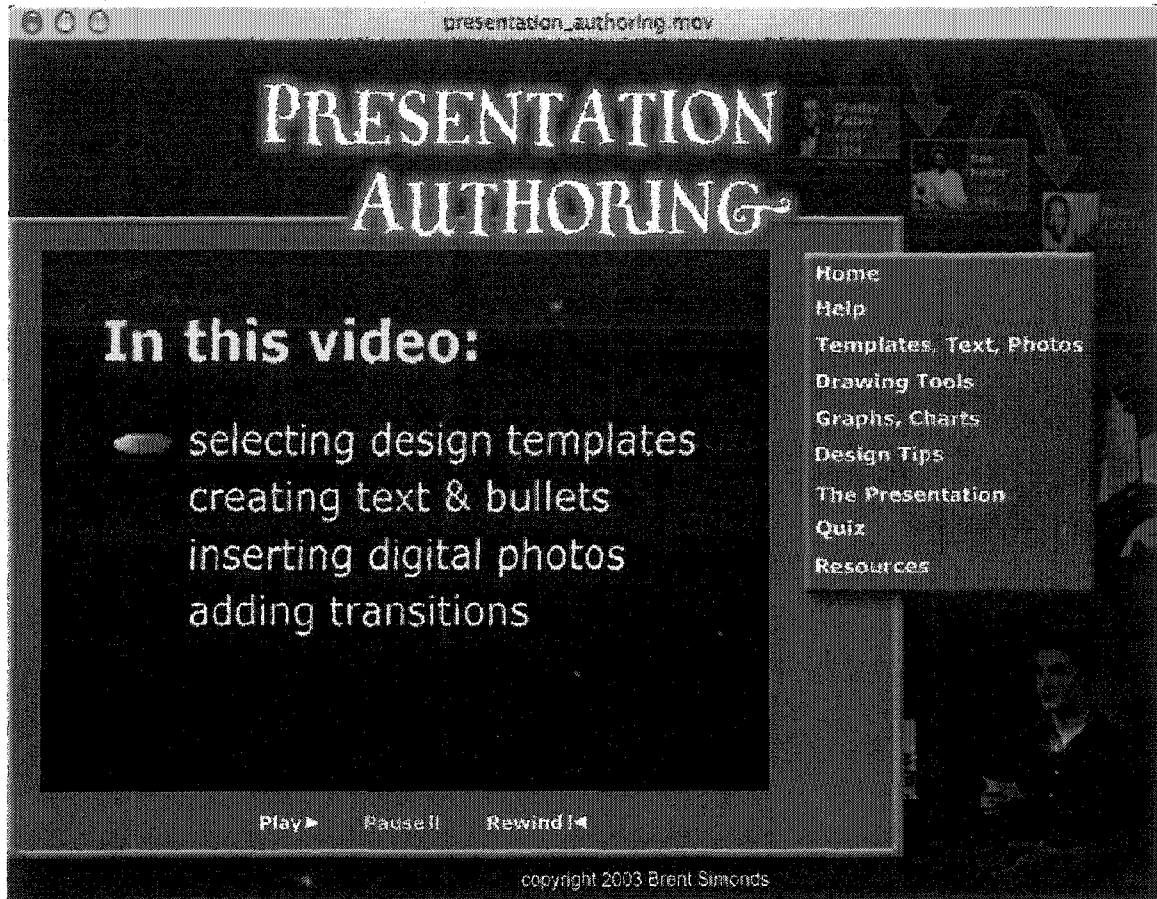
Fig. 16. Preview Section of the "Templates, Text, Photos" Video

<u>Note.</u> A focus group participant tried to navigate the movie by clicking on text in the video content area. Unfortunately, this type of navigation was not part of the design.

The first user to complete the task, a female, was finished in 18 minutes. She demonstrated to the researcher her completed presentation which fulfilled all of the proposed ITPS requirements. The second user, a male, finished the task in 35 minutes and also fulfilled all of the criteria. Since time was running out on the allotted two hour block for testing, the researcher decided to stop the other two users (both males) from the task and conduct the focus group interviews. The two participants were told they could complete the task after the interviews if they wished, or that the researcher would inspect their actual informative

presentations for Com 110 at a later date. Both subsequently e-mailed the researcher their PowerPoint files that they presented for their informative speeches. Both presentations fulfilled all of the proposed ITPS criteria. As will be seen in the next section, neither of these two users had ever used PowerPoint software before.

<div align="center">Focus Group Interview Results</div>

After the participants had interacted with the tutorial, completed the Mallard on-line survey, and worked on the presentation task, they were gathered together for focus group interviews. The interviews were videotaped and subsequently transcribed.

First, each person described their previous experience and amount of knowledge concerning PowerPoint. The following descriptions are based on their responses. None of the participants was a "typical" college freshman. Only one of them could be classified as a freshman (0-30 credit hours), but had returned to school after serving in the military. The others were classified as juniors (61-90 credit hours). The participants will now be referred to as Users 1-4. The users are numbered according to the amount of their previous experience with PowerPoint that they reported.

User 1, a junior, was a 20-year-old female with extensive experience with PowerPoint. She had gained this experience in high school:

USER 1: I've used PowerPoint a bajillion (sic) times because of my high school. All of the teachers found out about it and went to a workshop and

came back and went PowerPoint crazy. In pretty much every class you

had a PowerPoint presentation. It would be part of your presentation or

serve as your research paper.

User 1 was the participant who had finished the presentation task in 18 minutes.

Obviously, she possessed technical proficiency with PowerPoint prior to the

training.

User 2, a junior, was a 29-year-old male who had served in the military

and had delivered briefs via PowerPoint while in the service. User 2 noted that he

did not have formal training with the software but had picked up his skills as a

matter of necessity. He did say that he had learned new things from the CD-ROM

and was now more aware of what could be done with the software. User 2 took

35 minutes to complete the presentation task. The researcher noted that User 2

completed some parts of the assignment rather quickly (e.g., creating text,

inserting the photo), but slowed down when working on the diagram and bar

chart.

User 3, a freshman, was a 25-year-old male who had also served in the

military. Though he had used a personal computer before and had witnessed

others delivering PowerPoint presentations, he had never used the software

himself. According to User 3, before interacting with the CD-ROM "I knew

absolutely nothing about it." This user did not complete the presentation task

before the interview. After the interview, he indicated to the researcher that he

would use the CD-ROM to create his actual informative presentation for Com

110. Two weeks later he e-mailed the presentation to the researcher. His informative presentation met all of the proposed ITPS criteria. In a subsequent conversation with User 3, he indicated that the CD-ROM allowed him to create his electronic presentation in 20 minutes. He said that it took him much longer to find photos to include, than to create the presentation itself.

User 4, a 46-year-old junior, had recently returned to school after earning an associate's degree several years ago. User 4 described himself as completely computer illiterate. He had never heard of PowerPoint before and had never seen anyone deliver a presentation using the software. However, he had recently bought a computer and was eager to learn. The only software he had used thus far was a word processor. He said a recent paper for one of his courses had taken him twice as long to format on the computer as it had taken to write it.

> USER 4: This is all just fascinating. When I was looking at the tutorial, basically, it was almost like I was watching Nova. I was just sitting wondering – it was almost like magic. All these things you can do. I was thinking "Wow, this is stuff I would like to know." I was setting there observing all of it, soaking it in, rather than concentrating on memorizing every point.

User 4 also was not able to complete the presentation task before the interviews began. However, he too opted to deliver his informative presentation via PowerPoint and gave his presentation to the researcher on a floppy disk at a

later date. His presentation met all proposed ITPS requirements. His case was perhaps the most illuminating since he was an absolute neophyte concerning not only PowerPoint but personal computers as well. User 4 also provided the researcher a note after having made his presentation in Com 110:

> USER 4: Studying the PowerPoint tutorial was a bit of an epiphany for me because it not only enhanced my appreciation of the versatility and potential inherent to computer assistance, but it also encouraged me to more aggressively pursue that assistance by demonstrating how easily I could become acquainted with, and adept at, using computer programs. In this case, PowerPoint.

The focus group participants can be categorized into four distinct skill levels:

- User 1: avid/experienced PowerPoint user
- User 2: semi-experienced PowerPoint user
- User 3: novice PowerPoint user – some computer skills
- User 4: absolute neophyte to both personal computers and PowerPoint

Now that we have a description of each user and their skills levels, their comments concerning the usability of the tutorial (RQ5) will be examined.

> RESEARCHER: How did the tutorial work overall?

USER 2: I think it was great. I think that the way the software was presented was very user-friendly. It went into great detail about certain aspects of the things that you can do with PowerPoint.

RESEARCHER: Any other reactions?

USER 4: I was just completely awed. My mind, as I was watching, I was imagining all of the things that it could be used for. How versatile the tool was. I was amazed at all of that.

RESEARCHER: (to User 3) Your reactions?

USER 3: it was a lot of information all at once because I've never done it before, but it was easy to follow.

As mentioned in the "Interacting with the Prototype" section of this chapter, the researcher had observed the users accessing information on the CD-ROM in a linear fashion. The researcher then asked them if they would have accessed the information in this manner if they were alone and not in a testing situation:

User 3: It's kind of a continuous presentation.

User 1: But it's not overly long.

User 2: And that's good too, because you don't want to bore anyone with too much information. It's pretty much in the order you want to do it in. But if you just toss this CD at somebody, they might look at it and go "Oh, what do I want to learn about? Drawing tools?" But, if they don't know much about PowerPoint, they need to go through the whole thing.

Their answers seem to suggest that a linear presentation might be appropriate as an introduction to the material or for those with less background knowledge. This led to a discussion of whether or not they felt prepared to take the quiz on the CD-ROM.

RESEARCHER: Did the information in the CD-ROM prepare you sufficiently for the quiz questions?

USER 1: I think they were all good.

USER 4: I got a few wrong, but that's OK. That's the point of it, right? I remembered, yes, it was talked about. But then you find the right answer. It's like when you get a study guide from a past test to study for a coming test.

User 1: Plus, I like that it doesn't necessarily say "Wrong!" It says "No, there might be a better answer." That's kind of nice.

Both User 1 & 4's comments support Palmer and Rhodes' (1997) argument that interactive media training should allow users the opportunity to make mistakes – to not always be penalized for wrong answers.

Though there were many positive comments concerning the design, the researcher pressed participants to offer constructive criticism about the design of the CD-ROM.

USER 4: I have a suggestion. It seemed to cover everything. After watching the tutorial, I really felt empowered. Now I can put my thoughts, my ideas onto the screen. I have tools now to do it. But, because I didn't know too much about computers, I had to do it. I had to go back to the tutorial. It's a great learning thing because you can go back and forth. But when I hit rewind, it went all of the way back to the beginning.

INTERVIEWER: So, if you could navigate to a particular part of a video?

USER 4: Yeah, if I could go to where the first screen comes up. And it says like templates, text, and bullets. If I just wanted to know about bullets, I could go to bullets and click and get to that section because that is what I need. Instead of sitting through the whole thing to get there. (See Figure 16).

As reported earlier, the researcher had noted this user's behavior during the testing phase. This observation points to an important design consideration. Though many users may initially choose to experience the content in a linear fashion to orient themselves – especially the videos which are by their very nature linear – subsequent use may tend to be non-linear. This non-linearity is, of course, a defining characteristic of interactive media. The design task becomes making linear segments such as video easily navigable. As mentioned previously, the limitations of the software prohibited the use of the video controller now available in Flash MX. However, the manner in which User 4 tried to navigate the videos may be a workable solution.

The researcher then asked the group about whether written instructions for the video tutorials on the CD-ROM would be useful should they need to review the content:

> USER 3: You should watch it as an overview (the CD-ROM videos) so that you get the visual pictures, but sometimes it's easier just to thumb through actual pages because it's quicker to get to the point that you are trying to get to. Instead of going, OK, I need to get to the toolbar. Now I need to get to the bullet section. Now I need to fast forward to this point in the speech. You have something printed out in front of you. You've already seen it once. You have a general idea of what it is. If you have the printed instructions, (snaps fingers) two seconds you're there.

RESEARCHER: The printed instructions are on the CD-ROM in the "Resources" section. How can I make three thousand users see them?

USER 3: I think you should point out that there are printed instructions available right at the very beginning. I didn't even see that part. You can put it as a note on the CD cover or in the introduction when you are speaking, "these instructions are available for printing out here, here, and here."

USER 4: I thought the resources section just referred to net resources. I didn't realize it also referred to the CD-ROM itself . . . I think it would be useful to have the instructions printed out. When I get home I'm going to learn this. I'm going to print it out. I'm going to sit there with the printed version. But then if I need to go back, I can actually see what he's doing. See the picture of it. I think the two of them together would work. The more information the better, as long as you can get back into it where you need to go, to navigate through the information, to get what you need, as you need it.

RESEARCHER: Again, how can I get people to look at the resources page?

USER 1: The fact that it is at the bottom, you're going to go through all of the videos. You're going to do the quiz. I think you should move the "Resources" link up – maybe with a subtitle "more useful and helpful tips." Users may think that it is not important since it is after everything else.

USER 4: For some reason, "Resources," that element, it was sort of like an afterthought. It wasn't as stressed or explained as well. The audio part it sort of explains what each section is, when it gets to resources if it was a little longer or more informative.

USER 1: I know a bunch of the different videos say "go refer back to data and tools or whichever" to learn more about this. If you said "refer to the 'Resources' section if you had any other unanswered questions." Just repetition.

User 1 was referring to the audio tracks of the tutorial videos that contain references to other videos on the CD-ROM as well as the "Design Tips" section. Her recommendation that reference be made to "Resources" in the audio tracks seems a sound one. Liu (1997) found that users of an interactive media kiosk tended to seek out visual information (which often included audio tracks) rather than text. Therefore, to ensure that users are aware of important information that they might otherwise miss, placing information in the highly visual sections (such

as videos) is an important design consideration. User 4 also suggested an audio or video section that explained how to use the CD-ROM.

Here is a summary of the users' suggestions concerning the "Resources" section:

- move the link higher in the navigation list

- point out the resources available on the CD-ROM cover

- make references to the various resources in the tutorial videos

- create an introductory video to orient users to the CD-ROM

It should be noted that the researcher did not orally advise the focus group users of the resources available on the CD-ROM.

In relation to RQ2 concerning design principles, the researcher was also interested in the reactions to the users regarding the "Design Tips" section. That is, amid all of the technical information, did the visual design training seem superfluous.

RESEARCHER: For people who are struggling with the technical aspects of PowerPoint, is it too much to ask them to learn visual design principles?

USER 3: No, it's not too much to ask. You need the design stuff to increase the quality of the presentation. The technical stuff is fine, but if you don't have it in a way that is pleasing to the eye, what's the point?

RESEARCHER: Were the four principles clearly explained and demonstrated?

USER 1: Yes, I think so. Having learned this in high school, when we first learned, we just threw things together. And we had huge, long paragraphs on each slide, eight million colors, whatever. It makes a lot of sense, because now you are in a university atmosphere. It does have to be professional. It does have to look nice. Things like keeping your alignment on captions and pictures, and having things close together because they are closely related. It's common sense and I think it needed to be addressed to show that this is something that people will look at when they look at your presentation...... I think it should have been addressed and I think that it was done well.

USER 4: I thought it was done well, as well. Because it mentions things like proximity and alignment – it mentions it a little bit during the presentations, so it lets the person watching know that there are elements of style. It is just not "painting by the numbers." At the end of the video it let people know that there is a section there for "Design Tips." You can improve your skills here. To me, that was like the "carrot on the stick." It's like if I can get this technical part down to where I know where I am going, then I can go over here and improve the aesthetics of it. But first I have to

get the technical part down. But I knew that once I did that, that there was more to do.

To find out if the task presented to them seemed "doable," the researcher also pointed out the informative presentation on the CD-ROM fulfilled "A" criteria, the speaker was a national champion public speaker, and that the presentation had been written and designed by the researcher. There was general agreement among the participants that the task seemed appropriate and they felt confident in their abilities to do similar work.

USER 1: I like the fact that he actually stutters and messes up like three times. . . I like the way that he used the PowerPoint. He knew his stuff. A lot of the people that I've seen using PowerPoint completely survived off of the PowerPoint. If anyone asked a question or if the information wasn't right there – then they didn't know. I like that he used it basically as a background.

Interestingly, User 1 points out the usual complaints made by critics of PowerPoint – the fact that the tool is often used inappropriately.

After the users reactions to the content of the CD-ROM had been explored, their thoughts regarding this type of training were solicited. Specifically, whether or not this type of training made sense for the task at hand or was there a better way of delivering the information (RQ6).

RESEARCHER: A majority of students surveyed this spring said they would prefer to learn computer skills in a workshop or class. Would you have said that before this? And do you think that you'd still rather go to a workshop than use this CD-ROM?

USER 1: I learned these skills in a class. Everyone around me was also learning these skills so we could help each other. And, there was someone there to show you better ways of doing things. I think this CD-ROM is helpful. It was kind of refreshing to actually watch it. I do think though, that if it is all possible, there should be some kind of workshop offered to teach PowerPoint or to have it involved in classes because it is a great program.

USER 4: I think the CD does the job, but it's nice to have someone there because you don't know what the level of proficiency is for people. Like I had to ask you how to get into PowerPoint. I didn't even know how to go to "Start" to "Programs." I'm sure no one else here had a problem with that. I can imagine a computer lab where you've got this information, but there's somebody there if you had question. You could say "excuse me, can you help me for a minute?" Then you're on your own again.

RESEARCHER: Here's the rub. To offer classes to three thousand students is expensive. It's probably not going to happen. In lieu of that, does this CD-ROM get the job done?

USER 1: I think so, yeah.

USER 2: Absolutely.

USER 1: And I think that since this is for freshmen, that more Com 110 and FOI professors should be well-versed in the program so that if they require it in classes they can set up a time. "Well I can come to this computer lab in Fell at this time. If you guys have questions with your PowerPoints, we can do an office hours type thing."

RESEARCHER: If in a Com 110 classroom, your instructor took one class period to demonstrate the necessary skills and then give you this CD-ROM, would that be enough?

USER 1: Definitely.

USER 2: I think so. You could cover it in 50 minutes or an hour. They (students) should then be proficient enough to know where to go and point and click.

USER 1: And then too, they could use the video on the CD-ROM to help them out. Plus you can leave the CD-ROM open and go back to it if you have a question.

USER 3: It's good to have a workshop because technology is better explained, I think, through someone teaching you step-by-step. The CD-ROM is good for giving you the overview, but if I run into a problem, like if I ran into a problem with one of my presentations, you would be here to say "no, this is how you manipulate it to get this result." I think the CD-ROM would give students 90% of what they need, but the other 10% of what they can't figure out on their own, instructors could be available at certain times to supplement the CD-ROM. It wouldn't be a three week class devoted to teaching PowerPoint. The CD-ROM would give them all of the basics and the instructors would be there with helpful hints about how to move from there.

USER 4: You might want to offer a workshop for the lab monitors. If this was presented in one class session: "This is what it is, you know it's there. Here's your CD-ROM. Now go to the lab and do it." If you have a problem, ask the lab monitor over. He knows his stuff. He or she can answer all your questions. That way all you need is a workshop for the lab helpers so that they can answer any questions.

USER 1: I know that a lot of what I've learned with PowerPoint is going in and seeing what works and what doesn't. There are so many menus on the screen. At first, it may seem really confusing, but everything is very self-explanatory. There's a circle for drawing circles, there's an A for text. I think that once students have the CD-ROMs and these presentations are actually being assigned, and they have to be comfortable with them, it will work itself out.

USER 2: I think that once people learn the basics that they can then learn on their own.

USER 4: And it's fun too. I thought it was fun – if your time is not limited. If you have the CD and you have the lab, you don't mind sitting down and taking the time to learn. The more time you put into it, the better you're going to get.

Here is a summary of the focus group suggestions concerning training or other initiatives to supplement the CD-ROM:

- Com 110 instructors demonstrating these skills in the classroom
- Com 110 instructors spending some of their office hours in the lab
- Training for lab monitors so they could assist students with this task
- Offering PowerPoint workshops or classes

Though the users made these recommendations, as a group they did not see the ITPS requirements as insurmountable. In fact, they seemed to think the CD-ROM was enough training to get students started, and then they could begin to learn advanced features on their own. User 4, who was a self-described computer illiterate, successfully used the interactive tutorial to create an electronic presentation that was actually delivered in a Com 110 classroom – not in a contrived laboratory setting.

The suggestions offered by the focus group about how to supplement the interactive CD-ROM will be addressed in the "Recommendations" section of the next chapter.

To end the focus group session, the researcher solicited some final comments from the participants:

USER 3: the best part of the CD-ROM is that it gives you an overview. It gives information for someone who has never done it before. And then you can screw around with it yourself and say "Here's what he was talking about, and here is how I can do it."

USER 2: And it's tool. You can pick it up anytime. "Well, I've got to do this PowerPoint presentation, there's some things that I would like to remember." Well, throw the CD-ROM in the drive and go through it again. "Oh that's how he did that."

USER 4: I thought it was very user-friendly. I look forward to sitting down with this and really learning it and getting into it. It's not dry, it's not something that you have to force yourself to sit down and work through, so you can learn it. It's really enjoyable. You want to sit down and engage it.

User 2's comment that the CD-ROM is a "tool" is consistent with the notion of the computer as a cognitive tool, something we learn *with* and not *from* (Jonassen, Campbell, & Davidson, 1994; Jonassen & Reeves, 1996).

The following chapter will summarize this research project, draw conclusions from the lessons learned, and will provide recommendations regarding the revisions of the prototype and how it should be implemented in the classroom.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This dissertation describes the design, development, and testing of an interactive tutorial to teach presentation authoring. Past research has revealed oral presentation ability is necessary for college graduates to obtain employment and then succeed on the job (Curtis, Winsor, & Stephens, 1989; Winsor, Curtis, & Stephens, 1997). Using electronic presentation tools and other forms of information technology is considered a norm in most business, government, and educational settings. For these reasons, organizations like Educause, the National Research Council (NRC), and the International Society for Technology in Education (ISTE) are calling on universities to demand technological competence from their students.

To address these demands, the Instructional Technology Passport System (ITPS) was implemented at Illinois State University to ensure that teacher education majors possessed these skills before allowing them to graduate. Presentation authoring is one of those competencies and is being required of all students at ISU because it is a required element in a course all students must take: Com 110.

Currently, the classrooms where this course is taught do not contain the technology necessary for students to deliver electronic presentations. Because of this lack of computers and projectors in the classroom, the ITPS competency currently in place reflects a very minimal skill set (i.e., to use at least one overhead transparency that contains a design template, heading, photo, and bullet points). Since university officials and course directors are working to address the lack of technology in the classrooms, a new skill set must be defined to reflect true competence once the necessary resources are in place. However, this poses a significant instructional problem: how can 3000 students a year receive presentation authoring training, especially since the Com 110 curriculum has little room or time for this content?

To address this problem, two broad objectives were articulated in this study:

1. to design a computer-based instructional module to train Com 110 students in the technological functions of PowerPoint software

2. to provide basic principles of visual communication design that will allow them to enhance their informative presentations.

Specifically, this study sought to determine a suitable skill set for presentation authoring competence, to identify appropriate visual design principles for non-specialists, to create a prototype interactive tutorial of this content, and then to test the usability of the tutorial with a focus group drawn from Com 110. Creation of the prototype also involved determining an appropriate authoring system and medium for delivery.

Before design and development of the interactive tutorial could begin, it was necessary to examine the conceptual framework under which this project could be realized. The developmental research model with its emphasis on context-specific problems that require a design-based solution was discussed, especially how it differed from the empirical research model (Reeves, 2000). To ensure that the interactive tutorial was based on sound design and evaluative principles Park and Hannafin's (1993) empirically-derived guidelines for design and Palmer and Rhodes' (1997) framework for evaluating training multimedia were explored (see Tables 2 and 3).

Audience analysis was performed by surveying five sections of Com 110 in the spring of 2003. The data included demographic information as well as past computer and software use with an emphasis on PowerPoint (see Appendix A).

Working within this conceptual framework and with this data, the skill set was drafted after referring to content experts in presentation design and delivery (Andrew, Andrews, & Williams, 2002; Daly & Engleberg, 2001; Lucas, 2004; Osborn & Osborn, 2000). A source (Williams, 1994) was also located that condensed the extensive visual design literature to four easy-to-understand-and-apply principles that could be used by any visual design novice. The skill set and the design principles constituted the content that the interactive tutorial addressed.

The researcher developed the tutorial around the latest version of PowerPoint on the Windows platform since this would address the majority of users and was readily available in university computer labs. Determining an

appropriate authoring system and delivery medium were premised on the ease-of-use factor for students. For example, exotic plug-ins or arcane interfaces not usually used by students were avoided. An initial attempt at creating a tutorial that would run in a web browser was rejected because of poor video performance. An alternative approach that required only one media player (QuickTime) was pursued and implemented.

Usability testing was conducted in the Fell 108 computer lab with a focus group drawn from Com 110. Four users, who each represented a different level of expertise with the software, interacted with the tutorial for approximately 45 minutes before answering on-line survey questions. The users were then given the task of creating an electronic presentation that fulfilled the proposed ITPS requirements and then were assembled for videotaped group interviews.

Conclusions

Each of the research questions was formulated to provide answers that would help achieve each of the objectives of the study. This section will describe how these answers were used in the design and development of the prototype. After the "Conclusions," the "Recommendations" section will describe how answers to the research questions will inform future revisions of the interactive tutorial.

- RQ1: To address Objective 1: What level of proficiency with PowerPoint can be deemed competent?

The newly proposed ITPS criteria (skill set) are to design and deliver an informative presentation with PowerPoint software that includes the following: a design template, transitions between slides, bulleted text, animation of at least one screen element, photographs, diagrams/illustrations, or graphs/charts (at least two of the three types). These criteria were based on the common suggestions regarding the use of visual materials in several of the most popular textbooks on public speaking. This skill set is based on the idea that students should be able to use different types of visual representation to communicate their ideas and how to sequence these elements with the information that they are delivering orally.

Members of the focus group believed that the ITPS requirements were not excessive and that the examples that were provided to them "doable." In fact, the two users who had never used PowerPoint before were genuinely excited about the prospect of learning these skills. The proposed skill set is therefore a better measure of competence than what is currently required by the ITPS.

- RQ2: To address Objective 2: How much visual design theory should a non-designer be expected to know?

Many critics deride PowerPoint presentations because they often become a crutch for a poorly designed speech and often do not make use of the visual tools available. Though the ITPS is concerned primarily with technical competence, it is acknowledged that students should be exposed to visual design as well. Since

visual design is a subject unto itself and has a voluminous literature appropriate only for specialists, a simple and easy-to-understand set of principles was located. Williams (1994) provides four design principles explicitly intended for non-designers:

- o proximity – group related items together
- o alignment – items should have visual connection with other items
- o repetition – repeat aspects of the design throughout
- o contrast – if two items are not the same, emphasize the difference

The focus group users appreciated this content and found it easy to understand and useful. User 1, an experienced PowerPoint user, said that when she had first learned to use the software that her design skills were very poor. She believed that university-level presentations required a higher level of visual design. User 4, who was experiencing PowerPoint for the first time, said that the design principles were the "carrot on the stick" that made him want to quickly learn the technical skills so that he could implement those principles. Apparently, these four design principles constitute an appropriate level of design theory for the non-designer.

- RQ3: To address Objective 3: What is the appropriate authoring system and distribution medium for delivering this training?

The initial idea for the design was to incorporate QuickTime movies into a standard web page that could be accessed with a browser. The movies and

HTML pages would be delivered via a CD-ROM. The interface was created in Adobe Photoshop, sliced in ImageReady, and the slices exported into Macromedia Dreamweaver as HTML tables. The thought was that the tutorial could easily be migrated onto the web at a later date. However, the researcher determined that the video performance was too sluggish to be useful to students. Macromedia Flash MX was then explored as an interface and video delivery option. Though Flash was ultimately used to design the interactivity, the Flash player was deemed unacceptable for the amount of video required by the tutorial. Luckily, the QuickTime player is very responsive and robust when dealing with digital video, and it can also include a Flash track for navigation. Videos were edited in Adobe Premiere, compressed as QuickTime movies in Sorenson Squeeze, and imported into Flash. Navigation and additional content were created in Flash; the resulting file exported as a QuickTime movie with a Flash track, and saved to a CD-ROM. Playback requires the free QuickTime player on the host computer.

Since the QuickTime player can incorporate interactive content from Flash and provide a stable environment for digital videos, it is the appropriate delivery system for this training. Furthermore, Flash is the appropriate software for interface development because it allows for integration of QuickTime videos and can accommodate complex interactivity. Further upgrades to the QuickTime player to allow for the latest Flash features will also enhance design options and the end user experience. For example, the ability to make use of the Flash MX video controller will be a welcome addition in future versions of QuickTime.

- RQ4: To address Objective 4: What are the demographics and current skill levels of the intended users?

Generally consistent with university enrollment, females in the five sections of Com 110 survey outnumbered the males (64 to 30). See http://www.ir.ilstu.edu/facts/current/book/StudentAge.htm. Not surprisingly, freshmen made up a large majority of the sample (96.8%). Education majors (n=33) accounted for more than one-third of the total (n=94). The education majors did have a slight but statistically significant edge in the frequency of their past use of computers and projectors to deliver presentations.

One interesting finding is that a majority of the students surveyed claims to already possess the skills required by the newly proposed competency. Whether or not this is the case remains to be seen. Regardless of their perceived ability the interactive tutorial is necessary for the students who do not possess these skills and also to address knowledge gaps for those who have previous experience.

. If the response items on preferred training type are considered as discreet categories then respondents showed a statistically significant preference for attending a class/workshop. See Table 5. If however, class/workshop is considered one category and the other items are collapsed to create a "self-study" category, then two-thirds of the students can be served by methods other than a class or workshop. For example, the interactive CD-ROM produced in this study also included printable instructions that can accommodate just as many

students' preferences as a class or workshop would. Furthermore, based on Clark's recommendations (1983, 1994), the delivery mechanism will not influence learning, only the methods will. So, even if students did prefer classes and workshops to other forms of instruction, it is probable that they can learn the desired skills with alternative delivery mechanisms. The CD-ROM designed for this study can provide instruction to 3000+ students a year much more economically than a class or workshop could.

- RQ5: To address Objective 4: What are the reactions of the students in the focus group to the usability of the interactive tutorial?

Reactions to the CD-ROM were highly positive. Users said that it was user-friendly, interesting, professional, and worthwhile. The participants thought the content was appropriate and that the tasks were manageable. They were excited about using the CD-ROM to enhance their skills in this area.

Despite the positive reactions, the researcher pushed the group to come up with suggestions for the design. One particular area that was misunderstood or overlooked was the "Resources" section. It is the last link in the navigation bar and since the four users all accessed the information in a linear fashion, it was the last area they viewed (if at all). Consequently, none of the users were aware of resources on the CD-ROM itself (e.g., printable instructions) or on the external web links to useful information. Their suggestions to remedy this situation were to:

- o move the link higher in the navigation bar

- o reference the "Resources" section on the CD-ROM cover

- o include references to the contents of this section in the audio tracks on the videos

- o include a video about how to use the CD-ROM

Another area to be addressed was that after "The Presentation" video was over the program looped to the first instructional video "Templates, Text, Photos." The researcher noted this as the participants interacted with the CD-ROM. This mistake in programming is easily resolved in future revisions. The researcher observed that users merely stopped the video and navigated to another section.

Therefore, with minor revisions, this tutorial is ready for pilot testing with intact Com 110 classes where any remaining problems can be identified before implementation across all sections.

- RQ6: To address Objective 4: Do students in the focus group believe that this approach (interactive media training) makes sense and is worthwhile for the task that is required of them?

Even though the users responded favorably to the CD-ROM, they were unanimous in their suggestion that it be supplemented with other forms of help or instruction. Their recommendations included:

- o Com 110 instructors demonstrating these skills in the classroom

- o Com 110 instructors spending some of their office hours in a computer lab

- o training for lab monitors so they could assist students with this task

- o offering PowerPoint workshops or classes

Their general reaction was that the CD-ROM was sufficient for the task at hand and that it provided a good overview of the software. However, the users recognized that human assistance would be necessary should someone encounter a problem not covered in the interactive tutorial. They especially desired help and involvement from their instructors.

This type of training is therefore appropriate for the task at hand, though users do desire a way to obtain human assistance if they run into problems.

- • RQ7: To address Objective 4: Can students in the focus group use this tutorial to create a PowerPoint presentation that contains all of the elements stipulated in the skill set drafted for this study?

Users 1 and 2 both completed the presentation task before the focus group interviews began. These two users both had previous experience with the software, so the task did not pose much of a problem for them. User 1 did admit during the interview that the "Design Tips" section was very useful because although she had learned the technical details in high school her presentations may not have been designed very well. User 2 said that although he knew some

of the information before attending the training, he did not know some of the capabilities of the software before using the CD-ROM.

Users 3 and 4 did not have any prior experience with PowerPoint and neither of them completed the task before the focus group interviews. However, both of them opted to design and deliver their informative presentation in Com 110 using PowerPoint. The researcher solicited their presentations and found that they both fulfilled the proposed ITPS criteria. That is, using the interactive tutorial in an authentic context, two users with no previous knowledge accomplished what this study set out to achieve.

This study details the design and development processes of an interactive media tutorial, so that other projects may make use of the work flows described and the lessons learned from the usability testing. Overall, this study demonstrates that a large amount of instruction can be contained in an interactive media product that students find engaging and useful. All of the students were able to demonstrate technical competence and they expressed both need and interest for developing better visual design skills. USER 1 who already possessed the technical skills noted that university presentations demanded better visual designs than the ones she had produced in high school. USER 4, who had no previous experience or skill with PowerPoint, referred to visual design as the "carrot on the stick" that motivated him to develop the necessary technical skills.

More products of this type may lessen the need for expensive classes and workshops that offer software training. The CD-ROM format allows for audio and

video representations of desired student performances in a cost effective medium under the control of the user that is available at any time. The integration of Flash and QuickTime allows for complex interactivity as well as stable audio and video demonstrations that play in a free piece of software. Furthermore, as DVD-ROM drives become more common, this type of interactive training can be enhanced with higher quality audio and video productions since content will not have to be compressed as much to fit on the storage medium.

Finally, another benefit to interactive media tutorials is that students can access this type of training when and where they choose at their convenience. If this effort proves successful, university and ITPS officials should investigate creating similar interactive media tutorials for the other nine competencies.

Recommendations for Product Revision

Though the CD-ROM appeared to function as intended, there is still room for improvement. The small technical problem with one video looping to another will be corrected in a future revision. Also, the "Resources" section needs to be more prominent in the design. "Resources" will be mentioned on the CD-ROM cover and its link in the navigation bar will be moved up. Also, text in other sections of the CD-ROM will reference the contents of the "Resources" section. However, the audio tracks in the current videos will not be edited to include references to this section, nor will an introductory video be produced. Those changes would result in a significant overhaul of the current design and may be unnecessary. However, these recommendations by the focus group will be instructive for future projects of this kind. Namely, the cross-referencing of

content in various locations should help users be aware of everything available within the interactive media product. Another way of ensuring that users know of the resources available on this CD-ROM is to have Com 110 instructors mention it in the classroom.

More precise video navigation is also needed so that students can have non-linear access to particular segments within the videos. One option available at this time is creating a hyperlinked index to video segments that appears whenever a user chooses the video in the main navigation area. A video controller can also be added when the QuickTime player is upgraded to support Flash MX features.

The focus group participants believe that the CD-ROM should be supplemented by other efforts. They agreed that if a Com 110 instructor could spend one class period demonstrating these skills, the CD-ROM would allow students to accomplish the ITPS criteria. Therefore, the researcher will recommend to Com 110 course directors that they find room in the curriculum for this training. If course directors agree to this content, then training must be made available to the GTAs and Lecturers who teach this course. Materials will also have to be produced to aid the Com 110 instructors in the classroom. Since all of the videos for the CD-ROM were originally produced in DV resolution, they can be multipurposed as a DVD or VHS videotape for use in the classroom. Future design and development efforts can make use of the content already produced.

Additionally, all classrooms where Com 110 is taught must be equipped with computers and data projectors before full implementation of the new ITPS

requirements for presentation authoring can begin. University personnel are working to make this happen.

Recommendations for Future Research

Even though the focus group participants in this study each represented a different level of expertise, they did not resemble the Com 110 population. For example, only one focus group member out of four was female while in the general student population around 65% are female. Also, none of those in the focus group was a traditional 18 or 19-year-old freshman. Over 96% of Com 110 students are first or second semester freshmen. None of the participants was an education major, while over one-third of those surveyed in Spring 2003 were. Furthermore, the three males in the focus group had other life experiences before attending ISU, so their motivations for learning from the CD-ROM could differ significantly from a typical freshman. Also, the youngest member of the group (a 20-year-old female), had the most expertise with PowerPoint because of prior training in high school. It may be the case that training for these skills in the future will become much less of a concern as students come to ISU already possessing these skills. Future research with a more representative sample will be required to answer those questions.

Before this skill set and training can be implemented completely, revisions and additional testing must occur. The technology for delivering electronic presentations will be in place for a couple of the Com 110 classrooms this school year. Intact sections can be identified for pilot testing in the Spring of 2004. Instructors could be trained, the students could receive revised versions of the

CD-ROM, and informative presentations could be delivered electronically. Focus group interviews and surveys could be conducted both before and after the informative speech assignment to gauge student reaction to both the presentation task and the interactive tutorial. Participating Com 110 instructors could also be assembled for focus group interviews to discuss differences between informative speech performance by students both with and without electronic presentation tools. This research design would make use of an authentic context with a typical Com 110 audience that would be more representative of the greater population. Lessons learned from the pilot testing could be incorporated into the interactive media tutorial before the new skill set is required from all students. After the program is fully implemented, maintenance of the system must be performed periodically to accommodate advances in hardware and software, as well as the changing knowledge and skill levels of students.

After the program is in place, another research area that could yield interesting results would be to investigate the intersection of technical skills with visual design skills. That is, how much technical skill must users possess before they begin to apply relevant visual design principles to enhance their presentations? Only with technical skills and a visual sensibility – and the will to use them – can speakers move beyond the bullet-based presentations that plague so many presentation situations today.

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113

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APPENDIX A

INITIAL SURVEY QUESTIONS

1. What was your age on your last birthday? _____

2. What is your gender?
   - male
   - female

3. How many credit hours have you completed?
   - 0-30
   - 31-60
   - 61-90
   - 90+

4. What is your major? _____

5. If given a task with which you are not familiar that required using a computer and software, how would you prefer to learn the necessary skills?
   - class/workshop
   - printed instructions (book, pamphlet, etc)
   - web or CD-ROM lesson/tutorial
   - figure it out on your own
   - other _____

6. If given the task of creating an electronic presentation using a computer and software, how comfortable would you feel?
   - very comfortable
   - comfortable
   - undecided
   - uncomfortable
   - very uncomfortable

7. How often have you made a speech or presentation using a computer/projector combination as visual support?
   - never
   - occasionally
   - regularly

8. How often do you use PowerPoint software?
   - never
   - occasionally
   - regularly

9. At your current knowledge/skill level, do you think you could you create an electronic presentation using PowerPoint that contained a design template, text, and a photo?
- definitely yes
- probably yes
- undecided
- probably not
- definitely not

10. Could you add transitions between slides in a presentation created in PowerPoint?
- definitely yes
- probably yes
- undecided
- probably not
- definitely not

11. Could you animate elements on a slide in a presentation created in PowerPoint?
- definitely yes
- probably yes
- undecided
- probably not
- definitely not

12. Could you use PowerPoint's drawing tools to create an illustration such as a diagram?
- definitely yes
- probably yes
- undecided
- probably not
- definitely not

13. If you had data to present, could you use PowerPoint to create a graph?
- definitely yes
- probably yes
- undecided
- probably not
- definitely not

APPENDIX B

ON-LINE SURVEY FOR FOCUS GROUP PARTICIPANTS

121

1. How easy or difficult were the printed instructions to follow for starting the program?
- Extremely easy
- Easy
- Neither easy nor difficult
- Difficult
- Extremely difficult

2. How helpful were the on-screen directions for using the program?
- Very helpful
- Helpful
- Undecided
- Not helpful
- A hindrance

3. How easy or difficult was it to find the information you needed?
- Extremely easy
- Easy
- Neither easy or difficult
- Difficult
- Extremely difficult

4. Did the program behave predictably, in the manner you expected?
- Always
- Occasionally
- Never

5. Did the video segments prepare you sufficiently for the quiz/demonstration sections?
- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

6. Using this tutorial to guide you, do you think you could you create an electronic presentation using PowerPoint that contained a design template, text, and a photo?
- Definitely yes
- Probably yes
- Undecided
- Probably not
- Definitely not

7. Using this tutorial to guide you, could you add transitions between slides in a presentation?
- Definitely yes
- Probably yes
- Undecided
- Probably not
- Definitely not

8. Using this tutorial to guide you, could you animate elements on a slide in a presentation?
- Definitely yes
- Probably yes
- Undecided
- Probably not
- Definitely not

9. Using this tutorial to guide you, could you use PowerPoint's drawing tools to create an illustration such as a diagram?
- Definitely yes
- Probably yes
- Undecided
- Probably not
- Definitely not

10. Using this tutorial to guide you, could you use PowerPoint to create a graph if you had data to present?
- Definitely yes
- Probably yes
- Undecided
- Probably not
- Definitely not

11. If you tried to run this CD-ROM on a different computer and ran into a problem, do you think you could use the given resources to resolve the problem?
- Definitely yes
- Probably yes
- Undecided
- Probably not
- Definitely not

12. What were the strengths (if any) of this program?

13. What were the weaknesses (if any) of this program?

APPENDIX C

A/V SCRIPT FOR "WHERE THE SOUL OF MAN NEVER DIES:

A SHORT HISTORY OF THE DELTA BLUES"

125

Visual	Audio
Hit "F5" to bring presentation full screen Slide 1 - Sam Phillips Quote & Photo	"This is where the soul of man never dies." So says Sun Records founder Sam Phillips... the man who discovered and first recorded Elvis Presley, Jerry Lee Lewis, and Johnny Cash.
Hit "space bar" to advance Slide 2 - Elvis, Jerry Lee, & Johnny	However, Sam wasn't referring to the King, the Killer, or the Man in Black. He wasn't even referring to Rock and Roll. He was referring to the Blues.... the real reason he opened Sun Studios in Memphis way back in the early 1950's.
Blank screen by hitting the "B" key	I have been a blues fan for several years now. I was first introduced to the music by reading interviews with famous rock musicians like the Rolling Stones, Eric Clapton, and Bad Company. These English guys kept mentioning people with funny names...Blind Lemon Jefferson, Muddy Waters, Howlin' Wolf. They said these musicians were the first ones to inspire them to play. I started reading books and listening to the music, and just generally finding out about the blues and its players.... Especially Pre-War Delta Blues.....the music created in the 20's and 30's in the Delta region of Mississippi. I've even traveled to the area to attend music festivals and visit historic blues sites.

Screen still blank

I know many of you are from the Chicago-land area. Through the many books and magazine articles I've read, I've discovered that the world famous "Chicago Blues" sound owes its origins to Mississippi Delta Blues – since many of those players migrated to Chicago in the 40's and 50's. In fact, the blues classic "Sweet Home Chicago" was written by a Delta musician. According to Nicholas Leman in his book "The Promised Land: The Great Black Migration and how it changed America," the black migration from the rural south to Chicago represented one of the largest and most rapid mass internal movements of people in history. And, most of those who came to Chicago were from the Mississippi Delta.

Hit "space bar" twice
Slide 3 – Population Line Graph

Remain on Slide 3

To really understand the roots of popular America music, it's necessary to journey back to the early 20th century and examine the music made at the edge of cotton fields, on street corners, at fish fries, and in juke joints.

Slide 4 – Musician Diagram	Today's presentation will feature three musicians who epitomize the time, place, and sound of Pre-War Mississippi Delta Blues: First, Charley Patton, one of the earliest Delta musicians; next Son House, his friend and protégé; and finally Robert Johnson, a man shrouded in myth and legend.
Animate by hitting space bar when mentioning each player	
Slide 5 – Charley Patton	Charley Patton has been called "Father of the Delta Blues." Papa Charley (as he was known) was not the first blues musician in the Delta….. he just happened to be the first one to record – therefore, he's the first one to emerge from the anonymous oral tradition.
Animate Dockery's Photo	He lived and played around the Dockery Plantation near Ruleville, Mississippi …..leading some people to call Dockery's the birthplace of the blues.
Remain on Slide 5	Whether he was playing for change on a street corner or for corn liquor at juke joint, Charley was the consummate showman. He played the guitar behind his back and between his legs, and would sometimes toss it high into the air – all to work the crowd into a frenzy. The young Howlin' Wolf was watching and listening and later incorporated some of those moves into his own performance style.

Remain on Slide 5	And, Jimi Hendrix took some of his cues from Wolf – so Patton may very well be the prototype for rock and roll stage performance.
Slide 6 – Patton's tomb stone	Though he died in 1934, Papa Charley still inspires many musicians. On a recent recording, Bob Dylan dedicated his song "High Water" to Charley Patton. Though Patton never lived to see the worldwide acceptance of the blues, one of his disciples did. Eddie "Son" House was born in Riverton, Mississippi in 1902.
Slide 7 – Church & Son House	Son first tried his hand at preaching but the seductive pull of "the devil's music" (as the blues was then known) was just too great. He played at many of the same juke joints and parties as Charley Patton and the two even made a trip together in 1930 to Grafton, Wisconsin to record.
Slide 8 – Playing guitar	House played slide guitar in a rudimentary fashion, but very few bluesmen could match his vocal intensity. The band Lynyrd Skynyrd put it this way in their song "Swamp Music" : *When that hound dog starts barking, sounds like old Son House singing the blues!*

Animate photo of Parchman Farms

Like most bluesmen, Son knew trouble first hand. He spent some time at Parchman Farms (the Mississippi State Penitentiary) for murdering a man, but was subsequently released. In the 40's he moved to Rochester, New York and was out of the music business until 1964 when he was "rediscovered" during the folk music boom. Throughout the rest of the 60's he played the "real folk blues" at several festivals. By the 70's he had fallen into ill health and had to retire from music. He died of throat cancer in 1988.

Slide 9 – Robert Johnson

When Son House used to play juke joints, he would sometimes notice a skinny little kid hanging around. When Son would stop playing to take a break, the would-be musician would pick up his guitar and start to play. The kid wasn't very good and Son would say "Little Robert, put that thing down, you're going to drive everybody away."

Remain on Slide 9

Well, Robert Johnson took the hint and went away by himself for about a year. When he came back, he played so well that Son House remarked that "he must have made a deal with the devil." So begins one of the most famous and oft told stories in blues lore. Years later Muddy Waters would recall that he saw Robert playing in front of this drugstore in Friars Point, MS, but fled the scene frightened because of the devil stories.

Animate photo of drugstore

Slide 10 – "Deal at the Crossroads" painting

These stories, some recent documentaries, the movie Crossroads with Karate Kid Ralph Macchio... they all play into the "Robert Johnson sold his soul to the devil at the crossroads" myth. That's too bad, because the myth overshadows what is probably the pinnacle of the Delta Blues form in terms of musicianship and performance. Keith Richards of the Rolling Stones said that when he was a young man trying to learn the music from Johnson's records, that he was flabbergasted to find out that is was just one person playing.

Slide 11 – Studio portrait of Johnson

Robert Johnson left the world 29 songs from two recording sessions – one in San Antonio and one in Dallas.

Slide 12 – Mt. Zion Tombstone

Robert Johnson died a mysterious death in August of 1938. He was playing a gig at Three Forks Store just outside of Greenwood, Mississippi on a Saturday night. Most blues researchers believe he drank poisoned whiskey given to him by a jealous husband (Robert was a notorious womanizer). He died three days later.

Animate Payne Chapel Photo

However, no one knows for sure where he was buried. This monument at Mt. Zion Church was erected by Sony music in 1990 after the reissue of the complete Robert Johnson catalog. A few miles down the road at Payne chapel, you'll find this headstone. Notice that blues pilgrims leave spare change, guitar picks, and flowers

Slide 13 – Rosie Eskridge

Truth is, he's probably not buried in either location. Rolling Stone magazine reported in October of 2000 that Rosie Eskridge knows where Robert is buried. She said her deceased husband was the man that buried him. I'm sure we'll never know for sure.

Animate Little Zion tombstone

Blues researcher Gayle Dean Wardlow recently placed this monument where Rosie says he is buried.

Slide 14 – Bulleted list of Patton, House, and Johnson

Charley Patton, Son House, Robert Johnson – three men who lived and played their music in the harshest of places, in the worst of times. These men didn't have multimillion dollar recording contracts… they played to survive and to avoid the back breaking labor of the cotton fields. Nevertheless, their impact is still being felt today.

They directly influenced some of the greatest blues musicians from the heyday of Chicago blues like Howlin Wolf and Muddy Waters, who in turn influenced a whole generation of rock and rollers. If you keep your eyes and ears open you may hear one your musical heroes cover a Delta Blues song or list these musicians as an inspiration. The roots of modern American music run deep. Muddy Waters sang. "The blues had a baby and they named it rock and roll." Charley, Son, and Robert may no longer be with us, but they left us a great musical legacy – this is truly where the soul of man never dies.

Animate quote

APPENDIX D

SPEECH OUTLINE FOR "WHERE THE SOUL OF MAN NEVER DIES:

A SHORT HISTORY OF THE DELTA BLUES"

134

Where the Soul of Man Never Dies

Purpose: To inform the audience about Delta Blues.

Thesis: To really understand the roots of popular American music, it's necessary to journey back to the early 20th century and examine the music of three men who epitomize Mississippi Delta Blues.

Organization Pattern: Chronological

I. Introduction

A. Attention Getter

"This is where the soul of man never dies." So says Sun Records founder Sam Phillips... the man who discovered and first recorded Elvis Presley, Jerry Lee Lewis, and Johnny Cash. However, Sam wasn't referring to the King, the Killer, or the Man in Black. He wasn't even referring to Rock and Roll. He was referring to the Blues.... the real reason he opened Sun Studios in Memphis way back in the early 1950's.

B. Relevance

I know many of you are from the Chicago-land area. Through the many books and magazine articles I've read, I've discovered that the world

famous "Chicago Blues" sound owes its origins to Mississippi Delta Blues — since many of those players migrated to Chicago in the 40's and 50's. In fact, the blues classic "Sweet Home Chicago" was written by a Delta musician. According to Nicholas Leman in his book "The Promised Land: The Great Black Migration and how it changed America," the black migration from the rural south to Chicago represented one of the largest and most rapid mass internal movements of people in history. And, most of those who relocated were from the Mississippi Delta.

C. Credibility

I have been a blues fan for several years now. I was first introduced to the music by reading interviews with famous rock musicians like the Rolling Stones, Eric Clapton, and Bad Company. These English guys kept mentioning people with funny names...Blind Lemon Jefferson, Muddy Waters, Howlin' Wolf. They said these musicians were the first ones to inspire them to play. I started reading books and listening to the music, and just generally finding out about the blues and its players.... Especially Pre-War Country Blues.....the music created in the 20's and 30's in the Delta region of Mississippi. I've even traveled to the area to attend music festivals and visit historic blues sites.

D. Thesis

To really understand the roots of popular American music, it's necessary to journey back to the early 20th century and examine the music of three men who epitomize Mississippi Delta Blues.

E. Preview

First, we'll examine Charley Patton, one of the earliest Delta musicians; next Son House, his friend and protégé; and finally Robert Johnson, a man shrouded in myth and legend.

Transition: William Barlow, in his 1989 book "Looking up at Down: The Emergence of Blues Culture," called Charley Patton the heart and soul of the early Delta Blues tradition.

II. Body

A. Charley Patton was a flamboyant and charismatic performer

1. He was not the first blues musician in the Delta..... he just happened to be the first one to record – therefore, he's the first one to emerge from the anonymous oral tradition.

2. Patton lived and played around the Dockery Plantation near Ruleville, Mississippi .....leading some people to call Dockery's the birthplace of the blues.

3. Whether he was playing for change on a street corner or for corn liquor at juke joint, Charley was the consummate showman.

    a. Barlow reports that Patton played the guitar behind his back and between his legs, and would sometimes toss it high into the air – all to work the crowd into a frenzy.

    b. The young Howlin' Wolf was watching and listening and later incorporated some of those moves into his own performance style. And, Jimi Hendrix took some of his cues from Wolf – so Patton may very well be the prototype for rock stage performance.

4. Though he died in 1934, Patton still inspires many musicians. On a recent recording, Bob Dylan dedicated his song "High Water" to Charley Patton.

Transition: Though Patton never lived to see the worldwide acceptance of the blues, one of his disciples did.

B. Eddie "Son" House was born in Riverton, Mississippi in 1902.

1. In the article "Trail of the Hellhound" on the National Park Service's web site last modified on April 30, 2001, we find that Son first tried his hand at preaching but the seductive pull of women and music was just too great to keep him in the church.

2. He played at many of the same juke joints and parties as Charley Patton and the two even made a trip together in 1930 to Grafton, Wisconsin to record.

3. House played slide guitar in a rudimentary fashion, but very few bluesmen could match his vocal intensity. The band Lynyrd Skynyrd put it this way in their song "Swamp Music": *When that hound dog starts barking, sounds like old Son House singing the blues!*

4. Like most bluesmen, Son knew trouble first hand. He spent some time in Parchman Penitentiary for murdering a man, but was subsequently released.

5. In the 40's he moved to Rochester, New York and was out of the music business until 1964 when he was "rediscovered" during the

folk music boom. Throughout the rest of the 60's he played the "real folk blues" at several festivals.

6. By the 1970's he had fallen into ill health and had to retire from music.

7. He died of throat cancer in 1988.

Transition: When Son House used to play juke joints, he would sometimes notice a skinny little kid hanging around. When Son would stop playing to take a break, the would-be musician would pick up his guitar and start to play. The kid wasn't very good and Son would say "Little Robert, put that thing down, you're going to drive everybody away."

C. Robert Johnson was that kid.

1. Well, Robert Johnson took the hint and went away by himself for about a year.

2. When he came back, he played so well that Son House remarked that "he must have made a deal with the devil," as reported in a 1966 magazine article in Down Beat Music by Pete Welding. So begins one of the most famous and oft told stories in

blues lore. Years later Muddy Waters would recall that he saw Robert playing in front of this drugstore in Friars Point, MS, but fled the scene frightened because of the devil stories.

3. These stories, some recent documentaries, the movie Crossroads with Karate Kid Ralph Macchio… they all play into the "Robert Johnson sold his soul to the devil at the crossroads" myth. That's too bad, because the myth overshadows what is probably the pinnacle of the Delta Blues form in terms of musicianship and performance. Keith Richards of the Rolling Stones said that when he was a young man trying to learn the music from Johnson's records, that he was flabbergasted to find out that it was just one person playing.

4. Robert Johnson left the world 29 songs from two recording sessions – one in San Antonio and one in Dallas.

5. Robert Johnson died a mysterious death in August of 1938.

    a. According to Peter Guralnick in his 1989 book "Searching for Robert Johnson," He was playing a gig at Three Forks Store just outside of Greenwood, Mississippi on a Saturday night.

b. Many blues researchers believe he drank poisoned whiskey given to him y a jealous husband (Robert was a notorious womanizer). But no one really knows for sure.

c. He died three days later.

d. However, no one knows for sure where he was buried either.

6. This monument at Mt. Zion Church was erected by Sony music in 1990 after the reissue of the complete Robert Johnson catalog.

7. A few miles down the road at Payne chapel, you'll find this headstone. Notice that blues pilgrims leave spare change, guitar picks, and flowers.

8. Truth is, he's probably not buried in either location.

a. Rolling Stone magazine reported in October of 2000 that Rosie Eskridge knows where Robert is buried. She said her deceased husband was the man that buried him.

b. I'm sure we'll never know for sure.

c. Blues researcher Gayle Dean Wardlow recently placed this monument where Rosie says he is buried.

Transition: Charley Patton, Son House, Robert Johnson – three men who lived and played their music in the harshest of places, in the worst of times.

III. Conclusion

A. Thesis/Summary: These men didn't have multimillion dollar recording contracts... they played to survive and to avoid the back breaking labor of the cotton fields. Nevertheless, their impact is still being felt today. They directly influenced some of the greatest blues musicians from the heyday of Chicago blues like Howlin Wolf and Muddy Waters, who in turn influenced a whole generation of rock and rollers.

B. Memorable Close: If you keep your eyes and ears open you may hear one your musical heroes cover a Delta Blues song or list these musicians as an inspiration. The roots of modern American music run deep. Muddy Waters once sang. "The blues had a baby and they named it rock and roll." Charley, Son, and Robert may no longer be with us, but they left us a great musical legacy – where the soul of man never dies.

REFERENCES

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APPENDIX E

PRINTABLE TUTORIALS FOR PRESENTATION AUTHORING

FROM "RESOURCES" SECTION ON CD-ROM

145

Choosing a Template, Adding Text & Photos
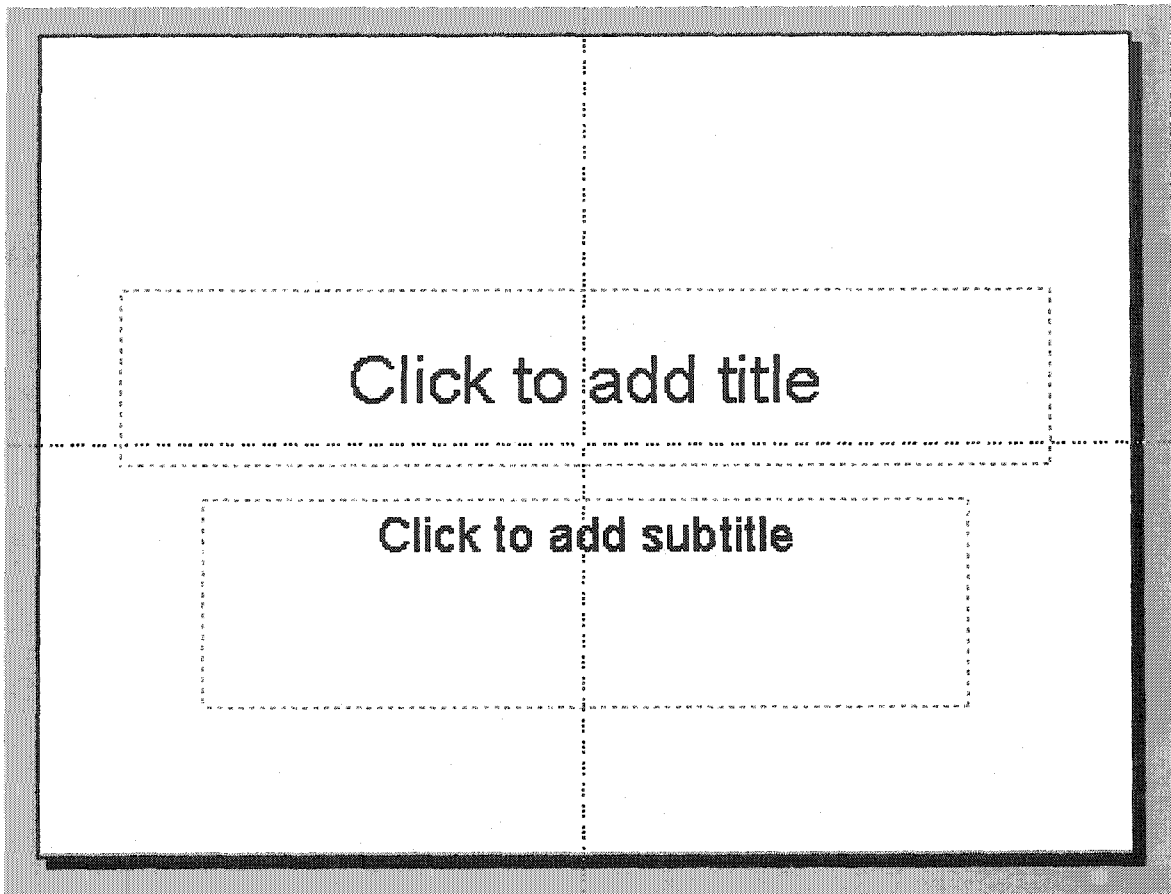
When PowerPoint opens, you will be presented with a blank **Title** slide. Make sure the task pane is visible. Go to **View>Task Pane**.
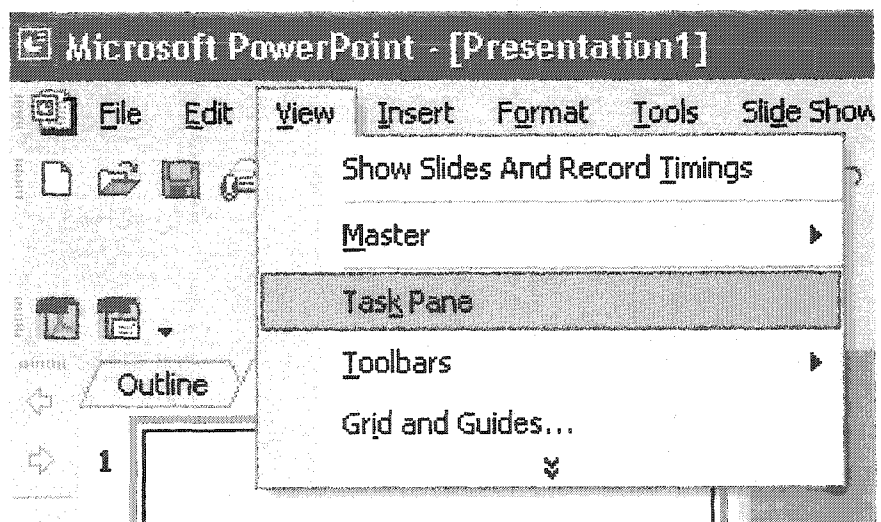
On the right side of your screen the task pane will appear (if it wasn't visible already). Click the down arrow and select **Slide Design – Design Templates**.
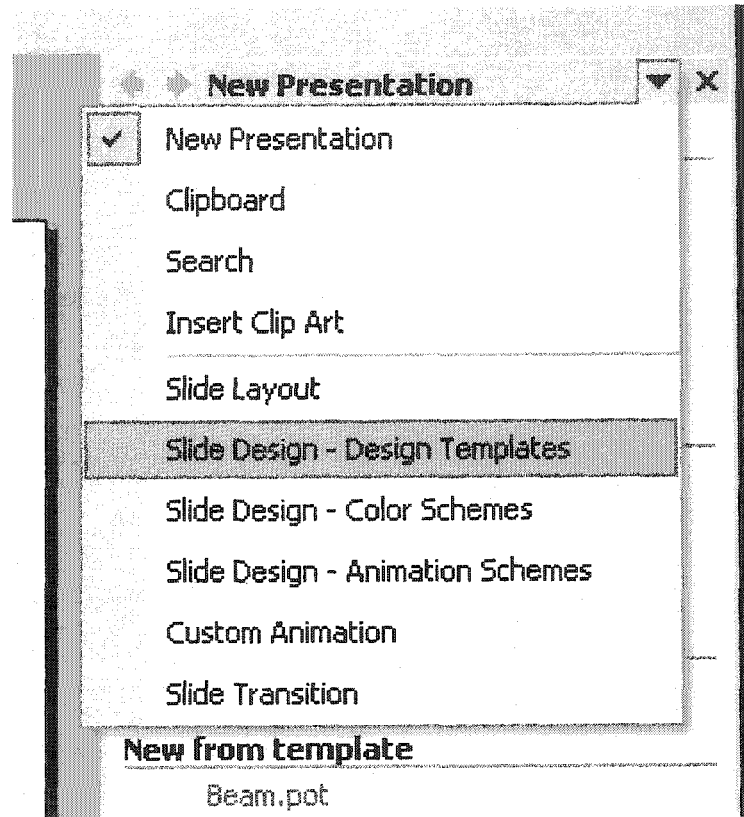
Scroll through your choices and make a selection. Whatever template you choose is applied to all the slides in the presentation.

Should you change your mind later, you can choose another design. The new template will update every slide in your presentation.
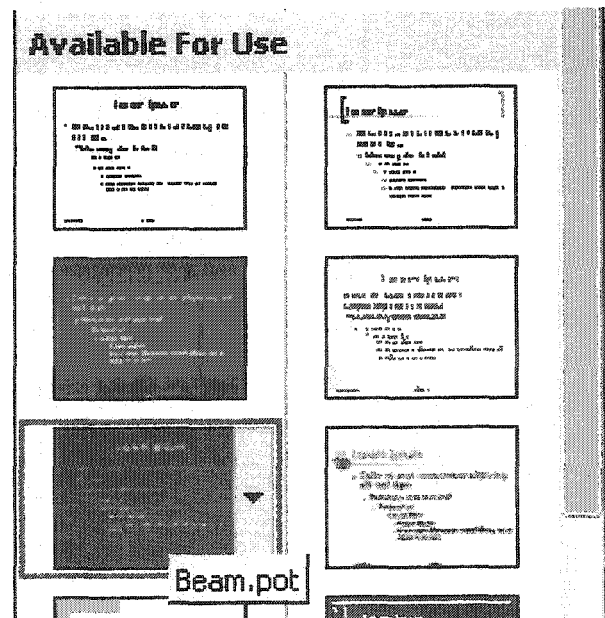
PowerPoint offers several pre-designed layouts where you can add your presentation content such as text and photos.

In the Task Pane select **Slide Layout**.
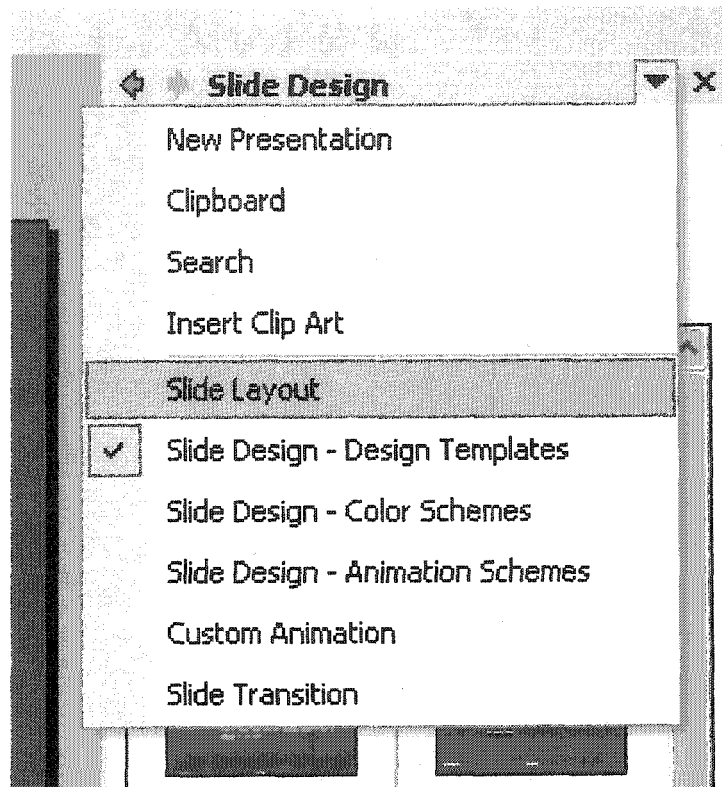
Choose the **Title, Text, & Content** layout.

You will now see three separate areas to add content. Type your title in the space provided.

To add a new bullet to your list, simply hit the **enter** key when you finish typing your text.
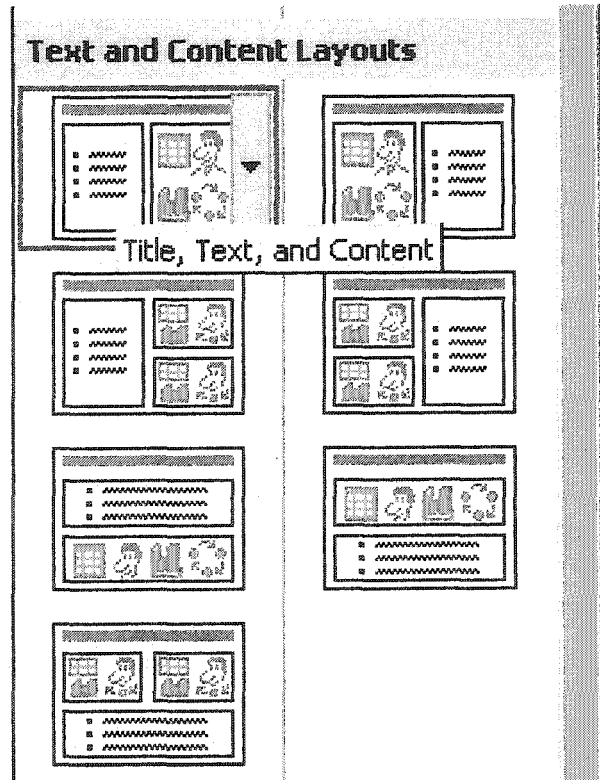
In the space provided for content, you have several options.

If you want to insert a picture, click the icon in the lower left corner. Navigate to your picture, select it, then click **Insert**.

Insert Picture

Click icon to add content

Alternatively, you can add a photo by going to **Insert>Picture> From File**. At this point, navigate to your picture and click **Insert**.
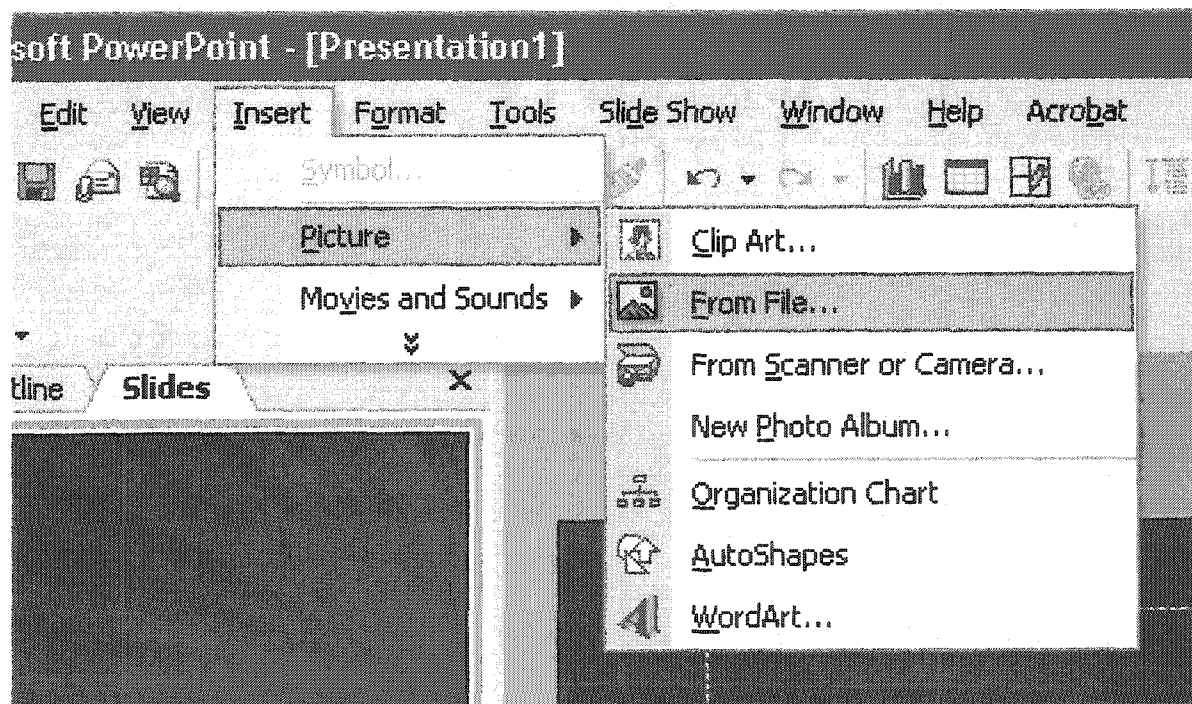
The easiest way to add transitions between slides is to switch to **Slide Sorter View**. It's in the lower left of your screen and looks like four small squares.
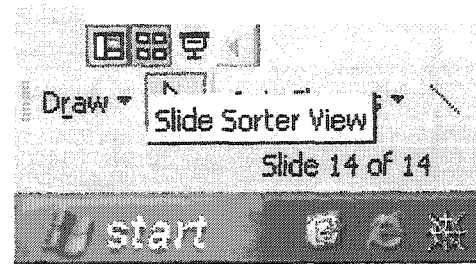
A **Transition** button will appear in the toolbar at the top of the screen.

Draw ▼ Slide Sorter View

Slide 14 of 14

start

Notes... Transition Design New Slide

Delta Blues Pioneers	Charley Patton	Charley Patton
4	**5**	**6**
Robert Johnson	Robert Johnson	Robert Johnson
11	**12**	**13**
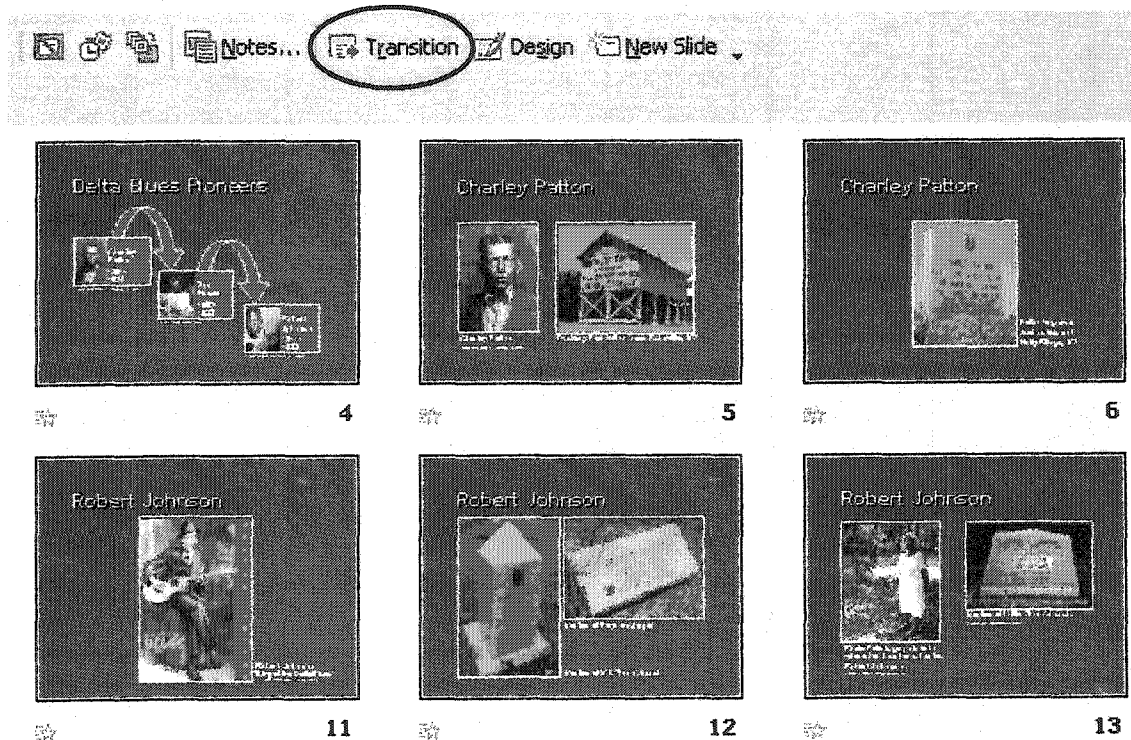
Your transition options will appear in the **Task Pane** on the right side of your screen.

To be consistent it's best to select all of your slides and then choose a transition effect. To select all of your slides hit **CTRL A** on the keyboard or go to **Edit> Select All**.

◆ ▮ **Slide Transition** ▼ X

Apply to selected slides:

Cover Left-Up

Cover Right-Down

Cover Right-Up

Cut

Cut Through Black

Dissolve

Fade Smoothly

Fade Through Black
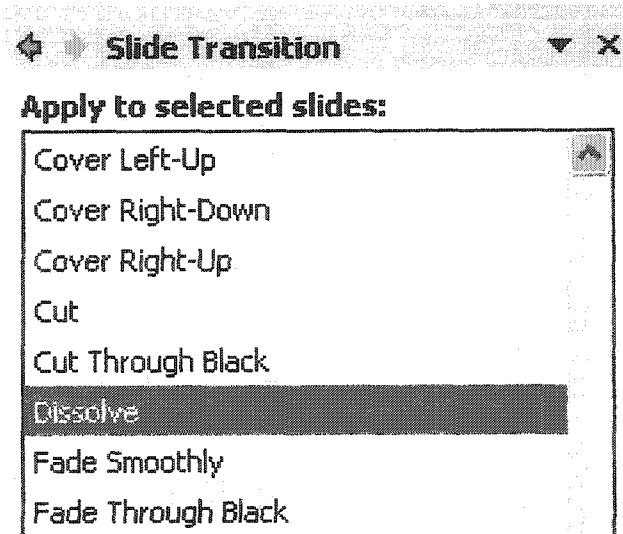
Using Drawing Tools to Create Diagrams

soft PowerPoint - [Presentation1]

| Edit | View | Insert | Format | Tools | Slide Show | Window | Help | Acrobat |

Show Slides And Record Timings

Master ▶

✓ Task Pane

Toolbars ▶

Grid and Guides...

✓ Standard

✓ Formatting

Control Toolbox

✓ Drawing

✓ Outlining

Picture

Reviewing

Revisions Pane

Tables and Borders

✓ Task Pane

Visual Basic

Web

WordArt

✓ PDFMaker 5.0

Customize...
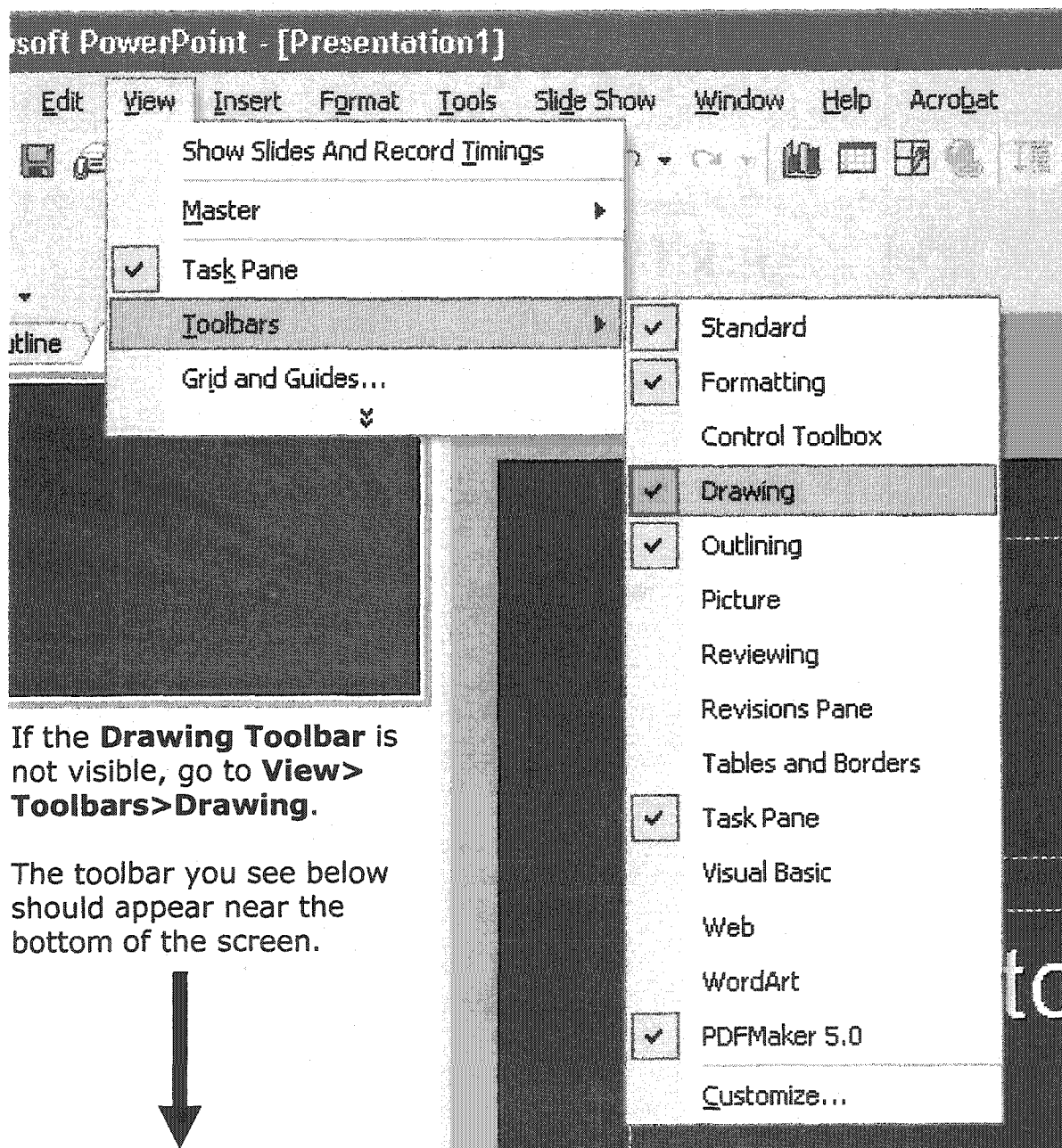
If the **Drawing Toolbar** is not visible, go to **View> Toolbars>Drawing**.

The toolbar you see below should appear near the bottom of the screen.

Draw ▾ AutoShapes ▾

There are several **AutoShapes** that are useful for creating diagrams.

Simply choose a shape and draw it on the screen by clicking and dragging the mouse.

The shape you draw can be resized, rotated, recolored, etc. with the tools in the Drawing Toolbar.
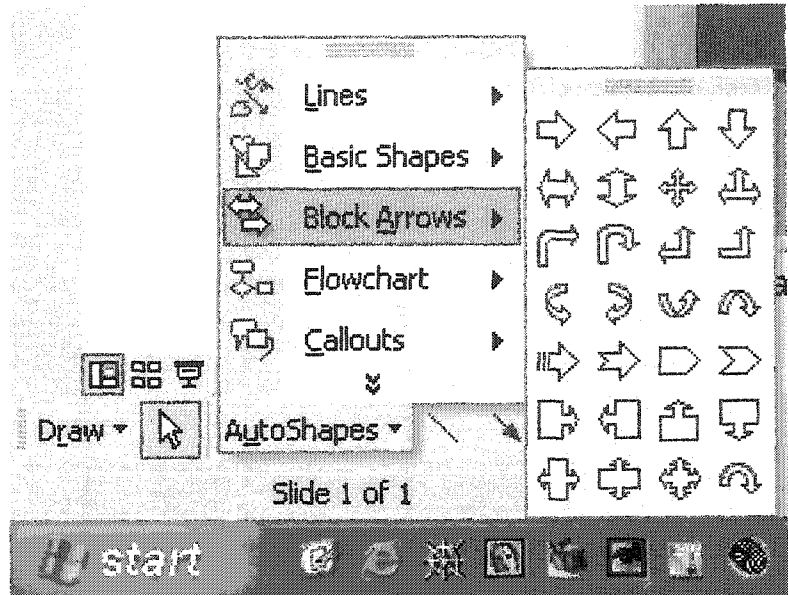
Diagrams are especially useful when explaining processes. By using simple shapes, lines, and arrows, you make help your audience "see" something that is intangible. For example, take a look at the **Shannon-Schramm Communication Model**.
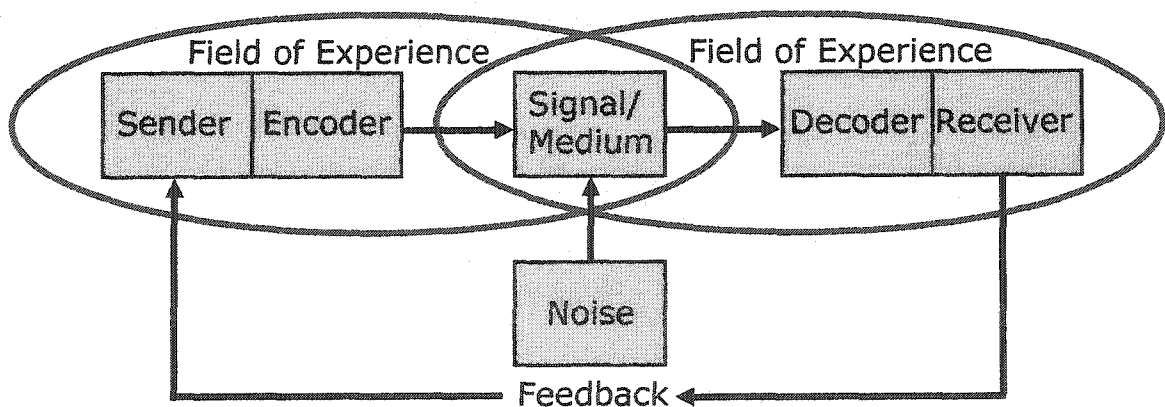
You can animate any element on the screen (text, photos, diagrams, etc.).

To see the animation options, select **Custom Animation** in the **Task Pane** on the upper right of your screen.
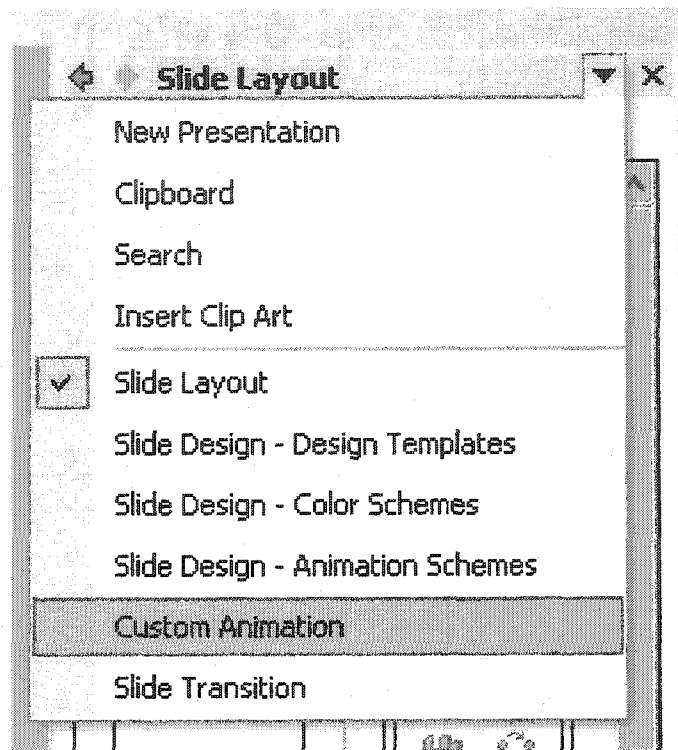
To add animation to a screen element, first select it by clicking on it. Then select **Add Effect**. Choose the effect you want from the list.
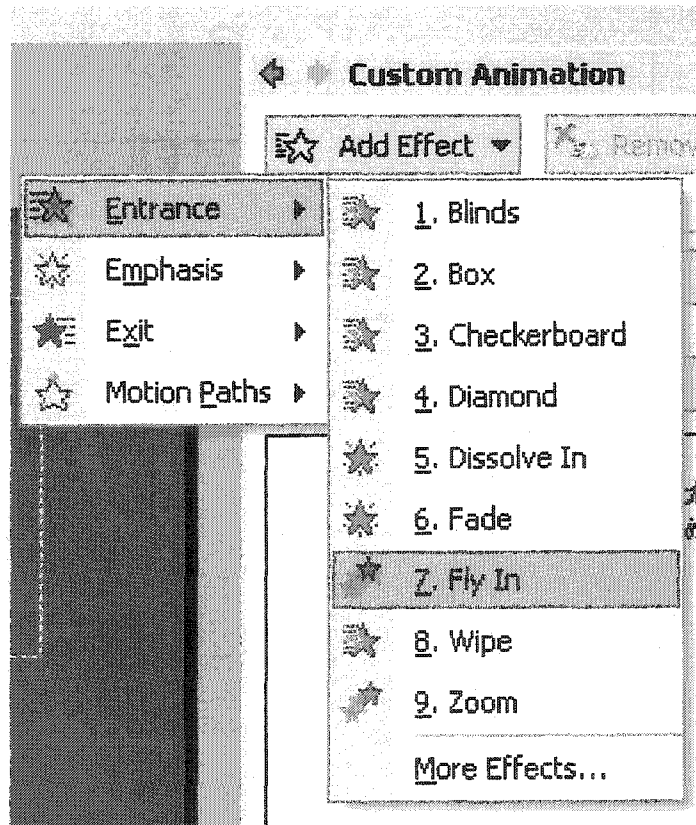
The **Custom Animation** pane gives you complete control over the direction, speed, and order of your animations.

This allows you to reveal parts of your presentation at your discretion to achieve the effect you are trying to create.

To run your presentation in slide show mode, hit F5 on the keyboard. By pressing the space bar you advance to the next slide or cause animation to occur.

Custom Animation

Add Effect ▼ | Remove

Modify: Fly In

Start: On Click ▼

Direction: | Speed:

From Bottom ▼ | Very Fast ▼

1 Curved left arrow 3 ▼
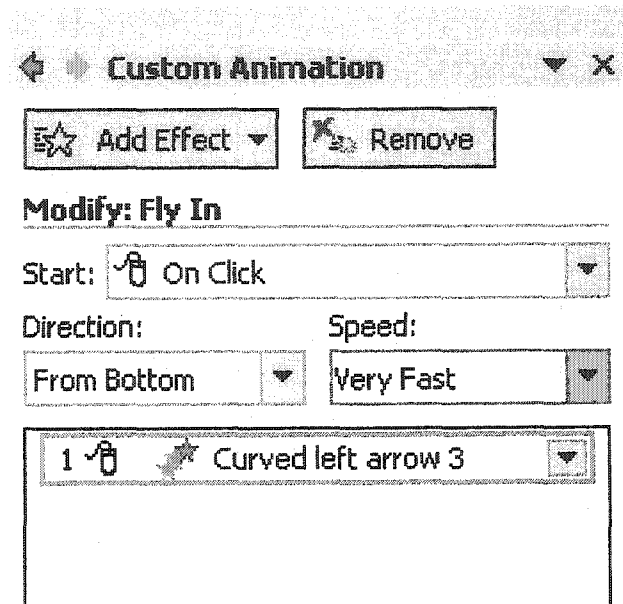
Creating Charts/Graphs

When you have data to communicate, choose a chart/graph.

Add a new slide to your presentation by pressing **New Slide**. Then choose a **Title and Content** layout from the task pane on the right side of the screen.

Type a name for your chart in the **Title** area. Next, click on the **Insert Chart** icon (top row, middle).
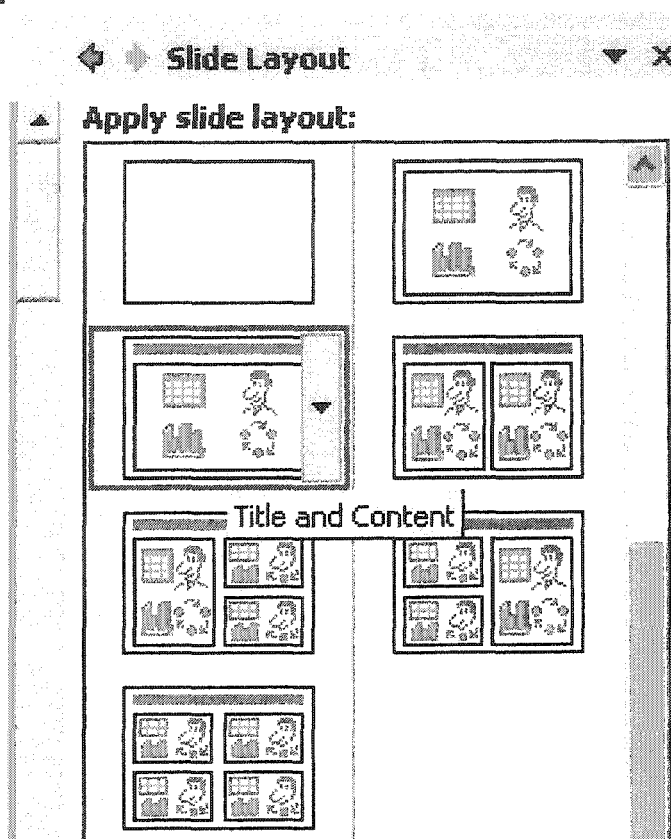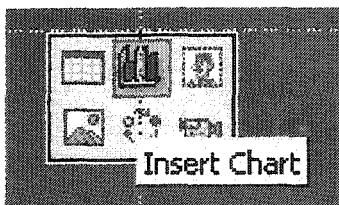
PowerPoint will then launch a charting applet (a small program). There will be a default horizontal bar chart displayed which you can easily change later.

In the **Datasheet** replace the numbers in the sheet with your own. You may have more or less columns and rows. These numbers could be sales figures, statistics, test scores, etc. Also replace the default categories with your own.

Presentation3 - Datasheet

		A	B	C	D
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
1	East	20.4	27.4	90	20.4
2	West	30.6	38.6	34.6	31.6
3	North	45.9	46.9	45	43.9

Go to the **Chart** menu and then select **Chart Type**. There are several types listed with sub-types displayed on the right. Just below that, you are given a description of how the selected chart should be used.
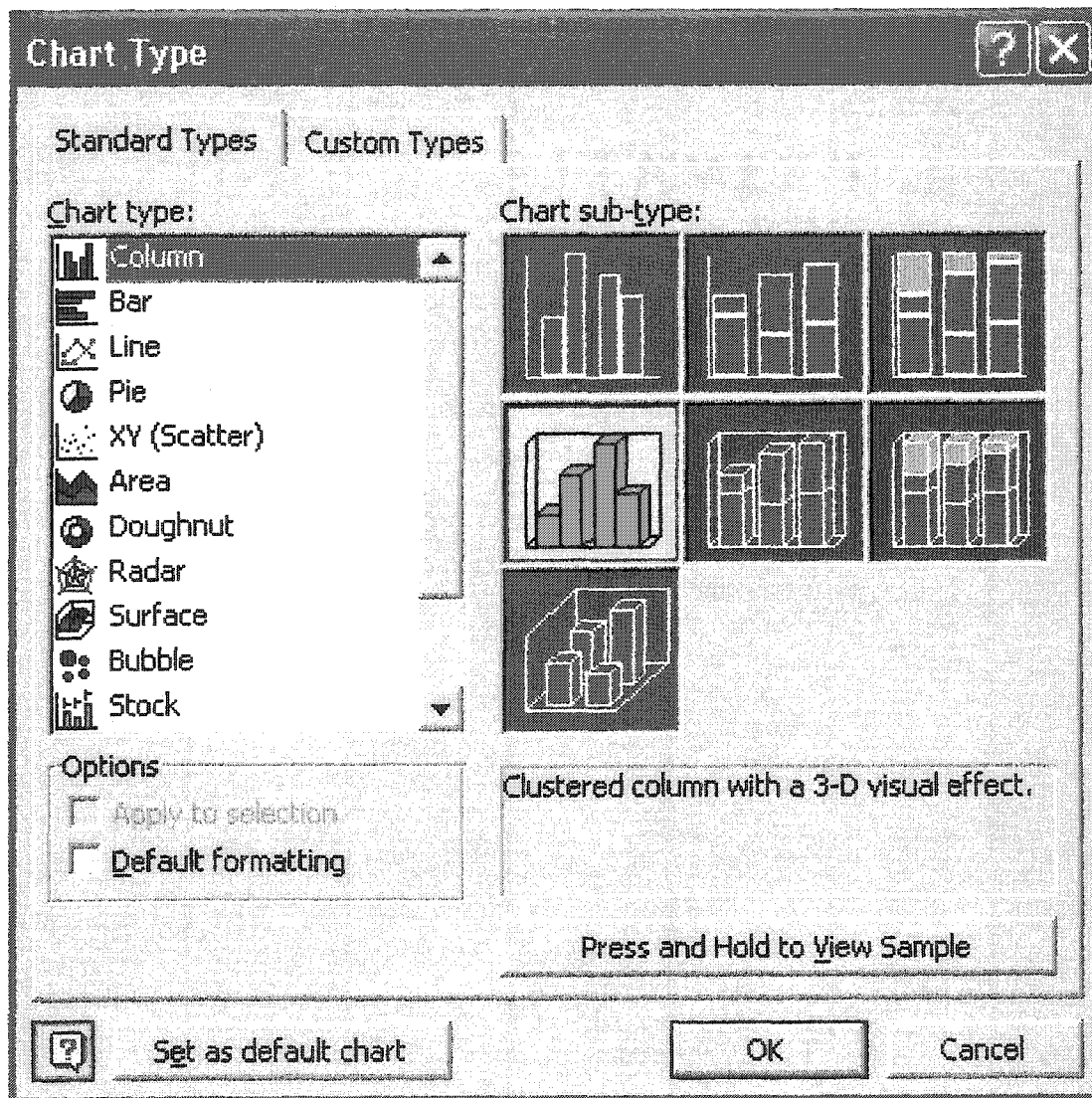
You can change the look of any part of your chart by double clicking on an element such as a line, bar, pie slice, etc. and making changes in the resulting dialog box.

For example, you can change the **Style**, **Color**, and **Weight** of any line. You can also fill bars or pie slices with color gradients by choosing **Fill Effects**. Repeat this process for each part of the chart you wish to edit.
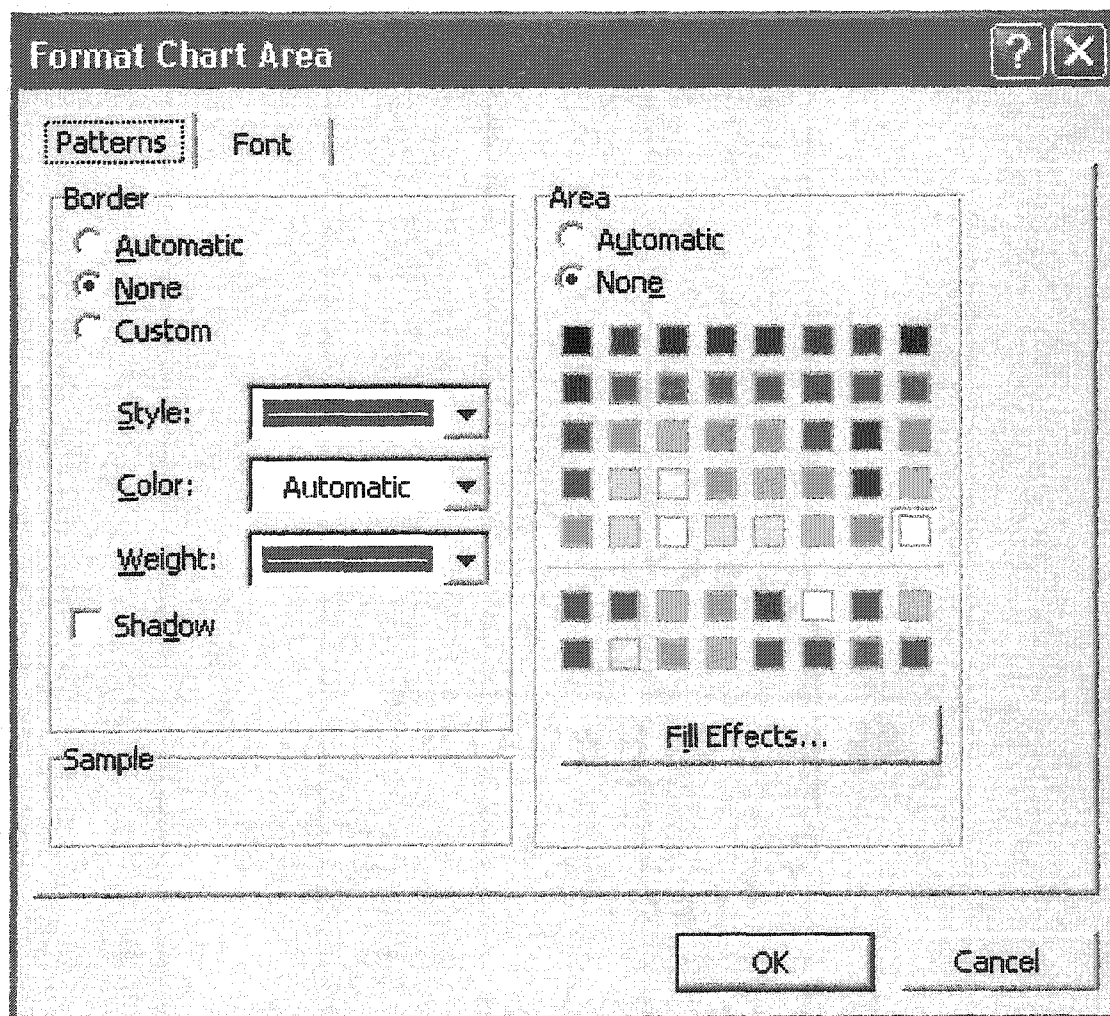
To return to the regular PowerPoint editing mode simply click anywhere on the slide other than the chart. To see how the chart will look to your audience, press the **Slide Show (from current slide)** button in the lower left of the screen. The slide will fill up the screen and give you a fairly good idea how it will look to your audience. To return to the editing mode press **Esc** on the keyboard.

APPENDIX F

SCRIPT FOR "TEMPLATES,

TEXT, PHOTOS" VIDEO

In this video you will learn how to select a design template in PowerPoint, how to create text including bulleted items, how to insert digital photos into a presentation, and how to add transitions between slides. We will be creating the PowerPoint slide show that you will see in the PRESENTATION video on this CD-ROM. A copy of the completed PowerPoint file is available in the RESOURCES section if you wish to view it. The OUTLINE for the speech can also be found in the RESOURCES section.

After you open PowerPoint, you will be presented with a blank white slide on which you could begin typing. However, to fulfill ITPS requirements you must make use of a design template.

On the right side of your screen you should see NEW PRESENTATION with a list of options. You can create a new presentation from a design template here, or you can click on the down turned triangle to see more options. If this window, which is called the TASK PANE is not visible at all, go to the VIEW menu, then select TASK PANE.

To get a look at the design templates available on your computer, click the triangle on the TASK PANE and select DESIGN TEMPLATES. Your options will then appear below. Scroll through the various designs until you find something you like. You can always change your mind later and select another one.

When you select a template, it is immediately applied to all of the slides in your presentation. Since all slides will have the same design, you quickly create a consistent look. This is an important principle in visual design – REPETITION. See the Design Tips part of this CD-ROM for more information on design principles.

Notice that the default slide already has layout areas for text specified. This is the TITLE layout. Many other layout types are available. Select SLIDE LAYOUT from the task pane to see the others. For now, I want to use a TITLE ONLY, so I select that layout.

The attention getter for this presentation is a short quote from a man named Sam Phillips. Let's type that quote into the area labeled "click to add title." You may or may not choose to give your presentation an actual title. Discuss this with your Com 110 instructor.

Each template has certain fonts and colors associated with it. In this case, I have decided to change the font to reflect that this is a quote. Brush Script MT does the trick. I will also change the size of the font – in this case to 54.

To get the text to "break" where I want it to – I place my cursor into position and hit ENTER. I also think it would be a good idea to left justify the text. Use your own judgment as to the look you are trying to achieve. Undo any unwanted

changes by hitting CTRL Z on the keyboard, or by going to the EDIT menu and selecting UNDO.

Importing a photo is easy. Go to the INSERT menu, then to PICTURE, select FROM FILE. At this point you will have to navigate to where you have saved a digital photo or graphic. It's always a good idea to keep all of the materials for your presentation in one folder – especially the PowerPoint file and any files that are embedded in it.

There are many ways to get digital images. First, you might shoot them yourself with a digital camera. These files are ready to be placed into PowerPoint once you have transferred them to your computer. Or, you might scan photos that you have taken with a traditional film camera. This takes a little more work, but still yields great results.

You can also scan photos from books and magazines as long as you give credit to the copyright holder by placing a notice on your PowerPoint presentation. You are allowed to do this for non-commercial educational purposes under a provision in the copyright law known as Fair Use. See your Lucas textbook or the links in the RESOURCE section of this CD-ROM for more information.

Finally, you can download images from the internet and use them – provided you give the proper credit that we just spoke of. See the RESOURCE section for some web links to image banks.

PowerPoint can a handle large number of image file types, but two are worth special mention. They are JPEGs and GIFs. Images often have extremely large file sizes making them difficult to store on small media like floppy disks. Large file sizes can also cause PowerPoint to become sluggish if you try to animate the images. JPEGs and GIFs are compressed, that is, they throw away data to reduce file size. Usually, this data reduction doesn't make a noticeable difference in the image quality. JPEGs are most useful for photo realistic images and GIFs are best for graphics that contain broad expanses of the same color like you tend to find in logos and similar sorts of artwork. Just about every image you find on the Internet is one of these two types, for the very reasons that we just discussed. So, when preparing images for your presentation be aware of image file types and size.

To resize pictures proportionately on the screen, place the cursor over one of the corner handles until the cursor turns into a double-headed diagonal arrow. Click and drag until you have the picture the size you want. If you don't click on a corner handle, you might stretch the photo out of shape.

To add a border around a graphic, select it by clicking on it and then choosing a LINE STYLE and weight from the drawing tools menu. To change the line color, select the LINE COLOR tool and choose a color. To move the picture around the screen, click and hold in the middle of the graphic and move it into location. To move it in very small increments, use the arrow keys on the keyboard.

Now, I choose the TEXT BOX tool from the Drawing Tools menu at the bottom of the page. I want to type a caption for my photo and to give the proper credit in accordance with copyright law, since I did not take the picture myself. The caption should be descriptive without being too wordy. This particular photo is of a young Sam Phillips at Sun Studios in the 1950s. When giving credit to copyright holders, you can use a fairly small font such as 10 point.

Move the text into place by first selecting the text block, then place the cursor over the diagonal lines on the bounding box and click again – the diagonal lines should turn into small dots. Use the mouse or the keyboard arrows to move the text into place.

Notice that the text is left justified and aligned with the picture on the side and bottom. It is also placed very close to the photo. These are the design principles of alignment and proximity at work. See the Design Tips section of the CD-ROM for more information.

Now that this slide is complete, I want to add the next slide. It's easy, just click on NEW SLIDE in the toolbar. If you don't see that option available, go to VIEW, then TOOLBARS and then select FORMATTING.

After clicking on NEW SLIDE, you should see a new slide added on the left side of the screen. It will probably offer you a slide layout that includes a TITLE and bulleted text. Bullets are useful for listing things. In our case, we will use bullets to indicate the main points of our presentation. This could be used to great effect as you preview your presentation for your audience. Bullets would also be appropriate in your close as you review the content that you covered in the body of your speech.

Use discretion though, too many speakers type up screen after screen of bulleted text and then read to their audience. If you fall into this trap, you will not be making the most of this powerful visual tool, and will in fact, bore your audience. As you watch the presentation video, note that bullets are only used in the review section of the speech and that text is kept to a minimum throughout the presentation.

Bullets and photos can be animated just like any other element on the screen. The video on "drawing tools" covers how to set up animation.

Now that we have two slides, we can add a transition between them. The easiest way to accomplish this is to switch to slide sorter view. Click on the icon in the lower left of your screen that has three small squares. This will show you miniature pictures of all the slides in your presentation. A TRANSITION button will now appear on the formatting tool bar. When you click on it, you are presented with all of your transition options for the selected slide. It is usually better to complete your presentation and then add transitions because you can do it all at once instead of one slide at a time. We only have two slides now, but there will be 14 in the final presentation, as you will see on the video. To select all of the slides hit CTRL A on the keyboard or go to EDIT, SELECT ALL. Now choose a slide transition from the list.

To view what you've done in slide show mode – press the SLIDE SHOW button in the lower right or hit F5 on the keyboard. Your presentation will fill the screen. This is how you will actually make your presentation to the class. You advance to the next slide or cause animation to occur by pressing the SPACE BAR on the keyboard. If you accidentally go too far, you can hit the BACKSPACE key to run the show in reverse.

In this video you learned how to select a design template, add and edit text, import pictures, and how to add transitions between slides. Please view the drawing tools and graphs and charts videos to learn how to create those types of visuals and how to animate elements on the screen.

When you've watched all of the tutorials view the Presentation video to see how all of these things work together in actual practice.

APPENDIX G

SCRIPT FOR "DRAWING TOOLS" VIDEO

This video will demonstrate how to use the drawing tools in PowerPoint to create simple illustrations and diagrams. You will also learn how to group items so that they can be animated as one object.

Presentation authoring software like PowerPoint allows users to create simple drawings using an easy-to-use set of tools. Drawings can include illustrations like this microphone which is representative of its subject. In other words, it resembles a real microphone.

Diagrams, on the other hand, are not necessarily representative, but instead excel at revealing relationships among parts of a whole. Take a look at the Shannon-Schramm Communication model. By using bits of text, rectangles, ovals, lines, and arrows, we are able to give form to an abstract process or idea. So, if you need to give visual form to something that is intangible, a diagram may be the answer. However, if you have numbers to communicate like statistics or sales figures, a graph would probably be more appropriate.

For the informative presentation about blues music that we are creating, a diagram will serve as the visual support during the preview portion of the speech's introduction. We will be adding it to the presentation that we began in the template/text/photos tutorial.

The body of the speech is about three different blues players from the Mississippi Delta: Charley Patton, Son House, and Robert Johnson. The players will be discussed using a chronological organizational theme. That is, Charley Patton came first and influenced Son House, who in turn, influenced Robert Johnson. The trick is how to "show" these relationships without having to go into great verbal detail in the introduction of the speech

To begin, you have to make sure that the drawing toolbar is visible. Go to "view" then "toolbars" and make sure that there is a checkmark next to "drawing."

The toolbar should then appear near the bottom of the screen if it wasn't there already.

This particular diagram we are designing will also make use of photos, so it will have some representational elements.

First, select the rectangle tool. By pressing the left mouse button and dragging across the screen, you will create a rectangle. If you hold down the SHIFT key on the keyboard while you do this, your drawing will be constrained to a perfect square. The rectangle will automatically be filled with a color. What the color will be depends on the particular template you have selected. You can always change the color if you choose. Just click on the rectangle, then select another color from the FILL tool (it looks like a little paint bucket). Feel free to experiment.

You can always undo what you've done by hitting CTRL Z on the keyboard or by going to the EDIT menu and clicking on UNDO.

You can change the color of any element on the screen by selecting it and then choosing either FILL color, LINE color, or FONT color.

Since we have three musicians, we will need three rectangles. Instead of drawing the rectangle two more times and struggling with trying to match the first rectangle's size and shape, we will copy and paste the first rectangle instead.

There are several ways to accomplish this. On way is to select the rectangle by clicking on it with the left mouse button, then clicking the right mouse button and selecting COPY, right click again and select PASTE. To paste a second time, just repeat the previous step.

Another way is to select the rectangle and hit CTL C on the keyboard to copy, and then CTRL V to paste. Hit CTRL V again to paste a second time.

Finally, you can use the menus, but this tends to be the slowest method. Select the rectangle then go to EDIT, then COPY, EDIT then PASTE. Repeat the last step to paste the final rectangle.

Now let's import the pictures that will go in the rectangles. Go to INSERT > PICTURE > FROM FILE. At this point you may have to navigate to the folder where you have saved the pictures for your presentation. It's always a good idea to save your presentation in the same folder as the pictures that you have taken digitally or scanned.

When you import a picture it may appear much too large to fit into the rectangle you have created. If that is the case, it's easy to resize the photo by clicking on a handle with the left mouse button, holding it down, and dragging to make it the proper size. You can move any element by clicking and dragging, or you can select the element and nudge it in small increments by pressing the ARROW keys on the keyboard.

You might want to go to the DRAW Menu in the lower left of the screen and click on GRIDS & GUIDES. In this dialog box, deselect SNAP OBJECTS TO GRID. This will allow you to nudge elements on the screen in extremely small increments for precise placement.

Import all three photos and resize them and place them into their respective rectangles. Notice that Charley Patton is on the far left, Son House in the middle, and Robert Johnson on the far right. In our culture it is customary to read from left to right, so it is generally understood visually that time moves from left to

right. Since the body of the speech is arranged chronologically our "preview" diagram should reflect this.

Now we will create text to identify each musician, as well as their year of birth and death. Select the text tool on the drawing toolbar and begin to type. If you choose, you can change the typeface and the size just as you would in a word processor.

Move each piece of text into position just as you did with the photos.

Now it's time to create some arrows that illustrate the relationship among these three men. A straight arrow might reveal the proper chronology but little else. Remember, these men knew and played with each other, and the older influenced the younger. I have chosen this type of arrow to communicate that relationship. By placing each player a little below the one to his left and using this stylized arrow, you can communicate subtle relationships quickly and powerfully without having to explain them verbally.

Notice that the arrow is placed behind the rectangle and photo which allows me to drop the photos down on the right. Each element on the screen, whether it is a photo, drawing, chart, or piece of text resides on its own plane. Therefore, you have control of what element is on top or behind another. To control this "stacking" effect, select the element you wish to manipulate, then go to the

DRAW menu in the lower left of the screen, click on ORDER. Notice that you

have four choices. It may take a few tries to get the effect you are looking for, but

it's not too difficult.

For the presentation, I'll want to animate each player on the screen as their name

is mentioned. Therefore, I need to group several elements together to make this

happen. First, I click on Son House's picture. Now, I hold down the SHIFT key

and click on his text, I SHIFT CLICK again on the colored box, and once more for

the arrow. To make all of these elements a group, I now RIGHT click and select

GROUPING, then GROUP. Alternatively, you can make all of your selections,

then go to the DRAW menu in the lower left of the screen and select GROUP.

Grouping elements is very powerful since you can now treat them as one object.

It's especially useful if you need to move the object around the screen but don't

wish to change the spatial relationships you have created between the individual

elements. And, you can create groups inside of groups or ungroup items at any

time.

After groups have been established for Son House and Robert Johnson, they

can be animated individually. If CUSTOM ANIMATION options are not visible on

the right side of the screen, go to SLIDE SHOW, then select CUSTOM

ANIMATION. Select the group you wish to animate and then click on ADD

EFFECT. For this example, we will choose an ENTRANCE effect called FADE.

Notice that you can also control the speed of the effect. Press the PLAY button on the bottom right of the screen to preview the effect.

Repeat the above steps for each item you choose to animate. If you have more than one item that is animated, you can control the order of the effects by dragging and dropping each item in this chronological list.

Typically, you will want the animations to start ON CLICK. This way you have control of the timing when you are presenting. Simply press the SPACE BAR or click the LEFT MOUSE BUTTON. Should you accidentally go too far you can press the BACKSPACE key to back up.

That concludes this video on using PowerPoint's drawing tools. View the other videos for more guidance on creating powerful visuals for your informative speech.

APPENDIX H

SCRIPT FOR "GRAPHS/CHARTS" VIDEO

175

This video will demonstrate how to create charts and graphs in PowerPoint. The distinction between charts and graphs depends mainly on whom you ask. Some sources say the difference is that charts use bar or pie slices and that graphs use lines. Others say that charts are usually tables that contain categorical data while graphs usually contain at least one variable that is continuous. For the purpose of this tutorial we will use the terms interchangeably. PowerPoint labels them all as charts.

There are several different charts you can use to represent your data. Three of the most commonly used are bar charts, pie charts, and line graphs. Bar charts are useful when you want to make comparisons between different categories. For instance you might want to compare test scores between different schools.

Pie charts show how each value contributes to the total. This might be appropriate to show how much money is allocated to various departments within a business.

Finally, use line graphs to illustrate trends over time. For example, you could track the reduced number of cases of a disease after the development of a new drug.

No matter what type of chart you create, what is required are data. These numbers could represent just about anything: yearly income, age, test scores,

etc. In the presentation we are constructing, we will use some numbers that represent the black population of Chicago at various points in time.

To begin, click on NEW SLIDE to add a slide to your presentation. Make sure SLIDE LAYOUT is visible in the TASK PANE. Choose the TITLE & CONTENT layout.

Add the title of your chart in the designated area. To be consistent with other slides in this presentation, I left justify the title.

Now, I need to click on the INSERT CHART icon so that I can add numbers and create a chart. PowerPoint then loads a charting applet – a small program for creating charts. Notice that it defaults to a vertical bar chart. We can change the type of chart once we have entered our numbers into the data sheet.

I have population figures from five different decades in Chicago: the 20s, 30s, 40s, 50s, and 60's. Since I want the 20's to be on the far left, I will replace the 1st quarter with the 20's. Now, I hit the TAB key and continue typing until I have all of the years in the datasheet.

I have only one set of numbers, so I don't need the 2nd and 3rd lines in the datasheet. I select those cells with the mouse and then press DELETE on the keyboard. Now I replace EAST with POPULATION. I then add my numbers into

the form. When I get all of the data entered, I can then choose the proper chart to represent my information.

Go to the CHART menu and then select CHART TYPE. There are several types listed with sub-types displayed on the right. Just below that, you are given a description of how the selected chart should be used. Remember, line graphs are useful for showing trends over time – that is exactly what we are trying to communicate with the population figures. I select LINE from CHART TYPE and the first sub-type in the second row and click OK.

Now I can get a good look at my chart. Move the data sheet out of the way if necessary. Notice the Chart Legend on the right – it still lists two other lines. Since I only have one set of data, the legend is not needed – the title at the top of the slide is sufficient. To remove the legend, I go to CHART and then CHART OPTIONS. I click on the LEGEND Tab and then deselect SHOW LEGEND.

Looking at the chart, I decide that the thin red line may not be very visible. To edit specific areas of the chart, simply point the cursor at the element you want to change and then double-click. In this case, I decide that I would prefer a bright yellow line so I click on the color tab and make my selection. I also want to thicken the line so I click on the WEIGHT tab and choose a heavier line. I will also need to change the color of the data marker – both FOREGROUND and BACKGROUND – so I make the necessary changes and then click OK.

To return to the regular PowerPoint editing mode simply click anywhere on the slide other than the chart. To see how the chart will look to your audience, press the SLIDE SHOW (from current slide) button in the lower left of the screen. The slide will fill up the screen and give you a fairly good idea how it will look to your audience. To return to the editing mode press ESC on the keyboard.

In this video you learned how to enter data and create and edit a chart in PowerPoint. Charts can also be animated like anything else on the screen. View the drawing tools video for more information on animation.

To see how the chart fits into the overall speech, watch the PRESENTATION video.

APPENDIX I

PRESENTATION TASK FOR FOCUS

GROUP PARTICIPANTS

180

Create a three slide presentation using a design template. Create transitions between all slides.

Slide 1

Heading: **Com 110 and the Inner Core**
Bullets: **Taken by First Year Students**
Spring or Fall Semester
Must Pass in Order to Advance
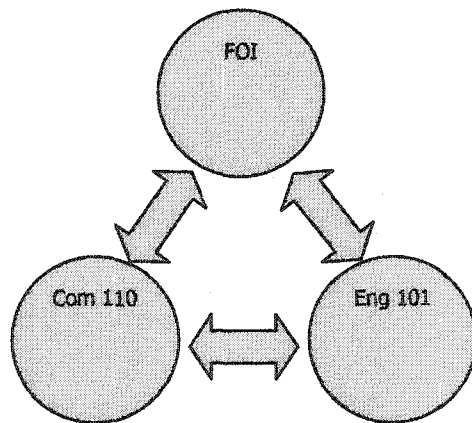Insert Photo: a picture of Fell Hall found on the desktop of your computer
Caption: **Com 110 is offered in Fell Hall on the Illinois State University campus.**

Group the photo and caption and then add an entrance animation effect to the group.

Slide 2

Heading: **What's in the Inner Core?**
Create the following diagram:

Slide 3

Heading: **Students Enrolled in the Inner Core**
Create a vertical cylinder chart typing the following numbers in the data sheet.

	FOI	Eng 101	Com 110
Fall 2000	3312	1620	1692
Fall 2001	3200	1555	1645
Fall 2002	3150	1570	1580

Your chart should look something like this.