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Toward a New Paradigm for Teaching and Learning:

A Case Study of the Process of Integrating Instructional Design and

Technology at Florida Community College at Jacksonville

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Toward a New Paradigm for Teaching and Learning:

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by

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Dedication

This dissertation is dedicated to my younger sister and childhood playmate, Laurie, who lost…no, won her courageous battle with a brain tumor in March 2003. Her journey was all too brief.

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Toward a New Paradigm for Teaching and Learning:

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This study examined the process by which administrators, faculty, and instructional design staff at Florida Community College converted four traditionally formatted courses to online courses in order to integrate innovative instructional design and learning strategies with instructional technology. The study also examined the design and development of an electronic Instructional Design Assistant that would enable the user to systematically design curriculum that incorporated learning and motivation theory. The researcher used a case study approach to describe the model and processes the College administration used to implement the project; why faculty chose to participate in this project; and how instructional design principles and technological tools were used to redesign the courses and develop the electronic Instructional Design Assistant.

The purpose of this study was to explore how one institution of higher education addressed the gap that often exists between systematic and collaborative instructional design and the use of instructional technology in online course development. Data for this study was collected through semi-structured interviews and a review of project related records, reports, guidelines, and artifacts. Data was also obtained through field

observations and researcher participation in training and professional development sessions with faculty and staff. Findings were reported under each of the four research questions that sought to describe the overall process undertaken to carry out this project. The specific findings included the model, philosophical basis, and resources the College utilized to facilitate the project; the reasons faculty chose to participate in the project and their preference to blend face-to-face teaching with the new instructional delivery methods enabled by the Web, rather than teaching in an exclusively online environment; and the challenges encountered in trying to link course design and instructional technology through collaborative efforts among administrators, faculty design teams, and instructional designers.

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CHAPTER I

Introduction to the Study

Background

The rapid proliferation of the Internet, growth in the World Wide Web, and developments in multimedia technologies offer new approaches for designing and delivering teaching and learning in higher education. For the community college, these technologies have opened the door to a whole new way of thinking about the core values that have defined the community college since its inception. In the forward to *Practical Magic, On the Front Lines of Teaching Excellence,* George Boggs, President of the American Association of Community Colleges, wrote:

> A projected 'tidal wave' of new students, increased competition from for-profit providers, deceasing levels of funding, and increasing calls for accountability will test [community colleges] in unprecedented ways. If community colleges are to succeed in this increasingly difficult environment, they will have to remain true to their historical values of access, responsiveness, focus on student learning, and entrepreneurial action. (Roueche, Milliron, & Roueche, 2003, p. v).

In the face of these challenges, many educators have proclaimed technology to be the preeminent solution for expanding access to this growing and diverse wave of students, while at the same time enhancing educational quality through more *learning-centered* options (Miller & Gilbert, 1999). O'Banion (1997) posited that technology is a "key building block in creating a firm foundation for the learning college" (p. 7). However, for other educators, technology is viewed as a threat, specifically as it relates to distance or online learning, to the social, cultural, and intellectual traditions of higher education (Young, 2002). An increasing number of colleges and universities are offering courses and programs, in which the only contact between the student and the teacher takes place in a "virtual" classroom (Herther, 1997, Milliron & Miles, 2000a). The

Chronicle of Higher Education, in a July 2003 article, reported that enrollment in credit, distance-education courses at U.S. institutions more than doubled from the 1997-1998 academic year to the 2000-2001 academic year and the percentage of institutions offering such courses rose from 44 percent to 56 percent. The asynchronous nature of the Internet, particularly for non-traditional students, has mitigated many of the typical barriers to higher education – time, geographical limitations, family and work obligations, and apprehensions about social interactions. For the traditional students, Sifferien (2003) reported that they "have been reared in homes and have been educated in such a way that technology is an expected part of their everyday environment" (p. B12). Meyer (2002) cited research reviewed by Brown on the Generation X and Generation Y learner, which showed that students in these groups have had experiences that foster preferences for technology-based learning opportunities:

> (1) these students are independent problem solvers and self-motivated, having been raised in homes where both parents work; (2) many of these students have grown up with computers, and are technologically literate; (3) they thrive on stimulation and expect immediate answers and feedback; (4) they desire meaningful tasks and do not like to waste time on what they perceive as irrelevant information; (5) they recognize that they will be required to engage in life-long learning to stay marketable; (6) these students are ambitious and desire success; and (7) they are often fearless. (p. 52).

While the recent growth in the number of Web-based courses offered by both traditional and virtual postsecondary institutions may, in part, be attributed to the growing demand from consumers of higher education for more flexible, relevant, and convenient options (Scott, 2003), the increasing number of college and university faculty with access to the Internet also has contributed to this growth. A study conducted by the National Center for Educational Statistics (NCES, 2002) revealed almost ubiquitous access to the Internet among faculty and staff in higher education. According to the NCES report, in

Fall 1998, 97 percent of full-time instructional faculty and staff who taught classes for credit at degree-granting colleges and universities had access to the Internet. At 2-year institutions, the study found that 94 percent of the instructional faculty and staff had access to the Internet (NCES, 2002, p. iv). It was apparent from a review of the literature that much of the discussion and debate about the expanding influence of technology in higher education has focused on distance learning (Institute for Higher Education Policy, 1999, Brown & Duguid, 2003, Saba, 2000). However, as Milliron and Miles (2000b) pointed out, technology offers a much wider range of possibilities for teaching and learning:

> The true power of these Internet technologies in education may lie not only in distance and asynchronous learning, but also in their ability to foster hybrid models of interactive learning involving in-class, online, faculty-driven, student-driven, synchronous, and asynchronous options (Conclusion section, para. 2).

The Technology Debate

There is little doubt that significant differences exist between those who advocate for an expanding role for technology in higher education and those who resist such efforts. However, a review of the literature on this topic also revealed that there was considerable agreement on both sides of this debate that technology, thus far, has promised more than it has delivered in terms of its effectiveness in improving either teaching or learning. Many educators have pointed out that the Internet has merely provided a more convenient course delivery method, but has not added significant value to the teaching and learning experience, either pedagogically or through improved student performance. According to Doucette (1994), a decade of experimenting with computer-related technologies to improve the teaching and learning experience "has yielded a thousand points of innovation and initiative, [but] technology has yet to transform

teaching and learning in the community college – or anywhere else" (p. 202). Twigg (2003), a strong advocate for the use of technology to improve learning, cited comparative research studies that showed "rather than improving quality, most technology-based courses produce learning outcomes that are simply 'as good as' their traditional counterparts – in what is often referred to as the 'no significant difference' phenomenon" (p. 28).

Other researchers have arrived at similar conclusions regarding the effects of technology on the learning process (Clark, 1994, Dillon & Gabbard, 1998). Ehrmann (2002) pointed out the wasted potential, not to mention the untold dollars, invested to introduce technology into the instructional process with the net effect of few noteworthy improvements in educational outcomes. Ehrmann countered his own criticism, however, by pointing out that, with technology-based courses, "improvements are possible today, on even a larger scale...yet we will surely fail again if we repeat the 'common sense' policies that have sabotaged so many previous information technology investments" (2003, p. 54). Hunt (2003) also called attention to the millions of dollars and staff hours dedicated to introducing new technologies into post-secondary classrooms, only to have the lecture remain the predominant method of college teaching.

Modern day technologies and their proposed benefits for teaching and learning have been subjected to many of the same criticisms and skepticisms that characterized the debate over the previous generation of audiovisual technologies. Ely (1996), writing about technology and education, called attention to the fact that the technology of that day was being adapted to education in an "uncontrolled and unrelated" fashion (p. 1), and in order to overcome teacher resistance to technology, it needed to be applied to the

educational enterprise in an integrated manner. Contemporary observers of technology's role in education have picked up where Ely and others left off and have called our attention to the proposition that the new generation of technologies also have fallen short of the promise to revolutionize education, as some advocates of technology-based learning have predicted. Milliron (2001) addressed the challenges many colleges face in attempting to integrate technology. In a similar fashion to Ely's assessment of the previous generation of teaching and learning technologies, Milliron (2001) pointed out that, often times, colleges adopt technology in a haphazard way, and do not link technology planning with the fundamental educational purposes of the college (p. 1).

Green (2000) provided a synopsis of the challenges and opportunities technology brings to the teaching and learning process of the twenty first century:

> Without question the arrival and impact of new technologies, coupled with the growth of the knowledge industries, will serve as a catalyst for sustained, indeed intense debate about institutional missions, mandates, and markets as well as the goals of higher education in the 21st century (p. 1).

These perspectives point to the realization that technology's role in the teaching and learning process is still emerging and often the distinctions between traditional and technological teaching practices or the outcomes produced are not very apparent. In part, this is due to the initial tendency of many teachers to use technology as a tool for teaching and learning that has involved little more than transferring the course syllabus and lecture notes from paper and overhead transparencies to an electronic version of these instructional materials, typically for the purpose of creating an equivalent online course (Heterick & Twigg, 2003, Johnstone & Poulin, 2002). This is not surprising given that most teachers today were exposed to teaching strategies and pedagogies as students that were very different than what is possible with today's technology-based teaching and

learning tools. According to Milliron (2002/2003) "most of the people teaching and reaching students in our institutions are doing so using tools and techniques they never experienced as learners" (convergemag.com, para. 1). As technologically-novice teachers, unfamiliar with, and, in some cases, intimidated by integrating technology into the "classroom" (Lynch, Altschuler, & McClure, 2002), venture into unfamiliar territory, there will be the tendency to incorporate traditional educational strategies into new delivery methods. Yet, many educational scholars and practitioners are calling attention to the need for an entirely new teaching and learning paradigm, especially given the social and economic realities of the 21st century.

New Paradigms for Teaching and Learning

There is a growing recognition throughout higher education that systemic and systematic changes are needed in instructional design and delivery to more fully harness the power and capabilities of modern technologies. Calls for a paradigm shift in higher education are driven by the fundamental changes taking place on a global scale in the economic, political, social, and, particularly, technological and information realms (Ernst, Katz, & Sack, 1994, Ely, Foley. Freeman & Scheel, 1995, Hughes, 2001, Rosenberg, 2001, Levine, 2003, McCain & Jukes, 2001). These changes have prompted calls for research into new and innovative ways of looking at how teachers teach and students learn in a technology-based environment, and for instructional design, as it relates to both theory and practice, to play a much larger role in the future direction of higher education. According to Reigeluth (1991):

> When we look at the ways society is changing as we evolve deeper into the information age, we can see definite paradigm shifts in the workplace and the family…from those changes we can see that a new paradigm of education is

> essential to meet the new educational needs of both learners and the suprasystems that sponsor the educational systems (p. 43).

Pogrow (1996) claimed that the history of educational reform has been "one of consistent failure of major reforms to survive and become institutionalized" (p. 657). He cited Cuban, who described the outcome of repeated attempts at curriculum reform as "pitiful" (p. 657). Pogrow called upon the research community to generate general instructional design theory and for practitioners to develop ways to apply the theory. Drawing from his own experiences, Pogrow pointed out that it is "indeed possible for the right type of research to develop techniques and determine implementation details that are applicable to most local conditions" (p. 658). Merrill, Drake, Lacy, and Pratt (1996) provided similar observations regarding instructional technology and referred to "neophytes" in the field of instructional technology who needed signposts to show them where they are going (p. 7).

Buckley (2002) also pointed to the need for fundamental changes in teaching and learning, in which the focus turns from the delivery of content as the primary purpose of education to the learning paradigm, which stresses the need for content that is delivered through powerful learning opportunities (p. 30). And, as Herbert Simon, a Nobel Laureate suggested, "for the computer to bring about a revolution in higher education its introduction must be accompanied by improvements in our understanding of learning and teaching" (Kozna & Johnson, 1991, p. 10). Lea and Nicoll (2002) echoed these sentiments:

> New information technologies do not simply support and make more efficient existing learning and teaching practices; rather they reconfigure them and require new ones…the influence of new information technologies on learning and understandings of learning and teaching may therefore be far-reaching and the broader effects profound (pp. 6-7).

Kang (2001) described the impact of these changes, both as a result of, and in response to the expanding pervasiveness of information technologies as "so great that the traditional ways of knowledge transmission are coming into question" (p. 6). Shoemaker (1998, cited in Kang, p. 6) wrote that "the general concepts of the traditional educational system and of the teaching-learning paradigm are changing across the United States and internationally, as the power of the classroom on the 'information highway' is explored." Huang (2003) called for new methods of instruction to augment the traditional teaching paradigms in this era of rapid technological advancements (p. 158). And, as Wulf (2003) warned, the information railroad is coming to higher education, and for institutions to remain relevant, changes to how education is manufactured, distributed, and delivered are essential (p. 14). Barone (2003) described the cognitive changes in a growing number of today's students that have come about as a result of growing up in the digital age, making it necessary to fundamentally change teaching and learning in higher education. According to Barone (2003), these students display an "Information-Age Mindset" and are accustomed to using technology "to organize and integrate knowledge" that passive learning experiences do not provide. (p. 42). Milliron (2001) also pointed out that, in increasing numbers, both traditional-age freshmen and older students enter college with expectations for digital and technology-based learning experiences. These expectations call for new instructional design theories.

The Role of Instructional Design Theory

Reigeluth (1999a) defined an instructional-design theory as a "theory that offers explicit guidance on how to better help people learn and develop" (p. 5). Reigeluth and Frick (1999) argued that more instructional design theories are sorely needed to provide

guidance and direction for additional kinds of learning and development and for different kinds of learning environments, including the use of new information technologies as tools (p. 633). And as Kang (2001) suggested, since instructional-design theory, as it relates to Online/web-based education, is still very much in the formative stages of development, faculty and instructional design experts need models to guide them as they formulate courses in a completely new domain of instruction.

Reigeluth and Frick (1999) discussed the inherent weaknesses in quantitative research methods to improve instructional-design theories, "particularly in the early stages of development" and they underscored the value of formative evaluation and case-study research methodologies to validate existing instructional-design theories or to \generate new theories. There is a growing body of literature available related to online learning, particularly in reference to student satisfaction and qualitative experiences with Web-based courses, but there are relatively few studies that describe a systematic and comprehensive process to designing technology-based courses offered for online, blended, and face-to-face learning environments.

Problem

The term "digital divide" is often used to refer to the "haves" and the "have-nots" as it pertains to the affordability, accessibility, and usability of computers and the Internet (Science Direct, 2003), but it also is an appropriate concept to represent a much deeper gap that exists in higher education. On the one side of the divide, there are those in the teaching and learning profession that see great potential in technology to radically transform education. In sharp contrast are those with opposing views who point to the pitfalls, empty promises, and past disappointments of technology's failure to bring about

significant educational change. A frustration often conveyed by faculty in dealing with technology is the time and technical expertise required to understand computer-based technology and its relevance to improving the teaching and learning process, compounded by the problem of having little or no research data available to support the claims of its effectiveness (Dawes, 2001). Additionally, it is often the case that so-called new and improved technology enhancements appear on the scene before the full potential of the previous version is realized. As Hinrichs (2003) described it, "technology in education has two faces: one of transformation and one of hype" (p.1).

In a recent report, based on a study conducted by the National Center for Postsecondary Improvement (NCPI, 2002), several important questions and issues were raised concerning the future direction of higher education in the United States. The researchers involved in the study called for higher education institutions to become "more effective learning organizations" (p. 12) and to collect and use data to redesign practices for improving quality. The report also highlighted the fact that the abundance of knowledge available on how learning occurs rarely informs actual practice in higher education. Institutions and academic departments "have seldom taken responsibility for applying…research to pedagogical practice or for re-aligning promotion and compensation criteria so that individual faculty can do so without jeopardizing their career advancement" (p. 13). The report goes on to question the impact that research on learning has had thus far on the processes of discovering new ways to design and deliver new curricula and the design principles and methods that likely will generate the most effective approaches for using technology to improve learning. The NCPI report also criticized the ill-defined connections between the purposes of teaching to pedagogical

methods and evaluation techniques. Technological advancements have made these connections even more complex and there remains considerable uncertainty about how to invest in technology in ways that truly will have an impact on teaching and learning. What seems to be certain, however, according to the report, is the changing role of the teacher in the academic enterprise. Faculty members as subject matter experts "find themselves working in conjunction with programmers, graphic artists, course designers, and webmasters to craft learning materials and educational experiences for students" (p. 14). Others have predicted that the learning revolution, brought on by technology, will transform the faculty role from mainly a content expert to a more multifunctional role, which will include design expert and process manager (Reigeluth, 1991, Massy, 1997, Sorg, et al., 1999, Hoogveld, Pass, & Jochems, 2003).

Purpose of the Study

The purpose of this study was to investigate and describe an instructional design process (Reigeluth, 1999a) in which faculty teams at Florida Community College at Jacksonville redesigned four "traditionally formatted" courses to more fully integrate instructional design principles and instructional technology for delivery of these courses in an online and hybrid learning environment. The study also examined and described the process by which faculty and instructional designers worked collaboratively and in a systematic fashion to create the framework and begin the development of an electronic Instructional Design Assistant, based on theoretical and practical foundations that would be used at some future point to guide other faculty through the instructional design process. Florida Community College over the course of several years has been involved in converting a number of traditional, face-to-face courses to online Web-based courses.

To date, the College faculty and staff have developed a total of 72 courses for online and/or hybrid delivery. There courses were developed in multiple phases, with the goal of expanding the number of courses offered online. The Online Course Development Project (OCDP) phase that was the focus of this study is *Phase 5*. The major difference between the development of the courses selected for *Phase 5* and the previous phases of OCDP was that in *Phase 5* the faculty participants were charged with developing courses without the use of a textbook and that would not require a textbook.

In addition to the development of online courses, a related multiphase project, known as the Sirius Project, had been underway at the College for several years. A number of courses were identified by the College's faculty and administration as "high-risk" courses, designated as such because they were courses that typically had high enrollment but low retention.

Phase one of Sirius involved faculty from across the curriculum developing practice tests with explanatory answer keys for a specific set of courses. These practice tests provided immediate feedback to the students and were designed to prepare students for major exams. Faculty used a word processing program to create course objectives and computer-based tests. The Applied Center of Instructional Design converted the documents into a digital, interactive software program called Perception.

The second phase of the Sirius Project involved teams of discipline-specific faculty that collaborated to search and identify "learning objects" that would provide preparation and remediation for the computerized tests created during phase one of the project, and help students master their course material. The search for learning objects involved a team leader and other faculty members. While these groups were conducting

their search for learning objects, the team librarian investigated copyright and fair use issues for the particular learning objects identified by the faculty teams. These learning objects were designed to help students master the course material.

The focus of this study was the third phase of Sirius, which included the development of the IDA and *Phase 5* of the Online Course Development Project. For simplicity sake, from this point forward in the report these two components will be referred to interchangeably as *the project* or the *Sirius Academics* project, which was the trademark name being pursued by the College.

The end products of this process were to be both redesigned courses in remedial reading, composition, math, and freshmen-level general psychology for delivery in online and hybrid formats, as well as the initial phases of a newly created electronic Instructional Design Assistant (IDA) It was anticipated at the onset of the study that the design of the courses and the development of the IDA would occur simultaneously, but the initial development of the courses and the IDA actually took place in phases during the first six months of this project's life cycle. The course redesign and the development of the Instructional Design Assistant processes overlapped as subject matter experts and instructional design staff worked to integrate learning and motivation theories and principles with technology. The goal of this process was to create more interactive and learner-centered online and hybrid courses and to provide a tool in the form of the IDA to guide other faculty at some future point in the design of the more interactive and learner-centered courses. The study, using a case study approach, produced data that was collected, recorded, and analyzed for the purpose of describing this process. In addition to describing the course redesign process and the development of the IDA, the study

investigated why faculty chose to participate in this project. Finally, the study examined and described how and why administrators selected this particular process/model and how resources had been allocated to the project. The following Florida Community College courses were selected by the Executive Vice President for Instruction and Student Services for the project:

- General Psychology (PSY 1012);
- Reading Skills (REA 008, college preparatory)
- Elementary Algebra (MAT 0024, college preparatory)
- Introduction to Composition (ENC 0021, college preparatory)

Limitations

This study took place at Florida Community College at Jacksonville and explored the instructional design process of certain courses selected by the Executive Vice President of Instruction and Student Services in concert with the Associate Vice Presidents of Workforce and Liberal Arts. The study occurred as the actual instructional design process unfolded and it described the process during the development phases of the project for the period January through July 2004. The study collected data during the first seven months of the project and, thus, the study does not include the implementation or evaluation phases of this process. However, sufficient data was collected over the seven month period of time to sufficiently answer the research questions. For the purposes of the literature review, several classical instructional design theories were discussed, as well more contemporary instructional theories that have emerged as a result of the growing influence and potential of instructional technology. Technology-based teaching and learning is a very broad concept. For the purposes of this study, the

definition of e-learning used by Clark and Mayer (2002) is more descriptive of the type of technology-based teaching and learning discussed in this paper. Clark and Mayer (2002) defined e-learning as "instruction delivered on a computer by way of CD-ROM, Internet, or intranet. In short, the "e" in e-learning refers to the course being digitized so it can be stored in electronic form" (pp. 13-14).

Significance of the Study

In addition to the report by the National Center for Postsecondary Improvement cited previously, educators throughout the United States and numerous other countries have called for fundamental changes in the role of teachers and instructional methods as a result of the advances made in instructional technology. There also have been calls for systemic changes in leadership priorities and institutional policies, as well as how resources are allocated in order to keep pace with the demands of this new environment (Wulf, 2003, Lynch, Altschuler, & McClure, 2002, Laurillard, 2002, Vogel & Klassen, 2001, Barone 2001).

Banathy (1991) proposed that efforts to change and improve education during the last two or three decades have failed in many cases because of a piecemeal and incremental approach to solving problems. Critics have pointed to the haphazard implementation of technology in the classroom and the lack of solid theoretical and research based rationale for many of the decisions that have been made at higher education institutions regarding technology-based teaching and learning. They also have pointed out that the developers of electronic courseware generally do not factor in the important considerations of learning and motivation theories in the design of technology-based courses and the lack of research literature documenting cases of courses that are

designed and developed using cross-functional and interdisciplinary teams. The outcomes of this study will contribute to a growing repository of conceptual processes and practical models for developing technology-based courses.

Despite the criticisms and the frustrations inherent in the use of technology in the teaching and learning process, others have pointed out that technology is no longer merely an optional enhancement to the traditional forms of teaching and learning, it has become a necessity in the high-tech world of the twenty first century.

Gilbert (2003) in an article entitled "Why Bother?" asked a series of questions to underscore the *need* for technology in the learning environment of the twenty-first century. Gilbert subsequently answered these questions in an effort to address some of the issues that have surfaced in response to the growing movement to more fully integrate technology in the teaching and learning process:

> *Why bother making great investments of money, time, and effort to increase educational uses of information technology in colleges and universities?*
>
> - A growing number of courses include topics from fields in which applications of technology have become essential for doing important work (e.g. CAD/CAM, GPS, etc.)
>
> *Why bother changing how we teach and learn?*
>
> - Topics can now be taught and learned that were nearly impossible (or too dangerous) to teach without information technology (e.g. teaching pronunciation online, simulations of chemistry experiments, etc.)
>
> *Why should a faculty member devote more time to learning new applications of information technology and new ways of teaching?*
>
> - As more faculty and learners have access to productivity tools, teachers can provide more frequent feedback, and students can make more frequent revisions when completing assignments. Teachers can more reasonably demand higher quality results. (pp. 2-3).

The decision to invest in technology is more than just a practical matter. It also has economic implications. In the prevailing political climate Boggs (in Roueche, et. al

2003) referred to, which is one marked by calls for greater accountability in higher education, in conjunction with significant cuts in public funding to colleges and universities, investments in new technologies have come under greater scrutiny, particularly since both the perceived and, in many cases, the real benefits of technology-based learning have been marginal at best. According to Green (2000), this is an unfortunate development because "electronic services and resources are core to the future of higher education…technology is now a component of the academic infrastructure…and deferred infrastructure investments can have long-term consequences" (convergemag.com, August 2002, para. 13). Green referred to investments in the technology infrastructure as "an operating cost essential for strong, viable, and dynamic postsecondary institutions in the 21st century" (convergemag.com, August 2002, para. 14). Higher education cannot afford to ignore the realities of the marketplace when it comes to investment in technology. A report issued by the Education Commission of the States (Mingle & Ruppert, 1998) projected rapid growth in educational software produced by the private sector that "consumers will be able to purchase and learn at their convenience" (p. 4). Noam (1996) predicted that textbook publishers will compete with the traditional providers of higher education by "establish[ing] sophisticated electronic courses taught by the most effective and prestigious lecturers" (p. 249). Milliron and Miles (2000a) referred to the "new, fast-moving" educational providers that are responding to demands from "students, communities, legislators, and business for more effective, flexible, and quality learning experiences" (p. 6).

Kimbell wrote in Gordon (1996) that there is strong agreement within the field of educational research that there is a "desperate lack of research in technology as a teaching and learning activity in the curriculum (p. 175) and that all too often technology in the curriculum has been based on a trial and error approach rather than on "an intellectual analysis of a field of knowledge" (p. 176). Reigeluth (1999b) saw the unfolding of a new paradigm of instruction and challenged the research community to lead the way, particularly in the emerging area of technology-based teaching and learning.

Forbus and Feltovich (2001) argued that the impact of computers in education and the potential for revolutionary improvements in learning are only now beginning to be realized on a large scale. According to them, "educational systems in this country are now struggling to achieve this revolution, learning how to best use these technologies in their circumstances…and experimentation and refinements will continue for years to come" (p. 3). There is a significant body of literature that has addressed the need for these fundamental changes, but there has been a gap in the research literature with respect to descriptions of systematic practices that integrate what is known about effective teaching and learning strategies with instructional technology. This study adds to the body of literature in the field of instructional design, particularly in the area of technology-based learning, leading to information that is beneficial to faculty, instructional designers, and college administrators seeking to learn from the successes and challenges of others when initiating their own instructional design processes for technology-based courses. Since a systematic approach to integrating technology with research-based teaching and learning strategies is an emerging field and the literature

documenting such an approach is relatively sparse, this study will make an important contribution to the field.

Research Questions

This qualitative research study investigated and described an instructional design process in which faculty teams at Florida Community College at Jacksonville redesigned four "traditionally formatted" courses to more fully integrate instructional design principles and instructional technology for delivery of these courses in an online and hybrid learning environment. The study also examined and described the process by which faculty and instructional designers worked collaboratively and in a systematic fashion to create the framework and begin the development of an electronic Instructional Design Assistant, based on theoretical and practical foundations, which would be used at some future point to guide other faculty through a systematic instructional design process. The following open-ended questions were used to frame the study for the purpose of data collection, description, and analysis.

1. How did the College administration develop and implement the process/model for the redesign of the four courses and the development of the Instructional Design Assistant?

2. Why did faculty choose to participate in this project?

3. How did faculty and instructional design staff redesign "traditionally-formatted" courses to incorporate instructional technology and instructional systems design strategies?

4. How did faculty and instructional designers integrate particular learning and motivation theories in the development of an electronic Instructional Design Assistant?

Definition of Terms

The following terms were identified and defined by the instructional design staff at Florida Community College (Florida Community College Advanced Center for Instructional Technology, 2003).

Instructional Design is the systematic approach to the development of instructional programs which takes into account learning theory and research to ensure that the intended learning aims are realized.

Instructional Development is the systematic approach to the development of instructional programs at an organization level. Instructional development is larger in scope than instructional design and takes into account the organization as a whole.

Needs Assessment is a process utilized to determine what, if any, instruction should be designed.

Learner Analysis is the examination of student characteristics relevant to the design of instruction. These include, but are not limited to, age, academic ability, learning style, and motivation.

Teaching Methods are strategies utilized by instructors to deliver content and allow student interaction with content.

Learning Styles refer to the cognitive, affective, and physiological factors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment.

Cognition is the mental process of knowing, including aspects such as awareness, perception, reasoning, and judgment.

Message Design is the field of study that encompasses student perceptions of media and the subsequent ability or disability to interpret media.

Instructional Technology is the systemic and systematic application of strategies and techniques derived from behavior and physical sciences concepts and other knowledge to the solution of instructional problems.

Goal is the general and brief statement of intended outcome.

Objective is the specific and detailed statement of intended outcome.

Norm-referenced Assessment is an evaluation technique that is scored based on a bell-curve distribution produced by all students' scores. Standardized tests are an example.

Criterion-referenced Assessment is an evaluation strategy that is scored based on specific proficiency standards.

Formative Evaluation is an assessment tool utilized to gain information that will guide further instruction.

Summative Evaluation is an assessment tool utilized to determine final learning outcomes and often to determine grades.

Task Analysis is a process utilized to determine what content needs to be included in a segment of instruction for learners to achieve the learning goal.

Chunking is a process of grouping and organizing content into manageable chunks.

Curriculum is an organized set of formal education and/or training intentions.

Schema refers to data structures representing the generic concepts stored in memory.

Adaptive Instruction is a type of instruction that supplies alternative teaching operations based on assessment of student readiness to profit from them.

Feedback is information which can be used to restructure knowledge and support metacognitive regulation of ongoing performance.

Transactional Distance is the measure of the learner's perception of relatedness to the instructor, the environment, and the process (Moore).

Meta-data refers to the electronic tags embedded in web materials to permit their retrieval by search engines. The metadata search fields include learning level, user's support, educational objectives, copyright information, price code, learning object, author, subject, and publisher.

Learning Object is a discreet "chunk" of data that is part of a learning module. It can include video, audio, text, email, slides, case studies, or any medium that can be digitized. It includes the content of the course and the medium by which content is delivered in an online environment.

SCORM stands for Sharable Courseware Reference Model.

SCORM Compliant is the design standards that learning objects follow to ensure transferability and reusability.

Pedagogy is the study of teaching.

Androgogy is the study of teaching, specifically as it relates to adults.

Summary

This chapter outlined the background, problem statement, purpose, and significance of this study.

- The pressures on community colleges from burgeoning student enrollment, reduced funding, for-profit competition, and changing social, economic, and

technological systems will test community college commitment to the fundamental values of access, student-focused learning, and innovation. Technology will provide new opportunities and challenges in this uncertain environment.

- There is general agreement among advocates and skeptics of technology-based learning that, while technology has provided more convenient course delivery methods, there is not sufficient evidence to demonstrate that it has markedly improved educational outcomes.

- In large measure, technology has been an "add on" to the "traditional" course, and there have been few studies documenting an integrated, systematic approach to designing instruction with technology as a core element.

- Additional instructional design theory research is needed to test the impact of technology on the teaching and learning process.

Organization of the Dissertation

The dissertation consists of five chapters. Chapter One provides an overview of the study, including the background, the problem statement, the research questions, the purpose of the study, limitations of the study, and definition of terms. Chapter Two provides a review of relevant literature, covering the historical development of educational and instructional technology, several classical and contemporary theories of instructional design, including the various subcategories of design such as learning and motivation theories, and instructional design theories that have emerged as a result of learning technologies. Chapter Three discusses the research methodology for this study, the research design, an introduction and rationale for selecting the case, data collection methods, and strategies for strengthening the validity of the study. Chapter 4 reports the results of the study, and Chapter 5 provides discussion and analysis of the findings.

Chapter II

Literature Review

This chapter provides a review of the relevant literature. For the purposes of this study, the literature focused on three major categories, in addition to a number of related subcategories. The first major category of the literature review examines *instructional systems design*, including the historical evolution and the key concepts and definitions of this emerging, and often ill-defined field. It is followed by a review of the major theories of learning and motivation. Finally, several examples of instructional systems design models are presented.

The second category in the literature review deals with *technology-enhanced/enabled instructional design*. This is commonly referred to in the literature as instructional technology or educational technology. However, neither term is considered definitive. Some have considered instructional technology as a subset of instructional design. Others have used instructional technology to describe all aspects of instructional development and design. Within this category, a historical perspective of instructional technology is provided, in addition to emerging design theories influenced by changes in technology. Finally, in this category, the literature review includes a discussion of *learning objects*, both as the basis for an instructional design theory and in terms of the growing use of learning objects for their practical utility for teaching and learning.

The third major category covered in the literature review pertains to the use of teams in community colleges as well as other strategies that can be employed when attempting to bring about fundamental changes in teaching and learning processes, particularly they relate to facilitating a transition to a technology-based teaching and

learning environment. As alluded to previously, one of the challenges encountered during the literature review was the inconsistent and often contradictory use of the terminology and how the major concepts are defined. Every effort has been made to use consistent terminology, and where definitions vary within different contexts, these relative meanings have been clarified.

Instructional Design

Historical Evolution and Definitions

Saettler (1990) wrote that systematized models and methods of instruction can be traced as far back as the Elder Sophists in the fifth century B.C., and other early educators such as Comenius in the fifteenth century, and Pestalozzi and Herbart in the sixteenth century. In the twentieth century, Maria Montessori developed one of the first scientifically based instructional systems (p. 343). Her system still is used today in the schools that bear her name, testifying to its effectiveness and the success of her system in transcending the cultural and technological changes that have occurred in the United States over the course of the last century. Edward L. Thorndike, in the early part of the twentieth century, was also a pioneer in applying scientific methods to educational problems. John Dewey, perhaps one of the most influential educators of the twentieth century, was a strong advocate for using science to solve the practical problems of education. Saettler (1990) credited Dewey with making a "significant contribution to instructional design by developing an innovative problems approach to instruction which is yet to be fully implemented" (p. 343). Prior to World War II, psychology and education were intricately linked, but when behaviorism became a laboratory science, thereby diminishing the practice of validating learning theories in real school situations,

the fields of psychology and educational technology went in divergent directions. Psychologists became interested in conducting experiments for the purpose of developing theoretical objectives rather than addressing practical teaching and learning problems. Educational technologists turned their focus to hardware or media as aids to teaching and paid scant attention to the development of a science of instructional design (Saettler, 1990).

According to Saettler (1990), the separation between educational technology and psychology lasted for an extended period of time. But after World War II, psychologist and educational technologists reunited and began, once again, to work together to develop principles and procedures for instructional design. In the 1950's and 1960's, as a result of two major publications, *Learning and Instruction* (Mayer in Saettler), and *Theories of Learning and Instruction* (Hilgard in Saettler), it became apparent that a new emphasis on theories of instruction had emerged, and it also became evident that psychology and educational technology had reconciled.

Instructional Systems Design

Saettler (1990) described instructional systems design (ISD) as a relatively new concept. For many years, the instructional systems approach primarily was used in industry and military settings, but with the advent of technology in the classroom, progressive educators have recognized the need for instructional systems theories to be applied in education. Saettler (1990) argued that for too long efforts to reform education have been "piecemeal…a disconnected, fragmented series of innovations (p. 350). To address this problem, educational researchers proposed "a systems design approach to instruction in which all the components of the instructional process are fitted together

into a system capable of providing individualized instruction for each learner" (Saettler, p. 350). To confuse matters, the term *instructional technology* often is used by some educators to describe what is defined elsewhere as instructional systems design. Gentry's (1995) definition of instructional technology, for example, seemed to encompass all of the components of systems design. Gentry (1995) referred to instructional technology as the "systemic and systematic application of behavior and physical sciences concepts and other knowledge to the solution of problems" (p. 7).

In a similar manner to the paradigm wars over research epistemologies discussed by Northcutt and McCoy (2002), there have been theoretical debates over what constitutes instructional design and instructional technology, leading to confusion over the meaning of both of these terms. Merrill, et al (1996) advocated a scientific and empirical approach to instructional design.

> Like other sciences, instruction is verified by discovery and instructional design is extended by invention. Instructional science, the foundation for the technology of instructional design, is the discovery of instructional strategies. Instructional science involves identifying the variables to consider (descriptive theory), identifying potential relationships between these variables (prescriptive theory), and then empirically testing these relationships in the laboratory and the field (p. 5).

Merrill and his colleagues argued that the development of instructional design strategies and instructional design tools is an inventive process and as such must incorporate those scientific principles involved in instructional strategies, "just as the invention of the airplane had to incorporate the discovered principles of lift, drag, and flight" (p. 5). In a sharp rebuke to those who have claimed that truth is relative and all knowledge is founded upon collaboration instead of empirical science, Merrill, et al suggested that these individuals need not be cast out of the profession of instructional

design because by decrying the scientific method and dismissing instructional strategies "they have exited on their own" (p. 6). According to Merrill, et al (1996), too much of educational technology is built upon the "sands of relativism, rather than the rock of science" (p. 7). Merrill and company advocated a scientific approach to designing instruction. According to Merrill, et al (1999) "appropriate instructional strategies can be discovered, they are not arrived at by collaborative agreement among instructional designers or learners…They are natural principles which do exist, and which nature will reveal as a result of careful scientific inquiry" (p. 7).

It is no wonder that Schiffman (1995) described the field of instructional systems design as ambiguous and wide-open for attack from many different sides. These criticisms fall into several broad categories and include the perception that the field is concerned primarily with hardware and the production of materials. To some, ISD is not even considered a scientific field (Foreman, 2003), and to others, it is little more than a step-by-step methodology that almost anyone can learn in a short period of time. Other critics have characterized ISD as focusing too much on training, and as rigid, mechanistic, linear and not a very humanistic approach to instructional planning. Finally, the field of instructional systems design often has been said to be too closely linked with behaviorism (p. 131).

Schiffman (1995) described the multiple perspectives associated with instructional systems design as adding to the confusion and hindering the progress of ISD toward becoming a widely respected discipline. From the *media view*, ISD is seen mainly as a process of media selection, and individuals working in the field of ISD are viewed as media specialists. This perception is particularly prevalent in higher education

because ISD emerged from audiovisual programs in many colleges (p. 132). Schiffman (1995) described the *embryonic systems view* of ISD as an offshoot of the media view, but one that was more focused on the *creative and artistic* aspects of media production. Schiffman challenged instructional designers to produce high quality materials, whatever the media used. But for instructional designers to place a disproportionate emphasis on production standards may not be feasible in terms of the time it takes and costs involved to produce these materials (133). The *narrow systems view*, according to Schiffman, moved closer toward a "real" systems approach to instructional design, but because it takes too much of a "cookbook" approach to design and fosters the impression that just about anyone can be an instructional designer in a relatively short period of time, the credibility of the discipline is affected (p. 134). The *standards systems view* moved the design process one step closer to a truly systematic process, but Schiffman claimed that this perspective of instructional design often failed to factor in the importance of learning theory as an integral part of instructional systems design. According to Schiffman (1995), a genuine *instructional systems design* view synthesized theory and research related to:

> (a) how humans perceive and give meaning to the stimuli in their environments, (b) the nature of information and how it is composed and transmitted, (c) the concept of systems and the interrelationships among factors promoting or deterring efficient and effective accomplishment of desired outcomes and (d) the consultant and managerial skills necessary to meld points *a* through *c* into a coherent whole (p. 136).

Schiffman (1995) called on instructional designers to develop a solid foundation in learning theory stating that "designers must be familiar with the theory on research and learning and must be able to apply them to actual practice" (p. 137). Before providing specific examples of instructional design systems, it is helpful to first turn to a discussion

of learning theory, given that many instructional systems design models are or should be developed on the basis of learning theories.

Theories of Learning

Newby, Stepich, Lehman, and Russell (2000) defined a learning theory as "an organized set of principles explaining how individuals learn; that is, how they acquire new abilities and/or knowledge" (p. 25). Learning theory is descriptive and generic in contrast to instructional theory. Instructional theories should be prescriptive and context-specific and predicated upon the principles and assumptions of learning theory (Morrison, Ross, Kemp, 2004).

Phillips and Soltis (1998) traced the various ideas and concepts about learning all the way back to Plato (428 B.C – 347 B.C.) Plato believed that knowledge was present in human beings in some innate form at birth and that all future learning was impressed upon the mind through observation, and, in essence, was a revelation of knowledge that already resided within an individual's soul. In contrast to Plato's ideas on learning, John Locke (1632-1704) proposed that an infant was born with a mind that essentially was a blank slate, but, none-the-less, was pre-wired in some fashion to learn, simple and easy tasks at first, and then more complex and abstract learning as the individual grew and matured.

The three major theories of learning discussed in this section: *Behaviorism*, *Cognitivism*, and *Constructivism*, emerged, in a formal way, during the twentieth century. Additionally, Adult Learning Theory, Mastery Learning, and Motivation are described in this section. Mayer (2003) discussed how the three views of learning were developed over the past century as a result of research on learning: learning as a process of response

strengthening, learning as knowledge acquisition, and learning as knowledge construction (p. 143).

Behaviorism

According to Mayer (2003), the response-strengthening theory, commonly referred to as behaviorism, posits that "learning occurs when a learner strengthens or weakens an association between a stimulus and response" (p. 143). Behaviorism, as a theory of learning, grew out of the field of psychology (Tiene & Ingram, 2001), but, according to Mergel (1998), the basic concepts behind the theory of behaviorism can be found as far back as Aristotle's essay entitled "Memory" and in the writings of other philosophers over the centuries: Hobbs (1650), Hume (1740), Bain (1855), and Ebbinghause (1885). The theory of behaviorism focuses on the study of overt behavioral characteristics that can be observed and measured (Good & Brophy, 1990).

Three of the most well-known behaviorists often cited in the literature include Ivan Pavlov (1849-1936) with his classical conditioning approach to learning, E.L. Thorndike (1874-1949) whose research led to the notion of operant conditioning, and finally, B. F. Skinner (1904-1990) whose research posited that behavior can be altered through rewards as well as the withholding of rewards. Pavlov theorized, as the result of his famous experiments with the salivating dog and the ringing of the bell, that humans, like animals, can be conditioned over time and through regular reinforcement to react in a certain way to outside stimuli. Thorndike developed theories of behavior based on his work with cats. Thorndike differed from Pavlov in proposing that a response to a certain stimulus was not completely dictated by some deterministic phenomenon, but that new pathways of learning could be developed through positive reinforcement and repetition.

B. F. Skinner's experiments with rats led him to propose that learned behavior did not require frequent rewards to reinforce the behavior, but the "judicious" use of rewards was more effective (cited in Phillips and Soltis, p. 28). Skinner's work went beyond experiments with rats and included testing humans using a teaching machine that had some of the same features and concepts still used with the modern-day computer, specifically as it relates assessment-feedback functions. The teaching machine presented content in small units to the learner, followed by a series of questions about the material. As the students answered the questions, a correct answer would move them to the next question, whereas, if a wrong answer was given, a remedial unit was offered to the learner. Tiene and Ingram (2001) called teaching machines relatively inflexible and referred to the teaching strategy known as programmed instruction, which served as the basis for teaching machines and other behavioral approaches to learning, as strictly linear.

Jonassen (2001) described the behaviorist approach to learning as shaping and changing the behavioral disposition of an organism through selective reinforcement of external stimuli. According to Jonassen, behaviorism is based on the ontological paradigm known as *objectivism*, which is rooted in realism and essentialism. Realism is predicated on the belief that reliable knowledge about the world, knowledge that humans seek to acquire, is external, objective, and knowable, independent of human experience. Essentialism is an educational philosophy that posits that certain ideals and traditions are foundational to any society and should be taught to all students regardless of their ability to grasp such concepts. While behaviorism, as a learning theory, still plays a role today in how courses are designed and delivered, Jonassen (2001) argued that the support for behaviorism as a viable explanation of how learning takes place dwindled after learning

theory underwent a major revolution during the second half of the twentieth century. Toward the end of the 1950's, according to Jonassen, the shift away from behavioral explanations for learning toward theories and models of learning based on the cognitive sciences began in earnest.

Critics of behaviorism have challenged the notion that learning takes place only in response to external stimuli and that the internal cognitive processes of the individual learner are ignored by the behavioral theorists, primarily because behaviorists claim that such processes are not observable or measurable. Another criticism of behaviorism as a learning strategy is that it is based too heavily on passive learning and is too focused on teachers delivering content knowledge in the form of facts and figures to students, who then attempt to learn the material in a rote, drill-and-practice manner, resulting in only surface-level learning of the material.

Cognitivism

Cognitive theorists do not totally reject the fundamental premises of behaviorism. It is generally accepted that repetition and contiguity are valid explanations for how some forms of learning take place. However, whereas behaviorists are not concerned with how humans process and store information, as these phenomena cannot be observed, cognitive theorists place a great deal of emphasis on how learning takes place through the acquisition or reorganization of the cognitive structures. Learning, according to cognitive psychology, is more concerned with what learners know and how they acquire knowledge than it is with behavioral responses to learning experiences (Jonassen, 2001).

Jean Piaget (1896-1980) is considered to be one of the key theorists in the field of cognitive psychology (although his ideas also have been linked to constructivism).

The underlying principle of Piaget's theories is that the growth and development of cognitive processes occur when human beings form networks and systematic structures of knowledge as they interact with their environment. These structures become more complex and functional as the individual passes from one stage of human development to the next. Piaget's theories of learning and development have been compared to the workings of a computer program; the key difference lies in the fact that the computer program has an outside source entering the information that enables it to operate, whereas the human mind must self-encode information as it interacts with the environment (Phillips and Soltis, 1998).

Piaget observed that human beings go through different phases in their ability to process and conceptualize information, which is largely based on the particular stage of development that they are in at any given time. In an interesting critique of Piaget's work, Phillips and Soltis (1998) pointed out that Piaget's explanation for learning, which the authors described as learning through "wandering around" and "bumping into objects" does not explain how learners grasp subjects like science, mathematics, and history because the "bumping around" metaphor does not readily apply to the type of learning that takes place in these situations.

Phillips and Soltis (1998), in describing the cognitive science approach to learning, distinguished between two schools of thought regarding the parallels that are drawn between the human brain and the computer. The weak version of the computer-brain hypothesis stipulates that the brain and cognitive mechanisms are very similar to a computer. The strong, more extreme version states that the brain *is* a computer. The advocates of the strong-link version view the protein molecules and other biological

components of the brain as the organic version of silicon chips. In a very mechanistic fashion, the cognitive psychologists who promote this position believe that just as computer processing involves input, storage in different forms of memory (short or long-term), and outputs, the brain operates in the same fashion. Tiene and Ingram (2001) called this the Human Information-Processing Model. Information, in symbolic representation, is taken into the brain, it is processed, and either sent to the short term or working memory file, where it is discarded or it is stored in the long-term memory. Phillips and Soltis (1998) further elaborate on this computer-brain analogy by pointing out that, just as there are different capacities in computer memory, so too it appears there are different capacities for memory storage in the human brain.

The analogy between the brain and the computer begins to break down when one examines how information is stored in a computer compared to the human brain. As Phillips and Soltis (1998) pointed out, computers file and sequence information in a linear fashion, whereas the human brain stores information in a complex system of networks and linkages. One of the great mysteries of the workings of the brain that cognitive scientists have not explained is how information is cataloged in the brain or what kind of system is used to sort and retrieve information.

According to Cates (1993), cognitivism dominated the instructional design field in the 1980's as research efforts focused on trying to understand how "learners think and process the materials to which they are exposed (p. 133)." Cognitive theorists advocate for instructional models that are based on the information-processing model of learning and that take into consideration such factors as attention span and cognitive load. Cognitive researchers seek to identify ways to reduce the cognitive load of learners by

structuring learning into manageable chunks or modules. This is often accompanied by methods to help students encode (convert to memorable units) content such as schemata (patterns of learned material) and memory aides or mnemonic devices (Cates, 1993, p. 133).

Theoretically, while it is possible that the microcomputer could reach a point of infinite capacity in terms of memory and processing, Clark and Mayer (2002) believed that the human cognitive processes are limited in the quantity of information that can be processed simultaneously and advocated a balanced approach in the application of technological capabilities in the form of text, audio, and video in the learning process, so as not to depress learning from cognitive overload. Cates (1993) claimed that before cognitivism could be fully developed, constructivism took hold, and with the learner-centered capabilities of the computer and the Internet, many educators see constructivism and technology as a combination that has the potential to bring about revolutionary changes to education.

Constructivism

Bates (2000) viewed the most likely scenario for the future of teaching and learning as student-led and teacher facilitated, positing that "learners will take a constructivist approach to learning, seeking learning that meets their needs…knowledge will become more subjective and value-laden, and less objective and rational-deductive (p. 43)." The shift to constructivism is viewed as a much more dramatic change than the move from behaviorism to cognitivism because both behaviorism and cognitivism are considered to be based on an objective view of knowledge (Mergel, 1998, Mayer, 1999). However, the distinctions between cognitivism and constructivism are not always clear

and, in fact, the two theories share several similar characteristics. As an example, both use the analogy of the computer to compare the learning processes that takes place within the human brain. This is why Piaget's theories of learning have been linked to both cognitive science and constructivism. Merrill (1991) defined constructivist learning as the learner's personal interpretation of experiences that are active, collaborative, and situated in real-world contexts. The assessment of learning is an integral part of the learning context itself and does not take place in an isolated or artificial manner (p. 46).

John Dewey, considered by many to be one America's most influential educational theorist, promoted the idea of experiential learning. Dewey believed that human beings learned by doing and "actively engaging… in a variety of experiences in the world" (Phillips and Soltis, 1998, p. 39). Dewey advocated for learning environments that provided students with problems to solve that were meaningful and relevant to real-life situations. Blumenfeld's (1992) research reinforced Dewey's proposition that student motivation and learning is influenced by experiences marked by variety, diversity, challenge, control, and meaningfulness. Land and Hannafin (2000) proposed that technology enables the type of learning environments Dewey envisioned. Constructivists "favor rich, authentic learning, contexts over isolated, decontextualized knowledge and skill; student skill, goal directed inquiry over externally directed instruction" (p. 3).

Although the principles of constructivism have been around for many years, it is often referred to in the literature as a "new" theory of teaching. Smerdon, Burkam, and Lee (1999) attributed the "newness" of the theory to the transition underway to more student-centered instruction, in which the student is an active learner and the teacher is a facilitator or coach in the learning process (p. 8). Smerdon, Burkam, and Lee (1999)

posited that constructivism is more a philosophical approach to teaching than a prescription for teaching. Jonassen (2001) points out that objectivism, which is the foundation for both behaviorism and cognitivism, focuses on the object of our knowing, whereas constructivism is concerned with how we construct knowledge (p. 59). Jonnassen (cited in Mergel, 1998) described the differences between constructivist and objectivist, as they relate to instructional design. An objective-based design has a pre-determined objective or outcome and develops a learning process to transfer these objectives into the learner's mind. Constructivism maintains that learning outcomes are not always predictable and cannot always be objectified. Therefore, instruction should foster, not direct, learning.

Mergel (1998) pointed to the technological advances of the 1980s and 1990s that have enabled instructional designers to incorporate a constructivist approach into the instructional design process. The "branched" aspects of hypertext and hypermedia that characterize the Internet allow for more learner control over the learning process. However, Mergel also highlighted the concern over students becoming lost in the never ending links that hypermedia provides. Learning objects, which are discussed in subsequent section of this report, is one solution to this problem, but Jonassen and McAleese (1993) also proposed a scaffolding approach to learning that integrates principles from the various learning theories. According to Jonassen and McAleese, each stage of knowledge acquisition requires different types of learning. Initial phases perhaps are best served by a more behaviorist, objective-oriented approach and subsequent phases of learning, where more higher-order levels of thinking are desired, would best be achieved through a constructivist teaching and learning situation.

Lunenberg (1998) also pointed to technology as the key to creating learning environments based on a constructivist paradigm. Lunenberg defined constructivist theory in the educational context as students actively constructing their knowledge, rather than simply "absorbing ideas spoken to them by the teacher" (p. 76). Lunenburg viewed the hypertext, multimedia and interactive features of the World Wide Web and other computer technologies as the mediums for stimulating a constructivist learning environment. Lunenberg cited Brooks and Brooks' principles of constructivist pedagogy: (1) problems are posed of emerging relevance to learners; (2) structuring learning around "big ideas" or major concepts; (3) seeking out and valuing student points of views; (4) adapting curriculum to address student suppositions; and (5) evaluating student learning in the context of teaching (p. 79). Lunenberg advocates the use of technology as a means of organizing concepts to facilitate a constructivist learning environment. Mastery learning and adult learning theories have elements of all three of the major learning theories and, therefore, are discussed in the next section.

Mastery Learning

DelPorto and Torgerson (2003, A Background From Educational Research, para. 1) defined mastery learning as an educational theory that proposes that students will gain much deeper understanding of a subject if they master one concept at a time before moving on to the next concept. The underlying assumption is that students learn at different rates and the purpose of mastery learning is to provide regular and prompt evaluation of student performance and then to allow sufficient time and a variety of experiences for each student to achieve the desired level of mastery for that particular topic of study.

According to Bloom (1976), mastery techniques of learning are effective at all levels of education. Research has shown that 80% of students reach expected levels of achievement for a given concept in a mastery learning environment, compared to only 20 % in other forms of learning situations (p. 5). Other research studies have found mixed results in terms of the comparative outcomes of mastery learning techniques. According to one study, mastery learning strategies seem to have the most significant effects on student learning when the teacher was rated average, and little measurable impact when the teacher was judged to be excellent (Martinez & Martinez, 1999). Another study found that mastery learning approaches to teaching, combined with other teaching and learning methods, such as enhancing cognitive entry behaviors, had a more significant impact on learning outcomes, compared to those situations where only one type of methodology was applied (Senemoglu & Fogelman, 1995). Another study designed to measure student satisfaction with mastery learning techniques found that students considered above average, as well as students who saw themselves as average or below average in academic achievement, were more satisfied with a mastery learning framework (Archer & Scevak, 1998).

Roman and Brothen (1999) pointed out that the World Wide Web, which enables instruction to be delivered in an asynchronous format, provided students the opportunity to "pace themselves and practice and review until they reach a level of mastery" (p. 34). Hall (2002) provided a similar assessment of the potential of the Web as more than an information-delivery medium but having the "ability to fuse information and communication…in order to promote the mastery of learning" (p. 152). However, Hall (2002), citing Bowden and Marton, cautioned against a "free-for-all" use of the Web as a

learning tool and called upon teachers to structure information, so that the content does not become differentiated into isolated and unrelated pieces (p. 153). With the growing number of adult students in higher education, particularly at the community college level, there has been a great deal more research in recent years focusing on adult learning theories. The interest in adult learning has also been fueled, in part, by the proliferation in the number of adult students enrolled in distance learning courses.

Adult Learning Theory

Sims and Sims (1995) pointed to the increasingly diverse student body in higher education institutions across the country to support their claim that "educators must have more knowledge and understanding of the learning process, particularly how individuals learn –"this will help them immensely in both the design and implementation of teaching that enhances learning" (p. 1). Sims and Sims (1995) cited Malcolm Knowles' description of adult learning theory, known as andragogy, as well as his challenge to the educational community to design learning activities that are based on adult learner needs and interests. The role of the instructor, in working with adult learners, is to facilitate the process of inquiry, analysis and decision making with learners, rather than to transmit knowledge.

Roueche, Milliron, and Roueche (2003) discussed adult learning theory and also refer to Malcolm Knowles' research on adult learners. As self-directed learners, adults rely on previous life experiences to serve as a basis for new learning experiences. Adult learners also prefer to approach learning in a "problem-orientation" manner. One of the key components of technology-based learning is the flexibility it can provide to students who want to progress through a course in a self-directed manner.

Hase and Kenyon (2000) took Knowles' self-directed characteristics of adult learners to a whole new level and call it heutagogy. Heutagogy is defined as the study of self-determined learning. The principles underlying the concept of heutagogy are said to be better suited for the needs of adult learners in the twenty-first century, particularly in the development of individual capability (p. 2). Hase and Kenyon (2000) described a revolution taking place in education that is leading to much more flexible learning practices, fostered, in part, by the need for immediacy of learning that requires innovative approaches that go beyond pedagogical and andragogical methods. Hase and Kenyon (2000) disputed the notion that the growth in distance education courses is evidence that higher education is becoming more flexible. Certainly, distance education has provided more flexible delivery options, but because these courses, by and large, are still teacher-centered and still rely on traditional print-based materials, the learning is not really flexible. A heutagogical approach would recognize the need for maximum flexibility for the adult learner by having the teacher take on the role of providing the resources to learner who would then design the actual course through a process of negotiation with the teacher.

Wlodkowski (1999) recommended that when designing instruction for adult learners the following components should be considered:

- Start with material that is familiar to the learners, followed by presentation of new material.
- Provide learners with a context or frame of reference to use in structuring what they learn.
- Place easily learned material early in the sequence.
- Introduce broad concepts and technical terms that have application throughout the instructional process early in the sequence.

- Place prerequisite knowledge and skills in the sequence before the point where they must be integrated with subsequent knowledge or skills.
- Provide practice and review of knowledge and skills that are key components of the material to be introduced later in the activity.
- Structure learning objectives in closely related, self-contained groups.
- Avoid overloading learners with task elements that are difficult to learn.
- Place complex or cumulative skills at a later point in the sequence
- Provide support or coaching for practice of required skills, concepts and principles in areas where transfer is likely to occur.

Wooldridge (1995) wrote that knowledge of subject matter is an essential ingredient to being a great teacher, but it does not guarantee the ability to communicate that knowledge to students. This is why teachers must have both intellectual and pedagogical competence (p. 49).

Motivation

Ledford and Sleeman (2002) described motivation as a necessary condition for learning to take place. Keller and Burkman (1993) did not consider the design of an instructional message to be complete without factoring in its motivational appeal. They defined motivation as "that which determines the magnitude and direction of behavior" (p. 3). Keller and Burkman (1993) outlined several assumptions regarding motivation and learning in relationship to instructional design: (1) motivation to learn is, in large part, a courseware designer's (faculty and instructional designers) responsibility; (2) in the context of message design, learner motivation is a means, not an end; (3) designing instruction to be motivating can be a systematic process; (4) motivation must be considered in all parts of an instructional message; and (5) motivational design

interventions can be studied in terms of their effects on motivation independently of their effects on performance (p. 5). Blumenfeld (1992) described the importance of variety, diversity, challenge, control and meaningfulness as important instructional components affecting motivation (p. 272).

Motivating Adult Learners.

Wlodkowski (1999) identified four major factors that influence adult motivation to learn: (1) inclusion, (2) attitudes, (3) meaning, and (4) competence. The notion of inclusion deals with issues related to course content that could diminish certain individuals or a group's desire to participate in the learning experience because it excludes the cultural and socioeconomic realities of the individuals or group. The attitudes adult learners have toward instructors, subject matter, their own learning competencies, other adult students, and in the expectations for success are significant factors in adult learning motivation. Adults also want to participate in learning experiences that are relevant, and varied in terms of the methods of delivery. In terms of competence, the assessments of performance that are motivating to adults are those that are connected to their life circumstances, values, and frame of reference. Adults desire feedback that is prompt, frequent, and positive. Having discussed learning theories in the context of instructional design systems, the focus now will turn to specific examples of instructional design systems.

Instructional Design Systems Models

It was not known at the onset of this study, which, if any, particular instructional models the faculty teams and the instructional design staff would employ in the process of redesigning courses and creating the Instructional Design Assistant. None-the-less,

several classical and contemporary models were selected for review in this section in order to provide a useful framework for identifying and analyzing the components of the models or processes that would become evident during the data collection phase of this project.

Dick-Carey Model

Dick and Carey (1996) advocated a "systems" approach to instructional design. According to them, a system is "a set of interrelated parts, all of which work together toward a defined goal" (p. 3), and the instructional process is a system for the purpose of bringing about learning. Dick and Carey's system's approach is part of an overall instructional design paradigm known as Instructional Systems Development (ISD). However, as has been stated, the use of the terminology in this field is far from consistent. Dick and Carey referred to instructional design as an "umbrella" term that includes all phases of the ISD process. In other literature, instructional systems design is used to define what Dick and Carey describe as instructional systems development.

Dick and Carey outlined what they see as the core components of the instructional systems model: (1) determining the instructional goal; (2) analyzing the instructional goal; (3) analyzing learners and contexts; (4) writing performance objectives; (5) developing assessment instruments; (6) developing instructional strategies; and (7) developing and selecting instruction.

Dick and Carey (1996) cited several reasons for using the systems approach. First, it focused the design process, at the onset, on what the learner is to know or be able to do when the instruction is finished. Second, the systems approach enables a careful linkage between each component of the instructional strategy and desired learning

outcomes. Third, the systems approach is an empirical and replicable process (p. 8). Dick and Carey described the systems approach as coalescing into one coherent whole such varied components as learning theory, criterion-referenced testing, formative evaluation, and so forth.

Dick and Carey expounded upon the major aforementioned components of their systems model. The purpose for determining the instructional goal as the first step in the model is to define what it is the teacher wants the learner to be able to accomplish once instruction has been completed. This analysis may take place on both a macro and micro level. On a macro level, teachers would assess the overall goals of the particular curriculum, or an evaluation of the goals may take place based on the teacher's practical experiences with the types of learning difficulties students have had in the past. The second step in this process is to analyze the instructional goal. This involves the teacher determining, in a step-by-step approach, what people are actually doing when they perform that particular task. The last step involved in the instructional analysis process is to determine what prerequisite skills and knowledge learners will need to successfully participate in the instruction.

The third phase, which involves analyzing learners and contexts, is a process of identifying the nature of the instructional setting. This is particularly important when considering the fact that the setting may take place in a real or virtual classroom or a combination of both settings. The next stage in the process is writing performance objectives. Dick and Carey recommended that performance objectives be written only after the instructional analysis and statement of entry behaviors have been completed. The objective statements identify the skills or knowledge to be learned, the learning

conditions under which the skills will be performed, and the criteria for measuring successful performance. The assessment instrument development phase involves designing assessments directly linked to the objectives. Developing the instructional strategy is the next part of the process. This stage involves having a solid knowledge of the learning process, the content, the characteristics of the learners, all of which will influence the materials selected to implement the teaching and learning strategies. Selecting an instructional strategy involves the selection of instructional and learning materials, and will depend on the availability and relevancy of existing materials, or whether new materials will need to be created. The effectiveness and subsequent revision of instructional strategies should be based on formative and summative evaluations.

Gagné-Briggs-Wager Model of Instruction

Gagné, Briggs, and Wager (1992) also utilized a systems design approach to instruction. They defined instruction as a "human undertaking whose purpose is to help people learn" (p. 3) and they pointed out that, as a result of advances in computer technology, not only will the way education is delivered be affected, but the study of learning and understanding of the learning process will change. Gagné, et al emphasized that the term *instruction* is more comprehensive and descriptive than *teaching* because it encompasses all events that have direct influence on learning, and not just those activities specifically involving a teacher. Gagné, et al outlined five basic assumptions that inform their instructional design system. First, the aim of instructional design is to facilitate the learning of the individual. While learners are often assembled into groups, whether in a real or virtual classroom, learning takes place within each individual member of the group. Second, instructional design has both immediate and long-range goals. Gagné, et

al encouraged teams of teachers to come together to develop long-range instructional strategies. The third assumption is that systematically designed instruction can significantly affect human learning. Fourth, instructional design should be conducted using a systems approach. They defined an instructional system as "the arrangement of resources and procedures used to promote learning" (p. 20) and outlined the rational steps that should guide the systematic design of instruction as follows:

1. The *needs* for instruction are carefully considered by a responsible group in an effort to reach agreement on the *goals* of instruction. The resources available to meet the goals must be evaluated.

2. The *target objectives* of individual courses are identified.

3. It is recognized that o*bjectives* or outcomes of courses are achieved through learning. At this stage, it must be determined what kind of capabilities may be learned and what this learning will mean in terms of human performance. This must be assessed in the context of each form of learned capability – intellectual skills, cognitive strategies, verbal information, attitudes, and motor skills.

4. Identification of *target objectives* and *enabling objectives* is followed by grouping these objectives into units. These are systematically arranged to form a course.

5. Instruction is then *sequenced* based on what learning outcomes are desired and the conditions that need to be present to foster these outcomes.

6. This leads to a process whereby the design of instructional units is more targeted and smaller, more detailed units are developed. Specific *performance objectives* are identified at this stage and constitute those learned capabilities that can be observed and assessed as outcomes of learning.

7. Once the target objectives for a course have been developed, detailed planning of instruction for individual lessons can take place.

8. The instructional design process is not complete without specific procedures for *assessment* of what students have learned. Assessment procedures should be based on *criterion-referenced* measurement of learning outcomes.

9. The design of lessons and courses leads to the design of entire instructional systems with the aim of achieving comprehensive educational goals.

The fifth assumption pertains to the notion that designed instruction must be based on knowledge of how humans learn.

The Elaboration Theory

Reigeluth (1999b) viewed the paradigm shift currently underway from a teacher-centered and content-centered structure to learner-centered instruction as creating a need for new ways of sequencing instruction. The goal of the elaboration theory of instruction is to help select and sequence content in a way that enhances the attainment of learning goals. The values upon which the theory is based include: a sequence approach that is holistic; a process for learners to make many scope and sequence decisions on their own; an approach that facilitates rapid prototyping during the instructional development process; and the integration of viable approaches to scope and sequence into a coherent and consistent design process (p. 426).

The first major method that this theory offers is a *conceptual elaboration sequence*, which is useful when the goals for learning include: many related concepts; the sequencing of concepts that move from broader, more inclusive concepts first, and then more detailed concepts that elaborate on the broad concepts; the use of a topical or spiral approach to elaborate on concepts; teaching supporting content (principles, procedures, information, higher-order thinking skills, attitudes, etc.) in conjunction with the concepts to which they are most closely related; the grouping of concepts and their supporting content into "learning episodes" that are not so large as to make review and synthesis difficult, but are not so small as to break up the flow of the learning process; and giving students some choices as to which concepts to elaborate upon first/next.

The second method this theory offers is *theoretical elaboration sequence*, which is used when the goals of instruction call for: learning many principles; teaching broader, more inclusive principles, followed by narrower, more detailed ones; using either a topical or spiral approach to this theoretical elaboration, teaching "supporting" content (concepts, procedures, information, higher-order thinking skills, attitudes, etc.) together with related principles; grouping principles and their supporting content into "learning episodes"; and giving students some choice as to which principles to elaborate upon first/next.

The final method is called *simplifying conditions sequence*, and this is used when the goals of instruction include: learning a task of at least moderate complexity; teaching a simpler version of a task (that is still fairly representative of all versions) before teaching progressively more complex versions; using either a topical or spiral approach to a simplifying conditions sequence approach; following procedural tasks when the focus is on teaching steps and for heuristic tasks when the focus is on teaching principles; teaching "supporting" content together with related steps and/or principles; grouping of steps/principles and their supporting content into "learning episodes" and giving students some choice as to which versions of the task to learn next (Reigeluth, pp. 426-427). Reigeluth proposes that the elaboration theory of instruction is valuable for almost any type of instructional situation – situated learning, problem-based learning, and computer-based simulations. It also can be used for didactic instruction, highly constructivist type of instruction, or anything in between (p. 433).

Instructional Design for the Future

Schott, Grzondziel, and Hillebrandt (2001) identified several critical components lacking in existing instructional design models that should be a part of any new models of design: (1) a systematic design of collaborative learning/team training, of new technological developments in distance education, in particular Web-based instruction; (2) models for designing media mixes instead of models for media selection; (3) strategies for dealing with highly heterogeneous groups (differences in prior knowledge and skills, cultural diversity, older learners) and groups with low motivation; (4) more effective forms of assessment; (5) automating instructional design processes and reusable instructional materials to achieve cost efficiency while maintaining quality; (6) better theoretical foundations for instructional design, which take into account the whole challenge of providing useful knowledge (p. 382).

Salisbury (1996) identified systems thinking, systems design, quality science, change management, and instructional technology as the five technologies that will bring about revolutionary change to education. He believed these five forces needed to be harnessed and effectively used to meet the increasing demands on educational systems in the United States. Salisbury further believed that these changes have the potential to provide a greater number of students with the opportunity to master reading, writing, mathematics, history and a host of other basic subjects at an accelerated pace not in the traditional lecture format of teaching, but through high tech learning resources and "effective strategies for developing, reinforcing, and assessing basic and advanced skills (p. 147)." The role of one of these five forces of change – instructional technology – is the focus of the next section.

Instructional Technology

Instructional and Educational Technology from an Historical Perspective

While much of the discussion and debate pertaining to the role of technology in education has focused on the power and capabilities of a relatively new invention – the microcomputer – the link between technology and education has a much longer history. Noble (1977) attributed the introduction of the term "technology" into mainstream usage to Jacob Bigelow, a physician who lectured at Harvard in 1829.

> Technology…under this title is attempted to include an account…of the principles, processes, and nomenclatures of the more conspicuous arts, particularly those which involve applications of science, and which may be considered useful, by promoting the benefit of society, together with emolument of those who pursue them (Bigelow, quoted in Noble, 1977, pp. 3-4).

Ely (1966) defined technology, in the broadest sense of the word, as the design and use of man-machine systems (p. 1). Januszewski (2001) traced the changes in the meaning of educational technology as defined by the Association of Educational Communications and Technology (AECT), and described both the political and philosophical dimensions of the evolution of educational technology. AECT has changed the definition of educational technology on two separate occasions since the organization first defined the term in 1972. The forerunner to AECT provided a working definition in 1963, which will be discussed later in this report. Januszewski (2001) pointed out that "the very existence of three definitions is evidence of disagreement about ideas of technology (p. xvii)." Januszewski described audiovisual (AV) education as the "third major influence" on the field of educational technology (p. 12). The first two were engineering and science. According to Januszewski (2001), AV equipment, once viewed as primarily teaching aids to enrich instruction within the confines of the classroom,

became an educational movement, in which the focus was shifted from AV as mere hardware and equipment to a "systematic approach to improving instruction" (p. 13). Januszewski (2001) referred to an influential textbook written by Charles F. Hoban, Jr. and published in 1937 as instrumental in raising the profile of educational technology from a mere "machine-based" concept to an entire systems approach to providing instruction.

> A visual aid is any picture, model, object, or device which provides concrete visual experience to the learner for the purpose of (1) introducing, building up, enriching, or clarifying abstract concepts, (2) developing desirable attitudes, and (3) stimulating further activity on the part of the learner…Visual aids are classified according to general types along a scale of concreteness and abstraction (Hoban quoted in Januszewski, 2001, p. 12).

Januszewski (2001) went on to describe the convergence of science, engineering, and audiovisual education as the unique combination of factors that led to the first formal definition of educational technology in 1963, developed by the American Department of Audiovisual Instruction, which later became the Association for Educational Communication and Technology (AECT):

> Audiovisual communications is that branch of educational theory and practice primarily concerned with the design and use of messages which control the learning process. It undertakes: (a) the study of the unique and relative strengths and weaknesses of both pictorial and nonrepresentational messages which may be employed in the learning process for any purpose…the undertakings include the planning, production, selection, management, and utilization of both components and entire instructional systems (Ely, 1963 cited in Januszewski, p. 18).

According to Januszewski, a complex and ambiguous definition of educational technology produced in 1977 by AECT was later simplified in 1994. An effort was made in the revised definition to distinguish instructional technology and educational technology, although, in many instances, these terms are used interchangeably. Educational technology, however, typically represents the broader aspects of the

educational enterprise and includes administration, and other "non-instructional" related functions. Instructional technology, on the other hand, is concerned with "the function of technology in education" (Januszewski, 2001). Under the new language, educational technology was more narrowly defined by AECT and referred to as instructional technology: "Instructional technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning (Seels and Richey, quoted in Januszewski, p. 103)." Januszewski pointed out that, shortly after World War II, the word "technology" moved from a process-orientation to the popular notion of state-of-the-art equipment, such as today's computers and Internet related technologies. This created tension between those who viewed educational or instructional technology in strictly stand alone technical terms and those who view it as encompassing an entire instructional process. Januszewski posited that educational technology is a worldview of education, in which an emphasis is placed on designing instruction that incorporates scientific and engineering principles with audiovisual media to solve educational problems.

Gentry (1995) summarized the state of educational technology when he wrote that "while educational technology is a dynamic emerging field, it is, sadly, still seeking definition. In the relatively short period of its evolution, the field of educational technology has taken on a surprisingly wide-range of meanings" (p. 1). Saettler (1990) addressed these issues of confusion in more direct terms:

> With the rise of new information technologies, there has been widespread confusion concerning their meaning and function within the instructional process. Many people, including some educators, have equated new information technologies with educational technology and have used the terms interchangeably. New information technologies refers to electronic media that

> may or may not be used for instructional purposes, while educational technology is concerned with the total process of instructional design and learning (p. 453).

Computers and Education

Saettler (1990) traced the history of computers in education to the 1960s with the introduction of computer-assisted instruction (CAI). By the 1970s, it was apparent that CAI had not significantly changed education, as been hoped for in the previous decade. These dashed expectations, however, did not prevent a wave of new systems from being developed, such as the PLATO (Programmed Logic for Automated Teaching Operations) project at the University of Illinois, and the TICCIT (Time-Shared Interactive Computer-Controlled Information Television) project at Brigham Young University (p. 456). As was the case with the previous generation of CAI systems, these programs did not significantly improve student achievement.

In the late 1970s, with the advent of the microcomputer, and the growing consumer market for these devices, there was a resurgence of enthusiasm for the use of the computer in education. Saettler (1990) reported that by the early 1980s, school systems began to invest significant resources in microcomputers for classroom use. But, despite the fact that by 1988 it was estimated that there were over three million computers in American elementary and secondary schools, research showed that the average user got to use the computer less than thirty minutes a week. The drill-and-practice format was the predominant use of the computer in the classroom during this period. According to Saettler, the literature from that time showed that the computer was viewed as an extension or "add on" to the traditional goals of education.

The novelty of computer-assisted instruction seemed to wear off and the expectation that teachers would use computer technology to produce their own software

for classroom instruction was diminished by the reality that most teachers "lacked the time, the energy, or the expertise to engage in such a task" (Saettler, 1990, p. 457). In addition to these constraints, most teachers did not have the training or the understanding for how to use computers to enhance educational effectiveness. Another factor that contributed to the computer, once again not resulting in significant improvements in the teaching and learning process, was that many teachers lost interest in the drill-and-practice software that dominated the educational market at that time, as it became apparent that most of the software did not exploit the capabilities of the computer to enhance teaching and learning.

Sloan (cited in Saettler, 1990) wrote that in the late 1980s, despite the criticisms of computers in education and the lack of significant change as a result of the huge investments in them, educators seemed oblivious to the need to question the return on investment. Sloan noted:

> American educators have made no concerted effort to ask at what level, for what purposes, and in what ways the computer is educationally appropriate and inappropriate, [or] in what ways and to whom we can count on its being beneficial or harmful. The overall picture instead has been one of educators vying to outdo one another in thinking of new ways to use the computer in all manners and at every level of education possible. Professional responsibility demands more (Sloan, in Saettler, p. 458).

The growth of distance education courses in recent years seems to be an indication that computers and the Internet may finally be starting to change fundamentally the face of education in a way that has long been hoped for. However, as Twigg (2002) pointed out, online courses, which perhaps represent the most overt signs of how education is changing as a result of technology, are organized in very similar fashion as their campus counterparts. Twigg (2002) called for pacesetters to design ways

to create online learning environments that appeal to a broad array of learning styles and enable students to interact with learning materials that move them beyond merely reading text. Twigg (2002) wrote that the capacities of the computer and the development of new software provide the opportunity for faculty to design built-in continuous assessment. Rather than traditional periodic assessment models, such as midterm and final examinations, assessments should become a learning experience for students rather than "an all-or-nothing" performance standard. The process of spacing quizzes, either graded or non-graded, throughout the semester is likely to lead to better overall understanding and retention of course material. According to Twigg, the advantages of continuous assessment include "an increase in time that students spend studying, a higher level of familiarity with tested material and comfort with the testing process, immediate feedback, and the ability to see the result of effort toward achievement" (p. 3).

As noted previously, the literature and research in this field have focused primarily on the growing online phenomenon in higher education, and very little research has been conducted into the use of technology to enhance learning in a variety of formats, such as face-to-face, online or blended. Two studies, one related to the conversion of traditionally formatted courses to online courses and the other addressing the topic of learning object based instructional design, are discussed in the next two sections. Both studies have components similar to some of the elements that were a part of the topic of this study.

Development of Web-based Courses

In 2000, Kang conducted a study to investigate how faculty members moved courses that were offered in a traditional format to an online, Web-based format.

According to Kang the specific purpose of the study was to develop an understanding of the instructional design process for Web-based courses used by faculty at Northern Illinois University (NIU). Kang used a case study approach involving administrators, faculty, and instructional designers at NIU. She sought to identify the theoretical constructs that informed the design process for the Web-based courses, the instructional strategies and activities utilized to develop Web-based courses and the challenges and issues involved in the design process (p. 9). She found that the major design challenges that the faculty faced were time, the design process, resource limitations, and technical issues. According to Kang (2000), all of the participants in the study singled out time commitment as the biggest challenge (p. 116). Also during the design process, the participants claimed that policy issues, intellectual property and copyright issues, and assessment issues posed significant challenges. Additionally, Kang found that the lack of a viable reward system to provide faculty with the financial incentives for investing their time and resources in the project raised important concerns in the design and implementation phases of the project.

In regard to expertise and resources for the design process, participants indicated that the process required multilevel knowledge and resources, including subject matter expertise, knowledge of design, communications skills, and the use of technology together with technological requirements, as well as support personnel. The participants reported that the design process was collaborative, ongoing, interactive, time consuming, challenging, and exploratory (p. 118). One of the recommendations that came out of this study was that teamwork is essential to the success of the design process. Kang described the model that emerged as a "collaborative, creative process among the content experts,

instructional designers, and support personnel…[P]lanning and designing an online course involves collaborative decisions on the overall framework of the content, system design, and/or multimedia design required" (p. 119). Kang outlined the conceptual framework that was developed by the participants in the study:

Process Stage 1: Macro-analysis at the course level: estimate/review the scope and complexity of a project, formulate/review the instructional goals and objectives, and analyze the tasks as well as the subtasks.

Process Stage 2: Micro-analysis and decision making at both the course and unit levels: brainstorm solutions, identify resources, delimit content, specify sequencing, and select/adapt instructional strategies and activities as well as an assessment instrument online.

Process Stage 3: Design, evaluation and revision: craft alternative "mock-ups" of conceptual prototype, modify the prototype in each design level, evaluate and seek alternative solutions. (p. 123).

Kang also discovered that when a new course is designed, the first step in the design itself was to develop course goals and learning objectives. The researcher cited Bloom's Taxonomy of Educational Objectives as an important resource for helping faculty think about end-of-course competencies and activities (p. 134). Kang recommended replicated case studies in other institutions to validate her study on the instructional design process for Web-based courses.

Object-oriented Instructional Design

Zschocke (2002) conducted a study on an object-oriented approach to instructional Web sites design. He proposed an "object-oriented instructional design"

(OOID) based on Tennyson's fourth generation instructional systems development model (IDS4). According to Zchocke, this model incorporates object-oriented analysis and design methods from human-computer interaction and software engineering into a single framework for Internet use in education" (p. iv). Zschocke wrote that web-based instructional designers need to take a systemic and systematic approach to designing technology-based courses in order to enhance the overall impact of such a delivery system on the entire organization (p. 2). The researcher suggested that learning objects, which the Institute of Electrical and Electronics Engineers (IEEE) Learning Technology Standards Committee define as "any entity, digital or non-digital, which can be used, re-used, or referenced during technology-supported learning" (p. 5), are the building blocks for an object-oriented design.

Merrill (1999) discussed an instructional design theory known as Instructional Transaction Theory (ITT), which is based on knowledge objects. Merrill outlines the values upon which ITT is based:

- Efficient learning process (via carefully defined learning strategies)
- Efficient instructional design process through automation
- Efficient simulation design through automation
- Combining simulations with tutorial instruction
- The power of exploration with guidance
- Adapting instruction to individual students in real time as their needs change during learning (p. 398)

Merrill defined knowledge objects as:

> Containers consisting of compartments (slots) for different related elements of knowledge. The framework of a knowledge object is the same for a wide variety of different topics within a subject domain, or for different subject domains…all

> knowledge objects have a set of information slots including: name, portrayal, and description (p. 402).

He described the benefits of knowledge objects as increasing the precision of the types of instructional strategies that can be implemented. Knowledge objects can be manipulated by the students and provide a very visual, and interactive experience. As will be discussed in the next section, the latest form of knowledge objects is known as learning objects.

Learning Objects

Wiley (2002) examined one of the latest concepts to emerge from the ongoing effort to harness the power of technology to enhance teaching and learning. Since the idea of computer-based learning objects as the foundation for a new instructional design approach is just beginning to spread throughout higher education, there are numerous and sometimes conflicting definitions of learning objects found in the growing body of literature on technology and learning. One of the early adopters of technology-based instructional design and the use of learning objects was Florida Community College at Jacksonville (FCCJ). The faculty and staff responsible for the development of the Sirius CD defined learning objects as "small, online modules that teach a course concept in fifteen minutes or less" (FCCJ Sirius Project CD). Wiley (2000) referred to learning objects as "small instructional components that can be used a number of times in different learning contexts" (p. 3).

In Wiley's view, "technology is an agent of change, and major technological innovations can result in entire paradigm shifts…[C]onsequently, a major change may also be coming in the way educational materials are designed, developed, and delivered to those who wish to learn" (Wiley, 2002, p. 2). Wiley argued that the concept of

learning objects is leading the way as the technology of choice for developing and delivering courses for the next generation. Learning objects are digitized instructional components that are transmitted via the Internet and can be reused in different learning environments.

Chitwood, et al (2002) pointed out that learning objects enable "educators to focus on learning and the learner by creating self-contained, reusable, high quality learning chunks that can be combined and recombined in courses, learning activities and experiences, and embedded in assessments that meet learner's immediate needs" (p. 203). The learning object paradigm links assessment directly with learning material. As students complete quizzes or tests, an incorrect answer can prompt a link to a learning object stored in a virtual library for the student to review prior to retaking the test, thus facilitating immediate feedback and mastery level learning. Concurrently, as students progress through course material at different rates, students who wish to accelerate through the course or would like to explore the subject in much greater depth can link to more sophisticated and media-rich learning objects. One of the fundamental principles of learning objects is the ability to provide more individualized, constructivist-based instruction while appealing to a broader range of learning styles (Williams, 2002, Martinez, 2002).

Teams and Facilitating Change

Teams in the Community College

The phenomenon studied in this research project involved collaboration and interaction among faculty and staff from different perspectives, disciplines, and technical backgrounds. In *Managing for Results through Teams,* Chand and Holm (1998)

discussed the success at Cuyahoga Community College in implementing a Continuous Quality Improvement program through teams. Chand and Holm wrote that:

> Teams are valued in organizations that are especially customer-focused, that value flexibility as a primary capability together with productivity and cost-effectiveness; that understand the importance of using the best information for decision making, and that promote cooperation and the power of synergy over individual and competitive achievement (p. 364).

According to Chand and Holm, teams are essential to providing flexibility in today's fast-paced environment, which is driven by rapid technological, informational, and demographic changes. The team approach helps to diminish the "silo" effect, which describes the tendency for people to stay within their own functional boundaries. Teams counter organizational hierarchy, territorialism, and habit by bringing operational experts together for problem solving and product development (Chand & Holm, 1998, p. 364). As teams grow and solidify, they develop into "learning units" within organizations…assisting the parent unit to grow into a viable learning organization" (p. 364).

Senge (1990) addressed the issues of team learning. Senge (1990) pointed out that the tools of systems thinking are important in the team learning process because "each team member carries his or her own, predominantly linear mental models; each person's mental model focuses on different parts of the system" (p. 267). Senge stressed the importance of systems thinking when diverse and cross-functional teams come together. Otherwise, "the strategies that emerge often represent watered-down compromises, based on murky assumptions, full of internal contradictions, which the rest of the organization can't understand, let alone implement" (p. 267). Senge also described the importance of shared language among the team members for dealing with complexity.

Otherwise, team learning is limited. As a team learns the language of systems thinking, the goals of the team will more likely be achieved. According to Senge (1990), the disciplines of reflection, inquiry, and dialogue are necessary ingredients for healthy team dynamics.

Barwick (1990) drew a sharp contrast between teams and committees in higher education, stating "committees are not teams…[A] team is a very special designation awarded to a group of people who feel energized by their ability to work together, who are fully committed to a high level of output and who care about how each member feels during the work process" (p. 32). Barwick (1990) pointed out that teaching faculty are, by nature, not team players, stating that "what a teacher is hired to do, and is professionally committed to doing, involves going into a room, and doing it alone" (p. 8). Barwick listed other barriers to effective faculty teams, such as wasted time in unproductive meetings, confusion over lines of authority, and administrators that actually work against team efforts. Dumaine (1994) attributed the failure of teams to achieve expected outcomes to management that is not willing to release control to the team and to the lack of training. Additionally, a failure to make changes in the overall system to accommodate team work hinders team effectiveness. Barwick (1990) provided several recommendations as to how leaders can create successful, productive teams among faculty in community colleges:

- The use of "we" in all recommendations that emerge from the team process
- Team leaders should be responsible for effective teams rather than just accountable for outcomes
- A team's identity needs to be carefully cultivated
- Laughter should be frequent

- Team members should eat together on a frequent basis
- Individual efforts count and should always be recognized, but everyone on the team must feel everyone is equally committed and equally important
- A team should not only review its progress toward its stated goals on a periodic basis, but also its success in cooperation and collaboration

Chand and Holm (1998) also provided recommendations for developing effective teams. Teams can provide a framework for change throughout the organization if organized and implemented correctly. Team members should be selected from a pool of those who volunteer to be a part of the team and these individuals, in turn, can recommend others for team membership. Teams must be kept to a reasonable size and include both those directly and indirectly affected by the changes being proposed. A "process owner" must be identified early on in the team development process. The process owner does not assume direct leadership of the team but serves as a communication vehicle among the team members as well as a technical resource. Training is an essential part of team success. Training should take place at the start of the team project as well as on an as-needed basis. The development of communications systems is also an essential component of team effectiveness and must be dealt with at the onset. Trust and support are key ingredients to sustaining an effective team process. Trust must develop among team members and between teams and administrative personnel in the organization. Providing support to the team includes the human and technical resources needed for the team to carry out its work. Teams should be fully empowered, but appropriate limits to the role and functions of the team should be stated at the beginning of the process (pp. 366-367). Chand and Holm (1998) conclude by highlighting the importance of multidisciplinary teams in community colleges to deal

"effectively with increasingly complex academic and administrative issues in a continually changing environment" (p. 379). Change that involves transitioning from traditional teaching and learning methods to technology-based environments pose unique challenges in the community college environment, and these challenges are addressed in the next section.

A Framework for Change

Hagner & Schneebeck (2001) discussed the difficulty many teachers have had, both philosophically and practically speaking, embracing and integrating technology in the teaching and learning process when they wrote that the "challenge for today's college or university is how to change its environment to accommodate and promote the use of…new technologies" (p. 1) among reluctant faculty. Hagner and Schneebeck pointed to the conflict of the culture of faculty autonomy with the pressure for change in the delivery of learning that technology presents. In an attempt to generalize the different views faculty have about technology in the teaching and learning process, the authors divided faculty into four waves. The first wave of faculty includes the entrepreneurs, which Hagner and Schneebeck described as the "vanguard of innovation and risk taking in teaching and learning" (p. 3). The second wave consists of faculty members who are committed to quality learning but are adverse to the perceived risks involved in using technology. The third wave is the group of faculty who are influenced by rewards and incentives, and if this group sees the benefits of technology in terms of tenure, promotion, and financial gain, they are more willing to adopt new technologies. Hagner and Schneebeck did not view the fourth group, the *reluctants*, as a wave because members of this group are firmly and unwaveringly committed to the traditional models of teaching

and learning. Hagner and Schneebeck proposed that the first step in moving an institution toward a wider acceptance of technology-based learning is to know the makeup of the faculty. The entrepreneurs will move ahead at breakneck speed, but often the strategies developed by this group are not transferable to other faculty. If technology is to be integrated on a college-wide basis, course templates and consistent standards need to be developed and these materials need to be both user-friendly and of the highest quality.

Summary

This chapter has reviewed the relevant literature, including the history and evolution, of both instructional systems design and instructional technology. The chapter also has reviewed literature related to learning theories and motivation theories, and their influence on the instructional design process. Additionally, the concept of learning objects was discussed as both a design theory and for its practical uses in the instructional process has been discussed. Finally, a review of the literature related to the importance of teams to the change process as well as the importance of identifying change-agents and change-resistors to facilitate a transition from traditional teaching formats to technology-based instruction.

The literature review provides a framework for analyzing the processes undertaken at Florida Community College and how the redesign of courses and the development of the electronic Instructional Design Assistant reflected many of the issues found in the extant literature. Chapter three discusses the methodology for this study.

CHAPTER III

Methodology

This chapter describes the research methodology and the rationale for the methodology selected for this study, including the research design, an introduction to the case and the basis for its selection, the data collection procedures, and methods used to help ensure the validity of the study. This investigation employed a qualitative case study approach. The chapter begins with a review of the research questions that guided this study.

Research Questions

1. How did the College administration develop and implement the process/model for the redesign of the four courses and the development of the Instructional Design Assistant?

2. Why did faculty choose to participate in this project?

3. How did faculty and instructional design staff redesign "traditionally-formatted" courses to incorporate instructional technology and instructional systems design strategies?

4. How did faculty and instructional designers integrate particular learning and motivation theories in the development of an electronic Instructional Design Assistant?

Introduction and Rationale for Selecting the Case

This researcher served as a graduate intern in the Executive Vice President's office at Florida Community College at Jacksonville and participated in several discussions and planning meetings throughout the course of the Fall 2003 semester relative to this project, but did not commence research until January, 2004. At that time, the researcher became a full-time employee of the College. The data collection and documentation for this study was conducted between January, 2004 and July, 2004. The

researcher was granted unfettered access to all aspects of the project. Florida Community College at Jacksonville was selected, in part, because of the recognition the College had earned on a state-wide and national level for technological innovation as well as for the College's commitment to enhancing and expanding its online course capacity.

Florida Community College is a multi-campus community college located in the geographically largest, most populated city in Northeast Florida. The College opened its doors in 1966 to the largest beginning class for any institution in the nation. The College is the second largest community college in Florida and eighth largest in the nation in the number of students earning associate degrees. It serves approximately 60,000 students each year at its four physical campuses, a virtual campus and seven centers. College programs "prepare individuals for transfer to upper division colleges and universities, skilled employment, a high school or general education diploma, and personal and career enrichment" (2003-2004 College Catalog).

Florida Community College has been nationally recognized for its technological innovations. A few noteworthy accomplishments are listed below:

- A digital community college survey sponsored by Converge and the Center for Digital Education ranked Florida Community College first in the nation in 2003 for capabilities in distance learning and electronic services for students and employees.

- Florida Community College was rated the "most wired" two-year college in the nation by Yahoo Internet Life in March 2002 for the technology programs, resources, and infrastructure available to Florida Community College students.

- Florida Community College is one of six centers in the world designated by CISCO Systems as a CISCO Academy Training Center.

- Florida Community College is one of only four community colleges in the nation selected along with fourteen universities to provide global Online degrees to Navy personnel.

- The Internal Revenue Service in a five-year, 88 million dollar e-learning contract selected Florida Community College as the only community college out of 16 colleges and universities across the nation to provide distance learning instruction (2003 SACS Review Document).

Additionally, the College's Strategic Initiative Council awarded the project that served as the topic of this study $180,000 to fund the online course development and instructional design initiatives.

Online Course Development Project and Sirius

Florida Community College over the course of several years has been involved in converting a number of traditional, face-to-face courses to online Web-based courses. At the time of the study, the College faculty and staff had developed a total of 72 courses for online and/or hybrid delivery. There courses were developed in multiple phases, with the goal of expanding the number of courses offered online. The Online Course Development Project (OCDP) phase that was the focus of this study was *Phase 5*. The major difference between the development of the courses selected for *Phase 5* and the previous phases of OCDP was that in *Phase 5*, the faculty participants were charged with developing courses without the use of a textbook, and that would not require a textbook. In addition to the development of online courses, a related multiphase project, known as the Sirius Project, had been underway at the College for several years. A number of courses were identified as "high-risk" courses by the College's faculty and administration. These courses were designated as such because they were courses that typically had high enrollment but low retention. The first phase of Sirius involved faculty from across the curriculum developing practice tests with explanatory answer

keys for a specific set of courses. These practice tests provided immediate feedback to students and were designed to prepare them for major exams. Faculty used a word processing program to create course objectives and computer-based tests. The Applied Center of Instructional Design converted the documents into a digital, interactive software program called Perception.

The second phase of the Sirius involved teams of discipline-specific faculty that collaborated to search and identify "learning objects" that would provide preparation and remediation for the computerized tests created during Phase I of the project, and help students master their course material. The search for learning objects involved a team leader and other faculty members. While these groups were conducting their search for learning objects, the team librarian investigated copyright and fair use issues for the particular learning objects that were identified by the faculty teams. The focus of this study was the third phase of Sirius, which included the development of the IDA and *Phase 5* of the Online Course Development Project

Research Design

Creswell (1998) defined the case study as an exploration of a "bounded system or a case over time through detailed, in-depth analysis collection involving multiple sources of information rich in context" (p. 61). Creswell (1998) referred to it as a bounded system because it is bounded by time and place and involves a specific unit of analysis, which may be a program, an event, an activity or individuals. According to Creswell (1998), the multiple sources of information used in case studies include observations, interviews, audio-visual material, documents and reports.

Stake (2003) defined a case study as both a process of inquiry and a product of the inquiry and delineates case studies into three broad categories – *intrinsic*, *instrumental*, and *collective*. The purpose of *intrinsic* case studies is based on the interest of the case itself and not necessarily to develop theory. *Instrumental* case studies are designed to provide insight into an issue or to redraw a generalization. According to Starke (2003), in instrumental case studies, the case is often of secondary interest, serving in a supportive role in order to facilitate our understanding of something else. The case is still examined in-depth, its contexts elaborated on, and its ordinary activities detailed, but the larger purpose of the research is to pursue "external interest." Stake (2003) defined *collective* case studies as the investigation of several cases that will lead to a better understanding of a still larger collection of cases. Stake admits that the boundaries separating one type of case study from another are not always distinguishable. For the purpose of this particular study, Stake's description of an instrumental case study was most relevant, as the outlined in this case, potentially, could be used in an anecdotal fashion to inform the design and development process of technology-based courses in other, similar settings.

In seeking to identify both the common and particular features of a case, Stake indicated that this information is acquired in a number of different ways: (1) the nature of the case; (2) the case's historical background; (3) the physical settings; (4) other contexts (economic, political, legal, esthetic); (5) other cases through which the case is recognized; and (6) the informants through whom the case can be known. Guba and Lincoln (1981) outlined four classes of purpose that characterize cases studies: (1) to chronicle, that is, to develop a register of facts or events in the order (more or less) in

which they happened; (2) to render, that is, to depict or characterize, (3) to teach, that is, to provide with knowledge, or to instruct; and (4) to test, that is to "prove" or to try. (p. 371).

Yin (2003), considered a preeminent authority on case study research, defined a case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident. According to Yin (2003), case study research is the preferred strategy when a "how" or "why" question is being asked in the context of the study. Case studies employ a variety of data collection procedures. Yin (2003) outlined several sources of information for the collection of data: (1) documentation (2) archival records (3) interviews (4) direct observations (5) participant observations and (6) physical artifacts. All of these various methods and sources were employed for the purpose of collecting data for this study.

Rationale and Support for Research Methodology

The instructional design of technology-based courses is an emerging specialty within the instructional design/technology field. There are few empirical studies that describe both a process of redesigning "traditional format" courses to more fully integrate learning and motivation theory or that describe an electronic instructional design assistant that will guide future users through a process of developing online courses. A review of the literature revealed that the majority of the studies related to technology-based courses have focused on issues pertaining to Web-based courses within the domain of distance learning. Given that there is a gap in the literature pertaining to descriptions of a systematic design of technology-based courses that have application in multiple delivery

formats, a qualitative, case-study approach based on a naturalistic research paradigm was selected to collect, record, analyze, and present the data for this study. A qualitative description of this process will contribute to the literature in this emerging field of study and will assist faculty, administrators, and instructional designers who seek to develop more effective technology-based, online courses in other settings.

Qualitative Research

Lincoln and Guba (1985) stated that the aim of a qualitative study is to explore a problem or describe a setting, a process, a social group, or a pattern of interaction. Denzin and Lincoln (2003) described qualitative research as a situated activity positioning the observer in the world. Through a series of representations, including field notes, interviews, conversations, photographs, recording, and memos to self, the researcher is engaged in an interpretive and naturalistic approach to the world (p. 4). In order to carry out this work, researchers study phenomena in their natural settings. Denzin and Lincoln (2003) outlined the key design features of a qualitative study:

- Qualitative research is holistic;
- Qualitative research looks at relationships within systems or cultures;
- Qualitative research is concerned with personal, face-to-face, and the immediate;
- Qualitative research is focused on understanding given social settings, not necessarily making predictions about those settings;
- Qualitative research demands that the researcher stay in the setting over time.
- Qualitative research demands time in analysis equal to time in the field;
- Qualitative research sometimes requires that the researcher develop a model of what has occurred as part of the description of the findings;
- Qualitative research requires that the researcher become a research instrument, sharpening research skills;
- Qualitative research incorporates informed consent and is responsive to ethical concerns;
- Qualitative research incorporates room for the description of the role of the researcher as well as the description of the researcher's own biases and ideological preference;

- Qualitative research requires the construction of an authentic and compelling narrative of what occurred in the study and the various stories of the participants; and
- Qualitative research requires ongoing analysis of the data. (pp. 57-58).

Although qualitative research is a well-established practice in the research community, there are still pockets of resistance to the qualitative research paradigm. Denzin and Lincoln (2003) attributed this resistance to the politics "that are ingrained in the discourse of the research field" (p. 34). According to Denzin and Lincoln (2003) critics of qualitative research refer to researchers engaged in qualitative studies as journalists or soft scientists and their work as nothing more than exploratory or subjective in nature. In order to address these concerns, careful consideration should be given to the research design and implementation procedures to ensure the trustworthiness, credibility, transferability, and confirmability of the study (Denzin and Lincoln, 2003). Critics of qualitative research have argued that it is inherently flawed. They challenge the notion that trustworthiness, credibility, transferability, and confirmability are sustainable in qualitative research. In response to these challenges, Lincoln and Guba (1985) offered principles and methods of research that address the truth value associated with each criterion. These principles and methods are discussed in the next section.

Validity

In reference to this case, an in-depth description showing the complexities of processes and interactions was embedded with the data derived from the project setting. Validity and reliability were derived from multiple interviews with a large number of participants as well as ongoing observations over a seven month period. Data collected through interviews and observations were reviewed with participants to test for validity.

Transferability

Researchers have several methods available to respond to challenges regarding the transferability of qualitative research findings. One such method is to refer back to the theoretical parameters of the study and demonstrate how data collection and analysis will be guided by concepts and models. The reader or specific user of the research can then determine how the research ties into the body of theory. Another method is triangulation, in which multiple sources of data are brought to bear on a single point. According to Marshall and Rossman (1999):

> Data from different sources can be used to corroborate, elaborate, or illuminate the research in questions. Designing a study in which multiple cases, multiple informants, or more than one data gathering method are used can greatly strengthen the study's usefulness for other settings (p. 194).

Dependability

Lincoln and Guba (1985) pointed out that qualitative research generally assumes a constructivist paradigm, in which the social world is always being constructed. The researcher can account for changing conditions in the phenomenon chosen for the study, supported by the notion that changes in the research design will occur as a better understanding of the setting emerges and is refined during the course of the study.

Confirmability

The issue of confirmability concerns the notion of objectivity. Lincoln and Guba (1995) asked if the findings of a qualitative study can be confirmed by another. This can be accomplished through a procedure known as member checks. Interview transcripts and other data collected throughout the course of a study can be viewed by the participants to confirm factual and interpretive accuracy.

Research Design

Data Collection

Yin (2003) described several data sources for the typical case study and these include:

1. *Documents*: Yin pointed out that documentary information is likely to be relevant to every case study topic. A number of different types of documents were collected and analyzed during this study, including concept and proposal papers for funding this project, memos from the project director to faculty and other staff involved in this project, handouts provided during the various training sessions, email messages, documents produced by the faculty teams during the content development phase, and story board or design forms for the development of learning objects. Yin also listed a variety of documents that can be the "object of explicit data collection" (p. 85): The following were the types of documents were collected and analyzed as part of this study:
    - Letters, memorandum, and other communiqués;
    - Agendas, announcements and minutes of meetings, and other written reports; and
    - Administrative documents – proposals, progress reports, and other internal records.
2. *Archival Records*: According to Yin (2003) archival records often take the form of computer files and records, and these records can be used in conjunction with other sources of information in producing a case study. This researcher reviewed documents and computer-based programs from previous phases of the project.

3. *Interviews*: Yin considered interviews to be one of the most important sources of information in case study research. He advocated a fluid rather than a rigid process to guide the interview process. Case study interviews are most commonly *open-ended* inquires but also more structured approaches may be taken. This study utilized both methods. Faculty, administrators, and instructional design staff were interviewed throughout the course of the study. These sessions were audio-tapped. Additionally, feedback and other information were collected through email messages and through informal contact with faculty and staff.
4. *Observation*: Yin (2003) described two types of observations in case study research – direct observations and participant-observations. Direct observations can range from formal to casual data collection activities. In this study, direct observations were made on several occasions as the faculty worked together to restructure their courses, met with the consultant, and interacted at the training sessions held on a monthly basis throughout the data collection period. These discussions focused on a wide-range of pedagogical issues, as well as interface issues with the technological aspects of the project. The faculty participants met as a team on a periodic basis to discuss progress, issues, and challenges during the content development phase. The faculty also met on a monthly basis with the consultant and when participating in training sessions. This researcher attended most of these sessions. The researcher recorded field notes during these meetings as well as subsequent informal meetings and interaction that occurred outside of the scheduled meetings.

5. *Participant-observation* is a special kind of observation, in which the researcher may actually participate in the events being studies. The researcher participated in the training sessions offered throughout the study and in discussion involving the development of the Instructional Design Assistant.
6. *Physical Artifacts*: Physical artifacts include a technological device, a tool or instrument, or some other physical evidence. Yin (2003) pointed out that physical artifacts can be an important element in the overall case (p. 96). This researcher obtained and reviewed copies of the Instructional Design Assistant at various stages of development and course content material developed by the various faculty teams.

Interview Protocol and Participants

The participants for the study were identified through a selection process involving the Executive Vice President for Instruction and Student Services, the Director of Program Development for Technology Programs, the Faculty Fellow assigned to the Advanced Center for Instructional Design, and faculty team leaders. Other participants were identified by virtue of their direct involvement in the project that is this project fell within the scope of their professional responsibilities. The interviews were based on a set of structured as well as emergent questions with participants directly involved in the development of the Instructional Design Assistant and the redesign of the four courses. Interviewees included 14 faculty, two administrators, and three members of the instructional design staff from the Advanced Center for Instructional Design (ACID). Four courses were identified for this project: (1) General Psychology (PSY 1012); (2) Reading Skills (REA 008, college preparatory); (3) Elementary Algebra (MAT 0024,

college preparatory) and; (4) Introduction to Composition (ENC 0021, college preparatory). These courses were among a number of courses offered at the College that were designated as "high-risk" courses, meaning they had a history of high enrollment but low retention.

Face-to-face interviews were the primary method for interviewing participants, but email was also utilized with faculty throughout the course of the study. There was one faculty member that did not respond to request to be interviewed and did not respond to questions sent via email. Faculty participants were interviewed on an individual basis and in a group setting. In addition to interviews with faculty, interviews were conducted with the Executive Vice President for Instruction and Student Services, the Director of Program Development for Instructional Technology (Project Manager), the administrative and design staff at the Advanced Center for Instructional Design, and two computer programmers assigned to the project. Additionally, the consultant who was retained by the College to facilitate this process was interviewed on several occasions.

The individual interviews with faculty took place in two stages (January/February 2004, and June/July 2004). The initial set of interviews with faculty participants was done in face-to-face setting. The second set of interviews with faculty participants was done in both a face-to-face setting and through responses to questions sent via email. Interviews with all other participants were done in a face-to-face format. The questions used during the initial interviews with faculty included basic demographic information, experiences with technology, why they chose to participate in the project and what were their expectations going into the process. Additional questions emerged during the initial set of interviews.

The second set of interviews with faculty posed questions related to their experiences during the first six months of the process, and identification of any design principles, learning theories, group or team dynamics, etc, that they observed and found noteworthy. The faculty participants also were asked during the second set of interviews about their experiences with any perceived changes in their understanding of an effective instructional design process as a result of participating in this project. The faculty participants were also asked about any technical and other emergent issues that they encountered throughout the process and the level of support they had received from administration and the instructional design staff.

Interviews with administrators focused on questions related to the selection of the faculty for the project, background information on what factors led to this initiative and issues related to resources that were both available and lacking. Questions related to the level of experience in the instructional design field and how this particular project differed from past experiences were posed to the instructional design staff, as well as questions about the challenges, both technological and human, faced during the project. The interviews generally lasted from 20 to 60 minutes in length. Interviews were tape recorded and were done so only after permission was granted by the participants. Detailed field notes were maintained throughout the data collection period. All the interviews were transcribed verbatim from audiocassette recordings, and then the transcripts were sent to the participants for their review and feedback. Appendix A contains the list of interview questions.

Field Notes

The researcher maintained field notes throughout the study that recorded both formal and informal observations. Field notes captured main ideas, themes, and insights made during the formal observations and after informal discussions with participants. These notes helped facilitate recall and interpretation of the data collected throughout the study. The field notes were used to identify common themes that surfaced during the study and also to confirm and validate observations made by the researcher with the project participants.

Methods Used to Strengthen the Validity of this Study

Triangulation

Triangulation involves using multiple sources of information. Yin (2003) considered this to be a major strength of case study data collection. This study involved a significant number of participants and the multiple interviews conducted, observations made, and documents collected (e-mail, memos, minutes, design templates, etc.) over a seven month period provided multiple sources of information that can be triangulated.

Case Study Databases

In order to enhance the reliability of the case study, Yin (2003) recommended the creation of a variety of case study databases. The first type of database used in this study was *case study notes*. This database held records of the raw data that was collected and recorded from interviews, observations, field notes and review of documents. These notes were categorized by method (i.e. interview, field notes, etc.) with additional subcategories as appropriate, such as common themes, challenges, and issues that emerged throughout the study. The second database file created for this study was for

case study documents. These were maintained in electronic form where possible and, in the case of "hard copy" documents, a suitable filing system was set up and maintained by the researcher.

Chain of Evidence and Data Analysis

As another method for increasing reliability of the study, Yin (2003) advised researchers to provide sufficient documentation and citations within the case study report that would readily demonstrate evidence of coherency and consistency throughout the study. Yin (2003) offered several options for a systematic approach to analyzing the data. The first method of analysis he discussed was to compare the data with the original theoretical propositions made in the study. A second technique was to analyze the data in the context of rival definitions, which essentially means that a theory other than the theory proposed in the study offers a better explanation for the results. A third approach, and the one that was most suitable as the primary approach to this particular study, was developing a case description. Yin proposed this technique for analyzing the data for case studies where the original purpose was descriptive. The descriptive framework also helps organize the case study analysis (Yin, 2003, p. 114). In general, the data from this study was complied, results were analyzed and discussed in the context of case description techniques, but also the findings were compared to the instructional design practices and theories discussed in the literature review section of the report. Common and divergent themes were identified and coded accordingly. A template (Appendix F) was developed to help code the major themes that emerged during the study. The material was categorized and analyzed according to the following general topical areas:

1. Background – description of Phase I and Phase II of the project (Sirius).

2. Introduction of the current project.
3. Faculty/administrators/staff perspectives on the process by course.
4. Technical issues and conceptual description of the electronic template.
5. Comparison/contrast of issues/experiences among four faculty groups.
6. Summary/Synthesis/Analysis

Timeline

There were multiple interviews conducted, observations made, documents reviewed and the researcher participated in a number of faculty development workshops from January, 2004 through September, 2004. Appendix B contains a general timeline for the completion of this study and Appendix E is a detailed record of the data collection process.

Ethics

Interviews and other methods of data collection did not commence until Institutional Review Board approval was obtained. Participants included in the study provided a signed written consent form before interviews were conducted. Written consent also was obtained to conduct the study from the Executive Vice President of Florida Community College on behalf of the College. Interviewees had the right to withdraw from the study at any point in time. When requested, pseudonyms were assigned to protect participant identities.

Summary

This chapter has reviewed the proposed methodology for this study, including a description of the research design and rationale for selecting the qualitative cases study approach. The rationale for selecting this particular case also was provided. This chapter

also outlined the specific research methods and techniques, including interviews, observations, and document review that took place as part the data collection process for this study. A method for analysis of data was proposed. Additionally, activities designed to strengthen the validity of the study also have been included. Chapter 4 presents the findings of the study.

CHAPTER IV

Findings

After seven months of investigation, this study came to a close. During the course of the investigation, this researcher conducted numerous interviews, attended professional development sessions and faculty team meetings with participants; reviewed a number of different documents related to this project, and interacted on formal and informal base with faculty and staff. This chapter presents the findings of the study and is organized according to the answers to the research questions, with an additional section at the end that deals with common themes, issues and challenges that emerged during the project but were not explicitly addressed in the four research questions To that end, this chapter is organized in the following manner: (1) the process/model that the College administration used to design and implement this project; (2) the reasons faculty chose to participate in this project; (3) the instructional design and technology integration strategies that faculty and design staff used to develop the courses; (4) integration of learning and motivation theories in the development of the electronic Instructional Design Assistant; and (5) common issues, challenges, and faculty feedback on factors that would have improved the implementation of this project. The data for research questions three and four are presented in tandem due to the significant overlap in the way faculty and staff attempted to integrate instructional technology and instructional design principles relative to those two components of the project.

Research Question 1:
The Model, Process, and Implementation

The Online Course Development Project Phase Five (OCDP 5) and Phase Three of the Sirius Project (Sirius Phase 3) were officially launched in December, 2004. For the sake of clarity and simplicity, OCDP 5 and Sirius Phase 3 are commonly referred to collectively as *the project*. Earlier phases of both projects occurred over a period of several years. The faculty and staff involved in this project reported that OCDP 5 and Sirius Phase 3 were the most comprehensive and complex in scope and size in comparison to the previous phases. The two key individuals at the administrative level of the College involved in OCDP 5 and Sirius 3 were the Executive Vice President for Instruction and Student Services and the Director of Program Development for Instructional Technology. The Executive Vice President (EVP) was the visionary force behind the project. The Director of Program Development for Instructional Technology served as the project manager. In that role, this individual oversaw and coordinated all phases of the project discussed in this study and reported directly to the Executive Vice President. The project manager's staff consisted of an instructional designer, a multimedia specialist, and a staff assistant. Both the EVP and the project manager were jointly responsible for creating the processes and the operational model used in the development and implementation of OCDP 5 and Sirius Phase 3, both of which were built upon the principles and practices utilized in previous phases. The major goal of the current project was to merge OCDP 5 and Sirius 3 in such a manner as to integrate both projects into a seamless whole. Several major components of this project were identified through the interviews conducted with administrators, faculty and other staff, and through a review of project memos and other documents, as well as project-related artifacts from

previous phases. These components were categorized in the following manner: (1) the philosophical basis for the Online Course Development and Sirius projects; (2) the foundational components of the previous phases; (3) how the four courses were selected for this project; (4) the decision-making process concerning whether the courses would be designed for use in face-to-face, online, or blended modes; (5) the process for selecting faculty participants for the design teams and the characteristics of the faculty selected; (6) the hiring of an outside consultant to help facilitate the project; (7) the professional development and training for faculty participants; and (8) the methods for obtaining resources for this project, including human, technological, and fiscal, and the manner in which these resources were utilized in order to move the project forward. Each of these components will be discussed in the following sections.

The Philosophical Component

The Executive Vice President for Instruction and Student Services provided the overall vision for the online course development and the Sirius project initiatives. The EVP's vision was to develop a system that combined the power of instructional technology with teaching strategies utilized by the very best and most successful faculty members at the College into an electronic or digital course development and delivery mechanism. The EVP described the goals for the project:

> I knew a few years ago that I wanted to move our faculty to a more integrated system by using the full power of technology because it was my thought that the way technology had been used and was being used by faculty was a glorified chalkboard or PowerPoint. It really was not integrated into instruction in a way that students could benefit from it as well as the teacher could benefit from it in reference to a course management process. I wanted to find a way to put these two things together. I also wanted to ensure that the way it was processed and the way it was developed would provide the maximum flexibility for faculty so that each faculty member could use the materials and customize it to make it their own. In my view, it is very important for each faculty member to believe that

> everything that is in this product is their material or reflects who they are because I believe that the very best faculty members are those who share who they are and share who they are through their subject matter with the use of technology. This is the third phase of that occurrence.

The project manager conveyed a similar philosophy in describing the goals of the online course development and Sirius projects:

> Phase Five is really designed to uncover the creative aspects of some of our best faculty and to try to work those into a design template or prompting system online that will help faculty in all fields to improve the process and redesign their courses both for online and blended delivery using strategies that really work.

One of the unique aspects in the design process of OCDP 5 courses that was not a feature in the development of online courses during previous phases was the stipulation that members of the faculty teams were to design the courses in such a way that students who would enroll in these courses would not have to purchase a textbook. In other words, the course content would be totally self-contained, either on a CD-ROM or in a Web-based format or both. According to the Executive Vice President:

> Most college courses are arranged around an outline and that outline for the most part comes from a textbook outline. If you look at most people's perception of a course and the skeleton of that course you would see the textbook reflected in the outline of the course. I wanted the faculty to think in terms of the whole course, not in the context of a textbook, but instead I wanted them to reverse engineer it. I wanted them to sit together as teachers and colleagues and think critically about what it was they wanted students to know, first at a macro level and then at a very micro level. Specifically, what did they think was important for students to know, what did they want students to do, and then what values and experiences did they want students to have through that course. By going through this type of exercise, I wanted them to create measures, how do they know, for example, if a student could work a quadratic equation – what would it take to convince them of that and then from there, what types of experiences would a student need before he/she was assessed? Do they need to read a paragraph? Do they need to see a teacher work a problem out on a chalkboard? Would they need to see a simulation or would five or six of these types of activities work or would they need them all? So their task was to go through and build everything that was needed for students to go through a course and come out with the knowledge and skills, and values, if you will, of that course. And that frightened a lot of people because the first

> words out of their mouths, that is the ones that were most frightened, were 'you mean you want us to write a textbook!' That scared them.

In a series of meetings that the Executive Vice president held with the faculty to share his vision with them and to invite them to participate as members of the course design teams, the EVP reported that efforts had been made to alleviate the concerns that the prospective faculty participants had about the idea of developing course materials without a textbook. In doing so, the EVP encouraged faculty to break their courses down into a series of learning objects or subcomponents by using an analytical and holistic exercise that involved first identifying what they wanted their students to know or do, followed by a determination of how they would, as experienced teachers, know that their students had achieved an understanding of the course objectives, and finally to identify the methods that they would use to help their students successfully meet the course objectives. This process was organized around course specific concepts and skills. The EVP said that it appeared that the prospective faculty participants became less intimidated by the whole concept of developing a course without the guidance of a textbook when the idea was presented from this perspective.

Also, for the benefit of the students served by the College, the Executive Vice President indicated that one of the outcomes sought with the latest phase of the online course development project was to change the mindset of the faculty in regards to structuring their courses around textbooks. The EVP said that students should not have to continue to pay exorbitant prices for textbooks that added little value to most courses, especially when technology offered the potential for more active and customized kinds of learning experiences than what the typical textbook could provide. The faculty leader for

the reading course design team embraced the EVP's vision for Phase Five of the online course development project and described the project in the following way:

> The end product is that we will have a course developed, which in our case is Reading 008, and it will be on a CD-ROM and what it will do essentially is that a student will be able to walk into the bookstore and purchase this CD-ROM or access it on the Web and have the whole course laid out before him/her…In other words, they are not suppose to have to buy textbooks. Textbook costs have gone through the roof, and there is not a whole lot that we could do about that so the concept was to have everything included in the course without the use of any outside text.

The manager of the Advanced Center for Instructional Design (ACID) also offered a perspective on the use of the OCDP Phase Five to design courses that did not require a textbook:

> The broad goals, as I understand them, are to help faculty…to create the very best learning materials that we can, and in the process…capture the expertise of our terrific faculty for use with new hires and adjuncts and also to help students by providing a lot of different methods to reach them. Some students just don't learn from the textbook or from a lecture, so to provide them with more sources for remediation when necessary, and secondly, I think a big goal here, is that we would really like build learning object repositories that all of the faculty can pull from and add to and really not have to constantly reinvent the wheel.

[At approximately three months into the project, the Director of the Advanced Center for Instructional Design (ACID) was reassigned to other duties and a new instructional designer was hired. At around the same time as these personnel changes took place, the name of ACID was changed to Learning Innovations.]

Although the criteria for redesigning the courses selected for OCDP 5 were different from the criteria utilized in the previous phases, specifically with respect to the textbook issue, the Executive Vice President and project manger pointed out that the previous phases had, in fact, established the philosophical and practical foundations for

the current project. A discussion of the foundational components provided by the previous phases is outlined in the next section.

Foundational Components

A review of the proposal for OCDP 5 revealed that the overall goal linking the various phases of the online course development project together was for the College to expand the number of online courses, thus providing the capacity for the College to offer multiple degrees online, while at the same time improving the quality of these courses. According to the project manager, the quality enhancements to the courses would come primarily from faculty members working in teams to redesign selected courses, and in coordination with instructional design staff and graphic designers, to create courses that were interactive and grounded in research-based learning theory. The proposal document prepared by the project manager stated the following:

> To expand and sustain the College's ability to offer online degrees globally, there is a need to continue the college-wide effort of online course development…[C]ourse development will emphasize applications of learning and motivation and research and theory to produce materials that require high student interactivity with the content (OCDP 5 Proposal, September 15, 2003).

At the time the OCDP 5 proposal was submitted, the College had already developed 57 online courses, with an additional 15 under development. This would bring the total to 72 courses by the end of the Fall 2003 semester. This same document reported that the number of students enrolled in online courses at Florida Community College during the Fall 2003 semester was 8, 375, which reflected a significant trend upward in online enrollment.

The proposal document also explained the connections between Phase Five of the online course development process and Phase Three of the Sirius project.

> Course development will build on the results of the Sirius project…and emphasize the acquisition and/or development of additional specific learning objects geared to meet the needs of various preferred student learning styles (auditory, visual, et al). To support [this], courses will include increased usage of technologies, such as voice and video on the Web. Course content will be developed so that textbooks will not be required for these courses. Finally, a template for such course design will be developed as part of the project, permitting other courses to be developed more easily while maintaining high quality standards. Thus the three [General Psychology, Intermediate Algebra, and College Algebra] courses will require support of multimedia/technology specialists and instructional designers, as well as support from the College librarians involved with identification and acquisition of learning objects under the Sirius program, in addition to the faculty content specialists.

A supplemental document dated October 27, 2003, which also was prepared by the project manager, described the major goals and guidelines for OCDP 5 and Sirius 3:

- Develop high quality content and pedagogy for high student demand courses for delivery in blended or fully online modes.

- Develop an online Instructional Design Assistant (IDA), which will assist faculty in designing new courses and redesigning courses for face-to-face, blended and fully online delivery. The IDA will prompt faculty to consider all relevant aspects of course design, including applications of learning and motivation theory and research and technology.

- Facilitate FCCJ faculty development and applications of knowledge regarding appropriate uses of learning and motivation theory and research and technology in the design/redesign of courses.

A revised *Project Guidelines* document dated December 5, 2003, issued by the project manager, reflected two major changes from what was stated in the previous project guidelines. The first change dealt with the courses that would be selected for revision during OCDP 5 and the second change affected the timeline for the project. The original proposal called for three courses to be included in OCDP 5 – General Psychology, Intermediate Algebra, and College Algebra. The new project guidelines stipulated that four courses would undergo redesign during Phase Five – General Psychology, Introduction to Composition, Reading Skills, and Elementary Algebra. The

reasons for the change will be discussed in a subsequent section of this report. The original timeframe for OCDP 5 indicated that the project would commence on November 3, 2003 with a targeted completion date of August 15, 2004. However, due to the change in the courses selected for the project, a delay in the project start date, and the realization that the redesign of courses and the development of the IDA would take longer than originally anticipated, the new project guidelines document stated that the Project would be implemented December 1, 2003, with a completion date of the four courses and the IDA expected to be December 15, 2004. As indicated previously, OCDP 5 and Sirius 3 were a part of a multi-phased project at the College.

According to the Florida Community College Academic Report (2004), during Phase One through Phase Four of the Online Course Development Program "teams of faculty completed the development of approximately 70 courses that are currently available for online instruction by Florida Community College full-time as well as adjunct faculty (p.12)." A major difference between the courses developed in the first four phases and the courses developed during Phase Five was, whereas the courses in the earlier phases were designed for use by Florida Community College faculty, the courses developed in Phase Five were to be made available for sale on a commercial basis. In order to describe the link between earlier phases of the Sirius Project with Phase Three discussed in this study, a description of Phase One and Phase Two of the Sirius project has been described in the next section.

Sirius Phase One.

In Phase One of Sirius (named after the brightest star in the sky) faculty from a variety of disciplines developed practice tests with explanatory answer keys for their

courses. The courses selected for Phase One were courses the College's administration identified as "high-risk" courses, i.e. courses that consistently experienced high enrollment, but low retention. Many of the courses that fell within this designation were courses that students were required to pass in order to progress through their programs to earn degrees or certificates from the College. Phase One was initiated in May, 2002 with the goal of using a faculty-based approach to improve student retention and success.

The instructors involved in Sirius Phase One used a word-processing program, such as Word, to create objective, computer-gradable exams. The staff at the Applied Center for Instructional Design (ACID) converted the Word documents into a software program called Perception. This software provided students with an interactive test-taking experience. These tests were developed to prepare students for actual exams in high-risk courses and they also helped students and faculty to identify content areas where a student required additional remediation. This process then led to Phase Two of the Sirius project.

Sirius Phase Two.

During Phase Two of Sirius, faculty design teams of discipline-specific faculty, consisting of a team leader, and three to four other faculty members were formed (This became the model for Phase Five of the online course development project). There was also a librarian assigned to each team, which assisted with copyright issues. The faculty teams searched for learning objects that could be linked with tests items developed in Phase One. The goal of Phase Two was to have a resource available that would enable students to review course material as often as necessary to achieve mastery and, thereby,

successfully complete the course with a "C" or better. (A librarian was not assigned to each faculty design team during OCDP 5 and Sirius 3).

The Manager of the Advanced Center for Instructional Technology (ACID) summarized the multi-phased approach to the Sirius Project:

> The first phase of Sirius, referred to as Academes, involved faculty creating practice tests. These practice tests were annotated by the faculty with various explanatory feedback to the students; in other words, not just right or wrong, but why the answers were right or wrong and what students could do to go back and re-cover that material. During the second phase, faculty teams went back and found existing learning objects that they could point the students to when they missed a question on the practice test. Now, the two are linked and the students are using the tests with a product called Perception that is on the server at Deerwood. This software works through Blackboard, and so if students are online, they can take the practice tests, and if they miss an item there is a link that takes them to a learning object. Now with current phase (Phase 3), we are going one a step further and for the first time, we are going to create our own learning objects. The faculty teams are going to look at the best of what is out there in terms of learning objects from publishers or whatever, and we're going make our own and make them even better.

Figure 1 provides a schematic description of the Sirius project, and Figure 2 provides an overview of the chronological flow and merging of the Online Course Development and the Sirius Projects.

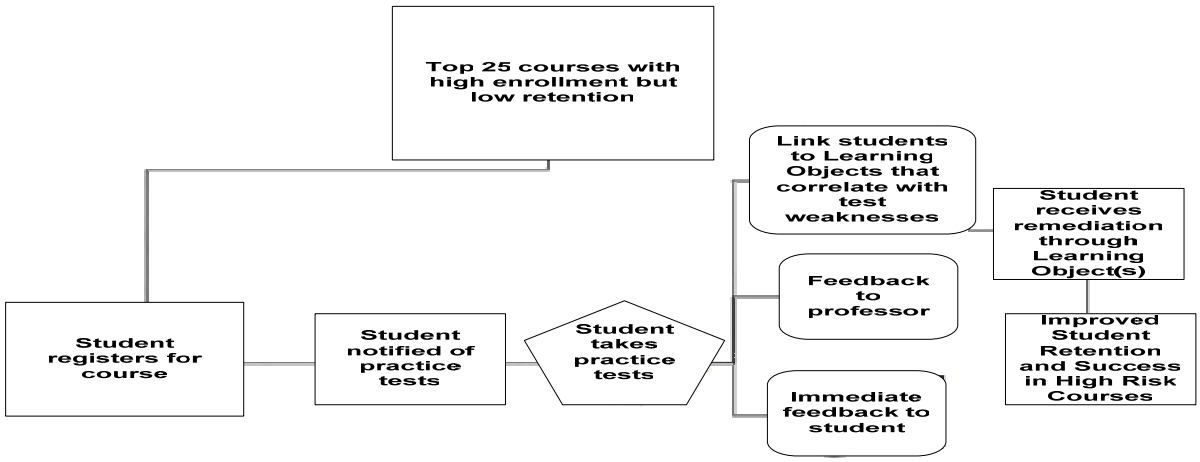

Figure 1 Sirius Academics Overview (Adapted from FCCJ ACID)

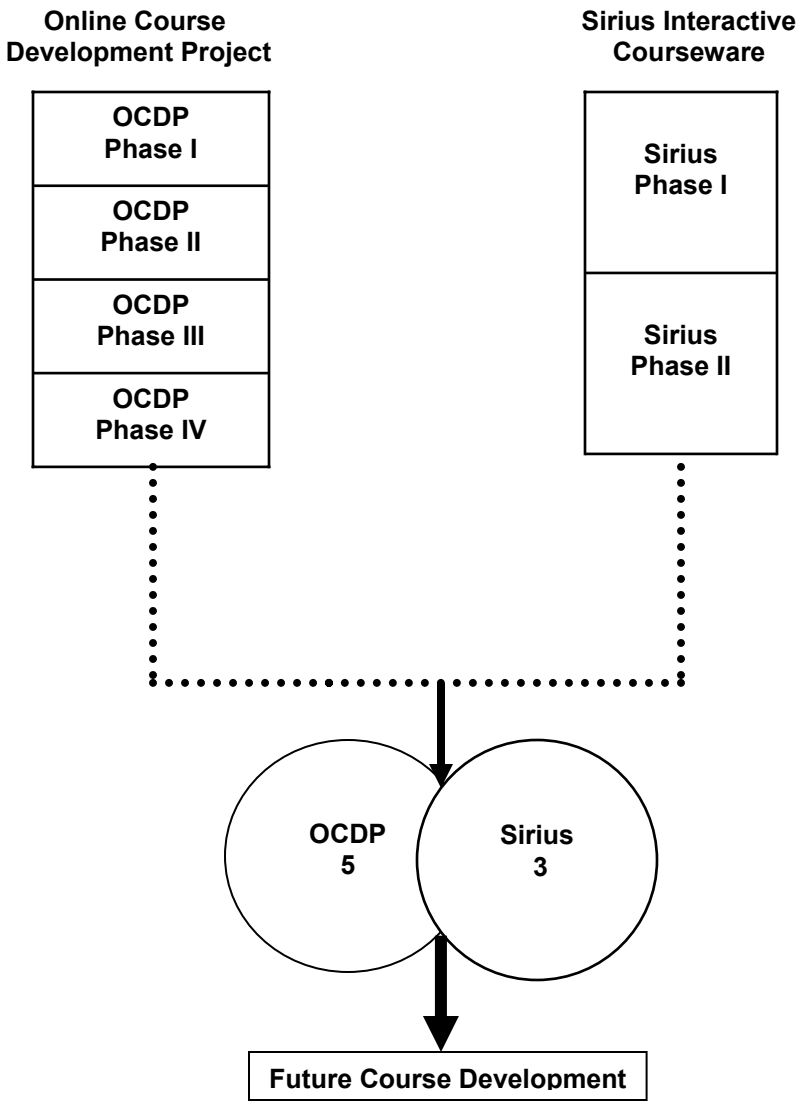

Figure 2**:** Online Course Development and Sirius

The development of learning objects in house did not occur according to the original schedule and the project manager reported that learning object development would take place during the second half of the project, after faculty had completed the core content for each of the courses. However, several of the faculty participants did experiment with the development of their own learning objects and also included various Website links in the course content.

Course Selection

The overarching principle for selecting courses for both the online course development and Sirius projects was to identify and choose courses that consistently experienced high enrollment but low retention. The courses involved in the first two phases of Sirius included biology, psychology, composition, humanities, literature, math, and statistics. The ultimate goal of the Sirius project was to improve student retention and success in these courses. The plan for the third phase of Sirius was to take several additional high risk courses to the next level of development by completely redesigning them into self-contained, module-based, object-oriented courses that did not require a traditional textbook (OCDP 5). The course design process used by faculty then would inform and guide the development and creation of the Instructional Design Assistant (Sirius 3). The three courses originally selected for OCDP 5 were PSY 1012 (General Psychology), MAT 1033 (Intermediate Algebra), and MAC 1105 (College Algebra). However, according to the project manager, when the math faculty were approached about participating in this project, they were reluctant to do so. The reason given had to do with the stipulation that the faculty design teams could not use existing textbooks or software when redesigning the courses. According to the project manager, one of the goals of this project was to encourage faculty to

develop or redevelop these courses from scratch. The project manager described the resistance encountered from the math faculty:

> The biggest problem from my point of view was asking mathematics faculty to develop a course which they could not use preexisting textbook or preexisting software. That is not a problem for people who are not used to using a lot of software, but the math faculty are doing so on a regular basis and there is a lot of good software out there to use. The purpose of this particular project, however, is to try to identify, as they work their way through the development of these courses, some of the really good techniques and learning strategies they use. And it was felt that they would cover a lot more of these in the development process if we asked them to design the course from scratch rather than having them adopt a textbook that has things in there already for them. When we tried to do advanced math, the faculty simply refused. They said, 'no, it is not really feasible to do advanced math without software to work with.' They don't care about textbooks, they care about software.

Although the goal at the onset of the project was to discourage math faculty from using existing software to redesign their courses, at a later point, as the instructional design staff experienced difficulty in meeting the needs and requests of the faculty teams for learning object development, the math faculty were instructed to use a proprietary software package to develop their own learning objects. The situation created by the math faculty refusal to participate in OCDP 5 for the college level math courses was only a temporary setback for the project. The Executive Vice President and the project manager met to consider alternative course options. They determined that the next set of courses identified as potential courses for this project would focus primarily on college preparatory courses, with the exception of the general psychology course. (The psychology faculty invited to participate in the project readily agreed to do so when the original set of courses were selected for the project). In order to identify which remedial courses would be considered, the Executive Vice President and project manager examined grade reports over a three year period from a selected group of faculty and

identified several from certain discipline areas who showed consistently high rates of success with their students.

To counter the argument that the faculty identified through this screening process had experienced higher rates of student success because they had the better than average students in their classes, the EVP conducted additional research into student grade reports. He/she discovered that many of the students who performed only marginally well in prerequisite courses with other faculty actually did significantly better in the courses they took with the cohort of faculty identified as among the best and most successful faculty at the College. The Executive Vice President said that upon further investigation, it also was discovered that during registration periods, student advisers typically placed the higher risk students, identified as such based on their past academic performance, in courses with the same teachers identified as among the best teachers at the College. In addition to the psychology course, the three courses selected to replace the two college level math courses were college preparatory composition (English), college preparatory reading, and college preparatory math. It should be noted that there were additional factors considered in the faculty selection process that went beyond just the review of student grade reports. The additional criteria for the selection of faculty, as well as a general description of the faculty chosen for the design teams, are presented in the next section.

Faculty Selection

The faculty participants selected to serve as members of the design teams were experienced teachers. Of the fifteen who agreed to be interviewed for this study, the number of years they had been involved in the teaching profession ranged from seven to

43. The average number of years teaching for this group was 20.4. The combined number of years teaching for the cohort totaled 305.5 years. All of the faculty participants possessed at least a master's degree, and one held a Ph.D. Previous experience in teaching online and incorporating technology into their courses varied from those who had little or no experience with teaching online to those who had taught courses online for several years. Thirteen of the fifteen faculty members had previous experience teaching online, and four had been involved in earlier phases of the online course development projects at the College. All of the faculty participants, regardless of their experience with teaching online courses, utilized some form of technology in the classroom, even if it was only to place their lecture notes on PowerPoint slides or have their students access the Web for supplemental information on topics covered in their courses. According to the project manager:

> I worked with the faculty involved in previous phases of the online course design project over the past two years. Having developed several courses in all fields, I knew the faculty at this point pretty well as to who really had the capability and who had done highly creative work because in the process of developing the courses we would meet with them and the instructional designers would meet with them and then, at the end, they had to go for a review session in which we literally tore everything apart and put it back together again with their help as a team. This has worked out very well because not only have they developed some really good interactive online courses, but they are now using these techniques in the face-to-face classes that they teach.

The Executive Vice President described the faculty selection process as somewhat unconventional. He/she discussed the dichotomy that existed in the organizational structure of higher education, specifically as it related to the division of responsibilities between the instruction and student service units of the institution. According to the EVP, the typical types of student services such as tutoring, service learning, learning communities, to name a few, all too often occurred independent of the instructional and

learning relationship between the student and faculty member. In choosing faculty for this project, the EVP examined certain subject areas where faculty members semester after semester had very good results in terms of student outcomes. He/she pointed out that the assumption many educators seemed to make is that students who are not successful need support from student services, which in many cases functioned independent of the instructional staff. The EVP indicated that, while this is not always an incorrect assumption, it was his/her conviction that if all students were taught by the very best teachers, the results in student performance would dramatically improve. In helping to select the faculty for this project, the EVP used the following strategy:

> I took the best teachers because I knew there was something about how they expressed their personality through their subject matter…that would lead to better outcomes. Instead of looking at let's say mathematics and saying all math teachers are the same and what students really need because most of them are failing are support services. I looked at faculty members who had the very best results and determined that they encompassed the support system and we needed to find a way to get those faculty members together and incorporate their personalities and their teaching style into materials that could be shared with others who did not have the same results.

One of the faculty team leaders indicated that he/she was personally involved in the selection of team members. The team leader for the composition course worked with the project manager and the EVP to choose the design team for this course, and this individual reported that there were two goals he/she had in mind when input was provided into the selection process: 1) to have a sample representative of all of the campuses within the district, and 2) to create a team with diverse expertise in terms of the members' understanding of learning methods, learning styles and learning theories. The team leader recommended one particular faculty member because of this individual's strong student-centered approach to teaching which was evident in the efforts this

particular faculty member took to intersperse humor throughout course content and the participant's emphasis on the creation of course content that had real life application for students. Another member of the English team was selected because the individual was recognized as an expert in cooperative learning and one of the goals of this project was to incorporate cooperative learning strategies in the design of the OCDP 5 courses. The team leader was selected because of the extensive experience this individual had in teaching courses online and because of a close working relationship with the project manager in the past as chair of the College's Futures Committee, which had provided recommendations and input on the future direction of instruction at the College. The team leader stated that although two members of the team did not have much experience with technology, this was actually a positive attribute:

> Two of the people on my team are not as technologically savvy as the rest of us, but I did not see that as a deficiency, and actually I see it as an asset since I realized that a lot of people that were going to be using our courses will not technologically savvy people. So, the…learning curve some of the team members would have to go through was the same as other folks using this material would have to experience. So, I thought their inexperience would actually provide a balanced perspective to the team.

Extensive experience or in depth knowledge of instructional technology was not necessarily a criteria for the selection of members to the faculty design teams, nor was it a prerequisite for prospective team members to have wholeheartedly embraced instructional technology or online teaching. Instead, the faculty members selected for the project expressed openness and a willingness to experiment with innovative uses of technology in online teaching and learning. They held a variety of viewpoints on the role of technology and its impact on their profession. The faculty participants also had differing opinions and preconceived notions about teaching online and a wide-range of

experiences with instructional technology. According to one of the participants on the psychology course design team, teaching online was "wonderful, very, very effective…I find that students are much more willing to open up about personal issues when there is an element of anonymity in the distance learning environment." In contrast, a member of the math design team described teaching online in the following manner:

> It has been a mixed experience. The initial experience I had I was able to build the course myself and set it up the way I felt…it would work and basically had a very favorable response. Ninety percent of the students got through with making a B or C, which was a total surprise. My initial response was this is really good, but it turns out that this was not very typical. I have since modified my opinion the more I have taught in that arena. I have more or less modified my overall opinion of teaching online…At this point I would say that totally, the success of my online students is no better than my on campus students.

Another respondent from the psychology course design team who had no previous experience teaching online indicated a preference to not teach a course exclusively online, but was open to a hybrid or blended type format that combined online instruction with face-to-face meetings with students.

> I perhaps see myself at the most doing a hybrid course. Some of it is because of my own limitations, so I am reluctant to do only online courses because it involves being on the computer for extended periods of time. I see the value of a hybrid class, especially for the student who does not have the discipline without the structure of the class to sit down and do the work until the very end and then feel so overwhelmed he/she is not able to finish the course.

Twelve out of the thirteen faculty who did have experience with online teaching indicated that when they taught online, they preferred whenever possible to supplement their online instruction with occasional face-to-face class meetings with their students. These faculty members placed a high value on the human and personal connections they had with their students in the traditional classroom setting. However, most of them

recognized that exclusively online courses were in some cases the only option for students. According to a member of the psychology course design team:

> I had requests for education courses from people who were working during the day and just exhausted at night, so I developed the introduction to education course online, but I'm a face-to-face person. I like to watch their eyes and see what happens, but it was a need, so I got my material together and got my books and figured out how to do this thing.

One of the English faculty participants shared similar sentiments and also pointed out that technology and the online delivery of education, particularly as courses become totally self-contained and self-directed, should not supplant the instructor's role:

> I do not think technology can replace me, maybe I should say that. In my online class, quite frankly, it is not completely online. It is more of a hybrid because I think it is important to make those connections, those one-to-one connections with students. I have taught the class completely online where I have never seen the students, and I am not sure the students were as successful. In my class right now, I am requiring my students to come on campus for three mandatory testing sessions in addition to the statewide exit exam that they have to do at the end of the semester, and that gives us the opportunity to not only to administer the tests in a controlled environment where I am there to answer questions…but prior to starting the test I can say, you know, this is another way of looking at the material we covered; it can not be explained in the same way through email.

However, a member of the reading course design team said that with online courses, which at an increasing number of institutions are offered and distributed world-wide, it was not practical to think in terms of offering these courses in a hybrid format.

> I have done hybrid classes, which I think work very well…but, I can see a very obvious problem with this because with online courses, you have some people who are in Virginia, or Hawaii, or wherever they are and they certainly can not fly and meet with you one day a week. It is pretty obvious that those people can not do a hybrid course. I just prefer for these classes to be hybrid.

The team leader for English indicated a preference to use a blended approach, even with the courses taught that were designated in the course schedule as offered exclusively online, provided geographical limitations were not an issue for students.

> I have students, who can take an online class and never see me, and they understand everything, and I'm satisfied with the effort they are putting into the process, and you can tell this type of student will be successful in spite of anything I do. Likewise, I run into students who I know are reading the text and they tell me they understand the material and then when they send me an email message and neglect to capitalize 'I', for example, I really want to talk to those students face-to-face. I will be the first one to invite students in this situation to come in and sit in on one of my on-campus classes.

A member of the reading design team said that teaching online was a frustrating experience at first because of inadequate preparation, but the more this individual taught in an online format, the more comfortable it became. However, this participant's first choice for teaching was face-to-face in the traditional classroom setting:

> I love in class, face-to-face. I am a people person, and I like to see my students' faces, so I can change what it is I am doing, and so that I can read them and get a sense of what they need. I think this is the most important way to teach that really makes an impact, to really guarantee that you are meeting the individual needs of the students, but I really do enjoy teaching online also, but my first love would definitely be in the classroom.

A participant on the English design team described the highs and lows of technology, but recognized that technology was a force in society that could not be ignored. However, this individual approached the use of technology for teaching and learning with caution because, while it offered the opportunity to improve the educational experience for faculty and students, it also had the potential to create unintended consequences:

> Some of my students have fears about writing, but may have strengths in the technology area and by incorporating technology in the classroom or through online instruction at least some of these students may feel less threatened by the whole writing process. On the other hand, some of my students, who have fears about taking a writing class, also fear technology, and the use of it could add even more anxiety to their learning experience. On balance, when technology is up and working, it is a beautiful thing. When the slightest thing goes wrong, it can be a very frustrating experience.

In spite of the fact that the majority of the faculty indicated they preferred to blend the traditional, face-to-face environment with online instruction whenever they taught in an online format, they recognized that by signing on to participate in this project, they were responsible for designing and eventually teaching these courses exclusively online, in addition to hybrid or blended delivery modes when feasible.

In addition to a wide-range of experiences in teaching online and having different opinions about the use of technology in the classroom, there was also diversity among the members of the faculty design teams in what they described as their preferred teaching style and repertoire of approaches to helping their students learn. A member of the math design team said that, after many years of teaching and witnessing a variety of different types of instructional theories come and go, his/her approach to teaching was to "never give up experimenting, [T]hat is my basic format…[Y]ou need to continue to try different things, [I] do not think there is any particular educational theory that works in every circumstance, and that is why I think I need to keep trying." Eclectic was a common word that several of the design team members used to describe their teaching styles. Three of the faculty members used this term to describe their approach to teaching. In the words of one member of the psychology team, "I do whatever I need to do to get the material across to my students."

Another member of the psychology team preferred a teaching style that was more traditional than some of this participant's colleagues. This respondent stated a preference for the lecture format, but done in such a way to invite input from students by encouraging them to identify how the material covered could be applied to their life situations. Another member of the psychology team also emphasized relevance and life

application in material selected for the courses this individual taught. While most members of the psychology team discussed their teaching styles in terms of how they selected and arranged course content to make it more relevant to their students, one team member explained a teaching approach that allowed students to decide what it was they wanted to learn about the subject. The faculty member said "I am a big proponent of students learning what they want to learn…I can not think of a worse way to learn than to force someone to learn something they do not particularly want to learn." When asked how this particular approach would fit within the parameters of this project, in which several faculty members would work together and eventually agree upon the content and structure of the course, this respondent said that such a teaching philosophy probably would not fit within this type of configuration.

A faculty participant on the reading design team stated that it was customary to pull from anywhere and everywhere and take a very eclectic approach to teaching. This individual said that this approach was necessary to meet the needs of different types of learners, including visual, auditory, and kinesthetic. This faculty member's colleague also utilized a multifaceted approach to teaching but did so in a more formal way through the use of the Padieia method of teaching. This respondent described this method as an approach in which approximately 15% of a class session is devoted to a didactic lecture, followed by 70% of class time for coaching activities, which involved experiential learning activities, and the remaining 15% is spent in a seminar on the topic of focus for that particular class session. The members of the reading design team identified both similar and different teaching styles in comparison to the other three design teams. In similar fashion to the eclectic approach described by members of the other teams, one

member of the reading team self-identified as a combination person and said that lecture, discussion and practice all have their place and should be used in combination with one another in the teaching and learning process, regardless of whether the course was offered in the traditional classroom setting or online. Another member of the reading team used lecture at the beginning of most of classes, but was a strong proponent of cooperative learning. Another respondent from the reading team divided class sessions into two segments. The first segment was a 10-15 minute mini-lecture, followed by small group activities.

One of the interesting challenges the faculty teams faced was to develop a template or an agreed upon design format when there was such a wide-variety of teaching styles among the participants. At the outset of the project, the outside consultant hired for the project advised the faculty teams to focus on the completion of one chapter, unit, or module early in the project. This then would provide the basis for the development of subsequent sections. The teams that heeded this advice were able to organize and complete their units on schedule. Those that did not had difficulty in producing even one complete unit by the established deadlines.

For the faculty members who had taught courses online previously, six members indicated that they strived to transfer many of the teaching methods they used in their face-to-face courses to the online environment whenever it was practical to do so. In many situations, this required modifications and changes to these methods in order to accommodate the unique aspects associated with instructor interaction with students and student interaction with other students in the online environment.

The next section turns to a discussion of the issues that surfaced concerning the modes of delivery that OCDP 5 courses and the Sirius 3 Instructional Design Assistant were developed for – i.e. online, hybrid, face-to face, or all three.

Course Delivery Methods

According to the Executive Vice President, the original plan for OCDP 5 courses and the IDA was for them to be inclusive concerning method of delivery, that is, they would be taught totally online, in hybrid mode, or in an exclusively face-to-face environment. However, early in the project, confusion arose among the faculty and instructional design staff regarding this issue. The project manager admitted that after one month, no one was entirely clear on the medium(s) through which the redesigned courses would be delivered.

> The faculty still are not certain as to whether they are suppose to develop a blended course, an online course, a face-to-face course or all three, so I met with the EVP and our instructional designer is going to clarify it with them when they get together that they are to develop a course for online delivery and blended delivery, not face-to-face. The face-to-face, of course, is a component of the blended…It was something no one understood, including me. I had three talks with the EVP and I still could not figure out what we were trying to do in the way of a delivery system. Now, it is clarified.

The project manager described the rationale for the decision to focus the design process on the development of courses for online and blended or hybrid delivery. According to him/her, the College wanted to encourage faculty to teach blended courses in which, at the very least, they put the syllabus and the weekly assignments online. The project manager said that this was a common sense use of Internet technology, and that students deserved this type of convenience. He/she also stated that for faculty to require students to come to class three days a week to get every assignment and to hear every lecture was not something the College wanted to continue to espouse and that eventually

the administration would like to move all courses exclusively to blended and online course delivery methods.

The Executive Vice President provided somewhat of a different perspective than the project manager and pointed out that the distinction among the three delivery options was becoming less apparent in higher education as the technological tools available enabled teachers to more effectively merge the various types of instruction into a hybrid delivery system that is both flexible and adaptable on a number of levels. The EVP pointed out that the hybrid approach was not a dramatic departure from traditional practices because students have always been expected to complete course work outside the classroom, which in his/her view constituted a hybrid approach to teaching and learning. According to the EVP, the modern version of a hybrid class has evolved, as a result of a wider range of options provided by technology to faculty and students, to create more flexible and individualized learning experiences. In any case, at the monthly meeting of the faculty teams in February 2004, the project manager clarified the purpose of the project with the faculty and informed them that they were to redesign their courses for blended or online formats.

Although the original project plan included the use of face-to-face instruction, this was no longer a primary focus of the project. The project manager highlighted the fact that that one of the main purposes for the redesign of courses was to discover ways in which technology could be used to create more interactive and effective online courses. However, according to the project manager and the EVP, there was nothing that would prevent faculty who wanted to adapt one or more of the modules from the redesigned courses for a traditional, face-to-face classroom setting.

Hiring an Outside Consultant

An outside consultant was hired by the College to work with the faculty teams during the course of the project. The consultant was the department chair for the college of education at a major university in the western part of the United States and was recognized for his/her work in instructional design and technology. This individual held a Ph.D. in curriculum and instruction and had worked in a department of instructional technology for nine years. The consultant's research at the Ph.D. level focused primarily on distance and online education. His/her experience in this area predated the use of the term "online" when this field of study was at the very early stages of development and was commonly referred to as distance education and telecommunications and curriculum. When online technology was first introduced into higher education he/she became interested in learning how Internet technology worked, in what ways it could be used to engage students from a distance, how the technology would support learning, and whether it was possible to form learning communities in a online environment. One of the primary roles of the consultant was to serve as a liaison between the faculty teams and the project manager. In that capacity, the consultant identified and clarified issues and concerns identified by the faculty members during monthly meetings with them, and reported this information to the project manager. In many situations, the consultant was an advocate for the faculty and would follow up with the project manager on technology requests and other needs that may have gone unmet for an extended period of time. For example, the faculty thought they would receive laptops at the beginning of the project, but it was several months before that actually happened.

The project manager described the credentials of the consultant and his/her role in the project as follows:

> The consultant is one of the great world-wide instructional designers. His/her role was to come in on a monthly basis and present two-hour workshops on topics that faculty were interested in pursing…The consultant meets individually with each team and discusses whatever problems they are having and tries to bring information to bear that will help them. He/she also works with the faculty in instructional design and helps them to develop a schedule to meet deadlines.

The consultant had worked with the College on previous projects and as a result had developed a close working relationship with the project manager and several of the faculty team members. The consultant stated that a primary focus of the OCDP 5 and Sirius 3 projects was to help faculty design online courses that emphasized interactivity and to help ensure that those courses would become more than just a series of one-way activities. He/she also was a group counselor to the faculty teams and met with each team on a monthly basis to discuss issues and concerns prior to a larger group meeting. At the large group sessions, the consultant facilitated a discussion on a topic the group had identified during the prior month's session.

The consultant agreed to accept this project because based on his/her previous experiences working with groups throughout the country that were involved in creating more effective online courses, it was the his/her view that Florida Community College "did it the right way", and the College used the type of model that the he/she would advocate when working with other groups on a consultant basis. The consultant said the College's decision to provide financial support to faculty participants was important and that the alternative, to give release time, was not as effective of an incentive. Another important component of FCCJ's model, according to the consultant, was the level of intellectual support the College provided to the faculty team members in the form of

monthly dialogue sessions, materials, and access to technology. Compared to the previous experiences with the College, the consultant said that it appeared that everyone involved in this project had a better understanding of their goals and the direction they were heading in than was the case in previous phases. He/she also favored the one-year time frame to complete this project especially in comparison to the short time frame the faculty teams had to work within to develop online courses during previous phases.

Several faculty members offered their perspectives on the contributions and effectiveness of the consultant's work. According to one member of the composition course design team, "I really savor the opportunity to work with him/her. I think he/she is very well informed, very fair and open minded and has been a great liaison for this project." A member of the design team for the reading course also expressed a positive assessment of the consultant's role. This faculty member said that the consultant had been very helpful. This participant felt free to email him/her on a regular basis to get feedback on different ideas for developing particular course units. The consultant would review the chapters the faculty member submitted before the faculty member distributed the content to the other members of the team for peer review. This particular faculty member described the consultant as very knowledgeable and helpful in her feedback to the group.

However, a member of the psychology team said the role of the consultant was not entirely clear nor was the extent to which the consultant had contributed to the overall success of the project. On a positive note, the participant reported a friendly relationship with the consultant and thought that he/she had been helpful in keeping the teams focused and on task, but beyond that the team leader could not specifically define the consultant's

purpose. The faculty member also said that most of the training sessions the consultant facilitated with the larger group had been beneficial but were not always the best use of faculty's time. The team member cited an example from one of the monthly training sessions in which the consultant reviewed an article on learning objects. The team leader said the faculty participants could have reviewed and gleaned ideas from this article on their own rather than holding a two hour group session on the topic. This particular member was a regular participant and contributor at the monthly meetings. However, several of the other faculty team members attended these sessions sporadically and a few attended very rarely.

There was a wide-range of topics covered during the consultant's monthly sessions with the individual design teams. The consultant generally provided an updated timetable for when certain project milestones were to be achieved and then asked the faculty members to report on their progress relative to these milestones. In one particular session, the consultant advised the psychology design team that they needed to develop a common template for the team members to follow as they developed the units of the course, and that this needed to be in place by a certain point in the project. The psychology team frequently talked about their ideas for a common theme and template to link all of the course units together, but they did not actually produce an outline of these ideas. As a result, the consultant indicated that it was sometimes difficult to conceptualize the team's ideas.

The consultant also gave the faculty teams a target date of September 2004 to have their content development substantially completed so faculty members from another discipline could review the course material and provide an "outsider's" review of the

course. The reading, psychology, and composition teams produced sufficient material to meet this deadline, but the math team did not. The consultant told the faculty teams that an 'outside the discipline' peer review would help to identify areas where the courses could be refined to create a product that would have a broader and more global appeal, since these courses would be sold for use outside of the College and they would need to be devoid of local themes.

The consultant frequently reminded faculty that they needed to keep teacher notes as they designed each unit of their respective courses. These notes would be compiled into an electronic teacher's manual to accompany the courses they had designed. The teacher's manual would provide teacher tips, alternative content, and assessment options future users.

The consultant also used the time with each team to share his/her observations on team dynamics. In one particular session with the reading design team, the consultant noted that it was apparent the English team members were very knowledgeable of one another's strengths, and that they had been very effective in building upon these strengths to accomplish their assignments. In one session with the math team members, which due to leadership problems, had difficulty making progress, the consultant advised the team members that they could only go so far in the project without the involvement of the team leader and that some of the issues they were facing were simply out of their control. The consultant and the project manager held a meeting with the math team leader and the team members to discuss the lack of communication and cohesiveness among the team. Several of the participants described the discussion at this meeting as very frank and forthright and said that the meeting seemed to help resolve some of the issues affecting

the group. Part of the difficulty, according to one member of the math team, was related to the lack of participation by the team leader in the monthly sessions with the consultant and the professional development sessions. It was at these monthly sessions where expectations, updates, and other types of information were shared with all of the participants in the project at the same time. Furthermore, the math team leader rarely called the team together and this, according to members of the team, affected the ability of the team to complete their course modules.

The professional development sessions set up by the project manager and facilitated by the consultant and other guest speakers were designed to expose faculty to the latest research on technology, its role in the teaching and learning process, and how technology could be used to design more effective online courses. Several of these professional development and training sessions are described in the next section.

Professional Development and Training

The professional development and training component of the project had two major segments. The first major professional development and training component was the monthly professional sessions coordinated by the consultant. The other segment involved a modular-based course faculty members were encouraged to take prior to their involvement in online course development. Many, but not all, of the faculty members involved in OCDP 5 completed this course during earlier phases of the project. Those who had not were strongly advised to enroll in the course once the development of the OCDP 5 courses commenced. This course was known as the *Online Professor Certificate Program*. Its purpose was to provide faculty with training opportunities which would facilitate and promote optimum student learning in fully online courses.

The program required 58 hours of training, followed by nine hours of service as an online mentor for other faculty. The components of the Online Professor Certificate Program included a 15-hour multi-module course called CREOLE (Creating Optimum Learning Environments), which covered basic philosophical and practical issues faculty should consider whenever they developed online courses. The CREOLE module dealt with concepts related to the use of cooperative learning, constructivist learning, and mastery learning. Other components of the Online Professor Certificate Program included twelve hours of hands-on training Blackboard and an additional twelve hours of WebCT training. An additional 6-12 hours of training was provided on the uses of multimedia in the online environment, including the role of multimedia in teaching and learning, hands on work with digital images and digital audio, instructional message design, and the development and use of learning objects in online courses.

The project manager summarized the goals of the Online Professor Certificate Program in the following manner:

> The faculty have to complete the Online Professor Certificate Program and 15 hours of that is devoted to taking the online CREOLE course, which is creating optimum learning environments and that is the application of learning and motivation theories to the development of teaching online courses. Many of the faculty participants in this project have not had that, but they are taking it right now. These folks are naturally good teachers, which is why they were chosen [for the project]. But now they are getting the training to back up their good instincts.

At one of the monthly sessions with the faculty teams, the project manager encouraged those who had not participated in the *Online Professor Certificate Program* to do so as soon as possible so that all of the faculty participants would be using common language and have an understanding of mastery learning, constructivist learning, and cooperative learning.

The monthly professional development and training sessions, facilitated by the consultant and guest presenters, served three major purposes. One was to bring the faculty teams together to provide updates and discuss issues and topics relevant to the entire group. The second purpose was to expose faculty to and facilitate discussion of research and information related to the work they were doing in the design of their courses. Third, the monthly sessions were used to bring faculty up-to-date on the progress in the development of the Instructional Design Assistant, which was the key component of the Sirius Phase 3 project, and to provide faculty the opportunity to provide feedback on the IDA.

At the initial meeting of the entire group in late January 2004, the project manager informed the faculty that: 1) the monthly sessions would be a series of seminars with the project consultant, and 2) that the faculty needed to think about what topics they wanted to cover during these seminars. The project manager selected the topic for the first session - learning objects, a significant part of the OCDP 5 and Sirius 3 project plan. According to the project manager, one of the main goals of these monthly sessions was to provide information on the latest research in the field of instructional technology and to stimulate discussion among the faculty on some of the best practices that had emerged from this research that would provide them with the information they needed to integrate these practices into the courses they were designing. At this first session, faculty identified two major objectives they wanted to pursue over the next several months: 1) How learning objects could be used to take online courses to the next level; and 2) Increasing the level of interaction in online courses through the use of learning objects.

One of the sessions featured an expert in online accessibility and usability for students with disabilities. This individual said that accessibility on the Web is achieved when individuals with disabilities can access and use Websites as effectively as people who do not have disabilities. The leader for the composition course design team described his reaction to this particular training session and the unexpected benefits that came out of it:

> With some of our traditional students with disabilities, it does not necessarily mean they are diagnosed with a disability. We do have students in a class who cannot read as well, which could be construed as a disability, so the same techniques we have learned in this session apply to everyone. One of the decisions we had to make was instead of creating large blocks of text, we needed to condense the content of the course for those students who have difficulty with reading a lot of text, and so… we looked at…doing it in PowerPoint. We are going to take the content that we have and put it into a PowerPoint format…[T]his will benefit all of our students regardless of disability.

Several of the monthly training sessions focused on ways to create interactive online learning. The consultant identified three types of interaction in an online environment: 1) learner to content; 2) learner to instructor; and 3) learner to learners. The consultant led a discussion to help faculty participants identify ways in which they could increase the quantity and quality of student interaction with content, instructor, and other students online.

Several other sessions dealt with theoretical and practical considerations in the design and use of learning objects. During one of these sessions, the faculty experimented with creating learning objects through such proprietary software sites as *Hot Potatoes* and *Talon Learning Objects*. The faculty participants engaged in a dialogue concerning how learning objects could be used to personalize learning for students. The project consultant used an example from math to point out one of the advantages of high

quality learning objects: "It should not be necessary for every math teacher to develop their own graph for a math exercise, but if groups of math teachers could develop perhaps ten exemplary learning objects of a particular graph, they could create much more effective and efficient reusable learning objects in the process."

To highlight the point that learning objects do not always have to be highly interactive or multimedia intensive, the consultant cited a study done at a state university in Georgia designed to explore how MBA students would react to voice-over technology combined with PowerPoint slides in an online course. The consultant expected that the students would say that this method was boring and not much different from sitting through a traditional lecture. But the study found that a majority of students preferred the voice-over with PowerPoint slides format.

The project manager told the faculty at this session that if faculty could not locate an already existing learning object to meet their needs that the ACID staff would develop it for them. The project manager encouraged the faculty to think as creatively as possible when they developed learning objects, but not to overlook the value-added dimension of assigning students to online discussion groups where they could participate in cooperative learning experiences.

There was not always agreement between the project manager and the director of ACID on the topics that should be covered during the monthly professional development and training sessions with the faculty teams. At one point, this disagreement became public when the director of ACID distributed an email to the project participants which criticized the project manager for his recommendation of a topic for the following month's session without the in put of the Director or other interested parties. The

Director pointed out that the particular topic chosen would not be an effective use of faculty's time. The EVP responded to this incident by informing the director of ACID that it would be better for all those involved in the project to discuss disagreements with others in a more discreet manner.

The monthly training sessions described above were a major component of the resources allocated to the OCDP 5 and Sirius 3 projects. However, in addition to these sessions, there were a number of other components that were a part of the project's resource acquisition and allocation process, and these components have been described in the next section.

Resource Acquisition and Allocation

Due to the size and scope of this project, significant resources were needed. This section is divided into three major components that deal with resource acquisition and allocation for the project: 1) college support and source of funding; 2) division of tasks and responsibilities and; 3) faculty responsibilities.

Project Funding.

The funding for this project was provided through the College's Strategic Planning Council. Several years ago the President of FCCJ established a Strategic Initiative Fund in the amount of one million dollars to provide financial support for initiatives proposed by the faculty and staff that contributed achieving College-wide goals. The College's Strategic Planning Council, comprised of representatives from all constituency groups within the College, advised the College president on those initiatives the members deemed worthy of funding. The OCDP 5 and Sirius 3 projects were submitted as one integrated proposal in the Fall of 2003 to the Strategic Planning Council

with a request for $135,000 to fund the projects. The Council approved the proposal and provided $184,000 in support of the project. The funds for the project were used to provide faculty stipends; instructional design support that was provided by the Office of Program Development for Instructional Technology, ACID, and the consultant; editing support provided through the Office of Program Development for Instructional Technology, and programming and technical support provided by ACID. Each faculty member that served on one of the four design teams received a stipend five thousand dollars. The team leaders were compensated six thousand dollars. The faculty participants received fifty percent of the stipend at the six month point in the project, provided they had completed at least half of the course content by that time. Appendix C provides a sample of the contract that faculty participants were required to sign.

Division of Tasks and Responsibilities

Staff members from the Office of Program Development for Instructional Technology and the Advanced Center for Instructional Technology, and the project consultant, were responsible for meeting with the faculty teams on a monthly basis and conducting two-hour seminars for all participants each month on topics of concern to team members. The programming and technical support provided by the ACID staff included the creation of learning objects based on the concepts for the learning objects that the faculty team developed to enhance pedagogy and interactivity for the courses they were given responsibility to redesign. The faculty would develop the course content in Word files, and the ACID staff loaded these files into both Blackboard and WebCT. Additionally, the ACID staff was responsible for the development of the basic shell for

the Instructional Design Assistant (IDA) and for providing technical support to the faculty.

Faculty Responsibilities.

According to the *Online Course Development Phase Five Project Guidelines* the faculty teams were responsible for the following:

- Developing the content and pedagogy for the four courses in Word files following course design standards for the Online Course Development Project and following editing standards provided by the Office of Program Development for Instructional Technology.

- Identifying appropriate learning objects and related materials for the courses, either from the Sirius Project or for acquisition of development by the ACID staff.

- Assisting in the development of the IDA to ensure that the online system would adequately prompt future faculty users in the appropriate uses of learning and motivation research and theory and technology.

- Attending monthly course design team meetings (group and individual team meetings) and completing the requirements for the Online Professor Certificate Program, in order to ensure that all team members had similar background knowledge of the uses of learning and motivation research and theory and technology in the design and teaching of higher education courses.

- Teaching the courses for the first time and assisting with the evaluation at the end of the first semester.

- Continuing to refine courses with other members of the faculty (pp. 2-3).

This section has addressed the question of how the College administration developed and implemented the process and model used for OCDP 5 and Sirius 3 projects. The next section will discuss the findings of the second research question, which deals with the reasons faculty chose to participate in this project.

Research Question 2:

Why Faculty Chose to Participate

The responses that the members of the faculty teams provided to the question of why they chose to participate in this project were remarkably similar and in some respects surprising. While many of the faculty cited such reasons as the desire to become better teachers and to discover additional tools that would help students achieve success, ten of the fifteen of the faculty participants said they were motivated to participate because the project offered them the opportunity to be on the cutting-edge of the teaching profession. They were interested in the challenge and excitement that came with the development of educational materials that were unique and innovative and that had the potential to contribute in some way to the transformation of higher education. In the words of one respondent who served as a member of the team that designed the college preparatory composition course: "It is so exciting to be a part of the next phase of education; to do something that is new, innovative, how could I say 'no' to that?" Another respondent shared similar comments: "I have always been interested in developing new things. I like to think of myself as being on the cutting edge versus bringing up the rear. It has been very clear for a number of years that this is the direction we are going and I am excited about it."

For one faculty member the decision to participate was also because he/she viewed participation as a necessity:

> I know that this is the wave of the future, and I wanted to be a part of something that started from the ground up, so I could see each step and each layer of it. The more I know about this project, the better I will become working with the technology. This is forcing me to address the reality that I may not be on the cutting edge or where I need to be technologically. This forces me to become a part of this generation.

A member of the English team provided a historical perspective on the evolution of technology over the course of many years of teaching in order to support the notion that staying current, in effect, compelled him/her to participate:

> Back in the 1960s, we used projectors, and we had blackboards and white chalk instead of markers and whiteboards like we have today. A few years ago, I came to realize that computer technology is the way of the future. Our students, more and more, are coming to us able to work with the technology. I used to have to teach them Microsoft Word. They would not know how to use a floppy. They did not know how to save a Word document. Now, this is no longer the case, except for the occasional older student who has had little experience working with computers. Students expect different types of learning experiences, after all these are students who are used to playing with video games and have used technology in some form at all levels of their educational journey. It behooves us to continue with it.

Several faculty participants viewed this project as an opportunity to advance to a higher level of teaching and to stretch beyond their current set of teaching skills. This particularly true for those faculty members who were at one time resistant to the whole idea of instructional technology. The reading design team leader described his/her attitudinal transformation, particularly when it came to teaching a remedial course online:

> Three years ago, I could not have seen this. I would have argued with you about online teaching until I was red in the face. This can't be done! Students will not benefit from this. I would not have touted this as a good methodology for teaching at all. I still have a problem with college preparatory courses at the very low level being totally online, and at one time, I would have been adamantly opposed to Reading 008 being totally online, but now I can see that it is possible.

A member of the psychology design team felt a sense of obligation to participate on the design team as a winner of the National Institute of Staff and Organizational Development (NISOD) outstanding faculty member award. The participant said that the NISOD award and other outstanding faculty awards received over the years compelled

this individual to be involved in something new, especially a project that addressed the improvement of student learning.

A participant on the English design team, who in his/her fortieth year of teaching had the option to retire, instead chose to take on new challenges by accepting the invitation to join the faculty team that redesigned the remedial composition course. This participant stated that "professionally, it's a challenge. I could just coast into retirement doing what I've been doing, but I would be bored out of my skull."

A participant on the psychology design team indicated he/she had a conflict between his/her preferred teaching style and the philosophy of this project because his/her participation would require a fair amount of structure and team decision making regarding course content and format. This respondent was "more in to trusting students than the curriculum and more interested in students having their needs met than my needs met or my discipline needs met." None the less, this individual was intrigued by the whole concept of the project and decided to participate.

Three of the faculty members had worked on earlier phases of the Sirius project and were interested in working toward further progress. According to a member of the math team:

> I chose to participate because I was in the earlier phases. I was involved with the previous phases of Sirius – I helped develop some of the practice tests, and this seemed like the next big thing to work on. I like to see something completed, so it was natural for me to participate in this phase of the project.

For the faculty leader of the English team, the motivation for participating was driven by a passion for developmental education. According to this respondent, the experience students have in their developmental class is the key to their success in college:

> Since a lot of students taking developmental classes are not even sure they want to be in college or not, they are not necessarily thinking of themselves as college students. They may be thinking 'let me give this course a shot and see what happens'. If they have a good experience, and if they understand that the folks at FCCJ are doing everything possible to help them be successful, they are more likely to not give up…[T]his project represents what I have been trying to do for a long time…to help these students become more successful.

The leader of the psychology team said that one of the reasons for participating in the project stemmed from his/her interest in the idea of creating a course using digital media rather than a textbook. This individual wanted "to see if we could do this, especially as a team." Furthermore, the whole idea of developing a self-contained course and an electronic instructional assistant that would enable anyone to design a course by following the guidelines established through this project was a motivating factor for the team leader.

Overall, the faculty involved in this project considered themselves pioneers and, although their levels of experience with technology varied widely, they shared a high level of enthusiasm and a willingness to take risks to grow personally and professionally, as well as to help a larger percentage of their students achieve success.

The next section turns to a discussion of how faculty and instructional design staff attempted to use a systematic design approach in conjunction with technology to redesign the courses for OCDP 5. This is followed by a discussion on how faculty and instructional design staff members used learning and motivation theory to design and develop the electronic Instructional Design Assistant.

Research Questions 3 & 4:

Instructional Design and Technology

The data collected on the last two research questions of this study have been presented as one unit in this section because of the significant overlap and the varying levels of interface between the faculty and instructional design staff that occurred with regard to those two segments of the project. For the first three months of the project, however, the redesign of the four courses selected for the OCDP 5 and the development of the IDA, which was the focus of the Sirius 3 project, occurred on parallel paths. The faculty primarily focused on the development of the content and layout for their courses, while the ACID staff worked on the basic shell for the Instructional Design Assistant. In the fourth month, the faculty and instructional design staff began to interact more frequently, and the ACID staff provided a more definitive process for the faculty to follow as they developed and submitted concepts for integrating technology into the redesigned courses. The main technique proposed for the integration of technology were through the use of learning objects and Web links that would be identified or developed in house or acquired through outside sources. It also took several months for the ACID staff to develop enough of the shell of the IDA for faculty to review and provide feedback. In the midst of this, there was a change of leadership on the instructional design side of the project. This manager of the ACID, who served as the primary liaison between the faculty and the ACID staff, was reassigned to another department of the College and, as a result, was no longer a part of this project.

At one of the monthly sessions with the consultant, the faculty discussed their efforts to create more interactive online courses and outlined several techniques that they

thought would accomplish this goal. For example, the consultant and the faculty discussed ways that music could be used in a course as a mood enhancer and how it could be embedded in the background of courses, provided that students would have the option of choosing different types of music or turning this feature off all together. The consultant encouraged the faculty to consider a particular theme they wanted to weave throughout their courses. This theme could perhaps guide their selection of music. One of the instructional designers advised the faculty to keep in mind that the Internet bandwidth students would have access to would vary widely and, thus, this would limit the types of multimedia features that could be included in the courses. The faculty were instructed to consider multimedia options that could be transmitted over medium sized bandwidth.

The manager for ACID indicated that the first step faculty should take, in keeping with sound instructional design principles, was to pinpoint and state in concise terms, the learning outcomes of their courses. Once this was accomplished, then all of the other instructional activities and assessments could be designed to support these outcomes. To that end, the faculty teams generally began their discussions with a broad, philosophical overview of their respective courses and units within those courses. From this point, team members determined what constituted an individual unit within the course, and each member then selected a unit or units that matched his or her expertise or interest to develop. The reading and composition team used a more systematic approach to the design of the units. In general, this involved the faculty member first identifying and stating the objective of the particular unit; second, describing what the expected learning outcomes of the unit were, and, third, stating in very specific terms the procedures or

actions students were to take to achieve those outcomes. In some cases, faculty included a pretest to assess the knowledge and skills of students prior to the presentation of the unit's lesson.

Since the development of learning objects took place after most of the content was developed, several of the faculty put placeholders in their slides where learning objects were to be placed. Faculty used PowerPoint and Word with specific instructions for the insertion of learning objects. The goal of the learning objects embedded within the courses was to provide an interactive way for students to engage the content at a deeper level of learning, as well practice skills they were expected to master in the course. Appendix D1 provides an example of a unit from the psychology course that integrated placeholders for the learning objects. The multimedia features of the learning objects also provided a way for instructors to design their courses to include content to serve a wide-range of student learning styles.

Ten out of the fifteen faculty members who participated in the project said they incorporated cooperative learning strategies in their courses. They said that cooperative learning could readily be integrated in an online environment through discussion boards and by requiring students to work on class projects in small groups via chat rooms and discussion boards. Cooperative learning strategies also included structured opportunities for students to respond to one another's comments and questions or statements posted by the instructor. The leader for the psychology team indicated that based on his experience while teaching online courses, synchronized chats do not work well because of scheduling difficulties, but he believed quality interaction among students could occur online in an asynchronous manner. He/she said his/her group also promoted

constructivist learning in the design of their course by creating learning opportunities where students would conduct their own research on a topic of interest and then develop their own ideas. Another member of the psychology team said course units were designed so that students, within certain parameters, would decide what to learn and when, and, thereby, take ownership and responsibility for the core body of knowledge in the course. This participant said the integration of Websites and Internet resources in the course units provided flexibility for the instructor and allowed students to direct their own learning in a more individualized manner.

The psychology course was structured to first provide a basic overview of the typical kinds of topics, definitions, and concepts covered in a general psychology course (Appendix D1). Through the use of the Web and embedded learning objects, students would then be free to move through the course modules in a self-directed manner. Another member of the psychology team commented that when he/she developed learning object concepts and selected Web-based links for the course she would select simulations, illustrations and case studies. Her goal was to select and design material that would stimulate discussion among students, but also to help them make a direct connection between the materials selected and the issues they faced in their everyday lives.

A faculty participant on the remedial English design team did not view the instructional design process as always linear or sequential, but, in many cases, as a recursive process. This individual said this was particularly true with the OCDP 5 project because of the large number of people involved in the design process, and to the effects that rapid changes in technology had on the design decisions. This particular faculty

member did not necessarily view the various and diverse inputs as a negative feature of the process, but said that it was "very challenging and intellectually stimulating… personally and professionally to be a part of such a large cohort of professionals, all contributing their own perspectives to how the design of the courses should proceed."

While faculty participants were clearly the subject matter experts and responsible for the overall layout of the courses, they also were dependent upon and influenced by the guidelines and expectations that the College had established for online course development. They were also dependent upon what was technically possible for the ACID staff to create in the way of learning objects and other technology-enhanced components for each course. The project manager said his overarching goal in the course redesign process was to encourage faculty to:

> Use cooperative learning techniques, mastery learning, constructivist learning, everything except lecture. They all know how to lecture, and they all now understand that lecture is one mode of getting things across to students and they also understand that students have a wide variety of preferred ways of learning – ways that they learn most easily, and the faculty also recognize that one mode of instruction does not lead to as permanent of a learning situation as presenting course material in multiple modes and getting students to interact with each other, with faculty members, and with the material; that is what we try to teach in this process, and that has been very successful.

CREOLE

The project manager said that all faculty involved in the development of online courses were expected to take the Creating Optimum Learning Environments (CREOLE) course. This course provided the conceptual basis for the course design processes that faculty was expected to follow. The particular model presented in the CREOLE course described a five phase process to instructional design:

1. The Analysis Phase
2. The Design Phase

3. The Development Phase
4. The Implementation Phase
5. The Evaluation Phase

The implementation and evaluation phases did not fall within the scope of this study and, therefore, are not addressed in this report. An integral piece of the Analysis Phase was the needs assessment component. Several of the questions that are typically addressed during a needs assessment had already been outlined in the project guidelines for OCDP 5 and Sirius 3, such as: 1) are there budgetary or other constraints that might impact instruction, 2) is there a prescribed delivery mode (i.e. Web-based, face-to-face, etc.), 3) what is the timetable for the completion of this project. The three other major questions typically considered during the analysis phase were questions the faculty teams discussed as they developed the various course units. These questions included: 1) who is the audience for the instruction, 2) what do they need to know, 3) what do they already know.

In the Design Phase of the process, faculty teams defined the learning goals and objectives and also identified learning outcomes for their respective courses. This step was followed by the selection of instructional materials designed to help students achieve the course objectives and outcomes. The instructional design staff defined a goal as a general learning aim. An objective was defined as a very specific learning aim, and factored in such things as the audience, behavior, condition, and degree of learning. It was in the Development Phase where instructional materials were developed and selected. In the case of this project, the types of teaching strategies and learning activities used in the courses were selected during this stage. These included such strategies as constructivist learning, mastery learning, and cooperative learning. The faculty teams

spent most of their time in the Development Phase, and they pointed out that the various aforementioned teaching strategies were the most common methods they used. These teaching strategies are addressed in the next section.

Mastery Learning

The general principles described in the CREOLE course for the application of mastering learning techniques to the course design process were somewhat evident in the way the faculty teams designed the OCDP 5 courses. These general principles were: 1) course content needed to be divided into units; 2) the faculty member needed to serve in the role of mentor rather than someone who merely dispensed information; 3) students were to be provided with access to the materials of the course, whether through chapters in text books, or as in the case of this project, self-contained units of instruction combined with Web-based resources; 4) and the environment and structure did not require learning to take place in a linear fashion, but one that provided for self-directed learning at an individual pace. As it related to both mastery learning strategies and constructivist learning principles, the remedial English and the remedial reading design teams used PowerPoint to layout the content of their courses. Several of the faculty members said this forced them to be very concise and selective in the development of the course content. Appendix D2 provides an example of a unit developed for the remedial English course that included basic elements of mastery learning principles.

Constructivist Learning

The CREOLE course outlined five general principles for the design of a constructivist-based learning environment:

- Content that is framed in a context that would be familiar to the learner.
- Learning that is structured around primary concepts

- An environment that seeks out and values learners' points of view
- Curriculum that allows learners to test their own suppositions
- An ongoing assessment process that measures student progress

Appendix D3 provides a sample of a unit from the remedial English course that attempted to include some elements of basic constructivist principles but also utilized behaviorism principles in its design.

Cooperative Learning

Cooperative learning was the preferred method of teaching for a majority of the faculty involved in this project. The CREOLE module on Cooperative Learning defined this method as "small groups of learners working together as a team to solve a problem, complete a task, or accomplish a common goal." In an online learning environment, cooperative learning is facilitated through group projects, chat rooms, discussion boards, and the like. Appendix D4 provides an example of how cooperative learning strategies were incorporated into a unit from the remedial reading course. In this unit, the students were asked to partner with another student on the unit assignments and to post their assignments on the discussion board for other students in the class to respond and react to.

Scope of Technology

Confusion surfaced during the development of the OCDP 5 courses concerning the level of technology, primarily in the form of electronic learning objects that should be included in the courses. Many of the faculty participants said they were under the impression that the courses were to be technology intensive, and the more learning objects embedded in each of the courses, the more likely the course would be viewed as having achieved the goals of the project. The faculty said they were under the impression

that technology should be used in this project regardless of its benefits. The project manager and consultant sought to dispel this misconception and informed the faculty that more technology was not necessarily better.

The project manager advised the faculty teams to not regard technology as the panacea for creating more effective online courses, but rather as a tool for engaging students with the course content, instructor, and other students. In other words, faculty were not to use technology for the sake of technology, but instead to develop learning situations that would foster lively discussions and interactions among students, regardless of whether the course was technology-centered or simply enhanced through the use of technology. According to the project manager, multimedia could help draw a student to a particular point or lesson, but it would not necessarily sustain the student's attention for an extended period of time. The project manager stressed interactivity among students and faculty:

> I'm not looking for glitzy technology that may get the student's attention only momentarily. I want faculty to engage students in an emotional way that is interesting and perhaps even controversial. I know this is a challenge, particularly for the math faculty, but I want even the math team to figure out ways to get students to debate math from an emotional point of view, not just from an intellectual framework. It comes down to an emphasis being placed on interactivity rather than multimedia.

However, in order to facilitate a sound design process for the development and acquisition of learning objects, the ACID staff developed the following templates: the Learning Object Planning Worksheet, the Learning Object Requests, the and Learning Object Analysis. These templates were used by the faculty teams and instructional design staff to evaluate and develop the learning objects used in OCDP 5 courses.

The Learning Object Planning Worksheet was developed to assist the instructional design staff and faculty as they worked together to conceive and develop learning objects. The template provided a systematic way for creating learning objects that factored in such considerations as learning objectives, learning styles, Blooms Taxonomy of Learning, appropriate types of media, and level of interactivity. The template also provided a means for the faculty and instructional design staff to identify characteristics and key words that would enable these objects, once created, to be tagged in such a manner that these objects could be easily identified and readily accessible for reuse at some point in the future.

The learning object design stage of the project was not initiated until after the faculty teams had completed a substantial portion of the course content. The project manager indicated that the rationale for this schedule was to encourage faculty to first develop the core content of their courses and then determine how to integrate technology to enhance the content. The project manager said that this was done to help the faculty to avoid an over reliance on using multimedia technology at the initial stages of course development and thereby truncate the process whereby faculty came together as a team to work through an in depth analysis and identification of what they considered the most salient and important concepts that needed to be included in the course content. Six of the fifteen faculty members indicated that they found the learning object identification and development process somewhat cumbersome and bureaucratic and were not clear on the purpose of these forms. A member of the reading design team recommended to the project manager via through the consultant that the requisite forms be streamlined to be more accessible. Other faculty members indicated that the forms were a step in the right

direction because prior to their availability there was no systematic process for faculty to identify and transmit their learning object requests to the instructional design staff.

Three faculty members indicated that the templates provided a framework to guide them through the concept phase for developing learning objects. At the same time, however, they said that the forms and the process needed to be simplified. Furthermore, these faculty members indicated that they were not entirely clear what the Learning Innovations staff was capable of developing or the turnaround time that faculty could expect when a request for learning object acquisition or development was submitted. The consultant frequently reminded the faculty that it was not their responsibility to become experts in technology or in the development of learning objects. Instead, faculty needed to leave this responsibility to the instructional design staff. According to the consultant, it was the faculty members' role to develop the basic concept for the learning object and then forward that concept to the Learning Innovations staff for analysis and development.

The Learning Object Planning Worksheet, Figure 3, was a form used to profile the learning objects requested and to develop a system for labeling the learning objects for filing in an electronic repository that the College planned to create for storing learning objects. The instructional design staff offered faculty the opportunity to review and complete this form with them until the faculty became more comfortable with the process.

FCCJ Learning Innovations - Learning Object - Project Planning Worksheet – Page 1								
LO Identifiers	Learning Object Title:		Faculty:		Project Leader:		LO ID Number:	Date:
	Learning Objectives	Learner	Prerequisites	Related Links	Learning Styles	Taxonomy Levels		
	Content	Activity: Directions/Description (step-by step)			Media – (graphics, photos, video, animations, special navigation, etc)			
Script:								
Metadata		Title	Course	Subject	Keywords/terms	Description	Assessment Strategies	Interactivity Level ☐ High ☐ Med ☐ Low

FCCJ Learning Innovations Learning Object - Project Planning Worksheet – Page 2					
LO ID	Learning Object Title:	Faculty:	Project Leader:	LO ID Number:	Date:
Content		Activity: Directions/Description (step-by step)- Describe what they will do			Draw a rough draft of what the learner will see
		Script:			
		Media – (graphics, photos, video, animations, special navigation, etc)			

Figure 3: Learning Object Planning Worksheet: Adapted from O'Quinn: FCCJ Learning Innovations: 6/04

Figure 4 is a copy of the Learning Object Request Form that was developed to guide faculty through a step-by-step analysis of their learning object concept and to provide a more detailed assessment than the Learning Object Planning Worksheets. This template was designed to help ensure that the learning objects acquired or developed by the Learning Innovations staff were supported by sound instructional theory and would factor in the different learning styles of the students who would access the objects. In order to achieve the most cost effective and efficient acquisition and development of learning objects, it was important to develop learning objects that could be reused within and across disciplines. It also would be important for the learning objects to be easily identifiable in a learning object repository where faculty and others could readily access them when they developed future courses.

The template also provided a mechanism for faculty to submit assessment questions and answers as attachments that could be linked with content-specific learning objects. This would enable students to take practice quizzes and tests that were linked to learning objects for review of related material that they may have answered incorrectly on the quizzes or tests. This concept was based on the work done during previous phases of the Sirius project.

Learning Object Request	
Before submitting this request, please make sure your Learning Object meets the definition of a reusable learning object. *Link to Definition*	
Instructor/ Project Group Information	
Name/ Project Leader	
E-Mail	
Extension	
Subject Area	
Department	
Learning Object	
Learning Object Title:	
Learning Objective(s): Bloom's performance verb Taxonomy --cognitive, affective, psychomotor	1. 2. 3. 4.
Prerequisite: What must the learner know before beginning this object?	
Detailed Description: Please use this area to provide **detailed** description of the entire learning object.	
Learning Style: Auditory, kinesthetic, visual, other (please specify).	
Learning Strategy: informational, behavioral, constructive, cognitive	
Detailed Description of Activity in the Learning Object: Break down the activity into individual components or steps. You can attach additional file(s) for the detailed description of activity. A blueprint or even a link to a site that helps identifies the activity.	*Attach File:*
Detailed Assessment: Please provide all necessary assessment information including questions and correct answers. You can attach additional file(s).	*Attach File:*
Key Terms and Definitions: Terms and/or definitions that describe the content of this object. These terms will be used as targets to search for this learning object within the Content Management System.	1. 2. 3. 4. 5. 6.
Reusability: What other areas will be able to use this Learning Object? Can the content be replaced with material from other disciplines?	
Approximate time needed to complete the Learning Object:	
Other Comments:	
Your request will be reviewed by the LI/DMAC team. You will be notified if it meets the criteria and the next step to the process.	

Figure 4: Learning Object Request Template. Adapted from O'Quinn: FCCJ Learning Innovations: 6/04.

The Learning Object Analysis form, Figure 5, provided a systematic method for the instructional design staff to evaluate faculty learning object requests. The criteria outlined in this form were based on instructional design theory and learning object theory. Since learning object protocol is still an emerging field, this template included procedures that were considered the standard and best practices at the time of its development. The form was comprehensive in that it was designed to evaluate the qualitative components of the learning objects submitted by the faculty design teams and the technical and human resource requirements needed to acquire or develop them.

The main purpose of this form was to identify and promote the creation of learning object concepts that had a strong interactive component. Those conducting the analysis of a particular learning object would examine reusability to ensure that the learning object would have crossover utility within a discipline or across disciplines. The goal was to ensure that human and financial resources would only be invested in the acquisition or development of learning objects that would serve multiple purposes.

Learning Object Analysis	
Meets the definition of a Learning Object *Link to Definition*	
Instructor/ Project Group Information	
Name/ Project Leader	
E-Mail	
Extension	
Subject Area	
Department	
Learning Object	
Learning Object Title:	
Learning Objective(s): The learning objective(s) are clearly defined and match the learning object activity.	☐ Not at all ☐ Somewhat ☐ Definitely
Prerequisite: Does the learning object have the ability to stand alone?	☐ Not at all ☐ Somewhat ☐ Definitely
Learning Experience Description: components	☐ Can be chunked ☐ Approachable ☐ Can create clear navigation ☐ Learner can interact with the object ☐ Learner can control the object (pause, repeat, manipulate, alter the learning path) ☐ Can create it to be engaging and interesting ☐ Can create it to be professional, clean and credible ☐ Addresses learning styles and strategies ☐ Cross platform
Media required:	☐ Animation ☐ Audio ☐ Graphics ☐ Web Application ☐ Photos ☐ Text Video

Figure 5: Learning Object Analysis: Adapted from FCCJ Learning Innovations

Human Resources	☐ Programmer How many? ☐ Animator How many? ☐ Instructional Designer How many? ☐ Project Manger How many? ☐ Graphic Designer How many? ☐ Other Technical support
Interactive Strategies:	☐ Drill Practice ☐ Game ☐ Simulation ☐ Case Study ☐ Online Learning Lab ☐ Tutorial ☐ Virtual Fieldtrip ☐ WebQuest ☐ Intelligent Tutoring Systems ☐ Other
Detailed Assessment: The object includes a form of assessment.	☐ Not at all ☐ Somewhat ☐ Definitely
Metadata:	☐ Title: ☐ Keywords (index terms) ☐ Description ☐ Related Resources ☐ Glossary Terms ☐ Learning Styles ☐ Taxonomy Levels ☐ Assessment techniques
Meets the designated time for a learning object (3 to 15 minutes)	☐ Not at all ☐ Somewhat ☐ Definitely
Approximate Time to create:	
Meets Requirements to create LO	☐ Not at all (deny proposal with explanation) ☐ Somewhat (revise proposal with requestor) ☐ Definitely (start development phase)

Other Comments:
Initial Development Phase includes Project work flow and learning object project planning work sheets including storyboarding with faculty actively involved.

Figure 5: Learning Object Analysis: Adapted from FCCJ Learning Innovations

Instructional Design Assistant

The Instructional Design Assistant (IDA) was the core component of Phase Three of the Sirius Project. The design assistant was commonly referred to as "the wizard" but the project manager advised the instructional design staff not to refer to it in that way He/she said "faculty, like all of us, want to be in charge, and a Wizard is usually the big guy in the relationship." He/she further stated that the pedagogy embedded within the IDA was to be the joint responsibility of the ACID staff and his area, which would include input from the faculty members on the design teams. He/she also wanted the design criteria from the *Online Professor Certificate Program* included in the IDA design. The ACID manager, who had overall responsibility for the development of the IDA, said initially he/she and the computer programmers would develop a template "creating what we think the faculty want." Then through a rapid prototyping process faculty members would provide feedback on the features they felt would make the template more user friendly and instructionally sound.

Objective and Scope

According to the Sirius Phase Three guidelines, the overall objective of the IDA was to develop an electronic template that would lead faculty through the course creation process by prompting input based on sound instructional design procedures. The result of this project was to be materials (learning objects, text, assessments, simulations, etc.) that were integrated into the core of instruction leading to more effective learning experiences and, thus, increased student learning outcomes. The guidelines identified the purpose of Phase Three of the Sirius project as the development of a template that would include a series of windows that would prompt the end users (instructors/course designers) to input

data. This data included major learning outcomes, objectives, assessment questions, content and learning objects. The data on the materials was to be stored in a database that would eventually encompass the entire course management system. The IDA design also would enable a module, which was defined as a learning outcome, along with objectives, content items and assessments for a particular module to be printed in standardized document format, html, or exported to Blackboard and WebCT as a self-contained instructional module. Once the course was completed, the entire program was to be packaged in CD-ROMs or a Web-based course cartridge using Blackboard or WebCT.

According to the instructional design staff, the first step in the Sirius 3 project was to create a prototype of the Instructional Design Assistant and then show it to faculty to the prototype to get their feedback. The instructional design staff and programmers would then take this feedback and produce a revised version. This process became a recursive loop by which faculty feedback was followed by further revisions of the IDA. At the close of this study, a group of faculty had been formed to beta test and evaluate the IDA as it had developed.

Figures 6 through 10 provide a flow chart of the Instructional Design Assistant. In step one (Figure 6) the instructor would open the design assistant and would be prompted to name the course that he/she would be teaching. The actual interface would allow the instructor to choose the course ID or course name from a pull down menu or choose “other” if the course was not on the list. However, the actual interface would list all of the courses offered by the College.

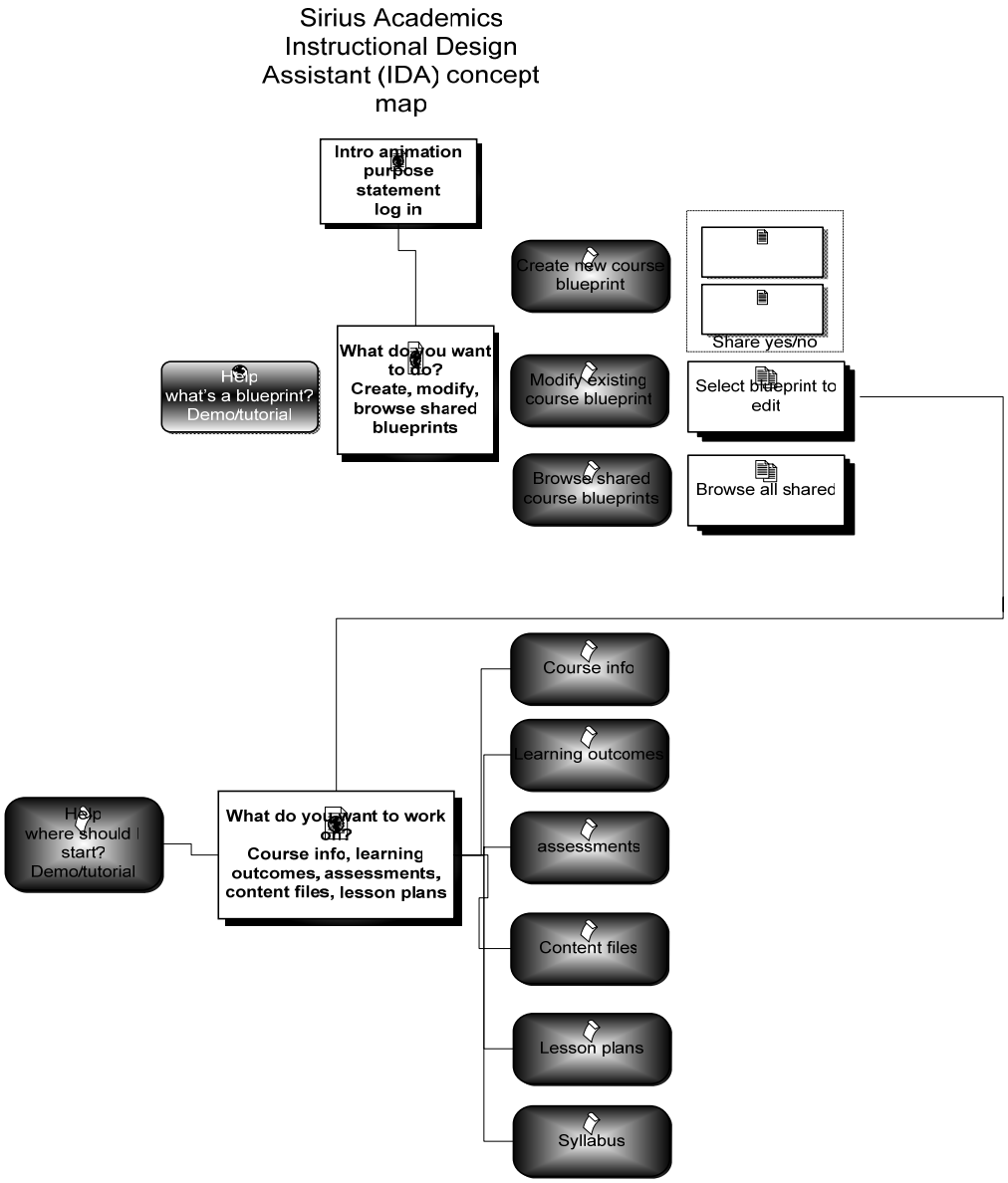

Figure 6: Sirius Flowchart: Adapted from FCCJ ACID

In the second step of the process, Figure 7, the instructor would be asked to identify the major learning outcomes the students were expected to achieve in the course. They would be given the option of viewing the official course outline and were told that the major content areas to be included in the course were listed by Roman numeral.

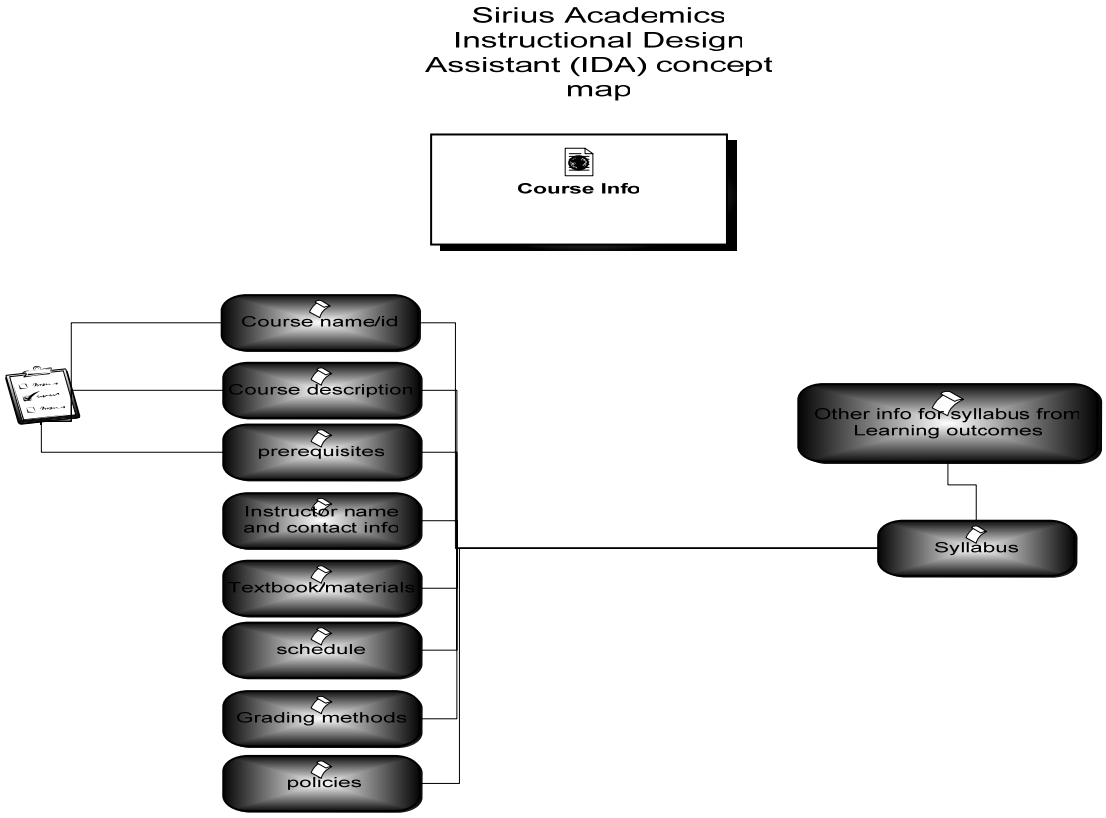

Figure 7: Sirius Flowchart. Adopted from FCCJ ACID

In step three (Figure 8), the instructor was asked to choose a learning outcome on which to work. For each learning outcome, the instructor was asked to enter the objectives that helped the student reach the outcome. The instructor was given the option to view supplemental material on how/why to write objectives. The IDA required that the objectives include consideration of the audience, behavior, conditions of learning, and the degree of learning. The IDA explained this terminology to the instructor if prompted to do so. This explanation was in the form of a pull down menu of behavior verbs from cognitive, affective, and psychomotor taxonomies and links to further supplemental materials with additional information on these taxonomies.

The next step (Figure 9) stipulated that for each objective written, the IDA would ask for assessment items to measure the objective. Instructors would have access to supplemental materials about assessments. Users also would have the option to check the behavior verb in the assessment item to see if it matched the behavior verb in the objective. For each objective written, the instructor would also be prompted to add content items, such as explanatory text, lecture notes, PowerPoint presentations, Flash files, learning objects, links, video clips, case studies, etc. This was followed by the selection process for the types of media that was to be included in the course (Figure 10).

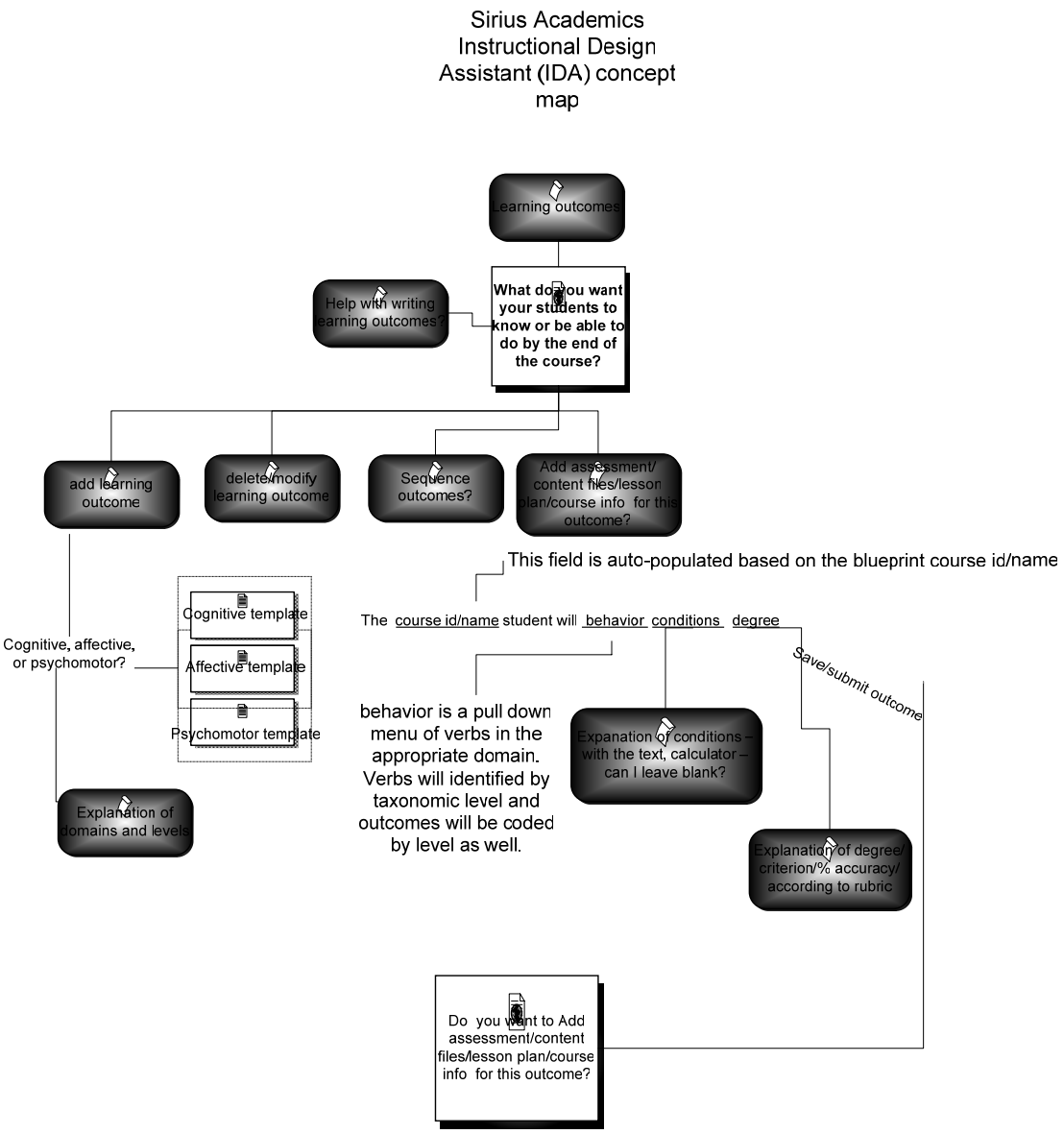

Figure 8: Sirius Flow Chart: Adopted from FCCJ Advanced Center for Instructional Design.

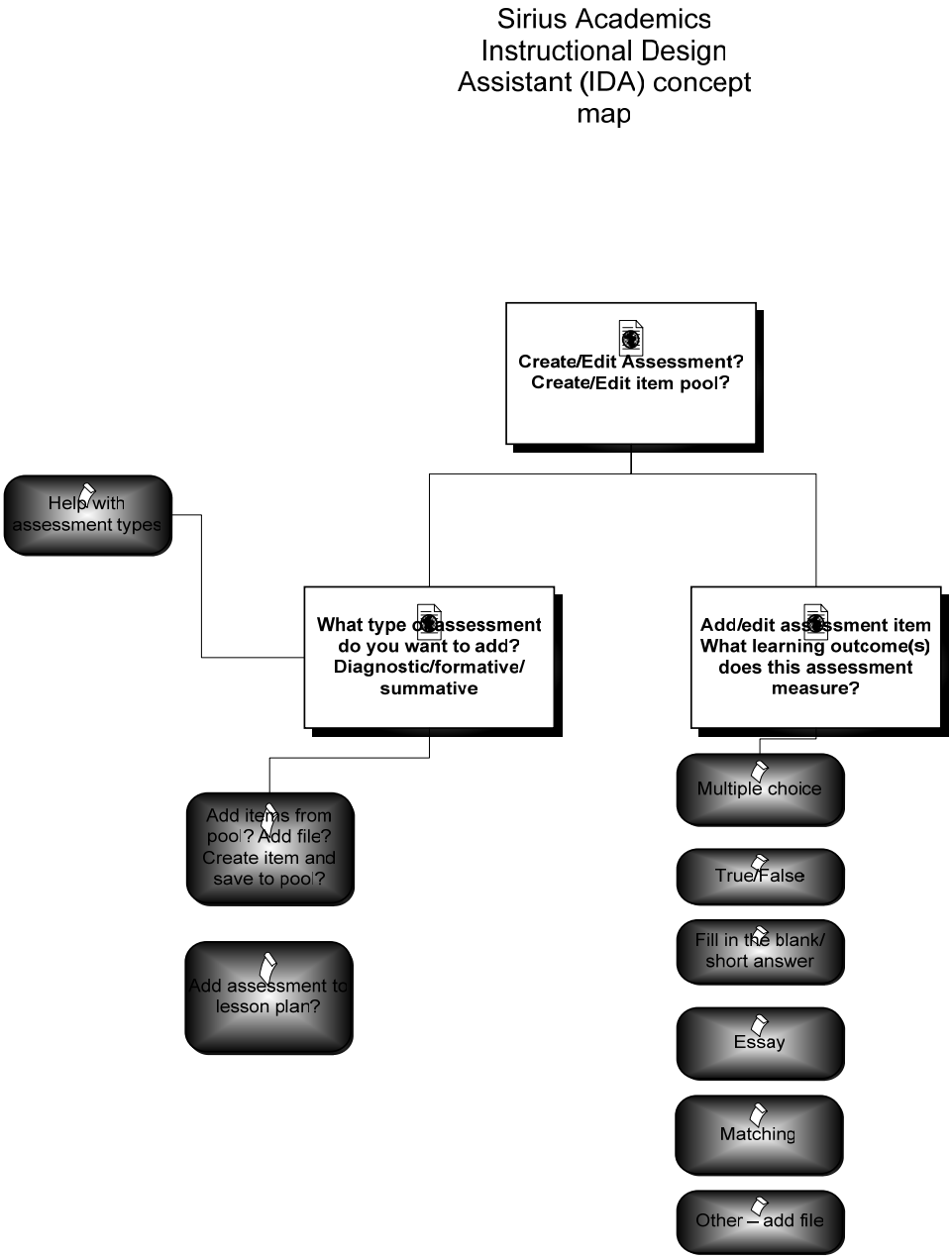

Figure 9: Sirius Academics Flow Chart: Adopted from FCCJ Advanced Center for Instructional Design.

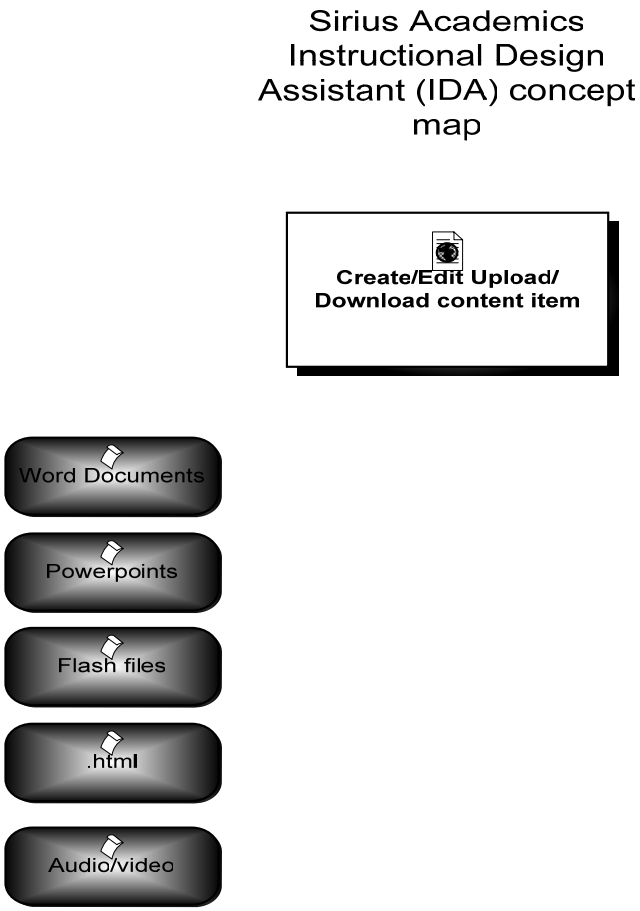

Figure 10: Sirius Academics Flow Chart: Adopted from FCCJ Advanced Center for Instructional Design.

In step five, Figure 11, of the process, the instructor would be prompted to identify pedagogies that would enhance the instruction identified in step four, for example, cooperative learning, discussion board, and Paideia. There were also links to sample lesson plans, templates, Dale's Cone of experience, learning and motivation theories, etc.

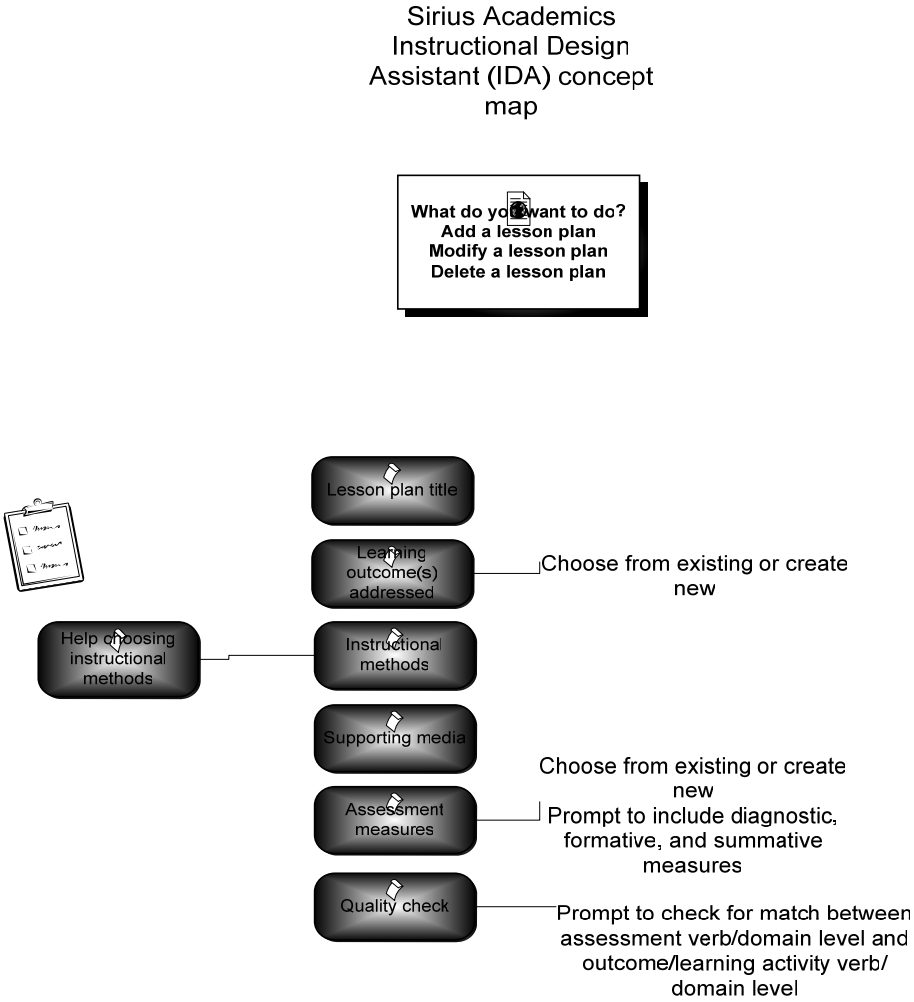

Figure 11: Sirius Academics Flow Chart: Adopted from FCCJ Advanced Center for Instructional Design.

Instructional Design Staff

According to the manager of ACID, it was necessary to walk the programmers through the IDA process step by step and tell them at what point they needed to include prompts and where there needed to be particular questions inserted to prompt the user to consider a related aspect of instructional design. The ACID manager also had the programmers insert placeholders because the Executive Vice President's vision for the project was for the faculty teams to identify the questions and prompts they thought should be included in the IDA in order to make it an effective and innovative course design tool.

The programmers that worked on the IDA reported that they had to become familiar with instructional terminology and theory in order to understand the basic components to be included in the IDA. According to one of the programmers:

> My concept of this project from the IT perspective is that we are building and designing a tool that can be useful to faculty members to create, design, modify, and basically build an entire course using this tool. It will guide them through the whole process in a very user-friendly way and enable them to have a complete course at the end of the process. For me, the more I delve into the faculty world and the terminology they use – psychomotor, for example, the more I understand what it is they are talking about when they give me feedback on the IDA. I want to be able to make this tool as intuitive as possible for the faculty, so that they do not have to delve too deeply into my world to understand how it works.

Figure 12 provides a snapshot of the IDA interface that incorporated the flow chart process describe previously.

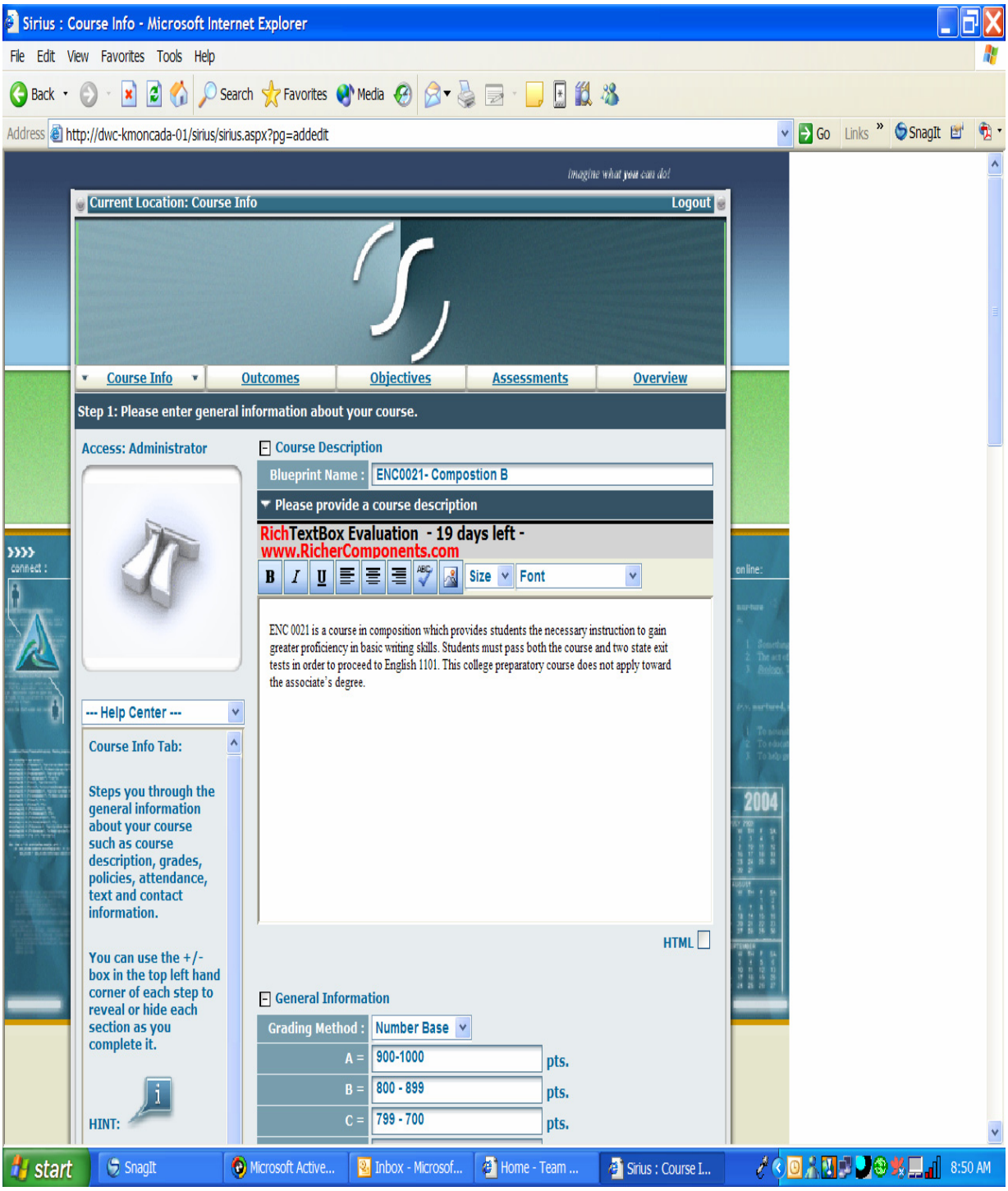

Figure 12: Sirius Academics Interface: FCCJ Learning Innovations 2004.

Common Themes, Issues and Challenges

A number of common themes, issues and concerns surfaced during the course of this study, and these are discussed in this section. They are categorized in the following manner: 1) intellectual and copyright issues; 2) technology; 3) team dynamics and leadership issues; 4) faculty reflections.

Intellectual and Copyright Issues

Intellectual and copyright issues were one of the most common themes that surfaced during the course of this study and they were discussed during at least four separate meetings between the consultant and the faculty teams. Copyright issues were of significant concern to the College because the courses the four faculty teams redesigned during OCDP 5 would be sold on a commercial basis. This meant that the fair use and public domain clauses associated with copyright protected material would not apply. Copyright issues and concerns affected the decisions faculty made in terms of the identification and inclusion of links to different Websites in the course material, as well as learning objects that were to be acquired from outside sources.

There was conflicting information throughout the project as to how intellectual property and copyright issues would be handled. The project manager advised faculty to develop their course content, including materials from outside sources, and when the courses were completed, there would be a consultant available who would review all of the material developed. This individual would render a decision as to whether copyright permission needed to be granted in order to use certain material. The faculty expressed concern about this approach because they thought it would require significant changes in

their courses if copyright permission could not be obtained. The faculty requested that copyright issues be addressed as they arose during the development phases of the project, but this request was not resolved to their satisfaction. The consultant advised faculty to proceed with the acquisition and use of material, even if it were copyright restricted, and that the project manager would need to deal with this issue before the courses could be finalized.

Technology

There were a number of issues and challenges that surfaced relative to technology. The manager of ACID indicated that he/she faced competing priorities with other projects. This was exacerbated by the fact that the programmers and the graphic designers assigned to the project were not under his/her direct supervision. The manager of ACID said that the programmers, while learning the jargon, had neither the level of instructional design expertise or a sufficient understanding of the process faculty would typically undertake in course development. The programmers indicated that they had difficulty with the terminology. For example, the word "domain" used in the context of learning was very different from how the word was used in the context of informational technology.

The faculty also indicated that they did not receive their laptop computers until several months into the project. They said it would have been beneficial to have them sooner so they could practice with some of the learning object software available on the Web. According to the Psychology team leader "there was no reason not to provide the faculty with laptops sooner than almost six months into the project, especially since the

original funding for the project included money for computers." Faculty also expressed concern about the gap between what the Director of the Advanced Center for Instructional Design told them could and would be done in the way of learning object development at the beginning of the project and what actually occurred as the project unfolded. They said they were told that the ACID staff would be capable of acquiring or developing whatever type of learning object they wanted for their courses. In the words of a member of the English design team at the five month point of the project:

> We realize now that our technological requests may exceed the current capacities of the Learning Innovations Center (formerly know as ACID), and we have been working to revise our thinking about how to incorporate the graphics, animations, and simulations, depending on what Learning Innovations is able to do at this time.

Team Dynamics and Leadership Issues

Faculty participants on three of the four teams indicated that they functioned exceptionally well as a team. This was confirmed by the consultant. The math team experienced significant problems, and the members of this team attributed these problems to their team leader.

At an early point in the project, the consultant provided observations on team dynamics within the four groups:

> I would say every one of the teams I have worked with to this point is so unique, yet there are many similarities. I have not seen any power struggles, except maybe in one team where there has been a little bit of a power struggle, but for most of the teams they are very comfortable with one another. I think the teams will probably be effective because they have already established the trust that team needs to develop, and they even have an understanding of the strengths and challenges of each team member, so they are able to quickly identify who is going to do what and get started on the project.

After several months into the project, the consultant provided a more detailed assessment of each team and its leader:

> I would put the teams and each individual team leader on a continuum from the very proactive to extremely *laissez faire*. In the proactive category there are really two leaders and two very different types of proactive leadership. One is collaborative, and the other is not. The team leader for English is very proactive and collaborative, and his/her style is inclusive, laudatory, and he/she gives lots of praise to his/her team members. He/she is very adept at identifying the strengths of his/her team members and then building on those strengths in an extremely successful and positive way. And surprisingly, I put the math team leader in the proactive category but in a very different way. He/she is exclusionary and is proactive on his/her own behalf and not on behalf of the team. He/she takes the approach that he/she is going to do it all and tell everyone what to do, and that leadership style has to change. The team leader for the reading course is a little more passive as a leader. I think that has to do with his/her personality style, but also it has to do with the strong characters on his/her team. I believe the reading team will have a little more difficulty in the end making things smooth and uniform because I believe they have pretty much gone off on their own, and in my view there will be a lot of disparity in the units. There also seems to be a little more competition among the team members, and it may just be that reading tends to have philosophical camps that are very strong on both sides. The psychology team leader's style is also somewhat passive, and this is not in a negative way. He/she has very good people on his/her team, and they each seem to know what they are doing. They seem to take a very collegial approach, and they certainly do eat well when they come together for our team meetings.

With the exception of the math team leader, the team leaders assessed their own leadership styles and made observations on team dynamics. The leader for the English design team offered the following description on his/her leadership role:

> Our team members have a vision as to what the project ought to be. Basically, what I do is to keep order. If anyone is dragging a bit, I try to be an encourager. If the team members have different ways of approaching the same task, I become like a judge. Since my team is functioning so well, my role is more of an administrator, making sure everything is on target, everything is on schedule. I plan the overall structure for the team. There are so many approaches to take, and each person that was selected has a different background, a different focus, so it fell to the team leader to decide on the structure. In our case, since we are planning to have a course that can be taught in 16 weeks or 12 weeks, we decided to go with 12 units. I also believe that part of being the team leader is to keep

> peace in the house. Again, when you are working with professional folks, you do not say here is what we are going to do, you come and you share the vision, and you say here is what I think we should do – give me feedback. And, each person gives a certain amount of feedback, and then we say o.k. here is what we need to decide on. So, at that point, it falls to the team leader to be the person to set up the compromises that need to be made – that is very important going into the project because if you do not take this approach then what will happen is along the way you will have people second guessing each other. Some people might say well here is what you are doing and this is what I am doing, so I think this is what we ought all to do. We want to really focus on the subject matter and the quality of the course. We don't have room for one individual personality to dominate. In my thinking, this is probably one of the more important things I did as a team leader, set everything up and plan everything, so once we got started everything would flow.

According to a member of the English design team, "our group experienced a great deal of collegiality; each member of the team has contributed equally and valuably to the overall effort." The leader of the psychology design team described his/her leadership role as equivalent to herding cats. This team leader said the team would ultimately finish the project by the December deadline, but when working with social science faculty, it was not a good idea to push them too much. The team leader described the interactions among the team members as pleasant, and it seemed to work best to give the team members their assignments and trust them to carry them out:

> I know they will finish, but I don't want to push them too hard. It may not be on the same timetable as the project manager would like, but they will complete their assignments. If the assignments are not completed by each deadline, they will eventually get done by the final deadline of December. When someone starts to go way off track, I bring them back to reality.

The team leader for the reading course had extensive experience working in teams and had always enjoyed working in a collaborative fashion with colleagues, and this project was no exception. According to this participant:

> This team has been very easy to work with. They are all very professional, and they have very good skills, and they are all excellent instructors. We run into some difficulties here and there and, occasionally we have personality problems when it comes to how something should be organized on a particular point. There are certain things that I do in my classes that I find helpful for students, and those things may be ideas that other instructors have not tried or may not think are effective, and then it is a back and forth discussion among the team members, which you would expect with a team. We work it out and we hash it out and then we may decide to agree to disagree and leave some particular item in the course, and if others read it later on and do not like it, then they have the option of removing it in the editing process.

The leader of the math team did not respond to requests to be interviewed, but other team members offered their perspectives on the leader and the functioning of the team. According to the one of the math team members:

> Our team leader has chosen a leadership style that prohibits rather than engenders collaboration. This individual works in isolation, leaving individual team members in the dark as to the big picture of the project, what work has been completed, and what remains to be done. Until recently, I have felt a sense of isolation, as if I were working in a vacuum not knowing what others have contributed to the project.

This member said that as a result of the lack of leadership in their team, it was difficult to coordinate: work assignments with team members located at different campuses and with various schedules; timely technological decisions, and meetings where information gathering/sharing could occur.

Another member of the math team shared similar sentiments. He said the team did not meet at all for several months and there was no sharing of the content that each member developed as was agreed on at one of the few meetings the team held. This team member explicitly stated that the problem was with the team leader who did not seem to have knowledge of the whole process. This member also said that both he/she and the other members of the team were ready to move forward with the project, but there was

nothing more they could do until the team leader was willing to pull together and coordinate the work that the team members had completed. At an August meeting with two of the math team members, the consultant indicated that a meeting would be held with the project manager to recommend a change be made in leadership of the math team to get this course back on track with the rest of the project. The Executive Vice President later confirmed that the math team leader would be relieved of his responsibilities and replaced by another member of the team.

Faculty Reflections

The faculty participants were asked to reflect on major issues and challenges they encountered throughout the first six months of the project and to offer any recommendations for improvement. Five faculty members responded to this request. According to a member of the English course design team:

> As we are just beyond the half-way point in this process, I do not think of this project at all in the past tense, although I am looking at graphics and simulations to enhance the appeal of my units. At the suggestion of the consultant, I have created a desktop folder called "Musings," and this is what I have written so far: One thing that has characterized this project is the degree of flexibility required of those who participate in the project chiefly because of the many changes that have occurred in the process: 1) major personnel changes in the area of instructional technology; 2) the name of the technology resource department was changed from ACID to Learning Innovations; 3) participants who were not enrolled in the Online Professor Certificate Program were strongly encouraged to do so. Some participants got the impression that beginning and completing this program was quasi-mandatory, even though it was not agreed upon at the outset. I myself, have gone through the program (except for the mentoring, a final stage.) This program is very beneficial as it addresses both educational theory and practical applications of such theory to online learning; 4) concerning the format for presenting our unit, WORD was specified in the beginning. Then, our team thought FrontPage would be the way to go because it would make the units web-ready in the absence of the more comprehensive technical support we envisioned at the outset. Finally, our team leader and the team have agreed that PowerPoint would be the way to go because the software Impatica can compress our files

> suitable for streaming over the Web; 5) our team leader left his faculty position to assume an Administrative Dean's position, a post that is very time and labor-intensive, to say the least; 6) another member of our team left her faculty position to serve in the office of the Director of Program Development for Instructional Technology. Who knows what is ahead! While I place neither a negative nor a positive construction upon the items in the list above, I would say this, major qualifications of those who work with others in a field that is constantly changing, while it is being created, include flexibility, resilience, and a willingness to forge ahead in spite of sometimes daunting challenges. In conclusion, while work remains to be completed, I do have confidence in the worthiness of our team members and our ability to get things done!

Another member of the English design team reported that the project had progressed well through the half way point in terms the course content development. The English team leader had requested that each team member complete the three chapters they were assigned by the end of August, and the team had succeeded in meeting this goal. This member pointed out that the integration of technology was one of the biggest challenges the team faced.

> The group experienced some disappointment in terms of the technological help available. From the onset of the project, we had expected that our ideas about multimedia effects would be implemented by the Learning Innovations department. The group members, therefore, documented ideas for sound, visual, and interface effects. However, we learned in July that we would need to fill out a very detailed form for each idea submitted and that limited assistance would be available.

In response to the lack of progress on the learning object development, the English faculty member said that his/her team was eager to bring the infusion of technology in their courses to fruition and, therefore, they experimented individually with line drawings from Clip Art, real-life graphics from a fair use website, and audio recordings in PowerPoint. The English faculty members stated that the flow of the project would have been enhanced had the College provided a set of fair use, copyright cleared digital images

on a CD-ROM for each group and employed a multimedia specialist whose primary job was to work with faculty members on the OCDP, Phase 5.

The English team leader shared similar feedback on the technology component of the project:

> At the beginning of the process we were told to be as innovative as we wished in terms of technology. As a result of this encouragement, we all went "overboard," and we actively sought to pull out all of the stops. My suggestion would be to involve an instructional designer in the early stages who would discuss content needs and multimedia needs in a realistic way. What we have done is great, but it is more suitable as a follow-up activity to enhance the course that we create.

Summary

This chapter has described and displayed the major findings of the study. It was organized according to the major research questions of the study, with an additional section on the common themes, issues, and challenges that emerged during the study. First, the chapter discussed the processes and model used by the College's administration to develop and implement phase five of the Online Course Development Program and the third phase of the Sirius Project. Second, the reasons faculty gave concerning why they chose to participate in this project were discussed. Third, the methods the faculty and instructional design staff used to integrate instructional systems design and technology in the four courses that were redesigned were described. Fourth, the common themes, issues, and challenges were identified. Chapter five discusses the results of the study along with implications for future research.

CHAPTER V

Summary and Discussion

This final chapter restates the research problem and reviews the methods used in the study. The major sections of this chapter summarize the results and discuss their implications.

As described in Chapter 1, a landmark report published by the National Center for Postsecondary Improvement (2002) highlighted the fact that the abundance of knowledge available on how learning occurs rarely informs actual practice in higher education. The report called particular attention to use of technology in higher education and the research which showed that institutions and academic departments "have seldom taken responsibility for applying…research to pedagogical practice or for realigning promotion and compensation criteria so that individual faculty can do so without jeopardizing their career advancement" (p. 13).

The report also found that faculty members as subject matter experts increasingly "find themselves working in conjunction with programmers, graphic artists, course designers, and webmasters to craft learning materials and educational experiences for students" (p. 14). And yet the report called into question the impact that research on learning has had thus far on the processes of discovering new ways to design and deliver new curricula and the design principles and methods that likely will generate the most effective approaches for using technology to improve learning. The report indicated that this has caused considerable uncertainty at many institutions of higher education about how to invest in technology in ways that truly have an impact on teaching and learning.

In response to these issues, the report challenged higher education institutions to become more effective learning organizations.

This research study investigated how one institution of higher education - Florida Community College at Jacksonville - sought to address several of the issues raised in the NCPI (2002) report. The study presented here investigated and described an instructional design process in which faculty teams initiated the redesign of four "traditionally formatted" courses to more fully integrate instructional design principles and instructional technology for delivery in an online and hybrid learning environment. The study also examined and described the process by which faculty and instructional designers worked collaboratively to create the framework and began the development of an electronic Instructional Design Assistant (IDA) that was grounded in research-based instructional, learning and motivation theory. The IDA, once completed, would be used to guide a faculty user through a systematic and comprehensive instructional design process.

The exploratory nature of this inquiry required a qualitative case study approach and, therefore, case study was selected for this investigation. The following research questions were developed to guide the data collection and data analysis of this study:

1. How did the College administration develop and implement the process/model for the redesign of the four courses and the development of the IDA?
2. Why did faculty choose to participate in this project?
3. How did faculty and instructional design staff redesign "traditionally-formatted" courses to incorporate instructional technology and instructional systems design strategies?

4. How did faculty and instructional designers integrate particular learning and motivation theories in the development of an electronic Instructional Design Assistant?

The research was conducted from January, 2004 to September, 2004. The participants involved in the study included the Executive Vice President for Instruction and Student Services, the Director of Program Development for Instructional Technology, sixteen faculty members, two instructional designers, two programmers, and an outside consultant. Multiple sources of data including instruments such as interviews, memos, project guideline documents, email messages, Websites, electronic-based archives and artifacts, course units developed by faculty teams, and researcher observations and participation in team meetings and professional development/training sessions were collected, synthesized, and analyzed for this study.

The strategies that were used to strengthen the validity of this study were triangulation and case study databases, as well as documentary evidence and member checks. The researcher sent the transcripts from recorded interviews to the participants for their review and feedback for accuracy and clarity. The researcher used a comparative analysis with the data collected through interviews and documents to identify and code the themes and the systematic processes that emerged. The major findings were presented in Chapter 4 and were categorized to the four major research questions, in addition to common issues and themes that emerged over the course of the study.

Summary of the Findings

In regards to research question one - the process or model the College administration used to develop and implement OCDP 5 and Sirius 3 - there were eight major components identified through interviews, observations, and various documents. The major components were: (1) the philosophical basis for the Online Course Development and Sirius projects; (2) the foundational components of the previous phases; (3) how the four courses were selected for the project; (4) decision-making concerning whether the courses would be designed using online, hybrid, or face-to-face delivery methods; (5) the process for selecting faculty participants for the design teams and the characteristics of the faculty selected; (6) the hiring of an outside consultant to help facilitate the project; (7) professional development and training for faculty participants; and (8) the methods for obtaining resources for this project, including human, technological, and fiscal, and the manner in which these resources were utilized in order to move the project forward. Figure 13 provides this author's schematic representation of the process used to develop and implement the OCDP 5 and Sirius 3 projects.

Regarding the philosophical basis for OCDP 5 and Sirius 3 projects, the EVP for Instruction and Student Services established the overall vision, which was to redesign the four courses selected in such a way that the students who enrolled would not be required to purchase a textbook. In other words, the four courses would be totally self-contained on a CD-ROM and/or would be Web-based. The faculty members who selected to

participate on the design teams were instructed that they were to develop the courses essentially from scratch and not to rely upon existing textbooks or software.

It was discovered that while the decision to develop courses without a textbook was a fundamental shift, past phases of the Online Course Development and Sirius Projects did, in fact, provide foundational components for the project, including the use of faculty teams to redesign courses and the application of learning object technology to create more interactive and learner-centered courses. Therefore, the role of the previous phases of both projects was identified as a second major component of the process that used to develop the OCDP 5 and Sirius 3 projects. This project, in essence, was the culmination of the previous online course development and Sirius projects. The goal was to merge these two projects in such a way that the process undertaken by the faculty teams to redesign OCDP 5 courses would inform the development of the IDA. The IDA then would become the electronic tool by which the College faculty and other users would develop courses. The College intended to sell both the OCDP 5 courses and the IDA commercially and use the revenue generated to establish faculty endowed chairs. It was also hoped that other courses would be developed in an integrated, systematic, and comprehensive using the IDA.

In addition to the selection of courses that were identified as high enrollment-low retention courses for redesign during OCDP 5, the College administration decided to focus primarily on remedial courses, with the exception of a general psychology course Through an analysis of student grades and course placement records, the Executive Vice President and project manager were able to identify a cohort of faculty from several

different disciplines who had demonstrated consistently high rates of success with their students. The original set of courses selected for OCDP 5 included two college level math courses, but after the math faculty declined to participate, remedial courses from three disciplines – math, English, and reading - were selected.

The delivery methods for which these courses were redesigned initially caused confusion among the faculty and staff working on the project. The original plan called for the OCDP 5 courses to be developed such that the courses would be used for delivery as exclusively online, hybrid, and face-to-face courses. It was later decided that the courses should be developed as online or hybrid courses. The face-to-face delivery model was dropped. The project manager informed the faculty participants that the course units that comprised the four courses could be used in a face-to-face setting without the courses being specifically designed for that purpose.

The faculty selection process took place on multiple levels. Several were selected because they had worked on previous phases of the Online Course Development and Sirius Projects. The team leaders selected for OCDP 5 also were involved in choosing faculty members for their teams. In the case of the English design team, the leader indicated that he based his selection on two major factors: 1) representation from the various campuses within the college district; 2) faculty who had a particular teaching approach that proved successful with students and expertise in cooperative learning strategies.

A majority of the faculty indicated that cooperative learning was emphasized during the development of their courses, both in this project as well as with other courses

that they taught. Interestingly, technological expertise or a particular philosophical bent toward teaching online was not a prerequisite for the faculty selected. Faculty participants had a wide variety of experience teaching online, from those who had taught online for several years to faculty who had never taught an online course.

The outside consultant hired for the project had expertise in instructional design, particularly in the area of online course development. He/she served as a liaison between the faculty teams and the project manager, often as an advocate on behalf of the faculty for technology needs and other resources needed to help move the project forward. The consultant also helped to keep the faculty teams on schedule and provided updates concerning when certain project milestones needed to be reached. He/she facilitated the monthly faculty dialogue sessions teams, which dealt with topics related to instructional design and instructional technology. The consultant also reviewed the course content that the various teams developed, and provided feedback as to how team members could make their courses more interactive for students.

The professional development and training component of the process also consisted of a modular-based course known as CREOLE (Creating Optimum Learning Environments), which covered basic philosophical and practical issues faculty were to consider whenever they developed online courses. The second component included monthly professional development/training sessions that covered a wide range of topics, including learning object technology, creating online courses that factored in the needs of students with disabilities, creating learning communities in an online environment, enhancing interactivity in online courses, and the like. The monthly sessions also

provided an opportunity for the project manager and the consultant to provide updates and respond to faculty concerns and questions regarding the project. The instructional design staff gave regular reports on the progress of the IDA at the monthly sessions and solicited feedback from the faculty on design aspects.

The acquisition and allocation of resources was also a major component of the model developed by the College to implement the OCDP 5 and Sirius 3 projects. The primary source of funds came through a Strategic Initiative grant in the amount of $184,000. This money was used to provide $5000 stipends to the faculty team members and $6000 for each team leader. The funding also was used to hire the consultant and to provide technology support to the faculty. The allocation of resources also included how responsibilities were divided among the various participants in the project. Staff members from the Office of Program Development for Instructional Technology, and the Advanced Center for Instructional Design, and the consultant, were responsible for meeting with the faculty on a monthly basis and conducting a two-hour monthly seminar for all participants on topics of concern to team members.

The faculty participants were responsible for developing the content and pedagogy for the four courses, and identifying appropriate learning objects. The faculty participants were also responsible for assisting the ACID staff and computer programmers in the development of the Instructional Design Assistant. The project guidelines also stipulated that the faculty were expected to attend monthly course design team meetings, both group and individual team meetings.

Regarding research question two, the reasons faculty chose to participate in this project, there was a wide range of responses given to this question. However, the most common theme was the faculty participants' desire to be on the cutting edge of their professions, and the view that this project was an opportunity to create an entirely new and innovative way for designing and delivering courses. Several faculty participants indicated that they chose to participate because they perceived themselves to be lagging behind many of their colleagues in their technological competencies. They elected to participate in order to upgrade their skills in this area.

The findings for research questions three and four were presented in tandem because of the overlap that occurred concerning the process undertaken by the design teams and the instructional technology staff to integrate systematic instructional design principles, learning and motivation theory, and technology in both the design of the courses and the development of the Instructional Design Assistant. The reading, psychology, and composition design teams provided the most complete course units by the midpoint of the project. The math team had not provided a single unit by the time this study came to a close at the end of August, 2004.

The composition course design team developed units that followed a systematic design structure as evidenced by a statement of learning outcomes at the beginning of each unit. In other composition units, the topic of the unit was introduced and placeholders were inserted for where graphics and interactive exercises would be placed once they were developed by the instructional technology staff.

In the case of the reading course units, the faculty introduced the topics in each unit and then included a description, along with various exercises for the students to complete both individually and in groups. As with the English course, some of the reading course units included placeholders or instructions for the types of learning objects or other multimedia components to be developed or acquired by the instructional technology staff.

Most of the faculty participated in CREOLE training, which was designed to familiarize them with a systematic approach to course design as well as methods for designing courses that incorporated learning and motivation theory. A majority of the faculty indicated they were familiar with the concepts and terminology presented in the CREOLE course, and they attempted to follow the course design sequence and principles but, for the most part, individual faculty members developed their own systems for collecting materials and laying out the course units. Their work was reviewed by their peers and the consultant for feedback and revision.

It was not be until a later point in the project when the faculty developed a common template and a unified organizational structure for their courses. The faculty experimented with various learning object software and some faculty included Web links in their course material, but, according to the project manager, development of learning objects on a large scale would occur in the second half of the project. Several of the faculty indicated that at the beginning of the project staff at the Advanced Center for Instructional Design had told them they would be able to develop any type of learning object the faculty requested. However, because of personnel changes, the load of other

projects, including the development of the Instructional Design Assistant, learning object development was delayed. When the name of ACID was changed to Learning Innovations the new liaison between the center and the faculty teams developed several templates designed to provide them with criteria for developing and analyzing their learning object concepts. Several faculty members indicated that these templates were a step in the right direction because they created a formal process by which they could submit learning object request. Other faculty members found the templates to be confusing and impractical.

The electronic Instructional Design Assistant was developed by the instructional technology staff. It included systematic design principles, as well as screens that would prompt users to consider learning and motivation theory in the design of courses. The instructional technology staff and programmers met with the faculty teams on several occasions to solicit their feedback at different stages of the IDA. One of the challenges the programmers faced was developing an instructional tool when they did not have an understanding of instructional design terminology and theory or an understanding of how faculty would typically develop courses. The Executive Vice President advised the programmers that they would need to observe faculty as they worked in teams in order to gain an understanding of the instructional design process.

There were a number of common issues and themes that emerged over the duration of this study. The issue of copyright was a recurring theme at a number of meetings between the faculty and the consultant. Given the fact that the courses utilized material from a variety of sources, and once completed and tested would be sold on a

commercial basis, copyright issues were much more significant and involved than would have been the case for courses developed for internal use only. The faculty requested that the project manager set up a system whereby the material selected for their courses would be periodically reviewed for copyright issues, but the project manager said this would be done toward the end of the project when the courses were near completion. Faculty expressed concern about this process and said that if substantial portions of the material could not be used because copyright issues major revisions would have to be made in the courses.

Another common issue that was verbalized at the various faculty team meetings was the discrepancy between what the faculty participants were told at the outset of the project regarding the level of support they would be given by the instructional technology staff and what actually occurred.

A third overarching theme dealt with team dynamics and team leadership. The faculty participants who served on the English, reading, and psychology teams reported that they enjoyed positive relationships with one another and believed the team process worked effectively. The math team members, however, expressed frustration and disappointment with their team leader and reported that the team was unable to carry out their assignments because of ongoing leadership problems. The consultant recommended a change in leadership for the math team and the Executive Vice President confirmed the change. Several faculty members provided their own reflections on the first six months of the project regarding the challenges and issues they encountered as well feedback on the factors they thought would have enhanced the project. The most common

recommendation was the need for an instructional designer and multimedia specialist dedicated exclusively to the project to assist faculty in the development of learning objects and other multimedia components for their courses.

Discussion

At the close of this study, the project was still a work in progress. A discussion of the findings is based on what transpired during the first six months of the project and, therefore, any conclusions serve as snapshots at the midpoint of the project. This section is divided into four components: 1) The researcher's representation in the form of an implementation model and process for this project; 2) researcher insights and the relationship of this study to previous studies; 3) a review of the major findings in the context of the literature reviewed in this study; and 4) recommendations for further research.

Instructional Design Implementation Model

Figure 13 is the model developed by this researcher to represent the implementation process for this project. This model is based on the observation that the process used by the College to implement this project was comprehensive, systematic, supportive, and flexible. While it is difficult to generalize this model based on a single case to other settings, it is believed that there are principles embedded in it that could be applied to other situations. The model consists of eight major components and they are discussed in the next section.

The philosophical component is the starting point for the project. The decision to develop the courses in such a manner that students would not be required to purchase a

textbook represented a fundamental shift from previous phases of the project and established the overall vision for the future direction of course development at the College. The use of faculty teams was also a fundamental principle of the philosophical approach to this project because curriculum development had often been the responsibility of individual faculty members.

The next stage of this model deals with the foundational components, which include a multi-phase and parallel track approach to implementing this project. This approach not only enabled the College to enhance the skills of faculty members in the area of instructional design, but it helped the College develop resources and training modules for faculty that were based on the needs identified at each phase. The other benefit to this component of the model is that it minimized resistance to change that might otherwise occur if a project of this scope was introduced in its entirety at one time.

The third step in this model is resource identification and acquisition. Also, as part of this step, is a clear delineation of responsibilities for the participants in the project. In this case, the faculty signed a contract that stated their duties and the responsibilities were also clearly articulated for the project manager, consultant, and instructional design staff. While this did not guarantee that each individual or group carried out their respective tasks, it provided a reference point when communications broke down or there was a misunderstanding as to who was responsible for a certain aspect of the project.

The course selection process follows as the next major component of the model. The questions addressed here concern high demand courses as well as those courses that targeted the most "at-risk" students, including students requiring remedial education. In

concert with identifying which courses to redesign, the College looked at the success of the faculty who taught those courses as a secondary way to determine which courses to select for redesign during this phase of the Online Course Development Project.

The fifth stage of the model dealt with faculty selection. In this case, the faculty selected were experienced teachers and had a wide variety of teaching styles. There was also a wide range in the level of technological expertise among the faculty. The questions to consider at this particular stage of the model is whether or not to involve only the very best and most successful teachers or combine the best faculty with average or struggling teachers to raise the instructional standards for the entire institution. Another question concerned the technological capacity of the faculty. Is it necessary to use faculty who have experience teaching online and working with technology or is this project a way to enhance the technology skills of novice faculty?

In step six, an outside consultant was identified and the expertise and knowledge the consultant brings to the project is an important consideration. In this case, the consultant was a well-known and highly regarded expert in instructional design. He/she did not have the same level of expertise with the technology aspect of instructional design. This is a factor that should be considered when selecting a consultant. However, this consultant was very effective in his/her role and served as an important link between the faculty teams and the project manager.

The seventh step in this implementation model is the professional development and training component. Many faculty do not have instructional design experience and so training is an important part of using faculty to redesign courses. As the literature

revealed, there needs to be a balance between training that emphasizes theory and that which provides hands-on experience with technology.

The final step in the implementation model is to determine the methods of delivery for the redesign courses. With this project, the decision was made to redesign courses for online and hybrid delivery. Additionally, the plan was made to sell these courses commercially and to use the revenue to establish endowed faculty chairs as well as to fund the redesign and development of future courses.

Because the model is cyclical, it promotes what Senge (1990) described as the *learning organization*. As each cycle of course development occurs the participants gain an increased understanding of the instructional design process and what is possible regarding technology. The model also offers the opportunity for new faculty to become involved at each new cycle of course development, thus diffusing change throughout the organization.

Instructional Design Implementation Model

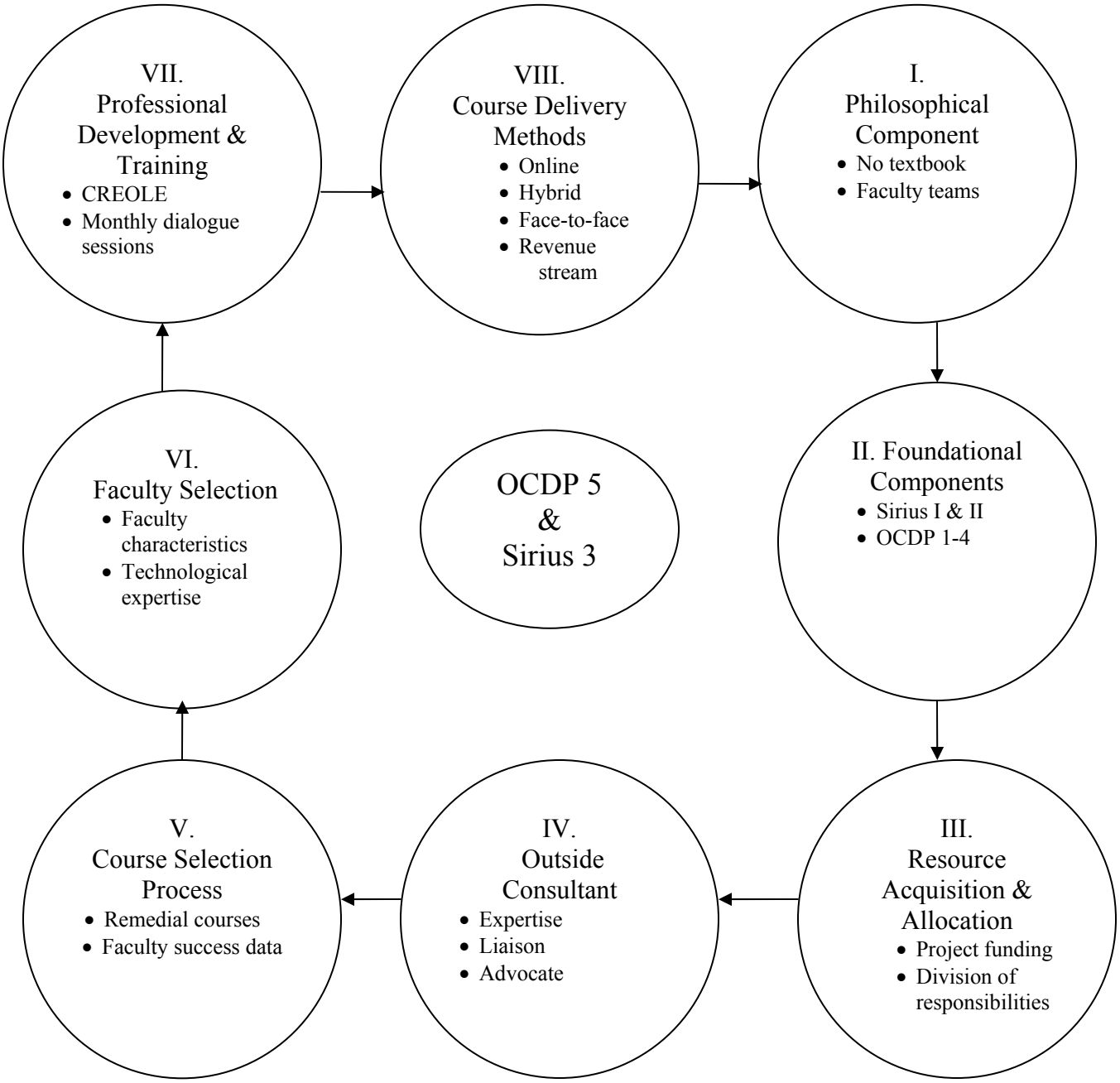

Figure 13: Instructional Design Implementation Model (McLaughlin, 2004)

Researcher Insights

This comprehensive, systematic, supportive, and flexi bile model was reflected in the multiple components the College used to develop and implement the project. These components ranged from a clearly articulated philosophy for redesigning "traditionally formatted courses" for online and hybrid delivery and making them totally self-contained so as not to require a separate textbook, to an extensive training and professional development program in instructional design and technology intended to provide faculty with the theoretical foundations necessary to accomplish the project goals. The initial stages undertaken to develop an Instructional Design Assistant that included systematic instructional design principles, in addition to learning and motivation theories, reflected a sound theoretical approach, but the actual development of the interface proved much more complicated and time intensive than was originally anticipated. The programmers were able to apply their basic programming expertise to the IDA in an effort to make it a user-friendly and visually appealing tool, but they faced significant challenges when it came to translating theoretical concepts into a functional design. This, in part, was due to the eclectic approach the individual faculty and the faculty teams used to develop the content and design the four courses.

The IDA in essence was an attempt to develop a highly sophisticated, systematic process for designing courses. Yet the varied approaches taken by the faculty teams appeared to make it difficult for the programmers to conceptualize and develop an instructional design template that reflected the actual design process undertaken by the faculty teams. Although the faculty provided feedback on the IDA at various points of

development, the programmers appeared to depend more on their expertise and knowledge of programming on incorporating instructional design methods provided by faculty. However, toward the close of this study, a beta test group of faculty was created to evaluate the IDA, and provide feedback on its functionalities.

One possible solution to this dilemma would be to have faculty teams create a template, perhaps in a non-technical format that outlines the instructional design processes they actually followed in the development of online courses, and then have computer programmers and highly skilled instructional designers develop an electronic version of this process. Such an approach would represent the reverse of what occurred in this particular project where the computer programmers and instructional design staff attempted to create the prototype of an electronic instructional design template that reflected the ideal but struggled with trying to factor in the practical possibilities and limitations that the faculty teams encountered as they designed various courses. Additional time was needed to develop the Instructional Design Assistant into a more complete instructional design tool, but one member of the beta test group indicated that he/she was pleased with the progress on the IDA at the project's midpoint and the efforts the instructional design staff were making to incorporate feedback from the faculty.

There was a deliberate and thoughtful process used in the selection of the faculty participants in the project. The faculty members invited to participate were selected based on their success with students, and this was verified with both quantitative and qualitative measures. Based on the experience of the math team, however, it did not follow that a highly competent, student-centered teacher would necessarily be successful

in a leadership role. Thus, in addition to identifying successful teachers, it would be important to evaluate leadership experience and potential for leadership of prospective faculty team leaders prior to assigning team leaders.

It appeared that the multi-phased approach that led to OCDP 5 and Sirius 3 enabled the College to develop a cohort of experienced, competent faculty to design increasingly advanced and sophisticated versions of online course. This enabled the College to develop a pool of faculty leaders to mentor and train other faculty members in the development of more effective and instructionally sound online courses. The blending of experienced and inexperienced faculty represented an inclusive approach by the College to enhance faculty competence in developing and delivering online and hybrid courses. This was consistent with Simon's (2002) findings regarding the roles, output, and competencies needed Web-based education. Simon reported that experienced faculty mentoring other faculty in a team approach created a resource pool of technically talent faculty who "applied those talents to Web-based pedagogy" (p. 55).

In order to establish a common framework and understanding for the design of online courses, it would have been helpful if the College administration had required that all prospective faculty team members complete the CREOLE course prior to joining the project. This would enable the faculty teams to have a common reference point in terms of vocabulary and basic instructional design principles. Several faculty members had this training prior to their participation in this project, while other design team members enrolled in the CREOLE course after the project was underway.

A significant portion of the monthly sessions with the consultant was dedicated to sharing research-based concepts and theories on instructional design and technology. While there was a fair amount of dialogue during these sessions, there was very little hands-on experimentation with learning object software and other technology-based instructional design tools. The Simon (2002) study reported that the structure of Web design training and development for faculty should include some content knowledge, demonstrations, and hands-on experience "since practice is believed to be the best method of training" (p. 59). Several of the faculty participants mentioned that they would preferred to have engaged in more hands-on workshops than in dialogue sessions that focused more on instructional theory and research.

The faculty participants were experienced teachers, and they indicated that they had been exposed to and utilized a broad range of instructional theories, principles, and strategies throughout their careers. However, most of them did not have extensive experience in working with instructional technology and would have benefited from training and experimentation in the integration and application of technology in the course design process.

Attendance at the training sessions was sporadic, with certain faculty participating on a regular basis and other faculty only infrequently. This appeared to make it difficult for the faculty to integrate the research-based information presented at these sessions into their course units. Although faculty signed contracts that included participation in the monthly sessions, those expectations were not strictly enforced.

The challenges the faculty design teams faced during the first six months of this project were similar to those identified in Kang's study (2001) at Northern Illinois University that was described in chapter 2. In that study, Kang identified the major challenges faculty teams faced in developing online courses as time, the design itself, resources, and technical issues. While time constraints did not surface as a major issue in the FCCJ project, two of the teams had trouble in completing their course content within the timeframe established by the project manager. In the case of the math course design team, this appeared to result from a lack of team meetings and the leader not communicating clear goals and objectives. In the case of the psychology team, the team leader indicated that his team viewed the one year time frame for completion of the project as their primary goal, but they were not as concerned about meeting secondary project deadlines. The English and reading teams took a much more task-oriented approach to the project, and this enabled them to complete the course content development by the established deadlines. This raises the question of how to balance providing faculty with the autonomy and flexibility they are accustomed to while holding them accountable to specific deadlines and expectations that are necessary to ensure adequate progress.

From observations and interviews, it appeared that the faculty who considered themselves novices in instructional technology became more comfortable with the idea of teaching online and using technology. However, the actual use of technology to acquire/ develop learning objects and other multimedia components was very dependent on the expertise of a professional instructional designer and multimedia specialist. There was an

obvious need for additional instructional designers and multimedia specialists to meet the demands of the project. More extensive training for faculty in the area of instructional design and technology was also needed. Furthermore, given that these courses would be sold commercially, there was a need for a more resources to create learning objects and other multimedia components in house in order to remedy the copyright issues raised when faculty included Web-based learning objects from outside sources.

Given the size and scope of this project and the emphasis placed on developing and enhancing online courses through the use of multimedia-based learning objects, it would have been helpful to start with the same level of resources, but focus on developing one or two courses as a pilot project. Working on four courses simultaneously seemed to exceed the capacity of the instructional design staff. On a related note, while it was the consultant's view that faculty stipends were more of an incentive than release time, this project was very time consuming and may have overtaxed what were already full schedules for the faculty participants.

While flexibility and adaptability are required for projects of this type, the change in the middle of the project when the Director of the Advanced Center for Instructional Design was transferred to another department slowed progress on the project. The faculty participants indicated that they had developed a good working relationship with the former Director, and it took several weeks before a replacement was identified. The new liaison attempted to standardize learning object development and the request process by creating a series of forms to guide the faculty through learning object concept development and description. These forms received mixed reviews on the part of the

faculty. The faculty participants indicated that they were willing to acquire and include Web links and other learning objects on their own until the processes and procedures could be worked out, but, at the same time, they had concerns about using copyrighted material in their courses without first receiving clearance. Rather than wait until the courses were near completion to deal with copyright issues, it would have been beneficial to have a copyright specialist available whenever there was a question concerning course material selected. Kang (2001) reported that copyright issues were extremely time consuming and it was very difficult for individual faculty members to find the time to use affected materials for online courses.

The faculty teams appeared to incorporate certain elements of a systematic approach to designing instruction, but there was no particular model identified beyond what was outlined in the CREOLE course. This course provided basic design principles, instructional design vocabulary, and some faculty teams used them more than they used others. However, the structured approach described in the CREOLE course was not utilized in a consistent fashion. Instead, the design approach reflected the eclectic teaching style and methods discussed in Chapter 4. Faculty members compiled their course material from a variety of sources and in diverse ways.

A Review of the Major Findings in the Context of the Literature

At least to the halfway point, this project turned out to be more about facilitating change in the teaching and learning paradigm than about the use of technology and instructional design systems to redesign and develop courses. However, there was evidence that the technology components were beginning to take on a more significant

role in the project, at the end of this study. Perhaps one of the most significant outcome of this project was the use of faculty teams to promote scholarship and to engage faculty more deeply in the art and science of teaching and learning.

Barwick (1999) pointed out that teaching faculty are, by nature, not team players: "What a teacher is hired to do, and is professionally committed to doing, involves going into a room, and doing it alone (p. 8). This project appeared to break this mold by bringing faculty together, within disciplines, and across disciplines, to discuss and develop methods and techniques to enhance the content and delivery of online and hybrid courses. Barwick also pointed out that the barriers that often hinder effective faculty teams include wasted time in unproductive meetings, confusion over lines of authority, and administrators that actually work against team efforts. These barriers did not appear to have been a factor with the faculty teams in this project and with the exception of the occasional complaint about the effectiveness of some of the training sessions, the College administration provided a great deal of support and facilitation to the team process. The math team was the only group that experienced a significant breakdown in team cohesiveness and productivity, and this was in large part due to the fact that the members of this team rarely met together to discuss the project. The characteristics of successful and productive teams that Barwick identified and that were reviewed in Chapter 2, including the use of "we" in all recommendations that emerge from the team process, frequent laughter, the cultivation of a team's identity, and team fellowship over meals, to name a few, were evident in three of the teams.

It was observed that the English, psychology, and reading teams reflected all or most of these characteristics of effective, productive teams. The teams often met over lunch or dinner and exchanged personal stories and pictures of children and grand children with one another and with the consultant. The English design team, in particular, took the time to point out the accomplishments and strengths of each team member and their contributions to the team as a whole, and laughter and humor was a significant part of this team's time together. The leader gave significant consideration to his role as a team leader and the importance of team development in addition to team production. This team was equally concerned with cooperation and collaboration among team members as accomplishing the project goals. In fact, the team members pointed out that their emphasis on cooperative learning and student-centered instruction would be hypocritical if they did not apply these principles to how they conducted themselves as a design team. This was the team that appeared to reflect Barwick's characteristics the most, and this was perhaps why this particular team was so effective in meeting project deadlines as well as in developing strong, cohesive relationships with one another. The math team did not reflect any of the characteristics, and this may be why the team did not meet project deadlines and showed little, if any, cohesion within the team.

This project also represented an effort to facilitate change in the teaching and learning paradigm of a large and complex College. Hagner and Schneebeck (2001) discussed at length the difficulty many teachers have, both philosophically and practically, embracing and integrating technology in the teaching and learning process. They stated that the "challenge for today's college or university is how to change its

environment to accommodate and promote the use of…new technologies" (p. 1). In an attempt to generalize the different views faculty have of instructional technologies, Hagner and Schneebeck (2001) divided teaching faculty into four waves. The first wave of faculty is the entrepreneurs, which are described as the "vanguard of innovation and risk taking in teaching and learning" (p. 3). The second wave consists of those faculty, who are committed to quality learning but are adverse to the perceived risks involved in using technology. The third wave is the group of faculty who are influenced by rewards and incentives, and if this group sees the benefits of technology in terms of tenure, promotion, and financial, they are more willing to adopt new technologies. The fourth wave is identified as the reluctants and describes faculty who are firmly and unwaveringly committed to the traditional models of teaching and learning.

In one sense, the faculty participants in this project represented the early adopters of a new paradigm in higher education, but perhaps not so much as it relates to the use of technology. The Internet and online instruction have been around for a number of years, but several of the faculty participants involved in this project had only recently committed to teaching online. Rather, they were early adopters in their efforts to create self-contained courses without the use of a textbook using a team approach to design entire courses from scratch. As the literature points out, the irrational exuberance and hype that seemed to prevail in the mid to late 1990s and the idea among some in higher education that the Internet and the World Wide Web would forever change higher education was quickly tempered by the realities that institutions of higher education often do not embrace radical changes to their instructional systems.

There exists a wide gap between the availability and capability of the Internet and related technologies and in the actual use by higher education faculty. This, in part, has been due to a lack of understanding on the part of faculty on how to use the technology to enhance the quality and effectiveness of the teaching and learning process, particularly in an online environment. The most significant impact of the Internet and associated technologies has been in the explosion of online course delivery. In the rush to join the tidal wave of online course offerings by traditional institutions and by a whole new sector of e-learning colleges and universities, many institutions quickly converted traditional courses into online courses without much consideration given to the pedagogical implications.

Institutions of higher education have only recently begun to examine the quality and effectiveness of online courses and are developing new strategies using technology to not only meet the demands of the contemporary student, but to improve learning. It is in this sense that the faculty involved in OCDP 5/Sirius 3 project could be viewed as early adopters. In this "post-hype" period, as both the possibilities and limitations of technology are being more seriously examined the OCDP 5/Sirius 3 faculty seemed to have a more balanced approach using technology to enhance the learning experience.

The faculty viewed technology as a tool that was not meant to replace them, but to help them improve upon what they did as teachers. This, in part, may be why so many of the faculty participants indicated that, while they were willing to embrace all that technology had to offer, they still preferred to maintain some level of personal, face-to-face contact with their students whenever possible. However, they recognized that a

growing segment of higher education is looking for interactive, high quality educational experiences in a convenient format, and, thus, they were interested in creating these kinds of opportunities for students through this project. However, they indicated that the hybrid or blended course delivery format was their preferred mode of teaching, and this is perhaps a reflection of the broader landscape in higher education where the hybrid method is growing at a faster rate than exclusively online courses.

Based on this project it appears that faculty who fit the description of Hagner and Schneebeck's first, second, and third waves can work in tandem to adopt new ways of using technology to develop and deliver courses. Blending inexperienced, even timid or reluctant, adopters of technology with experienced, early adopters may even hasten the broader and faster adoption of instructional technology within an institution. One of the technology novices on the English design team described himself/herself as "lower than a snail's belly" when it came to her knowledge of instructional technology and teaching online at the beginning of the project. However, she had become quite comfortable with using PowerPoint to sequence her course content by the midpoint of the project. He/she indicated that the support she received from her team members and the comfortable, non-judgmental environment his/her peers created helped her learn more about technology than he/she thought possible. Although the project had many more months to run by the end of this study, the administration and faculty had established the basis for a new framework in which to design courses.

Although the development of learning objects was delayed, there was an effort on the part of the instructional technology staff to familiarize faculty with learning object

theory, such as chunking, learning theory, and interactivity in the learning object concepts that were developed. However, several of the faculty raised concerns about the complexity of these forms. It is possible that a strictly theoretical, textbook approach to this relatively new technology may not be the best starting point for faculty unfamiliar with learning object theory. An intermediary process that utilized a less theoretical approach for helping faculty to develop learning objects for their courses would have been more practical. In fact, as faculty took it upon themselves to integrate technology into their courses, they primarily used Web links to accomplish this. In other cases, faculty indicated that they wanted the instructional design staff to create or acquire clip art and other animated objects, but they did not request sophisticated learning objects.

The Kahn study (2001) cited previously stated:

> Moving courses online involves more than having technology requirements and converting existent materials into HTML…the availability of required resources and favorable environments together with a collaborative effort can help faculty have a smooth transition from a conventional mode of teaching to online instruction in terms of course design and development.

It was evident from the observations made during Online Course Development and Sirius projects that the College had in large part made the necessary resources available, and had created a favorable environment for faculty teams to fulfill the goals of the project. While not all of the technology components were in place by the midpoint of the project, the flexibility and the adaptability that the faculty and staff demonstrated served as an indication that the project would continue to move forward toward its overall goals.

Suggestions for Further Research

A single case study on a project that continues beyond the scope of a study does not lend itself to generalizations. However, there is still a great deal that can be learned from examining a process such as this one as it unfolds. The following are recommendations for further research:

1. A study that investigates the remainder of the OCDP 5/Sirius 3 Project.

2. A case study that compares the process and outcomes of this project with a similar project at another community college.

3. A research study that investigates performance and outcomes of students enrolled in online courses developed using the process utilized in this project compared to online courses developed in the traditional way and/or offered in a face-to-face setting.

4. A research study that examines faculty with high level technological skills, how these skills were obtained, and how they contributed to the development of online courses.

Conclusions

The implications of this study will encourage others to pursue innovative approaches to designing educational materials and in the process recognize that moving toward a new paradigm for teaching and learning is not about arriving at a fixed point, but rather in creating a learning environment in the community college where the scholarship of teaching and innovation can thrive and flourish.

APPENDICIES

Appendix A
Interview Questions

Interview Questions

Questions for faculty (Initial Interviews-January/February)

1. How long have you been teaching? How long at FCCJ?

2. What academic degrees do you hold? What was your major(s) in college?

3. Have you taught other courses in a technology-based format? If so, please describe the course (s) and your experience.

4. What are the instructional/technology theories that you think should inform this process?

5. What is your preferred teaching style/method?

6. How do you view the role of technology in the teaching and learning process?

7. Why or why did you not choose to participate in the project?

8. What challenges and issues – human and technological- do you expect to encounter during this process?

Questions for faculty (2nd Interview-April)*

1. What are the instructional design theories that form the intellectual basis for the instructional design and course redevelopment process?

2. How has this process changed your perspectives on the instructional design process and the use of instructional technology?

3. What challenges and issues – human and technological- have you encountered during this process?

4. Describe the quality of your interactions with administrators, instructional design staff, and other faculty members during this process?

Questions for ACID Staff and Programmers*

1. How long have you worked as an instructional designer/programmer?

2. What other instructional design projects using instructional technology have you worked on? Please describe your experiences.

3. What elements (activities and strategies) of instructional design and instructional technology did you employ in this project?

4. What are the issues and challenges – human and technological-that you expect to or have encountered during this process?

Questions for Administrators*

1. What challenges and issues have you encountered during the stages leading up to the project and during the design phases?

2. What types of resources did you have available and what additional resources are needed?

3. How did you go about designing and implementing this process and what criteria did you use to select the faculty teams?

*Indicates tape recorded sessions.

Appendix B
Timeline/Schedule

Research Timeline/Schedule

January 9, 2004: Propose Dissertation

January (3rd week) – February (2nd week) and On-going

The following materials related to the project will be collected:

- Documents (Project plans, contractual agreements, etc.)
- Course Syllabi
- Memos
- Calendars
- Reports
- Meeting minutes
- Proposals
- Funding documents
- Organizational Charts

January (3rd Week)

Attend faculty training/orientation sessions

February (2nd week-3rd week)

Interviews:

Executive Vice President for Instruction and Student Services

Program Director for Technology Programs

Advanced Center for Instructional Design Staff

Faculty Fellow (s)

Faculty team members (1st Interview)

April

Interviews

Faculty team members (2nd Interview)

On-going (January-June)

- Attend team meetings
- Attend joint sessions of entire group
- Interact one-on-one with administrative staff, instructional design staff, and faculty
- Collect archival records
- Maintain journal/field notes
- Monitor/Collect/Synthesize email exchanges/phone conversations, and other informal meetings.

July/August

Synthesize and analyze data

August (4th week): Defend Dissertation

Appendix C
Faculty Contract

ONLINE COURSE DEVELOPMENT SCOPE OF WORK
COURSE NAME AND TITLE

Date:

Objective:

Florida Community College at Jacksonville requests the development of an online course, **Course Number and Title.**

Platform:

Development will be in the college's latest version of Blackboard or WebCT.

Development Guidelines:

- Ownership of courses belongs to Florida Community College at Jacksonville. The developer of the course may teach the online course using the developed materials at any site (i.e. FCCJ, UNF, FSU et. al.). Faculty wanting to use the course at another site will need to contact the Distance Learning office to obtain a copy of the zip disk with course materials. Course materials can then be uploaded to the other institutions server.

- This will be an **X** credit-hour course that adheres to the approved course outline, found in Curriculum Services.

- The course will include an online orientation, syllabus, and instructions for teaching the course, as prescribed by the Online Course Development Project. The course will also include lecture notes, discussion board topics, appropriate assessments (i.e. project/writing assignments, pool of test questions, etc), selection of textbook and other supplemental instructional materials, and reading assignments.

- The course will be designed for World-Wide Ready format for remote students. In other words, students can complete the course without ever appearing on the FCCJ campus. Assessments must be completed online or, if necessary, with the use of approved remote testing proctors.

- The course developer will participate in training, as needed, to develop proficiency in online platform and pedagogy.

- The developer will serve as the 'team member' and work cooperatively with the course development team leader.

Development Timeline:

- Deadline for completion of course is ***December 15, 2004***.

- The course will be reviewed and must be approved by the Review Team. The Review Team consists of the relevant Department Chair, Campus Dean, Associate Vice President, Project Facilitator, and a senior faculty member from the discipline, (or their designees) and a representative from the Applied Center for Instructional Design. Please see *Guidelines for Development, Review and Evaluation of Online Courses For Online Course Development Project.*

- The team member will receive $5000 for the development of the online course, pending outcome of Final Review and, if applicable, any subsequent requested revisions (made by Review Team in the final review).

Deliverable:

Complete World-Wide Ready online course on the designated FCCJ server in a Web CT or Blackboard account.

Signatures:

_____ _____

Professor Date

_____ _____

Project Facilitator Date

College Support:

College will provide support for development as follows:

- Office of Professional Development (FCCU) will provide online courseware platform training, web page development training, and other pertinent workshops. FCCU also coordinates the Online Professor and Online Adjunct Professor Certificate Program.

- Applied Center for Instructional Design will provide support as needed for design, multimedia and related graphics designs, etc.

- Center for the Advancement of Teaching and Learning, in conjunction with Program Development for Instructional Technology, coordinates the Campus Online Mentor and Certified Online Mentor programs.

- Learner Support Center provides technical help desk assistance for faculty and students, and processes online course account and other related Courseware Support requests.

- Distance Learning Office provides student and faculty support for online courses, manages the online course schedule, and maintains the 'master shell' courses.

- A mid-point review may occur during the development timeframe. This review will be conducted to provide feedback on the course development status, assess progress and utilize college resources. This review team will consist of a representative of the Applied Center for Instructional Design, Distance Learning, and the Project Facilitator (or designee).

Appendix D1
Psychology Course Unit
Integration of Learning Objects and Web Links

1. Introduction

Welcome to Introductory Psychology. The goal of this class is for you to gain a greater understanding of the science of psychology while learning in the manner that best suits your learning style.

What is a learning style? Go to http://www.vark-learn.com/english/index.asp Learning Activity 1. After you discover your learning style, post it on the discussion board. You will then begin to identify others in the class who have similar or differing learning styles. to read more on this topic and determine your own style. This will help you as you work through the class.

What is psychology? Psychology is the scientific study of human (?—do we want this)behavior and mental processes its application to the world around us. The goals of psychology are to describe, explain, predict and change behavior.
As a science our goal is to use the scientific method elaborate more—direct to a website about research by observing behavior, hypothesizing on its causes, testing the hypothesis, formulating the results, publishing the results so that others may scrutinize our work, and hopefully applying the results to the real world. It is important to understand that this definition is about those things which can be observed, experimented, or measured. This is empiricism and separates psychology from pseudoscience.

What is pseudoscience? Pseudoscience also attempts to answer life's questions but does not utilize the scientific method. Rather, it utilizes vague language, lack of proof, and an inability to measure terms. Pseudoscience specifically does not withstand the scrutiny of effective critical thinking.

What is critical thinking? Critical thinking is the ability to objectively judge theories, propositions, statements and conclusions.. Tavris and Wade (2001) offer eight essential guidelines that emphasize critical thinking:
.

1. Ask questions; be willing to wonder. So not automatically accept believe everything you see or hear—even from your professor!)

2. Define your terms clearly How?

3. Examine the evidence by?

4. Analyze assumptions and biases explain better?

5. Avoid emotional reasoning Explain?

6. Don't oversimplify explain?

7. Consider other interpretations

8. Tolerate uncertainty

If you can practice utilizing these skills throughout the class, you will have a great start in making wise decisions in your life. In addition successful students employ the SQ4R method when reading and studying new materials. The SQ4R acronym stands for Survey, question, read, recite, (w)rite, and review. This means to survey the whole module first paying close attention to the introduction, captions and summary. As you do this you will naturally have questions. Write them down. Next, read the entire module and you most likely will answer your questions. It is important to recite what you have learned since many of us are auditory learners. If you can participate in the chat room, say your definitions out loud or discuss what you are learning with a friend or family member you will tap different areas of your brain and enhance your ability to retain more information. The third R stands for (w)rite. Be sure and write down key definitions, major concepts and construct a study outline. The last R stands for review—you will use your written work to review in preparation for examinations.

We can see that psychology is important for scientific inquiry, but how do psychologists go about doing their work? Psychology is generally broken down into three main areas. Those are experimental, clinical, and applied. Experimental generally refers to pure research. Clinical refers to working with the mentally ill. Applied covers most anything else that does not meet the top two criteria. Many times the three main areas overlap so that a psychologist can do research on the mentally ill in an organizational setting. How far you go in each area and how much you get paid depends upon your level of education. Dr. Marky Lloyd has an informative web page discussing careers in psychology for undergraduate students at http://www.psywww.com/careers/. Learning Activity #2. AT this site find 10 careers of interest to you. Next, identify 2 "jobs" you might enjoy. For example, if Counseling is a career you have identified, would you prefer a "job" as an addictions counselor or as a marriage and family therapist? Explore the educational requirements and salary requirements of one of these 2 and post on the discussion board. You will notice that psychiatry has not been mentioned. Psychologists are PhDs while psychiatrists are MDs. Psychologists are generally interested in the science of psychology while psychiatrists are generally interested in the science of medicine. Both areas are of interest to us as we begin to discuss the history of modern psychology and try to understand the complexities of human behavior and mental processes.

In the field of psychology the past one hundred years have been remarkable in many ways. The most important aspect has been the variety of ways that psychologists have tried to understand why we behave the way we do. There have been six main theoretical perspectives(or "schools of thought") in psychology in the twentieth century. Each one has come into favor at a distinctive point in time and quickly become the dominant paradigm for an extended period of time until another perspective has appeared and become popular. The perspectives are:

1. Biological- evolution, genetics, neurons, hormones, the brain
2. Learning- behavioral, social, cognitive learning
3. Cognitive- thinking, reasoning, memory
4. Sociocultural- social, cultural
5. Psychodynamic- psychoanalytical, Jungian, psychosocial, object relations
6. Third Wave- humanistic, existential

None of these perspectives have completely answered the all the questions of human behavior but proponents of each perspective passionately believe their perspective has the best approach. Our behavior probably combines all of the perspectives as well as perspectives yet to be discovered. As we go through the class, utilize your critical thinking skills to determine the perspective being used and its validity.

2. Research

As we study human behavior, we must utilize a number of means to answer the questions we have. In psychology we call this research. There are generally three main types of research. They are descriptive research, correlations, and experiments.

1. Descriptive research- descriptive research allows us observe behavior in a systematic manner. It is very useful in creating hypotheses. It does not give us cause and effect relationships because there is little or no experimenter control.
    a. Case studies- case studies are unique experiences that cannot be replicated in the laboratory. If a person severely damages the frontal lobes of their brain and survives, we can study that individual to see if the injury has had any impact upon that person's behavior. We cannot recreate the injury in the lab. What are the pros and cons of this type of research?
    b. Naturalistic Observation- naturalistic observation allows us to clandestinely view behavior as it naturally occurs without artifice. We can observe whether people wash their hands in a public restroom when there are other people present or when there are no people present. What are the pros and cons of this type of research?
    c. Tests- tests allow us to measure an innumerable amount of human activities from personality traits to intelligence to aptitudes. Tests must be reliable and valid in order to work effectively. What are the pros and cons of this type of research?
    d. Surveys- surveys are a relatively inexpensive and easy way of asking people about their experiences and activities. Utilizing a small representative sample, we can ask a small percentage of a population about their sexual habits and apply the results to a much larger population. It is important to watch out for volunteer bias and semantic errors in the questions. What are the pros and cons of this type of research?

2. Correlation- correlations describe the strength of the relationship between two or more variables. Correlations occur on a continuum between -1 and +1. Where the correlation lies on the continuum determines the strength and nature of the relationship. Those relationships closer to -1 are strong and negative meaning that the high values of one variable are associated with the low values of the other variable (# of cups of soup sold and mean average temperature). Those relationships closer to +1 are also strong yet positive meaning that the high values of one variable are associated with the high values of the other variable (# of cups of soda sold and mean average temperature). The closer we get to zero, the weaker the relationship becomes (# of buses driven and the # of cookies eaten). What are the pros and cons of this type of research?

3. Experimental research- The pinnacle of psychological research allows experimenters to control the situation being studied. The benefit of control is that it allows the researcher to imply a cause and effect relationship. This separates experimentation from all other forms of research. The features of the experiment are as follows:
   a. hypothesis
   b. independent variable
   c. dependent variable
   d. statistically significant or insignificant differences
   e. experimental conditions
   f. control conditions
   g. random assignment
   h. placebo

It is vitally important in experiments to watch out for confounds or design flaws that can potentially create another reason for the results other than the independent variable. What are the pros and cons of this type of research?

Once we have conducted our research we must now figure out what to do with all the results. Psychologists use descriptive statistics to organize and summarize data and inferential statistics to determine how meaningful the results are.

When conducting research, it is important for psychologists to follow the code of the American Psychological Association (APA) code of ethics. Essentially this code requires scientists to respect the rights of its voluntary participants through informed consent. This allows the subjects to make wise decisions about their participation in research while knowing their rights are protected. Any deception that takes place in order to not confound the experiment must be well justified and cause no harm to the subjects. Review boards must give approval.

PERSONALITY

Terms:
By the end of the module these words will be familiar to you:

Personality
Minnesota Multiphasic Personality Inventory (MMPI-2)
Projective Tests
Rorschach Inkblot Test
Thematic Apperception Test (TAT)
Five-Factor Theory
Trait
PSYCHOANALTIC THEORIES
Archetypes
Anxiety
Collective Unconscious
Conscious
Ego
Id
Inferiority Complex
Oedipus Complex
Electra Complex
Penis Envy
Womb Envy
Power Envy
Defemse <echanism
Fixated
Libido
Erogenous Zone
Pleasure Principle
Preconscious
Psychosexual Stage
Reality Principle
Repression
Superego
Unconscious
HUMANISTIC THEORIES
Congruence
Self-Actualization
Self-Esteem
Unconditional Positive Regard
Reciprocal Determinism
Self-Efficacy

Draw a box and put these terms inside on left side of page

INTRODUCTION

Who Am I? Why do I behave the way I do? How am I different from others? What elements made me into the person I am today? Where did I acquire my emotional responses?

Questions like these that have plagued humankind for centuries. In this module we will try find some answers. We will begin by defining the word personality.

DEFINITION

Personality is a relatively permanent pattern of thoughts, behaviors and feelings that remain constant in a person throughout their lifespan. Relatively permanent means that while these patterns are stable, they are not written in stone. Some people, for instance, undergo drastic changes in their personality, often as a result of serious physical or emotional trauma. Others will only make minor adjustments or modify only one aspect of their personality. Most people remain unchanged throughout their lives.

THEORIES OF PERSONALITY

Psychoanalytic Theories

Sigmund Freud was the first person to develop a systematic theory of personality. He believed that a person's personality was shaped by their early childhood experiences and by their internal conflicts.

Freud believed our mind functioned on 3 levels, the unconscious, conscious and the preconscious. The conscious is made up of our thoughts, feelings and awareness of events around us and within us. The preconscious is the level just below consciousness where we are semi aware of our surroundings, thoughts and feelings—similar to those moments when we first awaken in the morning. The unconscious is the largest part of our personality and the part of us that we are unaware of. Freud saw the unconscious as being the driving force behind the development of people's individual personalities.

(Note to ACID—draw an Iceberg figure here to diagram these 3 parts)

To help us understand the power of the unconscious Freud divided the unconscious into 3 parts, the id, ego and superego. The id is the instinctive energy which drives us all and acts to ensure our survival. For example, think of a newborn infant. As soon as it is born it begins to search for a nipple to suck. No one teaches the baby this skill. Next, when wet, cold, bored or hungry, the baby cries until its need is identified and satisfied or until it falls asleep exhausted.

In contrast, the superego is the part of our personality that is acquired. It consists of all the rules of society that we learn, usually from our parents ("wash behind your ears," "eat your vegetables," "be kind to others," and "take turns" are phrases we all have heard).

The ego is in the middle. It is the part of the personality that must balance the demands of the id (the part of us that wants want it wants when it wants it) with all the rules of the superego (which usually tells us all the reasons we can't do

what we want). The job of the ego is to figure out a healthy compromise when the natural tendencies of the id come into conflict with all the rules of the superego.

Freud used these terms to describe the goals of each part of the personality.

Personality structure	Goal	Name
Id	Pleasure	Pleasure Principle
Ego	Reality	Reality Principle
Superego	Morality	Morality Principle

PSYCHOSEXUAL STAGES

Freud believed that our early childhood experiences were also responsible for the formation of our personality. All human beings, he thought, passed through 5 distinct psychosexual stages: oral, anal, phallic, latency, and genital. In each of these stages there will be a struggle between the demands of the id which is seeking pleasure and the superego which is seeking to impose order, rules and conformity. How these conflicts are resolved will affect the development of our personality. If the conflict was resolved and the person successfully passed from one stage to the next, then positive personality traits would emerge. On the other hand, if the child was frustrated and his needs not met he would get stuck or "fixated" in a stage and develop negative personality traits.

Central to Freud's theory of psychosexual stages is the concept of sexual energy, or libido as being the driving force behind the id. At particular points in development a single body part is sensitive to sexual stimulation. These erogenous zones are the mouth, anus and genitals. If a child receives too much or not enough stimulation during a certain stage it can result in negative personality traits. For example, during the first year of life the child receives a lot of satisfaction from sucking on the mother's breast, a bottle, its own thumb or anything else it can put in its mouth. At some point, however, the parents or other authority figures, intervene and wean the baby from the breast or bottle. Often, parents will tape a thumb or apply a noxious substance to discourage thumb sucking. This produces anxiety in the child which can then develop into an undesirable personality trait.

Age	Stage	Erogenous Zone	Negative Trait Examples
0-18 months	Oral	Mouth	Pessimistic, sarcastic, envious
18-36 months	Anal	Anus	Stingy, neat, messy, careless

3-6 years	Phallic	Genitals	Reckless, incapable of intimacy
6-12 years	Latency	None (Sexual drive dormant)	
Adolescence	Genital	Genitals	Inability to form close relationships with opposite sex

For more information on Freud's psychosexual theory follow this link:

http://www.victorianweb.org/science/freud/Psychosexual_Development.html

OEDIPUS COMPLEX

One of Freud's most famous discoveries was the Oedipus complex which was based on the Greek mythological tale of Oedipus who was abandoned at birth and then later in life killed his father and married his mother.

Briefly, this theory centers on the attraction a child has for the parent of the opposite sex which occurs during the phallic stage, roughly between 3 and 6 years of age. During this stage, Freud believed that the son would develop a sexual attraction for his mother, hostility for his father and would then enter into a competition with his father for her love. The successful resolution of this stage supposedly occurs when the child renounces his attraction for his mother and identification with his father (and his own gender) at about the age of 6. This same process occurs in females and is called the Electra complex. .

This theory may seem strange to the reader, perhaps even perverse. However, Freud thought this complex was the cornerstone of all neurosis (mental illness). Also, stop and think for a minute about typical children in this age group. If you were to ask them whom they want to marry when they grow up the answer most always is "mommy" (for boys) and "daddy" for girls

DEFENSE MECHANISMS: Defense mechanisms are tools that the ego uses in order to reduce the anxiety that results when the id and the superego are in conflict. These defense mechanisms involve self deception and the distortion of reality. Look at the table below from: http://allpsych.com/psychology101/defenses.html for descriptions and examples of the most common defense mechanisms.

DEFENSE	DESCRIPTION	EXAMPLE
denial	arguing against an anxiety provoking stimuli by stating it doesn't exist	denying that your physician's diagnosis of cancer is correct and seeking a second opinion
displacement	taking out impulses on a less threatening target	slamming a door instead of hitting as person, yelling at your spouse after an argument with your boss
intellectualization	Avoiding unacceptable emotions by focusing on the intellectual aspects	focusing on the details of a funeral as opposed to the sadness and grief
projection	Placing unacceptable impulses in yourself onto someone else	when losing an argument, you state "You're just Stupid;" homophobia
rationalization	supplying a logical or rational reason as opposed to the real reason	stating that you were fired because you didn't kiss up to the boss, when the real reason was your poor performance
reaction formation	taking the opposite belief because the true belief causes	having a bias against a particular race or culture and then embracing that race or culture to the extreme

	anxiety	
regression	returning to a previous stage of development	sitting in a corner and crying after hearing bad news; throwing a temper tantrum when you don't get your way
repression	pulling into the unconscious	forgetting sexual abuse from your childhood due to the trauma and anxiety
sublimation	acting out unacceptable impulses in a socially acceptable way	sublimating your aggressive impulses toward a career as a boxer; becoming a surgeon because of your desire to cut; lifting weights to release 'pent up' energy
suppression	pushing into the unconscious	trying to forget something that causes you anxiety

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Note to ACID: Can you modify the table above so that just the first 2 columns will appear. Next, insert another table with columns one and 3. Then, turn it into a learning object whereby the student will have to match the definition with the example.

Ego defenses are not necessarily unhealthy as you can see by the examples above. In face, the lack of these defenses or the inability to use them effectively can often lead to problems in life. However, we sometimes employ the defenses at the wrong time or overuse them, which can be equally destructive.

Summary of Freud's Psychoanalytic Theory:

Freud made many noteworthy contributions to the field of psychology. He was the first to develop a comprehensive theory of personality which included the structure of personality, psychosexual stages and defense mechanisms.

Neo Freudian Theories

Neo Freudians are people who were followers and students of Freud but who made revisions to his theory. They believed in the core concepts or the psychoanalytic approach—that personality is shaped by early childhood experiences and unconscious conflicts—however, they emphasized different issues.

The first is Alfred Adler who emphasized the inferiority complex, birth order and sibling rivalry as being the major determinants of a person's personality.

The second person to break with Freud was Carl Jung. He thought that the unconscious was a lot more complicated than Freud hypothesized. Moreover, he noticed both children and adults in various cultures exhibited many similarities in thoughts, beliefs, fears and behaviors. He thought this was more than coincidence and he labeled this phenomenon the "collective unconscious." He also noticed that all cultures seem to have universal figures in their stories and mythology and he called these figures "archetypes." Some common archetypes are "hero/heroines," angels, devils (or shadows) and wise old men and women. In addition, Jung theorized that each person's personality has a feminine component (anima) and a masculine component (animus).

Karen Horney was never a student of Freud but she did study his works. She disagreed with Freud over the gender bias inherent in his theory. For example, Freud believed that women suffered a higher degree of anxiety than men because they suffered from "penis envy". Horney, however, thought that, if anything, women had "power envy" because they were denied basic freedoms that women enjoy today in the 21st century. She also thought that men, in contrast, had "womb envy" because they could never know the joy of carrying and bearing a child.

PUT ERICKSON HERE IF WE DON'T DO A DEVELOPMENT CHAPTER.

Pros and cons of the Psychoanalytic Theories

Freud and his followers were pioneers in the field of psychology and many of their theories are still popular today. Critics, however, are quick to point out that most psychoanalytic theories are difficult to test, overemphasize biology and unconscious forces and lack empirical support. Freud's views, especially, have been criticized for their sexism and lack of cross cultural support.

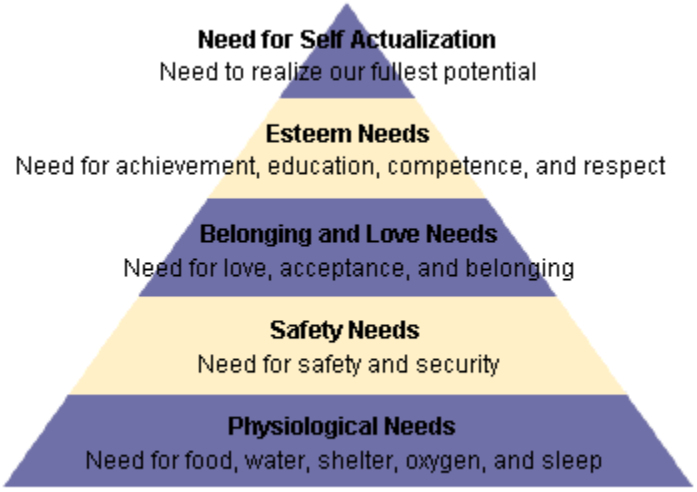
HUMANISTIC THEORIES

Humanistic theories developed in the mid 1960's and emphasize the inherent value of all human beings and focus on the thoughts, feelings and experiences that create a person's self-concept.

Carl Rogers emphasized the concept of self-esteem in personality development. He thought that people with low self esteem had trouble seeing

themselves as others see them. This poor congruence between internal thoughts and reality or life experiences can lead to distortions in perceptions. He also thought that if we treated all people with "unconditional positive regard" people would develop higher self esteem. Negative value judgments or lack of unconditional positive regard by others led to "problems in living."

Abraham Maslow emphasized the basic goodness of human beings. He also thought that all people have an innate tendency toward growth and self development and that this tendency is the motivation for all human behavior. He developed the following hierarchy of needs to explain this drive which he called self actualization



Maslow's Hierarchy of Needs

Source: http://allpsych.com/personalitysynopsis/maslow.html

PROS AND CONS

Humanistic theories were the first to focus on the inherent goodness of human beings and to treat the person with respect. However, they have been criticized for their poor scientific testability and inadequate empirical evidence. Also, some critics feel that these theories are naïve in their assumptions that people are inherently good and they seem to describe rather than explain personality.

SOCIAL COGNITIVE PERSPECTIVE

The early learning perspective states that personality is formed through an external system of reinforcements. (Review operant and classical conditioning)

Julian Rotter challenged this basic belief of Behaviorism. He said that people's internal beliefs, attitudes and values are also key ingredients in the formation of personality. Unlike animals, who can be trained to work for any reward, humans demonstrate a behavior because they expect a reward and also because of how they value the reward.

Rotters social learning theory states that people will perform a certain way in the world because of how they expect to be treated and rewarded. He saw people as either internals or externals. Internals have a high degree of faith in their abilities to control the outcomes they experience. Externals, in contrast, feel that they have little control over their destiny and that external forces are in charge of their outcomes.

Internals, for example, will focus on skills such as time management, studying, review and practice in order to achieve high grades. Externals, however, will typically attribute poor grades to the instructor's inability to teach, poor test construction, or circumstances which prevented they from studying (lost book, car didn't start or alarm didn't ring so they missed the test, etc). To see if you are an internal or external, type "psychological tests" into your browser and take the test "internal/external."

NOTE TO INSTRUCTOR

(have students sign up at PSYTEST, Queensdom, Tickle.com, etc.-- advise there may be a small charge)

Albert Bandura is best known for his observational learning theory which states that people can also learn by observing others. Like Rotter, he believed that people were controlled by either internal or external forces. He used the term self-efficacy to describe the person's learned beliefs concerning whether or not they could perform various tasks successfully. Bandura's theory of reciprocal determinism explains that a person's thoughts, actions and the learning environment all worked together to determine their personality.

PROS AND CONS

Both Rotter's Social Learning Theory and Bandura's Social Cognitive theory take the Behavioral approach a step further by recognizing that there are internal forces which shape a person's personality. Bandura, in particular also emphasizes the role of the environment in shaping personality and both theories can offer specific, measurable hypothesis which can be researched.

On the other hand, social-cognitive theories ignore the unconscious and fail to explain the emotional and developmental aspects of personality.

BIOLOGICAL APPROACH

The biological approach simply states that our personality is a product of our genetic makeup, our heredity and our neurochemical processes. There is strong scientific support for many of these theories. In addition, since heredity plays such a large part in our physical makeup (skin, hair and eye color, height, and body size) it is logical to assume that it does play a role in our mental makeup.

TRAIT THEORY

A personality trait is a relatively permanent characteristic that is used to describe a person's behavior. All of us have them and most of us describe others by listing their personality traits: kind, thoughtful, persistent, agreeable, stable, etc.

Gordon Allport, an early pioneer in the field of personality, was the first theorist who systematically set out to compile a list of personality traits. The finished product contained over 4500 traits. Allport concluded that a person's personality contained a number of traits. The most important 5 -10 traits he called central traits; these defined the uniqueness of the individual and described how their behavior. The least important traits he called secondary traits because they exerted very little influence over a person's behavior. He also thought that a few people were dominated by one trait and he called these traits cardinal traits since they totally defined and dominated one's behavior.

The next theorist was Raymond Cattell who reduced Allport's list to a more manageable size. He developed the Sixteen Personality Factors Questionnaire which measures key traits on 2 dimensions from high to low. For example, one trait is "submissive" on the low end to "dominant" on the other. Similarly, the trait "self-assured" ranges to "apprehensive." Since there are 2 dimensions on the 16PF, the test really measures 32 traits.

Today, trait theorists generally subscribe to the five-factor model which lists 5 traits: openness, conscientiousness, extroversion/introversion, agreeableness and neuroticism. For more information on this theory access this site:
http://www.personalityresearch.org/bigfive.html

To take the Big 5 personality test go to this site:

http://www.outofservice.com/bigfive/

PRO'S AND CONS

The concept of "Traits" is easy to understand and easily identified and measured. However, trait theory does not address the question of how traits develop nor does it tell us which traits are life long and which ones are subject to change.

MEASURING PERSONALITY

Interviews

Psychologists have many tools to measure a person's personality. One is called the interview and may be either unstructured or structured. An unstructured interview is one where we sit down and informally ask questions of one another. This is similar to what you do when meeting new people. You ask questions to determine if there is enough common interests to warrant pursuing a relationship with that person.

Structured interviews involve asking the person a predetermined list of questions that are designed to elicit certain information about the person. Structured interviews also follow certain procedures.

OBJECTIVE TESTS

Objective tests are pencil and paper tests which contain questions that individuals answer themselves. The 16 PF and 5-factor personality tests discussed previously are examples. If you have not taken the "Big 5 personality test" yet go to this site for an example of an objective test: http://www.outofservice.com/bigfive/

A more comprehensive measure of personality, the Minnesota Multiphasic Personality Inventory (MMPI) is the largest measure of personality and contains over 500 items. Its main purpose is for diagnosing abnormal personality.

PROJECTIVE TESTS

Projective tests present individuals with ambiguous stimuli and then use their responses to make assumptions about their personality. Two famous projective tests are the Rorshach Inkblot Test and the Thematic Apperception Test (TAT).

To see an example from the Rorshcach follow this link (you will have to pay to have your results interpreted):

http://www.medical-library.org/journals3a/rorschach.htm
l

For the TAT go to:
http://www.healthatoz.com/healthatoz/Atoz/ency/thematic_apperception_test.html

ISSUES IN PERSONALITY ASSESSMENT

There are 3 critical issues in personality assessment. These are reliability, validity and standardization. Reliability is the question of whether or not the test yields consistent results over time. For example, if you took an IQ test today and obtained an IQ of 120 you would expect to get similar results next year. If, however, you took several IQ tests over the course of your life and the scores ranged from 60-120 we would say the test was unreliable.

Validity is the question of whether the test is really measuring what it is supposed to measure. For example, if you had the flu and your doctor ordered an x-ray of your foot, you would say that test was invalid.

Standardization is the process of administering a test using clear, uniform established rules. Many of you have taken the SAT's or similar tests. These were administered at an official site, on the same date throughout the country, at a precise time (no late admissions!) for an exact period of time. Everyone had the same test, used a #2 pencil and sat facing in the same direction with no mechanical aids such as computers, palm pilots or calculators. The reason for this is because the SAT test is standardized.

DEFINITIONS

ACID—can you link each word that is in red and underlined to the following link so a student can find the definition without my writing it? (Below is a partial list of terms.

http://dictionary.reference.com/search?q=

DO YOU KNOW THESE TERMS?

Personality
Minnesota Multiphasic Personality Inventory (MMPI-2)
Projective Tests
Rorschach Inkblot Test
Thematic Apperception Test (TAT)
Five-Factor Theory
Trait
PSYCHOANALTIC THEORIES
Archetypes
Anxiety

Collective Unconscious
Conscious
Ego
Id
Inferiority Complex
Oedipus Complex
Electra Complex
Penis Envy
Womb Envy
Power Envy
Defemse <echanism
Fixated
Libido
Erogenous Zone
Pleasure Principle
Preconscious
Psychosexual Stage
Reality Principle
Repression
Superego
Unconscious
HUMANISTIC THEORIES
Congruence
Self-Actualization
Self-Esteem
Unconditional Positive Regard
Reciprocal Determinism
Self-Efficacy

LEARNING ACTIVITY FOR PERSONALITY THEORY

Background:

Learners are concerned with understanding how their personality has developed and how theories of personality explain their own thoughts, behaviors and emotions.

Goals:

1. Learners will be able to identify 3 key issues in test construction that relate to assessment of personality (reliability, standardization and validity).

2. Learners will be able explain some elements of their own particular personality in psychological language.
3. Learners will “construct” their own theory of how their personality developed.

Activities:

1. Learners are assigned chapters in a textbook which review the above materials.
2. Learners are asked to review specific Websites which provide information on the various personality theories.
3. Learners are presented with examples that illustrate each personality theory.

Directions:

1: Learners will type "personality tests" into their search engine.
2: Learners will take 3 different personality tests of their choice.
3: Learners will discuss their individual results with members of their group.
4: As a group, learners will decide if the individual test results were
a. standardized,
b. valid
c. reliable.
5. Learners will post group answers to the discussion board and review responses of the other groups.

Evaluation:

1. Learners will access the following site and test their knowledge of personality**:**

http://www.pbs.org/wgbh/aso/mytheory/freud/

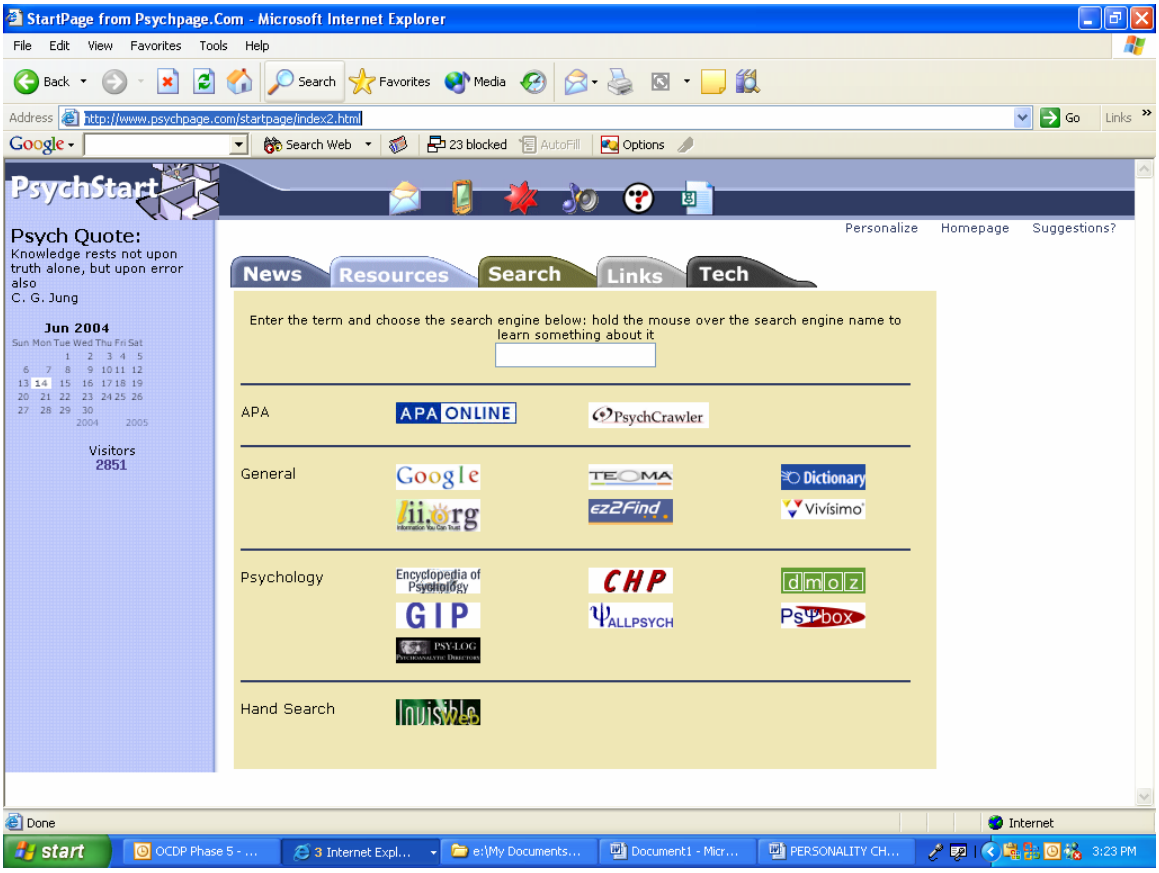
By applying the theories of personality to their own personality, students will gain additional mastery of this concept. In addition, the later small group approach fosters the development of learning communities and should enhance the overall learning process.

2. Fill in the table below with the appropriate terms and key figures for this chapter:

Major Schools of Psychology

Concept	Biological	Behavioral	Cognitive	Psychodynamic	Humanistic
PERSONAL ITY	Determined by genetics and neuro-chemical processes	Learned through operant and/or classical conditioning.	Determined by interactions between people and the environment. Expectancies, locus of control and reciprocal determinism	Determined by early childhood experiences and unconscious conflicts Levels of consciousness, personality structure (Id, ego & superego). Unconscious conflicts Oedipus complex Psychosexual stages of development. Power, penis and womb envy. Archetypes,collective unconscious, inferiority complex, neurosis.	Determined by the person's subjective exp. of reality. Self-esteem, Unconditional positive regard; self-actualization.
Key Figures			Rotter, Bandura	Freud, Jung, Horney, Adler, Erickson,	Carl Rogers Maslow

NOTE TO INSTRUCTOR:
Advise students to open the following link and keep open so they can readily access other web sites for more information on topics throughout the course.


StartPage from Psychpage.Com - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.psychpage.com/startpage/index2.html
Go Links
Google Search Web 23 blocked AutoFill Options
PsychStart
Personalize Homepage Suggestions?
Psych Quote:
Knowledge rests not upon truth alone, but upon error also
C. G. Jung
Jun 2004
Visitors
2851
News Resources Search Links Tech
Enter the term and choose the search engine below: hold the mouse over the search engine name to learn something about it
APA
APA ONLINE
PsychCrawler
General
Google
TEOMA
Dictionary
ii.org
ez2Find
Vivisimo
Psychology
Encyclopedia of Psychology
CHP
dmoz
GIP
ALLPSYCH
PsyBox
PSY-LOG
Hand Search
Invisible
Done
Internet
start
OCDP Phase 5 - ...
3 Internet Expl...
e:\My Documents...
Document1 - Micr...
PERSONALITY CH...
3:23 PM

Appendix D2
English Course Unit Excerpts
Master Learning Principles

Standard Punctuation

End Marks, Commas, Semicolons, and Apostrophes

Learning Outcomes

- In this unit, you will explore the uses of standard punctuation, including end marks, commas, semicolons, and apostrophes.
- You will study examples of standard punctuation.
- You will take a quiz on standard punctuation; your goal is to earn an 80% or higher on the quiz.

Why Use Punctuation?

- Imagine reading a paper that had no punctuation. It would be similar to driving on a crowded street without any traffic signals. Like traffic signals, punctuation helps readers understand when to stop and go in a sentence.
- End marks, commas, semicolons, and apostrophes enable you to communicate your ideas clearly and effectively. Let's explore each of these important marks of punctuation.

End Marks

- End marks—that is, the period, question mark, and exclamation point—indicate the end of a sentence.
- Use a **period** at the end of a statement, a mild command, and an indirect question.
  - **Statement:** Tuffy, our new puppy, loves to chew on raw hide bones**.**
  - **Mild Command:** Wash your hands before dinner**.**

End Marks--continued

- **Indirect Question:** I wonder how many people live in South Florida.
- Use a **question mark** at the end of a question.
  - Whom do you think will win the presidential election, a Democrat or a Republican**?**
  - How much do you think a new pair of jeans costs**?**

End Marks

- Use an **exclamation point** after you express a strong feeling.
  - What an amazing amount of courage the firefighters displayed!
  - You are a very gifted speaker!

Fill-the-Slot!

- Directions: It's your turn to use end marks! Place an appropriate end mark in each of the following sentences.
  - I wonder where I placed my purse_____
  - The crescent moon hung in the night sky like a hammock_____
  - How often should we water the azaleas_____

  (Add feedback.)

Commas

- Perhaps the most confusing mark of punctuation is the comma. Students often feel uncertain about how to use it. They worry that they might place the comma in the wrong part of a sentence or accidentally leave it out when it is needed.
- By studying the **Six Golden Rules for Comma Usage**, you will gain confidence and competence in comma usage.

Six Golden Rules for Comma Usage

Rule 1: Place a comma before a coordinating conjunction that joins two independent clauses. (An independent clause is just a fancy way of saying "sentence.")

- Below is an acronym (or abbreviation) that lists the seven coordinating conjunctions that you can use to join independent clauses. This acronym will help you to remember the coordinating conjunctions.

Commas--continued

- **F**or
- **A**nd
- **N**or

- **B**ut
- **O**r
- **Y**et
- **S**o

Commas--continued

- Please study the following examples of Rule 1.
  - The new flat screen computer looks very sleek on my **desk, and it** causes less eye strain than my old computer.
  - The little boy joyfully clapped his **hands, for** his parents had bought him a Green Machine.

Commas--continued

- **Writing Tip:** No comma is needed before a coordinating conjunction that does not join two independent clauses.
  - The rain fell gently **outside and watered** the tulips in our backyard.
  - I ordered a foot-long **hot dog and chili cheese fries**.

Commas--continued

- **Rule 2: Place a comma after an introductory word, phrase, or clause.**
  - **After an Introductory Word:**
    - Basketball has become a very popular sport. **Indeed,** many Americans prefer it over football.
    - While frolicking outside on the sultry summer afternoon, the children felt uncomfortably hot. **Therefore,** their father turned on the sprinkler.

Commas--continued

- **After an Introductory Phrase: (Please note: A phrase is a group of words that usually contains a preposition and an object. To learn more about phrases, please click on the following link _____.)**
  - **After cooking dinner,** Amanda prepared dessert.
  - **In the old, majestic oak tree,** a family of cardinals nested for the summer.

Commas--continued

- **After an Introductory Clause (Please note: A clause is a group of words containing a subordinating conjunction, a subject, and a verb. To learn more about subordinating conjunctions, please click on the following link _____.)**

Commas--continued

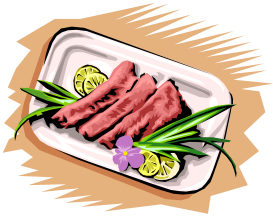
- **While Mr. Martinez mowed the lawn,** Mrs. Martinez trimmed the hedges.
- **After Aden flossed his teeth,** he brushed them with Ultra Glow tooth paste.

Commas

- **Rule 3: Use commas to separate three or more items in a series.**
- Please study the following examples of Rule 3.
  - The performer sang, danced, and acted before a live audience.
    - *Note: The comma before the last item in a series is optional, though often recommended.*

Commas--continued

– At the six-course meal, we devoured cocktail shrimp, cream of broccoli soup, buttered bread, tossed salad, veal Parmesan, and German chocolate cake.



Commas--continued

- **Rule 4: Place a comma both before and after an interrupter—that is, a word, phrase, or clause that interrupts a sentence's flow.**
- An interrupter offers information that is helpful, though not necessary, within a sentence. By placing commas around an interrupter, you will make your sentence more clear.

Commas--continued

- Please study the following examples of Rule 4.
- **Word Interrupters:**
  - Xavier enjoys watching horror films. His brother Raul**, however,** prefers romantic comedies.
  - Mosquitoes hover outside our front door every night. A rather large toad**, fortunately,** sits on the stoop, enjoying his evening meal.

Commas--continued

- **Phrase Interrupters:**
  - Kathy bakes her family's favorite dessert**, lemon pound cake,** every week.
  - Eminem**, according to many fans,** performs spectacularly well in concert.

Commas--continued

- **Clause Interrupters:**
  - Florida Community College**, which is located in Jacksonville, Florida,** is the fifth largest community college in the United States.
  - Bob Dowling**, who served as chairman of the board for many years,** recently retired.

Commas--continued

- **Rule 5: Use a comma to set off a direct quotation.** A direct quotation consists of a person's exact words.
- Please study the following examples of Rule 5.
  - **A comma may come before a quotation.**
    - A famous person once said, "Attitude is a little thing that makes a big difference."
  - **A comma may follow a quotation.**
    - "Attitude is a little thing that makes a big difference," a famous person once said.

Commas--continued

- **A comma may come both before and after a quotation.**
  - “Attitude is a little thing,” a famous person once said, “that makes a big difference.”

Commas--continued

- **Use commas for miscellaneous reasons, such as numbers, dates, addresses, and letters.**
- Please study the following examples of Rule 6.
  - **Use commas to set off numbers.**
    - The art student won **$1,000.00** in the tee-shirt design contest.
  - **Use commas for dates, particularly after days and years.**
    - Great Grandma Irene was born on **August 7, 1917,** at the height of World War I.

Commas--continued

- **Use commas to separate addresses from streets, cities from states, and states from the rest of the sentence.**
  - The family has resided at **1234 Starlit Trail, Los Angeles, California,** for several years.
- **Use a comma after the opening and closing lines of a personal letter.**
  - Dear Mr. and Mrs. Rothchild,
  - Sincerely,

Fill-the-Slot!

- Directions: It's your turn to practice what you have learned about commas! In this "click and drag" exercise, place a comma where needed.
  - The female sparrow perched on a branch of the willow tree and her mate soon joined her.
  - At the Chinese buffet Teron hungrily ate three spring rolls egg drop soup beef with broccoli and sweet and sour chicken.
  - The sports utility vehicle which is spacious and comfortable costs less than $20000.00.

Fill-the-Slot!--continued

- “A mind once stretched by a new idea” the quotation reads “never regains its original dimensions.”
- To my surprise the phone rang in the middle of the night.
- Our house has a wood frame. Our neighbors’ however has a metal frame.
- After a long day of work Sandra enjoyed a stroll along the beach.

(Provide feedback.)

Semicolons

- Another important mark of punctuation is the semicolon.
- The semicolon (;) is a combination of a period and a comma. You might think of the semicolon as the English equivalent of math’s equal sign.

Semicolons--continued

- The equal sign represents that both sides of a mathematical equation are equal in value. Similarly, the semicolon indicates that both sides of the sentence are equal in value, specifically in their length and importance.

; ⟹ =

Semicolons--continued

- Use the semicolon, then, to join two sentences that are equal in length and importance. Sentences that are equal in length contain approximately the same number of words, and sentences that are equal in importance discuss the same subject matter.

Semicolons--continued

- Beth lit the peony-scented candle in the kitchen**;** the aroma reminded her of her grandmother's flower garden.
- The appetizer tray contained a variety of vegetables; Victor's favorite was celery sticks dipped in cream cheese.

Semicolons--continued

- The semicolon can also be used with a transition to join two sentences.
- In this situation, you will have the following sentence pattern:

  - Sentence; transition, sentence.

Semicolons--continued

Writing Tip: Please note that when joining two sentences with a semicolon plus a transition, a comma follows the transition.

Semicolons--continued

- Some of the most commonly used transitions in college writing can be remembered with the following acronym (or abbreviation):

Semicolons--continued

- **C**onsequently
- **H**owever
- **I**ndeed
- **N**evertheless

- **F**urthermore
- **A**lso
- **T**herefore

- **T**hus
- **O**n the other hand

- **M**oreover
- **O**therwise
- **M**eanwhile

Semicolons--continued

- Please study the following uses of the semicolon.
- The silk dress went on a half-price sale**;** **therefore,** Ashley bought it.
- My computer is several years old**;** **however,** it still serves my needs well.

Fill-the-Slot!

- Directions: It's your turn to practice using semicolons. Please choose the appropriate mark of punctuation for the following sentences.

Fill-the-Slot!--continued

– The famous author appeared at a local bookstore for a book signing session _____ hundreds of loyal fans waited in line to purchase a signed copy of his latest book.
  - A. ,
  - B. ;
  - C. :
  - D. ’

Fill-the-Slot--continued

- Drag racing is one of the most well-attended sports in America _____ each year millions of people gather at races to watch their favorite drivers.
  - A. ”
  - B. --
  - C. ,
  - D. ;

Fill-the-Slot!--continued

- Gasoline costs nearly two dollars a gallon _____ many people are driving less often.
  - ; however,
  - ; furthermore,
  - ; consequently,
  - ; otherwise,

Apostrophes

- Yet another important mark of punctuation is the apostrophe. This small but important mark can cause a great deal of confusion. You may feel uncertain about when to use it and when to leave it out in a sentence. However, by studying the apostrophe, you will learn how to use it effectively in your writing.

Apostrophes--continued

- The apostrophe has two primary uses.
  - First, the apostrophe can be used to represent a contraction—that is, a letter or letters that have been omitted from a sentence.
  - Second, the apostrophe can be used to represent possession, or ownership, in a sentence.

Apostrophes for Contractions

- You are already very familiar with contractions, for if you are like most speakers of American English, you use them frequently in conversation.
- Below is an imaginary conversation between two friends. See if you can identify all the contractions in the conversation by clicking on them with your mouse.

Apostrophes--continued

- Provide feedback on the exercise.

Fill-the-Slot!

Hey, Susan. How's it going?

Hi, Denise. It's going great. How 'bout for you?

Everything's going pretty well. I've been on vacation for the past week.

Really? Where'd you go?

I went to Ashville with my fiance' who's still there.

Wow! You must've had an awesome time!

Apostrophes--continued

- In addition to using contractions in speech, you might use them in informal writing assignments, ones that involve story telling and dialog.
- **Please note: Contractions are generally not recommended in formal writing assignments such as research papers. In these situations, you should write out the complete word.**

Apostrophes--continued

- When you contract a word in your writing, place an apostrophe where the omitted letter or letters were.

Apostrophes for Contractions--continued

- Please study the following examples of apostrophe usage for contractions.
  - I am = I'm
  - you are = you're
  - she is = she's
  - is not = isn't
  - does not = doesn't
  - could have = could've

Apostrophes for Contractions--continued

- **Writing Tip:** One particular contraction that causes confusion is “it’s.” You might wonder why you sometimes see “it’s” spelled with the apostrophe and other times without it, as in “its.”
- The apostrophe in “it’s” indicates that you have omitted a letter or letters.

Apostrophes for Contractions--continued

- For example, you might omit the letter “i” in “it’s,” which becomes short for “it is.” Please study the example below.
  - It’s a perfectly windy for flying a kite.
  - In this sentence, “it’s” stands for “it is.”

Apostrophes for Contractions--continued

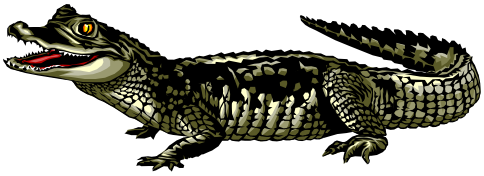
- By contrast, you should spell “its” without an apostrophe when you are showing possession or ownership in a sentence, as in the following example.
  - The weary kitten snuggled into its cozy bed.
  - In this sentence, “its” shows ownership over “bed.” The word “its” does not stand for “it is” or “it has”; therefore, no apostrophe is needed.

Fill-the-Slot!

- Now that you have reviewed guidelines for using apostrophes to represent contractions in your writing, you are ready to practice what you have learned. Please identify the contractions in the following passage and write out the word that they represent.

Fill-the-Slot--continued

- Eager to feed the ducks at a nearby pond, we didn't immediately notice the eight-foot alligator sunning itself on the shore.
- Suddenly, my five-year-old son Noah screamed, "There's a gator!"
- Awakened by the scream, the alligator opened its eyes.



Fill-the-Slot!--continued

- Because we weren't sure of the alligator's intentions, we looked at each other and said, "Let's go!"
- Holding my hand as we walked briskly backwards, Noah whispered, "I think he's really mean, Mama."
- "I'm afraid you're right, son," I replied.

Fill-the-Slot!--continued

- Sighing with relief as we returned home, we agreed we'd never been so frightened in our lives.
- Ever since that eventful day, we're keenly alert whenever we visit the duck pond.

Apostrophes for Possession

- In addition to representing a contraction, **apostrophes can also be used to show possession or ownership**.
- This use of the apostrophe can be very challenging, yet by studying the following guidelines, you will gain an understanding of the apostrophe for ownership.

Apostrophes for Possession

- Three key rules exist for apostrophes that show ownership.
- **Rule 1:** Place the apostrophe before the letter “s” if the word that shows ownership is singular. (Recall that the word “singular” means “one.”)

Apostrophes for Possession

- Please study the following table of singular words that show ownership.

Table of Singular Words Showing Ownership

Singular Word	Singular Word + Ownership
The child	The child's swing set
The museum	The museum's exhibit
The lady	The lady's hand shake
The sun	The sun's rays
The police officer	The police officer's badge

Apostrophes for Possession--continued

- As you can see from the preceding examples, you should place an apostrophe before the letter "s" at the end of a singular word that takes possession over another item.

Apostrophes--continued

- **Writing Tip:** The placement of the apostrophe is determined by the word that takes ownership over another item, not by the number of items owned.
- Please study the following examples:
  - The dentist's tool
  - The dentist's tools

Apostrophes for Possession--continued

Regardless of whether the dentist owns one tool or many, the apostrophe should still come before "s" because the dentist—that is, the term showing ownership—is singular.

Apostrophes for Possession--continued

- **Rule 2:** Place the apostrophe after the letter “s” if the term that shows ownership is plural. (Recall that the word “plural” means two or more items.)

Apostrophes for Possession

- Please study the following table of plural words that show ownership.

Table of Plural Words Showing Ownership

Plural Word	Plural Word + Ownership
The boys	The boys' swing set
The museums	The museums' patrons
The ladies	The ladies' locker room
The stars	The stars' location
The police officers	The police officers' badges

Apostrophes for Possession--continued

- Notice that the apostrophe follows the letter "s" in plural words that show ownership, regardless of whether the term they own is singular or plural.
- For example, the apostrophe follows the letter "s" before the plural word "boys" when "boys" owns a swing set: boys' swing set.

Apostrophes for Possession--continued

- Likewise, the apostrophe follows the plural word “ladies” when ladies own the singular term “locker room.”

Apostrophes for Possession--continued

- **Rule 3:** Place the apostrophe before the letter “s” in collective nouns—that is, singular nouns that represent many individuals.
- Please study the following list of collective nouns:
  - Men
  - Women
  - Children
  - People

Apostrophes for Possession--continued

- Notice that the apostrophe follows the letter “s” in plural words that show ownership, regardless of whether the term they own is singular or plural.
- For example, the apostrophe follows the letter “s” before the plural word “boys” when “boys” owns a swing set: boys’ swing set.

Apostrophes for Possession--continued

- Likewise, the apostrophe follows the plural word “ladies” when ladies own the singular term “locker room.”

Apostrophes for Possession--continued

- **Rule 3:** Place the apostrophe before the letter "s" in collective nouns—that is, singular nouns that represent many individuals.
- Please study the following list of collective nouns:
  - Men
  - Women
  - Children
  - People

Apostrophes for Possession--continued

- You can make collective nouns possessive by adding an apostrophe followed by the letter "s" to them. Please study the following examples:
  - The men's soccer team
  - The women's shoes
  - The children's Sunday school class
  - The people's senator

Apostrophes for Possession--continued

- **Writing Tip:** Try not to become "apostrophe-happy" in your writing. ☺ Keep in mind that only those words that show ownership require an apostrophe. Words that end in the letter "s" but that do not show ownership do not require an apostrophe.

Apostrophes for Possession

- Please study the following examples:
  - **Incorrect:** Seeing his girlfriend peer through the gym window, Justin flexed his muscles'.
  - **Correct:** Seeing his girlfriend peer through the gym window, Justin flexed his muscles.
  - Notice that because the word "muscles" does not show ownership over another item, no apostrophe is needed.

Fill-the-Slot!

- It's your turn to use apostrophes for possession. Please add apostrophes where needed in the following sentences.

Fill-the-Slot!--continued

- Glennas long red hair glistened in the morning sunlight.
- She dangled her legs over the edge of the sailboat as she applied her friends sunblock.
- Will, her boyfriend, asked if she had seen Pauls set of directions for sailing to Orange Park, Florida.

Fill-the-Slot!--continued

- Glenna replied, “No. I haven’t.”
- Will asked, “Will you look in Grandmas picnic basket to see if maybe I misplaced them there?”
- “Sure,” Glenna said. Opening the picnic basket, she discovered a small, well-worn box with the label Goldings on the outside.
- Gasping, she asked, “What is this, Will?”
- “Open it,” he responded.

Fill-the-Slot!--continued

- Upon doing so, Glenna discovered a diamond engagement ring.
- “It’s my grandmothers engagement ring,” Will explained. “Granddad gave it to her in 1945, and their marriage lasted over fifty years. I thought we might try something like that too.”
- Positively exuberant, Glenna leapt into Wills arms and proclaimed, “Let’s do!”

Fill-the-Slot!--continued

- Provide feedback to students.

Appendix D3
English Unit Excerpts
Behaviorism and Constructivist Learning Principles

Online Course Development Project, Phase 5 ENC 0021 6.09.04
updated

PARTS OF SPEECH, the Verb

HOW TO SPOT:

I. The Verb is the pulse of the sentence: It is the part of speech that expresses action or state of being.

Beating heart graphic!

VERBS fit into 3 categories:

Physical action – *pushing, driving*
Mental action – *thinking, dreaming*
State of being - *feel, seem, appear*

TIP: *Can you _____? If the word sounds fine in this sentence, it is probably a verb.* Example: Can you eat?

There are 6 verbs below in the list below. Highlight each verb:

____	hope	____	believe
____	steer	____	handsome
____	window	____	agree
____	feel	____	receive
____	hypnotist	____	easily

II. Action Verbs: An action verb tell what a subject does.

Examples: 1. The tray ***fell*** out of my hands as I was moving toward the table.
2. Roberto ***sings*** tenor in the college chorale.

Fill the Slot with an appropriate action or state of being verb:

1. Lightning often _____ people on golf courses or in boats.

2. Thunder _____ a flash of lightning due to a sudden expansion of air.

3. Rainbows sometimes _____ in the sky after a thunderstorm.

III. LINKING Verbs: If a verb expresses a state of being (is, are, was, were) rather than action, it is called a *linking verb.*

A Linking Verb connects a noun or a pronoun with a word or word group that describes or renames the subject.

Common Linking Verbs

"To be" family	**"Sense" verbs**	**Other linking verbs**
am, are	Feel	appear
is, are, was	Look	become
were	Smell	grow
	sound, taste	remain, seem

Examples: 1. Carlos' car *is* red with black upholstery.
2. The roast turkey *smells* delectable.
3. Gates changes *appear* on the monitor as we exit the plane.

Fill the slot with an appropriate state-of-being verb from the chart above:

1. My grandfather _____ an immigrant from Bosnia.
2. It ____ time for my English class to begin.
3. Many people think salsa music _____ upbeat and energetic.
4. Pets often _____ emotionally attached to their owners.
5. Velvet _____ soft to the touch.

IV. Helping Verbs: Helping (Auxiliary) verbs come before the main verb. They are used in two ways. They can suggest time of action **or** other differences in meaning.

Examples: I will skate.

You had voted.

Emily did not ride with us.

They were surprised at the outcome.

The judges might have been selected randomly.

Common Helping Verbs

am, is, are, was, were, been	can, could
do, does, did	may, might, must, ought
has, have, had	shall, should, will, would

Another level ***Memorize these!***

Some verbs can be either **helping** or **main verbs.** Look at these sentences carefully:

1. Chris *has* a new computer. (*Has* is the main verb in the sentence.)

2. He *has used* it for email and word processing. (*Has* in this sentence is a helping verb; the main verb is *used.)*

3. He *has* never *used* it for email and word processing. (*Has* is separated from the main verb *used* by the adverb *never.*)

A Summary: TIPS for Identifying Action / Linking Verbs / Helping Verbs: (Maybe this these blurbs should go with the prior explanation.)

Action Verbs

FILL THE SLOT: Try the verb in this sentence:
"I (or he/She or they) often _____."

If the word fits, it is probably an action verb.

Examples:
1. I often *sing.*
2. He often *golfs.*
3. We often *study.*

Linking Verbs

FILL THE SLOT: Try the verb in this sentence:
"I (or He/She or They) _____ calm."

If the word fits, it is probably a linking verb.

Examples:
1. I *am* calm.
2. She *seems* calm.
3. They *were* calm.

Helping Verbs

Some verbs consist of more than one word. A verb that precedes a main verb is called a helping verb.
Examples:

1. The American Red Cross *has responded* to the earthquake victims. Here *responded* is the main verb; *has* is the helping verb.

2. Dan *will have driven* one thousand miles by the time he reaches Orlando. Here *driven* is the main verb; *will have* are the helping verbs.
3. *Are* Tanya and Rosa *opening* a sandwich shop? Here *opening* is the main verb; *are* is the helping verb.

FILL THE SLOT:

Exercise: If the italicized verb in each sentence is an action verb, write **A** in the space provided. If the italicized word is a linking verb, write **L** in the space. If the italicized verb is a helping verb, write **H** in the space. ***Fill the slot!***

____ 1. Researchers *have* studied about the connection between physical beauty and happiness.

____ 2. Happy people *focus* on the positive in their circumstances.

____ 3. They *feel* an overall sense of satisfaction with their lives.

____ 4. Some people *have* natural tendencies to worry and brood.

____ 5. Happiness *is* not linked to acquiring possessions.

____ 6. Studies *have* shown that it is human nature to adjust our expectations according to our circumstances.

____ 7. Self-esteem *is* one ingredient of happiness that is more tightly linked to how we see ourselves than to how others see us.

____ 8. Happy people *resist* the more-is-better attitude and are grateful for what they have.

____ 9. People usually *judge* integrity and concern for other by criteria other than facial features.

___10. In summary, beauty and possessions *are* not a sure road to happiness.

Source: Survival of the Prettiest by Nancy Etcoff [Other sentences can be inserted if these are not generic enough OR require permission to use.]

PARTS OF SPEECH, the Noun

HOW TO SPOT:

I. The Noun is the . **?** . of a sentence. A noun names something---- a person, place, thing, or idea

- person: Simon Bolivar / Winston Churchill
- place: California
- thing: cellphone
- idea: justice

Nouns can be used as subject and objects in sentences:

The **technician** provided **assistance** with his **computer** in the **lab.**

Common Nouns	**Proper Nouns**
Refers to a general class of persons, places, things	Refers to specific persons Places or things, always capitalized
athlete	*Tiger Woods*
town	*Greenville*
car	*Lexus*

FILL THE SLOT!

<u>If the word makes sense in the following sentence, it is a NOUN:</u>

"A (or "An) _____is outstanding."
(noticeable)

Examples: A scholar is _____.
An eagle is _____.
A dream is _____.

Noun section: Should I add singular / plural + "signal words like a, an, etc. as shown in Evergreen, 407?

<u>PARTS OF SPEECH, the Pronoun</u>

II. PRONOUNS: *Pronouns* are special words that replace nouns. Nouns are essential in a sentence. However, to avoid repetition, writers can use other words in place of nouns. The words that substitute for nouns are called *Pronouns*.

After Jason assessed Jason's budget, Jason decided that a new car was out of Jason's budget.

(This sentence sounds awkward because of its overuse of the word *Jason.* Writers can improve it by substituting a pronoun like *he.)*

<u>Revision</u>: After Jason assessed *his* budget, *he* decided that a new car was out of *his* budget.

Some Common Pronouns

Singular	Plural
I, me, my, mine	We, us, our, ours
you, your, yours	they, them, their, theirs

he, him, his	these, those
each, either, none, neither	both, few, several, many, most

Can be Singular or Plural depending on use in context
All, this, that, which, who, whose,

You may want to print this chart, so that you can refer to it as you do the exercises on pronouns which follow.

Pronouns having the following endings are considered singular, even though the idea implied may seem plural:

-one anyone, someone, everyone

-body anybody, somebody, everybody

-thing anything, something, everything

FILL THE SLOT:

Anyone (is, are) included in the invitation.
Few (is, are) chosen.
Everything (is, are) coming up roses.

PRONOUNS

Type in the nouns or noun phrases to which the highlighted pronouns refer. These nouns or noun phrases are called **antecedents** because they precede the pronouns to which they refer.

Example: **Gardener** Dr. Howard Gardner suggests there is more than one way to measure intelligence. He defines his belief in the Theory of Multiple Intelligences.

__(humans)_ 1.According to him, humans have many ways of expressing their knowledge and skills.

_____ 2.One of his seven categories of intelligence is linguistic intelligence, which is the ability to use language skillfully.

_____ 3. Logical/mathematical intelligence, as its name implies, includes the ability to use numbers and to reason logically.

_____4. People who have spatial intelligence can form a mental model of objects in space and can maneuver these objects that that model.

_____ 5. Musical intelligence is the fourth category of ability that Gardner and his colleagues have identified.

_____ 6. Dancers, athletes, and surgeons all have highly developed bodily-kinesthetic intelligence.

_____ 7. Interpersonal intelligence is the ability to understand other people: how they work and how to work cooperatively with them.

_____ 8. A person who has intrapersonal intelligence has a capacity to form an accurate view of himself or herself and to be able to function effectively in life.

_____9. A college student can develop many areas of his/her intellect.

_____10. Gardner believes that the purpose of education should be to help people reach vocational and personal goals based on their special types of intelligences.

[Another Layer?]

Special Uses of pronouns

As a writer, you may want to avoid expressions like *his/her*, *him/her*, and *himself/herself*. Although they are grammatically correct, they often sound awkward and wordy, especially if over-used.

Correct but clumsy

If *anyone* wants help with the assignment, *he/she* can contact the professor online.

Improved

***Anyone who* wants help with the assignment can contact the professor online.**

Correct but clumsy

If anyone asks, tell him/her that I'll call back later.

Improved ***Now you try it:***

Tell anyone who asks _____.

Probably the best way to avoid these expressions is to make the words PLURAL:

Correct but Clumsy

***Each* band member was in *his/her* proper place as the parade began.**

Improved

All **band members were in** ***their*** **proper places as the parade began.**

Correct but Clumsy

Everyone **has** ***his/her*** **own unique personality.**

Improved **Now your try it:**

All **_____.**

PARTS OF SPEECH, the Adjective

HOW TO SPOT:

I. Adjectives describes nouns or pronouns. As a writer, you may wish to add detail to your basic sentence. Adjectives add such detail. They also usually answer one of the following questions:

HOW MANY? Patrick has three dogs, two cats, and one parrot.

WHAT KIND? Sarah prefers pepperoni pizza.

WHICH ONE? His backpack was plaid.

WHAT COLOR? Green socks complement Gloria's ensemble.

Adjectives in the sentences above occur immediately before the nouns they describe. Some adjectives come after linking verbs. Adjectives, which follow verbs, are called predicate adjectives. Examples:

1. We are happy that tuition in a community college *is* inexpensive. (*Inexpensive* is a predicate adjective because it comes after the linking verb *is* and modifies the noun *tuition.*

2. After taking a beginning computer course, the students *feel* confident about word processing.
   (*Confident* is a predicate adjective because it comes after the linking verb *feel* and modifies the noun *students.)*

Pronouns as Adjectives: special uses of possessive pronouns and demonstrative pronouns (Refer to previous section on pronouns.) Another level?

II. **Possessive pronouns**

These pronouns used as adjectives show ownership (possession) when they precede nouns:

my	his	our
your	her	their

Examples: my rollerblades her wallet our street

III. **Demonstrative pronouns** (Refer to previous section on pronouns.)

These pronouns used as adjectives point out (or indicate) when they precede nouns: this, that, these, those

Examples: this apartment that job these roses those surveyors

FILL THE SLOT with an appropriate adjective

Adjectives describe nouns and pronouns:
Examples: 1. _____ schedule

2. _____ horse

Adjectives answer the question:
How many? _____ dollars

Which one? _____ cat

What kind? _____ ice cream

In the space before each sentence, write the adjective that modifies the highlighted noun or pronoun:

Maybe can't use these because of copyright issues.
Another group of exercises follows in green.

Example:
_attractive__ Babies like to look at attractive *faces*.

_____ 1. They like to touch soft *surfaces* rather than

_____ 2. rough *ones*.

_____ 3. Soon after birth, babies' eyes follow a simple *drawing* of a face.

_____ 4. Differences in facial *features* are as unique as fingerprints.

_____ 5. Masking the eyes has proved to be an effective disguise.

_____ 6. Human eyes retain white *sclera* all of their lives.
_____ 7. The whites of the eyes help one detect where other people are looking.
_____ 8. Baby's *eyes* are almost adult size at birth.

_____ 9. Huge eyes and small *hands* elicit usually

_____10. tender *feelings* from the parents.

In the space before each sentence, write the adjective that modifies the highlighted noun or pronoun:

_____ 1. The idea for the invention of Velcro came to a Swiss *inventor* when he decided to take his dog for a hike.

_____ 2. George de Mestral, the inventor, and his dog returned home covered with burrs, seed-sacks that cling his *clothing* and his dog's fur.

_____ 3. Under his microscope, the inventor saw the small hooks that enabled the burr to cling so viciously to the tiny *loops* in the fabric of his slacks.

_____4. At that moment, he was inspired to design a two-sided fastener, one side with stiff hooks like burrs

_____ 5. and the other side with soft *loops* like the fabric of his pants.

_____ 6. His invention has a unique *name*: a combination of the words "velour" and "crochet."

_____ 7. Together with a French *weaver*, Mestral perfected his hook and loop fastener.

_____ 8. He realized that nylon when sewn under infrared *light* formed tough hooks for the burr side of the

_____ 9. Soon he formed Velcro Industries to manufacture his amazing invention.

_____*10.* This invention had its *origin* in Mother Nature.

A final word on adjectives: **ANOTHER LAYER?**

<u>Use the following rules to forms degrees of adjectives</u>:

1. Adjectives of one syllable: Add –er, -est to adjectives of one syllable tall

taller (comparing 2 heights)

Patrick is taller than Curtis.

tallest (comparing 3 or more heights)

Patrick is the tallest boy on the basketball court.

2. Adjectives of more than one syllable: Use the words *more* or *most:* curious

more curious (comparing 2 attitudes)

Dolly is more curious than Arthur.

most curious (comparing 3 or more attitudes)

Jorge is the most curious student of all.

FILL THE SLOT!

"Large" is a (big) _____size than "medium."

"Extra large" is the (big) _____size of all.

Jill's success story is the (remarkable) _____
_____ story I have ever heard.

[sentence combining]

<u>More Practice with Adjectives</u>: ***Combine each of the following sets of sentences to create one sentence that uses adjectives to describe the nouns in the sentence. Another layer?***

His story is told in a manuscript.
The manuscript is brittle.
The manuscript is Arabic.

Response: His story is told in/on a brittle, Arabic manuscript.

More practice using sentence combining. Type the combined sentence into the _____.

1. Kickboxing is a sport.
   Kickboxing is often used as an exercise.
   This exercise is aerobic.

Kickboxing is a sport that is often used as an aerobic exercise.

3. Kickboxing develops reflexes, muscles and aerates organs.
   These reflexes are quick.
   The muscles are toned.

The organs are internal.

Kickboxing develops quick reflexes, toned muscles, and aerates the internal organs.

3. Kickboxing is often combined with other sports.
These other sports are like boxing.
This type of boxing is shadow boxing.
Kickboxing is also combined with weight lifting.
Kickboxing is combined with other martial arts.
These sports develop stamina.

Kickboxing is often combined with shadow boxing, weight lifting and other martial arts to develop stamina.

PARTS OF SPEECH, the Adverb

HOW TO SPOT

I. The Adverb, like the Adjective, adds detail to a sentence.
Adverbs modify the meaning of verbs, adjectives, and other adverbs.

II. Adverbs answer the questions: When? Where? How? To what extent?

Our guide *explained* the causes of the volcanic eruption in Pompeii *accurately*.
The adverb *accurately* describes the verb *explained*. *The adverb answers the question HOW.*

***Yesterday* we left Pompeii for Rome and arrived *there* by train.**

The adverb *yesterday* describes the verb *left* and answers the question WHEN.

The adverb *there* describes the verb *arrived* and answers the questions WHERE.

The *extremely* knowledgeable guide told us about the Coliseum in Rome.

The adverb *extremely* describes the adjective *knowledgeable. This adverb answers the question TO WHAT EXTENT.*

We moved on *very quickly* to toss coins in the Trevi Fountain.

The adverb *very* modifies the adverb *quickly*. This adverb answers

Practice with Adverbs: Combine each of the following sets of sentences to create one sentence that uses adverbs or adverb phrases to modify other words in the sentence.

1. Vermeer pursued still-life painting.
   His pursuit was diligent.
   His painting took place in Delft, Holland.
   It occurred during the Seventeenth Century.

2. Vermeer arranged items and figures for his paintings.
   He did so with care.
   He was precise.
   He did so in his studio.

3. The artist used the *camera obscura.*
   It was given his Vermeer's friend.
   His friend was the inventor Leeuwenhoek.
   It was used often.
   It was used to capture images for his still-lifes.

4. *The Young Woman with a Water Jug* is a famous painting.
   The painting is by Vermeer.
   It uses rich colors.
   It uses slanted light.
   It is on display in the Metropolitan Museum of Art in New York.

5. Artists today can use short-cuts to pursue their art.
   They can use ready-made pigments.
   They can even use the computer.
   They can produce images.
   These images can be produced in a digital way.

A Word to the Wise: The ***– ly*** ending ANOTHER LAYER?

Adverbs often have ***–ly*** endings (extremely, swiftly, accurately), but many have no special suffix.

Examples	soon	later
	often	never
	then	very

On the other hand, some words that end in –ly are NOT adverbs.

Examples	friendly
	lovely
	silly

Another Layer ***ADJECTIVES AND ADVERBS CAN BE CONFUSED:***

TIPS FOR RECOGNIZING ADVERBS:

Adverbs fill the following slot: They will meet us _____.

Adverbs answer the question How? When? Where? To what Extent?

Justin reads the newspaper daily. [Here "daily" is an adverb modifying the verb *reads*.]

FILL THE SLOT WITH WORD FROM THE FOLLOWING MENU:

there diligently totally immediately

1. Jake worked _____ to graduate in three years.

2. Turn your work in _____ for full credit.

3. See the butterfly _____ by the fence.

4. The library was _____ demolished to make room for new construction.

Another exercise on adverbs????

Maybe use a SPORTS (martial arts?) theme

PARTS OF SPEECH, the Preposition

HOW TO SPOT:

I. I. Prepositions shows position in TIME and SPACE. They are followed by nouns to form prepositional phrases.

Examples: Passengers on board gathered *below the deck* for the show.

Below (preposition) + **deck** (noun) = prepositional phrase

The DNA test results came back *within the hour.*

Within (preposition) + **hour** (noun) = prepositional phrase

Prepositions are connectors; they do not have meaning by themselves. Why do they exist? Well, they show relationships between other words.

Mnemonic Memo: *Think of a squirrel in relationship to an oak tree:*

(SQUIRREL The squirrel scampers around the tree . . . up the tree . . . . down tree . . .beside the tree . . . toward the tree
OAK Graphic)

OR *Think of a jet plan in relationship to a cloud:*

(PLANE + The plane flies into the cloud . . . through the cloud . . . over the cloud . . . under the cloud . . . between + two
clouds)

II. FILL THE SLOT:

1. The scar disappeared _____ **a trace**.

2. I check my email messages _____ **the week.**

3. _____ **the intermission,** we bought popcorn.

4. The policeman spoke _____ **emotion** as he named the survivors.

5. The address _____ **the marina** was easy to find.

Here is a list of the most common prepositions:

about	concerning	out
above	despite	out of
according to	down	outside
across	due to	over
after	during	past
against	except	regarding
along	for	since
among	from	through
around	in front of	together with
away from	inside	toward
before	into	under
behind	like	underneath
below	near	until
beneath	next to	up
besides	of	upon
between	off	with
beyond	on	within
by	onto	without

II. FILL THE SLOT: Highlight the prepositional phrases in the sentences below.

1. Jason drew a picture on the steamy window pane.

2. Before kickoff, the band performed in the center of the field.

3. My keys fell behind the seat and onto the floor.

4. Secrets between friends are kept for a very long time.

5. Along the shoreline, we found shells of all sizes and shapes.

Distinguishing Subjects from Prepositional Phrases **(Another layer?)**

Nouns are used in prepositional phrases, but nouns in such phrases never function as the subject of a sentence. In other words, the subject of a sentence is never in a prepositional phrase.

HINT: If a look for a prepositional phrase before you try to identify the subject of a sentence, you will not confuse the noun in a prepositional phrase with the noun used as the subject of a sentence.

The chief <u>of police</u> was honored <u>at a banquet</u> yesterday.

SPOT THE PHRASE Delete the prepositional phrases from the following sentence and then select the subject of the sentence. Highlight the subject of the sentence.

1. Before class, Jennifer and I often meet for lunch.

2. Three of the talent scholars play the drums.

3. Planes for Atlanta leave five times daily from concourse B.

4. In one corner of the family room, our retriever lay quietly sleeping.

5. The paints on the palette include vermilion and chrome yellow.

<u>PARTS OF SPEECH, the Conjunction</u>

HOW TO SPOT:

Metaphor of bridge/chain/_____ **Conjunctions connect in two ways:**

We ate lunch and went shopping while my new glasses were being made.

AND is a conjunction that links "ate lunch" and "went shopping."

***AND* is one of 7 coordinating conjunctions that join words or clauses. They form the acronym**

But
Or
Yet

For
And
Nor
So

WHILE is a conjunction that begins the dependent clause "my new glasses were being made."

***WHILE* is one of numerous subordinating conjunctions that join word groups (dependent clauses) attached to a main clause. They form the invented word WABISU**

When, while, who
After, although
Because
If
Since, so that
Unless, until

1. **<u>Coordinating Conjunctions</u> (Think of the acronym BOYFANS) join single words or equal groups of words**

A. Carlos speaks English and Spanish fluently. (AND links 2 languages)

B. You should talk to your advisor, or you may take the wrong courses. (OR links 2 independent clauses)

(See coordination unit for more practice.)

2. **Subordinating Conjunctions** **(Think of the acronym WABISU) join unequal word groups** **Queen Elizabeth? King?**

A. When former President Reagan died, flags were flown at half- mast.

B. Because of his place in American history, many viewed his death as a chance to celebrate his life.

EXPLODE THE MYTH!

SENTENCES should never begin with the word *because!*
Some college writer have heard this statement.

It is not always true.

You can begin a sentence with the word *because* if you follow it with a main (independent) clause

INCORRECT:

A. Because of his place in American history. Many viewed his death as a chance to celebrate his life. **The period after the word *history* creates a sentence fragment.**

CORRECT:

B. Because of his place in American history, many viewed his death as a chance to celebrate his life.

(See SUBORDINATION for more practice with subordination conjunctions.)

HOW TO SPOT:

Interjections interrupt a sentence to show surprise or other strong emotions and are used sparingly in standard written English.

Mild injections are followed by a comma:

Yes, I agree with you.

Oh, I guess so.

Well, let's find another solution.

Strong injections require an exclamation mark:

Fire!

Wow! I finally understand commas!

Hey! Look what I found on eBay!

FILL THE SLOT:

Use an appropriate interjection to complete the sentences below. Include additional punctuation if necessary:

1. _____, I don't agree with you.

2. _____ I'm over here!

3. _____ That hurts!

4. _____, let's see about that.

5. _____ I won a Caribbean cruise!

COORDINATION AND SUBORDINATION – Way to connect ideas

BRIDGE
Like a bridge connecting two streets, conjunctions join words or word groups.

(Works well with compound and complex sentences!)

Writers need to keep their readers engaged. For this reason, they must write sentences with ***BUZZ*** ***(Bee!)***

Subordination and Coordination *helps writers hook the interest of their readers. There are several options for doing this.*

COORDINATION

I. OPTION 1: Use a comma + a coordination conjunction

Writers can combine 2 simple sentences with a comma + a coordinating conjunction

Memorize these 7 coordination conjunctions which spell the acronym B O Y F A N S POP-UP!

But ***shows contrast***	**For** ***shows cause; because***
Or ***shows choice***	**And** ***shows addition***
Yet ***also shows choice***	**Nor** ***shows negative choice***
	So ***shows a result, an effect***

Use scale of justice <u>or</u> see saw to illustrate:

Paul spilled coffee on his slacks,_____ he cancelled the job interview.

Fill the slot with one of the seven words above! <u>Notice that a comma precedes the use of the conjunction.</u>

1. **Your may have a chocolate sundae now, ____ enjoy a blueberry shake later.**
2. **I thought I lost my wallet, _____ I really just mislaid it.**
3. **The humpback whale is an endangered species, _____ the American bald eagle is also threatened.**
4. **The bank teller did not know the status of my account, ____ did the loan officer have any information.**
5. **Scott stopped smoking, _____ he got lower insurance rates.**
6. **Celia won the lottery, _____ she continued her education.**
7. **Tom went to the grocery store, ____ he needed to buy milk.**

Another layer?

II. Wait a Minute! Are all coordinating conjunctions (BOY FANS words) used with a comma? The answer is "It all depends!"

Coordinating conjunctions can join single words. <u>Then no comma is used</u>:

Examples:

A. Sam repaired his VW Beetle and drove to Orlando.
The verbs "repaired and "drove" are joined by AND. Use no comma.

B. Do you prefer Chinese or Italian food? The adjectives "Chinese" and "Italian" are joined by OR. Use no comma.

Examples:

Coordinating conjunctions can join two clauses. Use a comma.

A. Sam repaired his VW Beetle, and he drove to Orlando.
The two clauses are joined by AND. Comma required because adding "he" makes a difference (Subject+verb).

B. Do you prefer Chinese food, or do you prefer Italian food?
The two clauses are joined by OR. Comma required because adding "do you prefer" creates a clause.

FILL THE SLOT: Type in a coordinate conjunction (BOY FANS word) below; insert a comma before the conjunction only if needed.

1. **Heather saved her money _____ bought a new car.**

2. **Heather saved her money _____ she bought a new car.**

3. **Whitney and Clare can meet us for lunch today _____ come to our house for dinner tomorrow.**

4. Whitney and Clare can meet us for lunch today_____ they can come to our house for dinner tomorrow.

III. Some Conjunctions are used in pairs. These are called correlative conjunctions: (Another layer?)

Either . . . or **both . . . and**
Neither . . nor **not only . . . but also**

Identify the coordinate elements in each of the following sentences. Highlight the coordinating signal and underline the 2 coordinating ideas being linked by the coordinating conjunction (signal):

(See C. P. / Agee pp 147, 148)

IV. Option 2: USE A SEMICOLON

You can join two independent clauses by placing a semicolon between them. The semicolon takes the place of a conjunction and joins the two sentences.

1. **Ted hopes to join the Honor Society this semester; his membership depends on his maintaining a 3.3 grade point average. The semicolon replaces the period. Notice that the first word after the semicolon is not capitalized!**

FILL THE SLOT with a semicolon:

2. **Simone is a defensive driver she has never had an accident.**

More Practice:

Combine each pair of clauses by placing a semicolon between them:

1. Yoga is a mental discipline it is also a physical discipline.

2. Every morning Heidi gets out her mat then she does simple, yoga poses.

3. One of Heidi's favorite poses is *proud warrior* in this pose the arms and legs are both extended to form a deep lunge.

3. During yoga exercise, the muscles of the body are stretched the mind focuses on being "in the moment."

4. Yoga is designed for all ages people of all levels of fitness can participate.

V. Option 3: Use a conjunctive adverb (linking adverb) to clarify the relationship between two clauses.

Some writers refer to these words as ***fancy words*** because they are sometimes rather formal words of 3 or more syllable or phrases:

Examples: **C**onsequently (as a result)

However (shows contrast)

In fact; in addition; indeed (shows emphasis)

Nevertheless (shows one thing is true in spite of something else)

Therefore (as a result)

Otherwise (shows _____)

On the other hand (shows opposing viewpoints)

Furthermore (indicates additional information)

As a result (self-explanatory)

Then (tells *when*)

Notice that these words form the acronym **CHIN TOO FAT**

Example: Joel studied photography in college**;** **consequently,** he is able to produce digital images.

Notice that the conjunctive adverbs is preceded by a semicolon and followed by a comma.

More Practice: Add the punctuation:

1. **Acquiring a degree requires much time and patience however most agree it is worth the effort.**

2. **Crystal decided to pursue a degree in respiratory therapy therefore she had to register for courses like anatomy and physiology.**

3. **Crystal had to make several personal sacrifices in fact even her family members had to make some adjustments.**

4. **Courses online and in a traditional setting took up much of her time nevertheless she still found time for a social life.**

5. A senior now, Crystal has only three courses to take consequently she will graduate in May.

More Practice

FILL THE SLOT:

Combine each pair of independent clauses by placing a semicolon and a linking (conjunctive) adverb between them. ***Answer may vary.***

1. **Coral reefs are very colorful and full of life__in fact_____ they look like underwater gardens.**

2. **Coral is built by tiny animals called polyps, which appear defenseless __ however_____each polyp builds a chalky, cup-shaped shelter to protect its soft body.**

3. **The names of coral are often derived from their appearance__therefore_____ a rose coral is shaped like a rose.**

4. **Some coral is grayish and has an undulating texture like a human brain __as a result_____ it is called a *brain coral.***

5. **Small fish escape from their predators by hiding in coral reefs __otherwise_____ they would be consumed by larger fish.**

6. **Sea horses twist their tails around a coral to anchor themselves __furthermore_____ like a chameleon they can change color to match their surroundings.**

7. **The lettuce leaf, a frilly slug related to the garden snail, looks like real lettuce __on the other hand_____ their skin produces a slime that tastes revolting.**

8. **Angelfish have very slim, vividly colored bodies _consequently_____ they can dart swiftly in and out of gaps in the coral.**

SUBORDINATION

I. **Subordination**, like coordination, joins groups of words. However, unlike coordinating conjunction, **subordinating conjunctions** join unequal word groups:

Because he earned an A average,

Justin made the Dean's List this term.

EXPLODE THE MYTH: Sentences cannot begin with "because"!

Subordinate conjunctions (signals), like those in the box below, introduce one idea that is related, but less important than the other:

after	than
although	that
as, as if	though
as though	unless, until
because	what, whatever
before	when, whenever
how	where,wherever
if	while
in order that	who, whose, whosever
once	whom
since	
so that	

Sample list, using the acronym **W A B I S U**:
Some writers remember these conjunctions using this acronym:

When**, w**here**, w**hile**, w**ho
After, **a**lthough
Because
If
Since, **s**o that
Unless, **u**ntil

(I'm okay with using BE WISE AT WAR instead!) **Some writers remember commonly used subordinate conjunctions with the following acronym:**

B	Because, before
E	Even though
W	When, whenever, where, wherever
I	If
S	Since
E	_____
A	After, as, as if, as though
T	Than, though
W	While, who, whereas

FILL THE SLOT: **(Use one of the words in the box above to complete the sentence):**

1. **After I spilled coffee on my slacks, I decided to cancel the appointment for my job interview.**

2. **Although I spilled coffee on my slacks, I decided to keep my appointment for the job interview.**

3. **Because I check my online course regularly, I am able to keep up with class work.**

4. **I am able to keep up with class work because I check my online course regularly.**

5. **Unless give my retriever lots of attention, I will not have a happy pet.**

6. **I will not have a happy pet unless I give my retriever lots of attention.**

More Practice

FILL THE SLOT:

Highlight the subordinate clauses in the sentences which follow. Supply the appropriate punctuation. Remember, when a dependent clause begins in the middle of a sentence, no comma is needed!

What about sub. signals occurring the mid-sentence? N O C O M M A

Comma Alert!!! Many college writers make the mistake of placing a comma after an independent clause and before a

dependent one. You can avoid this error by remembering that a comma goes after a dependent clauses, not before one.

1. **Before we studied marine biology, we had no idea that life in a seabed included sponges, starfish, sea cucumbers and sea slugs.**

2. **Although sponges attach themselves to the seabed, they find food by capturing plankton.**

3. **Sponges can grow so large that a person could even take a bath in one!**

4. **After the arm of a brittle star is broken, it has the capacity to regenerate a new one.**

5. **When starfish eat mussels and clams, they use the suckers on their feet to pull the shells apart.**

6. **Some seabed creatures are called sea cucumbers because they are horn-shaped like a cucumber.**

7. **These creatures crawl along the seabed at a snail's pace as they suck in food that sticks to their slimy tentacles.**

8. **While the Sea slug looks attractive with its vivid purple body and orange fringe it is actually poisonous to its predators.**

Explosion!

PRONOUN CASE

Explode the myth: You may have heard that writers should choose **I** instead of **me** when selecting the proper case of a pronoun in a sentence.

This is *not* always to. Choice of correct pronoun often depends on its ***CASE,*** a word which refers to the function or use of a pronoun in a sentence.

Pronouns have forms that show number (Is it singular? Is it plural?) They also have forms that show ***CASE***.

Singular

Subjective Case	**Objective Case**	**Possessive Case**
1 I	Me	My, mine
2 you	You	Your, yours
3 he, she, it	him, her, it	his, her,hers, its

Plural

Subjective Case	**Objective Case**	***Possessive Case***
1 we	Us	Our (ours)
2 you	You	Your (yours)
3 they	Them	Their (theirs)

RULES FOR CHOOSING CORECT CASE OF PRONOUNS:
How to Spot

When a pronoun is used as subject, use subjective case.

1. **She** checked **her** cellphone for messages.
2. When Heather called back, **she** was pleased.

When a pronoun is used as object, use objective case.

1. The good news thrilled **me.**
2. The agent gave **him** a free ticket.
3. Maria's dog always rides with **her.**

When a pronoun shows ownership, use possessive case.

1. Receiving praise boosts **our** mood.
2. The restaurant changed **its** menu.

SPECIAL PROBLEMS OF PRONOUN CASE:

HOW TO SPOT

I. Case in Compound Constructions: A compound construction consists of two nouns, two pronouns, or a noun + a pronoun joined by *and.*

Examples: Ross and (I, me) go to the gym on Fridays. [I]

The secret stays between you and (I, me).[me]

II. How to choose Case in Compound Constructions:

INSERT: **IMAGE OF THUMB / EAR**

To determine case in compound constructions, use your **THUMB** to ignore the first part of the compound form temporarily. Your **EAR** will tell you which form sounds better.

Example:

FILL THE SLOT:

Highlight the correct form of the pronouns below. Use the trick of leaving out the extra name.

1. (He, Him) and Todd plan to enroll in architectural school.

2. **Ricardo installed the software and then showed Cliff and (I, me) how to use it.**

3. **Between you and (I, me), I have always preferred pop/rock music.**

4. **The physician and (I, me) have a plan for my treatment.**

5. **These charts help Kirsten and (he, him) with their chemistry homework.**

6. **The professor gave (we, us) students certificates to frame.**

HOW TO SPOT:

III. Case in Comparisons: Pronouns that complete a comparison may be:

Subjective: Her daughter is as talented as (she, her) *is.* Read: . . . she is *talented.*

Objective: The new benefits plan will affect you more than (he, him).

Read: . . . . will affect you more than *it will affect* **him.**

Possessive: This paragraph is more coherent than (mine). Read: . . . than mine is coherent

* * * **How to Choose Case in Comparisons:**

- **Complete the comparison mentally.**
- **Choose the pronoun that naturally follows.**

FILL THE SLOT: Highlight the correct pronoun in the sentences below:

1. Your hair is much darker than (she, hers).

2. We tend to assume that others are more self-confident than (we, us).

3. I usually enjoy trips to the mountains more than (he, him).

4. Heather may not dance as much as (I, me), but she still has rhythm.

5. Bill's airline itinerary involved more stops than (us, ours).

V. Case of Who (Whoever) or Whom (Whomever) **(another layer!)**

***Who* and *whom* are used differently.**

Subjective Case	Objective Case
who	whom
whoever	whomever

WHO is a subject pronoun. Use WHO as the subject of a verb:

- **Let's see *who* is ready for a walk on the beach.**
- **My Aunt, *who* was six-five yesterday, is preparing for the 9K race.**
- ***Who* wants to help me pack for the trip?**

WHOM is an object pronoun. Use WHOM as the object of a verb or a preposition:

- ***I don't know whom*** **I should vote <u>for</u>.**
- ***Whom*** **<u>should</u> I <u>thank</u> for this gift?**
- **Katarina, *whom* the Millers <u>have adopted</u>, is from the Czech Republic.**

(Practice to follow) # 1-5

Appendix D4
Reading Course
Cooperative Learning Principles

Chapter 19
Dictionary and Reference Skills

NOTE: This chapter will open with notes to the instructor that will be in a Power Point presentation.

Chapter19: Reflect/Discuss 1

At this point in the course, you have reviewed several different reading skills. Before starting this section on dictionary and reference skills, select a reading skill that you feel you have mastered and explain how you think it will benefit you in your other classes and how you might teach others to use it.

***Post your answer to the discussion board.**

***Read and respond to two other learners in your community about the reading skill they feel they have mastered and how they might teach others to use it.**

Introduction to Dictionary and Reference Skills

A dictionary is a valuable tool that does more than just define words. In addition to word meaning, a dictionary provides information on syllabication, pronunciation, spelling, parts of speech, and word origin.

Word Meaning:

The dictionary gives you the denotative meaning (literal meaning) of words. It also lists any multiple (more than one) meanings the word may have. For example, the word transition has several meanings:

1. a passing from one condition, place, activity, etc. to another; 2. the period of this; 3. a word, phrase, sentence, etc. that relates to a topic with a succeeding one; 4. in *music,* a modulation.

Syllabication:

The dictionary shows how words are divided into syllables. Dots or spaces are used to separate the syllables in each word. For example, the word transition is shown as having three syllables – **tran zish en**

Pronunciation:

The dictionary provides pronunciation keys to help you understand how words are divided into sounds. Accent marks are used to show the stress on each syllable. A heavy mark (**‘**) indicates that more stress is placed on that syllable when the word is pronounced. A light mark (‘) indicates that less stress is placed on that particular syllable when the word is pronounced. For example, the word transition is shown as having a heavy stress mark on the second syllable – **tran zish’ en.**

Spelling:

The dictionary gives the spelling for each word, its plural, and any special form the word may take on when adding or dropping letters to create new words.
For example, the word transition forms its plural (*pl*.) by adding an ***s***: As we all grow older, we make several transitions. The best that we can hope for is that those transitions go smoothly and do not cause too much disruption in our everyday lives.

Parts of Speech:

The dictionary uses abbreviations to indicate the part of speech for each word meaning. The word transition has multiple meanings, so you will see the abbreviation ***n***, for noun, next to the dictionary entry of one meaning of the word. For example: The student discovered that the transition from high to college was a little more difficult than he had anticipated. You will also see the abbreviation ***adj,*** for adjective, next to another meaning of the word. For example: The transitional phase of moving from high school to college was more difficult than Juan thought it would be.

Word Origin:

The dictionary provides you with the origin (the language from which the word is derived) of many words. Usually, this information is enclosed in brackets such as: [L] - Latin, [Fr] – French, and [Gk] - Greek.

Exercise: Select five words from the pop-up dictionary in this chapter. In addition to listing all the meanings for each word, write out the syllabication, pronunciation, parts of speech and word origin for each word. Write a sentence using each of the words on your list. E-mail your work to your instructor.

Strengthening Your Reading and Writing Skills

The best way to improve reading and writing skills is to continually build your vocabulary. In this chapter you learned about dictionary skills. In previous chapters you learned about context clues, prefixes, suffixes, and roots. Mastering these skills are excellent ways to strengthen and build vocabulary, but improving your skills in these areas can also help you learn how to choose more effective words, appropriate expressions, and smoother transitions in your writing and speaking skills.

Additionally, knowing how to interpret an author's meaning and express yourself in words is an important skill to possess in both the college classroom and in the work place. Whether you are composing a memo, outlining a set of directions for a project that the employees in your department must follow, completing a research paper for one of your classes, or critiquing an article or book, your command of the English language is essential for communicating effectively. When choosing appropriate language in writing and speaking, try to avoid jargon, clichés, and slang. Consider both your purpose and audience and then choose your words carefully and craft your writing accordingly. In reading, understanding jargon, clichés, and slang will help better understand the author point of view. Interpreting what you read correctly is an important part of becoming a good reader.

Jargon

Jargon is language that is used by a group of people that belong to a special field or vocational community. Technical language used by computer technicians or engineers would be a good example of jargon, although there are other areas such as science and education that also use specialized vocabulary. Most words considered to be jargon are unfamiliar words, but familiar words can also be used in an unfamiliar manner. People outside the field would have difficulty understanding what is written. It is appropriate to use the specialized vocabulary (jargon) if you are writing for people in that specialized area, but it should not be used when people outside of the area will be reading the material.

Examples:

pedagogy	collateral	hypertext	cookie	parameters
contingency	Boolean logic	imperative	methodology	case sensitive

Exercise: Interview someone who works in a technical field such as computer programming. Ask them about some of the technical or specialized words used in their field. Select five of these specialized vocabulary words that are unfamiliar to you and define them. Post your words on the discussion board, and discuss the words and definitions with one other

member of your learning community. Together, post one new word that each of you learned.

Clichés

A cliché is a phrase that has been overused. It may have produced a vivid image the first time it was used, but now it is no longer viewed as interesting. Using clichés limits the information in your writing and makes it seem unimaginative.

Examples:

dirt cheap	off your rocker	pain in the neck	over the hill
washed up	watch your mouth	chip on your shoulder	a deer in the headlights
dark horse	as easy as pie	easy as 1,2,3	darkest before the storm

Slang

Slang is nonstandard language that is usually used in conversations within a community of people in an informal setting. It is difficult for people outside of the group to understand the meaning of slang. It is not considered proper to use for formal papers.

Examples:

the bomb	rankin'	babe	big house	copper
cruising	chick	axle grease	crack up	ain't

Exercise: Think about some phrases and words you have used that can be defined as clichés and slang. Create a list of ten of these words and phrases, and discuss your list with two other members of your learning community. Between the three of you, come up with a list of five appropriate slang words and five appropriate clichés and post them to the discussion board. Make sure you include the names of everyone in your group next to the lists that you post.

Chapter 19: Reflect/Discuss 2

Select an article off the Web or from a newspaper or magazine, and list five words that you do not know.

***Get with a partner and discuss the words on both of your lists.**
***Examine the dictionary skills such as syllabication and pronunciation discussed in this chapter. Use a dictionary to help you better understand the different meanings, spelling, and pronunciation of the words.**

**Select two words from each list and explain how you used the dictionary to help you.*

***Post all six words to the discussion board.**
***Read and respond to other learners in your community about the words they posted and the dictionary skills they used to help them better understand the meaning of the words.**

Note: I would also like this chapter to include a pop up dictionary containing the following words:

abbreviations
appropriate
clichés
critiquing

denotative

jargon

multiple
origin
prefixes
pronunciation

roots

slang

suffixes
syllabication
technical

Appendix E
Data Collection Template

Data Collection Template

Date	Resources/Interviewee	Material Type/Process/Record	Description/Comments
12/4/03	Concept meeting	Observation/field notes	EVP presents vision to prospective faculty
1/19/04-1/23/04	E-mail messages to faculty to set up interviews	Description of study	
1/27/04	Faculty interview	Transcript	
1/28/04	Faculty interviews (2)	Transcript	
1/29/04	Faculty interviews (2)	Transcript	
1/30/04	Learning Objects workshop	Observations/handouts	Introduction of the consultant and schedule for workshops
1/30/04	Psychology team meeting	Observations/field notes	Team discussed concept of the project and plan for implementation
2/04/04	Faculty interviews (2)	Transcript	
2/05/04	Faculty interview	Transcript	
209/04	Faculty interview	Transcript	
2/12/04	Faculty interview	Transcript	
2/17/04	Meeting with project director	Field notes	Update on progress of project

2/17/04	Faculty interview	Transcript	
2/18/04	Interview with Director of ACID	Transcript	Overview of project and ACID's role
2/19/04	Psychology team meeting/consultant	Field notes/observations/informal interviews	Copyright issues
2/19/04	Interview with Executive Vice President	Transcript	Vision and overview of OCDP Phase five and Sirius 3
2/20/04	Online course development workshop	Field notes/observations/handouts	
2/26/04	Faculty interview	Transcript	
3/08/04	Instructional Design Assistant	Observation/field notes	ACID staff, team leaders, project manager, EVP
3/23/04	Phone contact	Field notes	Attempt to reschedule meeting with math team leader
3/25/04	Meeting with consultant	Field notes/informal interview	Team dynamics
3/26/04	Meeting with reading design team	Field notes/observations	
3/26/04	Online course development workshop	Field notes/observations/handouts	Interactive online courses
5/13/04	Online course development workshop	Field notes/observations/handouts	Accessibility for students with disabilities
6/09/04	Psychology team meeting/consultant	Field notes/observations/interview with faculty	Copyright issues, team dynamics
6/09/04	English team meeting/consultant	Field notes/observations/interview with faculty	Team dynamics
6/10/04	Meeting with reading design team/consultant	Field notes/observations/facul	

		ty interviews	
6/10/04	Online course development workshop		Cooperative learning
6/15/04	Meeting with instructional designers/faculty/consultant/project manager	Instructional Design Assistant	Demonstration/ Feedback
6/16/04	Faculty interview	English team leader	
6/23/04	Faculty interviews(3)		
6/29/04	Meeting with reading design team	Informal interviews/observations	
6/30/04	Meeting with English team leader	Informal interview	
7/01/04	Interview with programmers	IDA	Challenges in development/ Understanding instructional design nomenclature
7/07/04	Meeting with Psychology team/consultant	Field notes/observations	Copyright issues
7/07/04	Meeting with English team/consultant	Field notes/observations	Technical issues/ Instructional design support
7/07/04	Meeting with Executive Vice President	Informal interview/assessment of progress	Review of observations
7/08/04	Meeting with consultant	Interview/transcript	Team dynamics/ Leadership role
7/12/04	Interview with Psychology team leader	Transcript	Leadership/team dynamics/role of the consultant
8/05/04	Meeting with faculty team leaders/Learning Innovations staff/EVP/Project coordinator	Future of Sirius	
8/11/04	Interview with faculty	Transcript	

8/12/04	Meeting with math team/consultant	Field notes/observations	Ongoing leadership issues
8/12/04	Meeting with reading team	Field notes/observations/informal interviews	Team dynamics
9/21/04	Meeting/Interview with Learning Innovations staff member	Transcript/field notes	Update on IDA/assessment of project
Ongoing	Review/Analysis	IDA/E-mail correspondence/SharePoint site	
Ongoing	E-mail exchanges	E-mail records	Project updates/ Leadership issues/challenges

Appendix F
Code/Theme Template

Code/Theme Template

Technical Issues Expertise Available Resources
Scheduling Time/Location Constraints Format of Meetings
Collaboration Intra-team Dynamics Inter-team Dynamics
Design Approaches Process Learning Theories Motivation
Technology Learning Objects Design Issues
Fiscal Support Rewards/Incentives Materials Training
Meetings Process Role of Team Leader
Role of Administrative Staff Monitoring/Communicating Hands-on/Hands-off
Non-Participants Reasons Future participation
Others

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