USING MINDTOOLS IN LITERATURE REVIEWS

By

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ABSTRACT

This paper will describe the use of developed resources for doctoral students taking a literature review class (DOC722) at the University of Phoenix. The paper offers a description of several Mindtools along with their educational advantages for research projects. Today's graduate students are challenged to identify and interpret relevant research materials in the midst of vast amounts of information that is available through the Internet and digital libraries. Mindtools enable individuals to develop research narratives that reflect intellectual depth and a clear understanding of the literature.

Keywords: Mindtools, Literature Review, Spreadsheets, Microsoft Word, Mind Maps.

INTRODUCTION

The University of Phoenix has strived to create a relevant curriculum for their online doctoral degree programs. Students have a support system involving financial and academic advisors. Faculty members teach online classes, residencies (face to face instruction) and serve on dissertation committees. There are institutional quality control procedures and policies that are designed to help students to produce excellent dissertations (UOP, 2009). The author/researcher has created curriculum materials for doctoral students taking a literature review class (DOC722) at the University of Phoenix. As a mentor and committee member, the researcher has helped 24 students earn their doctoral degree.

Self-directed learning is vital to creating an educational setting or environment that promotes critical thinking, scholarly writing and research skills. Educators should promote learner autonomy that involves a combination of instructional structure and dialogue. Knowles (1990, p. 135) relates that learners demonstrate self-directed learning skills by:

- Diagnosing their own needs for learning
- Formulating their own learning objectives
- Identifying effective human and material resources for accomplishing their objectives
- Choosing and implementing effective strategies for using these resources
- Evaluating the extent to which they have accomplished their objectives.

The cognitive maturity and educational needs will vary among students which will require having teachers to adapt their plans and learning activities. The teacher's or mentor's, as they are referred, advising relationship with the mentee is unique and complex one because of the high intellectual expectations for graduate work. New students are usually awestruck by the expectations when they face the start of their doctoral programs.

Electronic information has exponentially increased research opportunities. The University of Phoenix ProQuest database has over 600,000 dissertations and the online library contains over 56,000 journals and magazines (UOP, 2009). The Internet contains vast amounts of information and individuals must learn how to filter knowledge to identify relevant materials. Students can become confused and frustrated at times about how to manage their research efforts. A mentor has an opportunity to assist their mentee with several tools in this stage of their learning process.

Literature Review of Mindtools

The researcher has already introduced the students to several technologies that could help them with their research work. Individuals must decide what technologies are most useful for completing their literature reviews. This is one of the unique dimensions of working with doctoral students who have diverse academic backgrounds. Students who have limited experience working with Power

Point and other basic tools might need extra materials and assistance to use the technologies.

Jonassen (1997, para#1) defines Mindtools as "a way of using a computer application program to engage learners in constructive, higher-order, critical thinking about the subjects they are studying." Students can use a variety of computer tools such as spreadsheets, databases and concept maps. Mindtools have a diversity of educational benefits such as helping students in knowledge construction, using computers to design products and become acquainted with new technologies that can increase their productivity. A major benefit is students can cultivate skills and knowledge that foster autonomy and confidence which are essential skills in a doctoral program (Culley, 2007).

Spreadsheets

DOC722 is a doctoral course designed to help students to create a rough draft of their literature review. Students work with their mentor or chair to develop chapter two of their proposal. Individuals start their work with their mentor of their dissertation committee by creating a mentee contract. The mentee contract helps the students to understand the need to integrate their dissertation work into their daily routines. Mentors usually want students to have an editor during the proposal and during completion of their dissertation. Editors provide expertise into grammar and writing style issues and this helps mentors focus more on content matters. The contract describes specific academic expectations. Students usually use spreadsheets (e.g. Excel) or Word documents to create a timeline. The timeline provides a detailed description of their research work including the projected date for graduation. Students share class schedules and calendar dates for acceptance of their proposals, editing and revisions, completing chapters four and five, defending the dissertation and the approval by the dean of the doctoral program. The deadlines and due dates provide reminders that work and family commitments (e.g. vacations) must considered when creating a timeline.

Jonassen et al (2008) relates that spreadsheets have "…three primary functions: storing, calculating, and presenting information" (p. 89). Spreadsheets are a unique Mindtools that enables individuals to identify and describe relationships across knowledge domains. Instructors can use spreadsheets for economic models and tracking stocks on the New York Stock exchange. Spreadsheets could be applied to analysis of decisions involving demographics studies into population patterns in geography courses and for evaluating field data from ecology projects (Jonassen and Carr, 2000). Often, the relationships are described in numerical terms and require reasoning skills. Spreadsheets can be a cognitive tool that helps individuals who want to create a visual representation of abstract concepts (Alagic and Palenz, 2006). Doctoral students can use spreadsheets to study data to create models that help visualize complex relationships. Spreadsheets can present information through charts, graphs and graphics. Students could use spreadsheets to organize major themes for their literature review that affirms their problem statement and research questions.

Microsoft Word

Students should be encouraged to use the writing and note taking features in Microsoft Word. The AutoSummary tool enables the user to select a text and have Word create a summary of the text in four different formats. For instance, the text can be highlighted for key points which can be used to check for understanding of the material or for clarity and consistency in the text. Another helpful Word feature is note taking that uses a combination of outlining and graphic representation. The note taking features enable individuals to address their specific information needs (Pitler et al, 2007). Microsoft has recently created a separate software program called OneNote that offers individuals additional ways to record their ideas. Crooks, White and Barnard (2007) relate that researchers how found that some students who use graphic organizers in their note taking can increase their depth of processing information over conventional linear note taking procedures. The use of graphics can reduce cognitive load which enables students to devote more time to searching and identifying knowledge relationships.

Computer oriented note taking practices have the potential to increase the student's ability to understand and apply knowledge (Jonassen et al, 2008).

Mind Maps

The eyePlorer is a new Mindtool. The Web based tool provides a visual picture of search terms. The tool enables the user to select a term or terms and Web sites are generated with basic facts about each site. The notepad feature serves as a place to record basic site data within the same Web page. Doctoral students will be introduced to this Web based program to help them when with their Internet searches. Students can experiment with a variety of terms to provide new insights into how to investigate their dissertation topic. The literature review process has grown more complex with Web based resources and students must learn how to filter the vast amounts of information into relevant categories. Students must systematically investigate the literature and cover both electronic and print information sources. Individuals can use eyePlorer as a way to sort through the Internet sources and learn new ways to scaffold knowledge. The tool produces a visual picture that can spark a student's imagination about potential ways to examine a research topic. Figure 1 highlights how the term leadership can produce an assortment of Websites with a diversity of themes and information.

Students have found that mind maps are a useful Mindtool. Mind maps can perform the following learning functions:

- Generate ideas (brain storming, etc.);
- Design a complex structure (long texts, hypermedia, large web sites, etc.);
- Communicate complex ideas;
- Aid learning by explicitly integrating new and old knowledge;
- Assess understanding or diagnose misunderstanding. (Lanzing, 1997, para 1)

Inspiration and MindManager are examples of mind map software programs that enable individuals to design practical knowledge products. Mind maps offer opportunities to explore new ideas, foster creative problem solving skills and learn new ways to represent knowledge relationships (Jonassen, Carr & Yeuh, 1998).

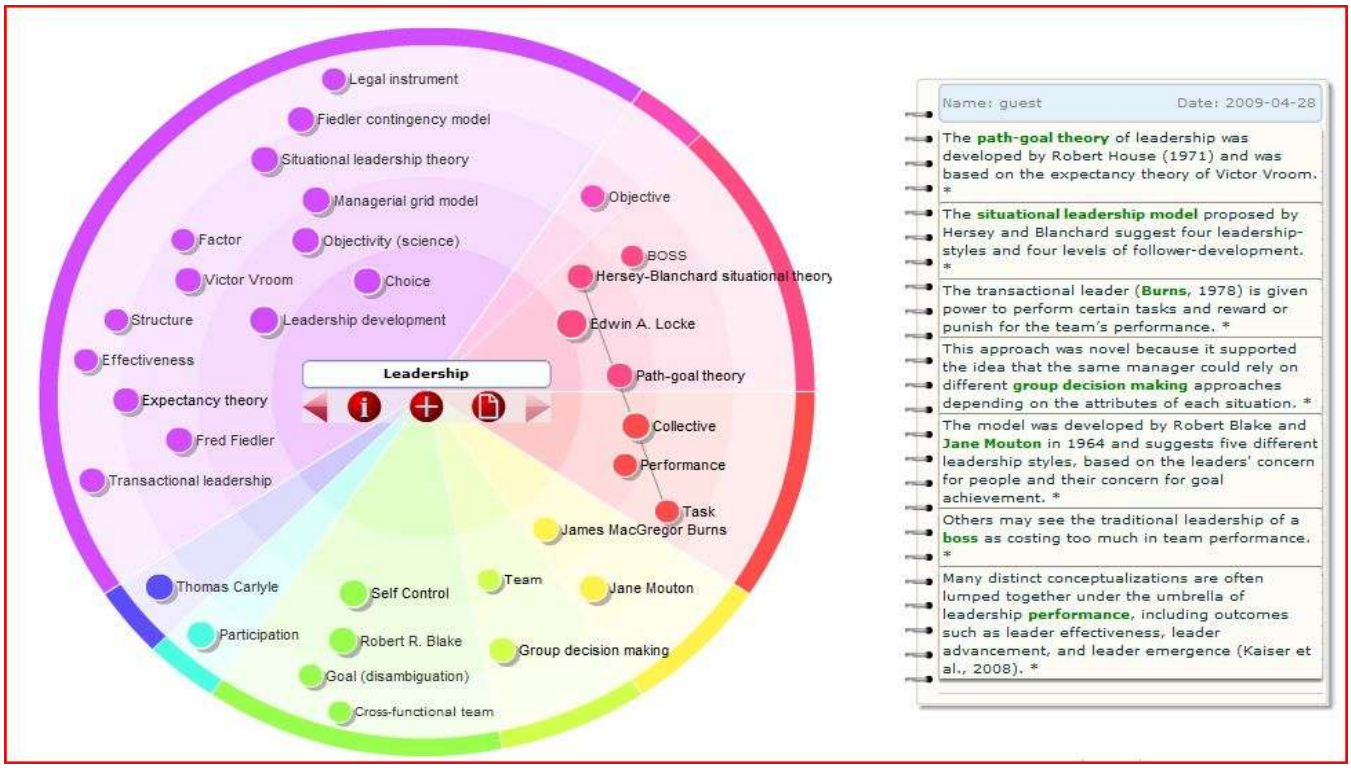

Figure 1. Leadership (eyePlorer.com, 2009)

Mind maps can play a vital role in conducting research and writing a literature review. The research problems are multidimensional and demand cognitive flexibility to work with different knowledge domains. Students must develop Internet search strategies to capture knowledge in ways that account for issues involving intellectual standards of criteria such as validity of information sources. Yet, their investigation should be comprehensive enough to include both relevant past and present research studies (Hart, 1998). Mind maps can offer guidance and insights into information resources. The literature review chapter has become one of the more difficult challenges for doctoral students. The maps can help students to create outlines of major areas of study while helping them to avoid missing sources that offer unique perspectives on their research topic. It is important that teachers remind students that mind maps should be viewed as works in progress. Individuals will encounter new sources of information that will challenge their thinking and cause them to evaluate their knowledge assumptions.

Mind maps create a framework to organize the literature review research process. A map can highlight the information resources used to study the topic such as libraries, Internet databases (e.g. ProQuest Digital Dissertations), types of journals, newspapers and research documents. McNichol's (2008) map shows how the researcher has produced a comprehensive literature review with seven major themes: complexity theory, knowledge management, organizational learning, culture, multigenerational, knowledge barriers and knowledge transfer (Figure 2).

Mind maps are growing more popular within the

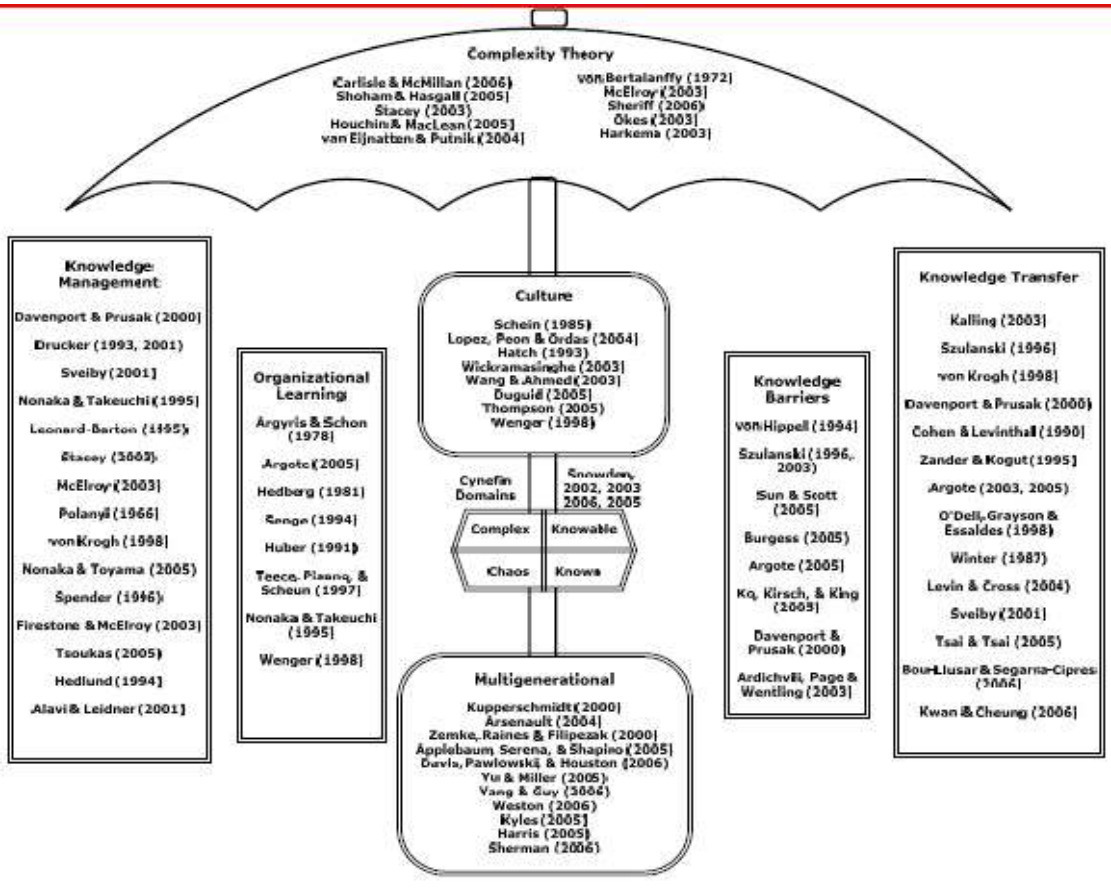

Figure 2. Graphical representation of key themes within the literature review.

Figure 2. Graphical Representation of Key Themes within the literature review (McNichols, 2008, p. 27).

academic community because their ability to communicate complex ideas in journal articles, blogs, newsletters and email notes.

Dissertation students sometimes strive to read everything that is remotely related to their topic. The result is to waste time on trivial articles and materials. The map can be a tool to help students focus on the most important and relevant documents. Additionally, students can spend so much time reading that they fail to write about their project. There can be a tendency to choose reading over writing because it is less demanding than writing. The writing process is another way to reflect upon ideas and foster a better understanding of information relationships (Language Center, 2004).

The assessment of the literature review work involves evaluating the quality of student's rough draft. A grading rubric is used to carefully assess five major areas: content, critical thinking, organization, APA style guidelines and grammar issues. Students who effectively create a scholarly rough draft will have the opportunity to continue work on their literature review while taking courses. There will be some students who will have to repeat the class (DOC722) due to the need to improve their literature review. Although this is a setback for students, it is essential to producing scholarly and relevant doctoral dissertations.

Effectively Using Mindtools

The student-centered model of learning encourages teachers to view their students as academic partners who work together to produce relevant educational experiences. It requires instructors who are willing to change their standard teaching methods. Mindtools can be used to foster new research skills and help students learn the importance of being persistent during problem solving situations. Students who become skilled at using investigative methodologies and technologies will become more sophisticated researchers (Karagiorgi & Symeou, 2005).

Teachers should explore opportunities to collaborate with colleagues (e.g. online professional learning communities) to learn effective ways to integrate technologies into their advising activities. The doctoral program requires making numerous decisions about studying, reading, research and writing. Students should be encouraged to share information resources and this will promote cooperative and self-directed learning situations that can trigger new questions as individuals work with various Mindtools. Barell (1995, p. 91) observes that "student generating their own questions is perhaps the most meaningful form of problem solving for obvious reasons: Students are in control of the process, and if we are pursuing their questions they have a stake in finding the answers."

Conclusion

Doctoral mentors can work closely with their students to help them successfully complete literature reviews. Mindtools can provide students with the resources to create reviews that transcend being merely familiar with the material. Students should experiment with various Mindtools to identify the technologies that best serve their needs. Ultimately, the goal is to produce a literature review that offers reflective and creative perspectives while affirming the credibility and significance of the research project.

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