Instructional Design Comparison:
Understanding by Design, ADDIE and Action Research
In Relation to School Librarianship

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Instructional Design is the practice of systematically improving learning experiences. To elaborate, instructional design is "the process by which instruction is improved through the analysis of learning needs and systematic development of learning materials. Instructional designers often use technology and multimedia as tools to enhance instruction" (Culatta, 2010). According to Berger and Kam, instructional design can start at any point in the design process. For example, a designer looking back upon the finished product, checking to ensure that "all parts of the 'science' have been taken into account. Then the entire process is written up as if it occurred in a systematic fashion" (1996).

There are many different instructional design models. Three of the most popular are Understanding by Design, the ADDIE model and Action Research. Understanding by Design is a framework that "teaches for understanding" by using the Six Facets of Understanding and utilizing a backwards design. In the ADDIE model, ADDIE is the generic term for a five-phase instruction model that consists of Analysis, Design, Development, Implementation, and Evaluation with the outcome of each step feeding into the next phase of the model. It has been estimated that there are more than a hundred different variations of the generic ADDIE model (Learning Theories Knowledgebase, 2011). Action Research, a term coined by Kurt Lewin when he was a professor at MIT in 1944, is a process of continued examination and evaluation that aims to empower students, instructors and other stakeholders by giving them the means to improve their educational experience.

Understanding by Design utilizes backwards design, or beginning with the end in mind. Results focused design rather than content focused design. It makes use of what the creators call Essential Questions, questions that provoke thought, discussion, continued inquiry, and new understandings. At the core of Understanding by Design are the Six Facets of Understanding. According to the creators, it is when we truly understand that we can explain, interpret, apply, have perspective, empathize and have self-knowledge (Wiggins, & McTighe, 2005). In the introduction, the creators point out that while teaching for in-depth understanding is an important part of an education, it is only one of many. They acknowledge that there are situations where familiarity is a sufficient goal (Wiggins, & McTighe, 2005).

As stated previously, the ADDIE model consists of Analysis, Design, Development, Implementation, and Evaluation. During Analysis, the educator, or designer, would identify the students' needs, their existing knowledge, identify a learning problem, if any, and set the goals and objectives. The learning environment, delivery options and timeline would also be identified. The Design phase is "a systematic process of specifying learning objectives" (Learning Theories Knowledgebase, 2011). The content and learning materials are produced during the Development phase based on the learning objectives laid out during the Design phase. The Implementation phase is where the plan is put into action. A training procedure for both the teacher and student is developed and delivered. According to the Learning Theories Knowledge Base, formative evaluation is present in each stage of the ADDIE process, with summative evaluation in the form of tests providing opportunities for user feedback and revisions (2011).

Action Research is known by many other names, "but all are variations on a theme. Put simply, action research is 'learning by doing'" (O'Brien, 1998). A problem is identified, action is taken to resolve the issue, if the results are not satisfactory, further action is taken. Stringer defines Action Research as "a systematic approach to investigation that enables people to find effective solutions to problems they confront in their everyday lives… Action Research provides the means by which people…may increase the effectiveness of the work in which they are engaged" (Stringer, 2007, p. 1). In education, Action Research would be a systematic, reflective study by the educator of his or her efforts and the effects of those efforts on individual students or the class as a whole. It requires deep inquiry into one's professional practice that, in theory, "leads to a reflective phase in which the designer formulates new plans for action during the next cycle" (Riel, 2010). With Action Research, more value is placed on the relevance of findings to the researcher than with other forms of research. When critical reflection "is based on careful examination of evidence from multiple perspectives… it can be the process through which an organization learns" (Riel, 2010).

Comparison/Contrast

Understanding by Design is "built upon the conditional premise: *If* you wish to develop greater in-depth understanding in your students, *then* the ideas and processes

of Understanding by Design apply" (Wiggins, & McTighe, 2005). It works best when used with whole units of instruction, not individual lesson plans, whereas both the ADDIE model and Action Research can be used with individual lessons, units or even individualized instruction. With Understanding by Design, educators are provided with a "three-stage 'backward planning' curriculum design process anchored by a unit design template, a set of design standards with rubrics and a comprehensive training package to help teachers design, edit, critique, peer- review, share, and improve their lessons and assessments" (Association for Supervision and Curriculum Development, 2011).

In contrast, consider this from ADDIE and the 5 Rules of Zen: "Too often we try so hard to create the perfect learning platform by filling in all the blanks that it fails to draw the learners in… overwhelming learners with too much information" (Clark, 2011). As stated on the Learning Theories Knowledge Base, "rapid prototyping (continual feedback) has sometimes been cited as a way to improve the generic ADDIE model." (2011). Improvement based on continual feedback is at the heart of Action Research, as educators examine the results of their efforts and implement changes to achieve the desired improvement. The process is one of reflecting on the outcomes of a lesson, taking action/adapting the lesson and then further reflection with research taking shape as it is performed. Greater understanding of one's students and one's teaching methods from one cycle to the next directs the educator as researcher to improved instruction.

Value of Using an Instructional Design Model

Instructional design, whichever model you choose, presents a formalized model of instruction instead of relying on the individual effectiveness of educators or administrators. Instruction without planning is akin to flailing around in the dark. Sure, you may hit something, but how do you know it is what you are looking for? Planning instruction without following an instructional design model is flailing around in the dark on a school or district-wide scale.

When an administrator chooses an instructional design model to be implemented, whether at the school level or at the district level, a framework is put in place for all teachers to follow, giving lessons a cohesiveness across the curriculum. Even with an educational model as open as Action Research, the teach, analyze data,

reflect, adapt, teach rhythm will be present in each teacher's lessons, units or individualized instruction.

The Ideal Role of the School Librarian in the Instructional Design Process

Ideally, the school librarian is an equal participant in the instructional design process. In the capacity of information technology instructor and information literacy educator, the school librarian is able to co-teach lessons across the curriculum. Ideally, a quality educator assists learners in assuming control of their learning. A classroom teacher and a librarian working together to cover content, information literacy and information technology would provide scaffolding to students. Support students in performing ever more complex tasks, providing help only when a student is at an impasse and only enough help for the student to complete the task. Regardless of instructional design model, the librarian would be able to adjust the tools (equipment or software), task, and environment as needed. A librarian should be able to provide timely access to information in addition to his or her own expertise. As an equal participant in the instructional design process, this access is guaranteed. It is expected that instructors provide timely access to student performance assessment. As an instructor, the librarian would also provide feedback (Srinivas , 2010).

How This Role Differs from the Current Reality

Predominantly, when someone is asked to define the job of a librarian the tasks they list are clerical: checking out books, maintaining shelf order, purchasing materials, etc. This perception of a school librarian is not only crippling school library programs, but also impeding student success. School librarians are forced to devote their time selling their programs, their value to instruction and even their ability to provide instruction, on top of the clerical duties.

Lesley Farmer states that a school library without a credentialed librarian "is like a restaurant without a chef" (Farmer, 2003, p. 33). Sadly, in many schools, teachers and even administrators are unaware that a qualified school librarian is a certified teacher with a post-baccalaureate education in librarianship.

When the role of a librarian in a school is this hard to define, is it surprising that many school librarians are excluded completely from the instructional design process? Twelve years after his book Foundations for Effective Library Media Programs was published, the school library movement is still "foundering on this failure to define the role of the school librarian" (Haycock, 1999, p. 50).

How School Librarians Can Help Design Instruction

Studies show that students learn more and produce better research products following planned, integrated information skills instruction by the teachers and school librarian together (Haycock, 1999, p. 13). Administrators and teachers must be made aware of the value of the school librarian. This process should begin in their own education. The library is not isolated from the school, neither should be the librarian.

True leadership is about respect for people and encouraging the growth of others. Administrators are the leaders of the schools. True leadership is concerned more with growth than control. When the librarian takes the initiative and plans collaboratively with classroom teachers, he or she is beginning to design instruction. Action Research is applied when the results of that lesson are analyzed and changes are made to improve instruction.

A successful school library program is comprised of many teaching norms: cooperative planning, co-teaching, precisely defined goals and objectives, individualized instruction, variety in resources, teacher as facilitator for independent learning and different locations for learning (Haycock, 1999, p. 44). Once this is achieved, the school librarian will be an instructional design partner. Instead of teaching 'how to write a paper' as an isolated lesson, 'how to write a paper' is a collaboratively taught lesson wherein the use of an index, reference resources and discerning quality information is taught in tandem with how to write an introduction, use a quote effectively, how to cite a source and how to write a reference page.

"Students really are the bottom line, and the entire educational enterprise needs to work together to systematically address student needs so students will succeed – and contribute to society." (Farmer, 2003, p. 145).

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