Three Phase Rapid Prototyping Instructional Development Model, *Aaron Fried*

Executive Summary

Brief Model Description
The Three Phase Rapid Prototyping Instructional Development Model (3P RPID Model) is an instructional development (ID) model based on the basic ID processes outlined by the ADDIE process (Analysis, Design, Development, Implementation, and Evaluation) (Gustafson and Branch, 2002). This model takes into account several changing images of the ID process including Rapid Prototyping (Gustafson and Branch, 2002, Jones and Richey, 2000) and the ability to adapt instruction to new and evolving forms of digital technology (e.g. computers, internet, cheaper DVD and CD media and production). The 3P RPID Model is a general model that allows for a great deal of flexibility when dealing with a range of solutions over a variety of contexts.

Three Phases
This ID Model is marked by three developmental phases: Front-End Analysis, Rapid Prototyping (design and development), and Project Deployment. The three phases are described in more depth below. All three phases are related to a Rapid Prototyping environment. There have been several different descriptions of Rapid Prototyping in the literature. Rapid prototyping is a concept that has been derived from manufacturing. The concept is based on the idea that it is easier and more cost-efficient to make changes to a conceptual prototype than it would be to alter more finished product. A major goal of rapid prototyping in ID is to reduce development costs by developing small, functional prototypes and testing their effectiveness before locking into a final, more expensive production.

Several rapid prototyping models already exist in the literature. Dorsey, Goodrum, and Schwen (Gustafson and Branch, 2002) have described an iterative model with no front-end analysis, where the instructional solution develops from the refinement of the prototype. Jones and Richey (2000) describe a more comprehensive rapid prototyping model that encompasses the ADDIE formula. The common element of both models is the iterative design and development step focused on refining a functional prototype.

The main difference between these two rapid prototyping models is that one uses front-end analysis while the other does not. Dorsey, Goodrum, and Schwen lack a front-end component. Jones and Richey include, as a minimum, identification of an audience, instructional need, and content/task analysis. It may be more helpful to have more analysis tools in place in order to maximize the effectiveness of the initial stages of the prototyping.

The 3P RPID Model realizes the potential that increased front-end analysis can provide for the production initial prototypes. The 3P RPIID Model does not sacrifice quality for efficiency. The goal is to use a rapid prototyping model, during development, which focuses on solidifying a final prototype. This iterative process reduces final cost and maximizes the effectiveness of the final product.

Phase I: FEA
Phase one is a component front-end analysis. This is a component FEA because there are several recommendation for analysis. However, based on the developers experience or situation, several components may be dropped.

Phase II: Rapid Prototyping
Phase two is the development and refinement of the final project. Evaluation drives either the revision and iteration process or the movement to a final project.

Phase III: Project Deployment
Phase three is the final project with revisions and deployment. Considerations at this point focus on delivery of the project and on the management of the diffusion of the project.

Development Team

Role	Responsibilities
Subject Matter Expert (SME)	- Development and content selection - Content evaluation
Technology Specialist	- Understand hardware and software options. - Inform the team of technology resources available to the team. - Work with the media specialist to integrate multimedia into the project.
Media Specialist	- Produce audio, video, or graphics - Inform the team about the media available to the team. - Integrate multimedia into learning environments
Instructional Developer	- Help to develop instructional goals - Select instructional interventions - Develop prototypes for instructional materials - Work with the team to design the learning environments - Help the team make effective decisions about the project.
Instructional Designer	- Select instructional strategies - Help to develop instructional goals - Work with the developer to develop prototype
Project Manager	- Manage the completion of the project. - Create and maintain development schedule. - Manage resources. - Maintain team productivity. - Support and motivates the team. - Resolve conflicts. - Manage quality control. - Prepare for change management.
Evaluation Specialist	- Prepare the evaluation criteria. - Evaluate the production stages. - Work with manager on quality control.

Above is a description of a seven member ideal development team. This team would be assembled under ideal conditions. The team could be condensed into a three person team consisting of: 1. a Subject Matter Expert (SME), 2. technology and media specialist, and 3. instructional developer. In this scenario the media and technology specialist are condensed into one position and the instructional developer takes on the role of developer, designer, evaluator, and manager. This would not be an ideal situation because it forces the media/technology specialist to be proficient with many tasks, perhaps diminishing effectiveness. This also places a

large burden on the developer. The three person team may be able to manage small ID projects. Larger projects are better handled by the seven person team.

References:

Andrews, D.H., Goodson, L.A. (1980). A comparative analysis of models of instructional design. JID: 3(4), 2-16.

Bagdonis, A.S., Salisbury, D.F. (1994). Development and validation of models in instructional design. Educational Tecnology: 34(4), 26-32.

Braden, R.A. (1996). The case for linear instructional design and development: a commentary on models, challenges, and myths. Educational Technology: 36(2), 5–23.

Diamond, R.W. (1998). Designing and assessing courses and curricula, a practical guide. San Francisco: Jossey-Bass Publishers.

Dick, W. (1980). Formative evaluation in instructional development. *JID*: 3(3), 3-6.

Gooler, D.D. (1980). Formative evaluation strategies for major instructional development projects. JID: 3(3), 7-11.

Gustafson, K.L., Branch, R.M. (2002). Survey of instructional development models. 4th Ed. Syracuse, NY: ERIC Clearing House on Information and Technology.

Gustofson, K.L., Branch, R.M. (1997). Revisioning models of instructional development. ETR&D: 45(3), 73-89.

Hange, J.B., Lange, P.C., Barson, J. (1980). The heuristic dimension of instructional development. JID: 4(2), 3-9.

Jones, T.S., Richey, R.C. (2000). Rapid prototyping in action: a developmental study. ETR&D: 48(2), 63-80.

Lee, W.W., Owens, D.L. (2000). Multimedia-based instructional design. San Francisco: Jossey-Bass Publishers.

Morrison, G.R., Ross, S.M., Kemp, J.E. (2001). Designing effective instruction. 3rd Ed. New York: John Wiley & Sons, Inc.

Rossett, A. (1987). Training needs assessment. Englewood Cliffs, NJ: Educational Technology Publications.

Schiffman, S.S. (1986). Instructional systems design: five views from the field. JID: 9(3), 14-21.

Taylor, R., Doughty, P.L. (1988). Instructional development models: analysis at the task and subtask levels. JID: 11(4), 19-28.

Weiss, J.W., Wysocki, R.K. (1992). 5-Phase project management: a practical planning and implementation guide. Cambridge, MA: Perseus Books.