Assignment 1: ADDIE & AGILE

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Instructional System Design (ISD) is a broad topic that explores how practitioners create educational experiences and manage the content revision process. Unfortunately, the academic discussion surrounding ISDs is as messy as teaching itself, leaving practitioners uncertain about the strengths and weaknesses of the various models. Today, two of the most prominent instructional design models are the ADDIE and AGILE models. A recent study found these two models are used 77% and 57% of the time, respectively (Giacumo, 2021). Indeed, practitioners sometimes use multiple models to meet the needs of their stakeholders and match their capacity with the required pace of development, shifting emphasis between planning and implementation like two titans on a seesaw. This paper compares the origins, strengths, weaknesses, and applications of both ADDIE and AGILE design methods and argues that both approaches are more similar than they are different. Both models exhibit an analytical framework and a project management structure that guides the instructional design process and reveal an iterative revision process despite conflicting definitions in the academic literature.

The ADDIE model has developed into an analytical framework for instructional design and a project management structure (Foshay et al., 2013). The acronym's five phases: analyze, design, develop, implement, and evaluate, articulate a generic method of discovery and assessment, and is commonly employed as the standard for professional distance education programs, especially in complex systems (Bates, 2015). However, Molenda (2003) discovered "the label seems not to have a single author, but rather to have evolved informally through oral tradition" and that it is "just an umbrella term that refers to a family of models that share a common underlying structure" (p. 40). As a result, the literature has yet to define a standard length of time or associate a specific learning theory with the ADDIE design process. Indeed, Molenda (2003) emphasizes that ADDIE articulates the broadest phases of ISD, that these processes are both sequential and iterative, and that "any claims about [the model] beyond this are individual inventions" (p. 40). This is counter to viewpoints that ADDIE is a

clearly defined ISD method that lacks explorative (Brown & Green, 2018) and transformational abilities due to excessive planning (Bates, 2015) rooted in a mimetic nature (Jackson,1986). Moreover, its language is too broad to failsafe against societal or cultural bias (Heaster-Ekholm, 2020), it "clings to the wrong world view" and is "too slow and clumsy" to keep up with the face-paced nature of online learning revisions (Gordan and Zemke, 2000, p. 44), and was created before common online education and is therefore outdated (Irlbeck et al., 2006).

However, when we look further into the history of ADDIE, a more nuanced viewpoint is evident. The remnants of the acronym first appeared in Thiagaragan's (1974) competency-based teacher training manual using his Four-D model: define, design, develop, and disseminate. Thiagaragan (1974) encourages a learner-centred approach by reminding readers, "ideally, instructional materials should be tailormade for the individual trainee" but cautioned that over-individualization of resources might result in the materials becoming less appropriate for other students (p. 25). Moreover, in 1978, the Centre for Educational Technology at Florida State University developed an application of the model for the US military, coined ADDIC, or analyze, design, develop, implement, and control (Molenda & Pershing, 2003). This is inconsistent with the current view that the military created the model, and it made the model during the 1940-50s when behavioural psychology featured prominently in teaching.

Moreover, words like 'disseminate' and 'control' clash with constructivist methodologies that view such terms as top-down or teacher-centred, preferring to incorporate language at every level of education that invites learners to participate in the knowledge-building process. In response, Molenda & Pershing (2004) built upon the performance improvement (PI) philosophy of the 1980s to explore "activities that contribute significantly to an organization's strategic goals" and introduced their Strategic Impact Model (p. 26). Their new model incorporates three sub-categories within the traditional ISD phases (analyze, design, development, and production). These sub-categories: output, evaluation, and change management, embody a thorough curiosity in each step of the process, rooted in the act of

choosing definable goals and measuring success before advancing to the next stage. The model also highlights that “training alone seldom solves performance problems... [which are often] rooted in more than one cause” and that incentives, better tools, and changes in job design (the order that tasks are completed) impact the end-product (Molenda & Pershing, p. 27). Therefore, current claims that ADDIE does not incorporate iterative processes are burdened by excessive planning and focus too heavily on the teacher, which does not match this alternative historical inquiry. That said, even if the current, more discounting viewpoint prevails, the foundation of the ADDIE model lives on in the professional world and through new models like TAPPA, Rapid Prototyping, and Agile design methods.

AGILE is a definitive version of ADDIE that explicitly guides the product delivery timeline and communication between stakeholders but maintains the same fundamental structure. Based on software developers' guiding principles to focus on the end-user and engage in consistent contact with both clients and team members (Agile Manifesto, 2001), Conrad Gottfredson adapted the concept for instructional design (Minaya, 2020). The acronym: align, get set, iterate & implement, leverage, and evaluate adopts an explicit cyclical nature that encourages curiosity and engagement by sharing works-in-progress with end-users every two weeks (Minaya, 2020). Furthermore, it incorporates this curiosity and focuses on end-product quality through a robust revision process using explicit project management attributes, expanding the second phase, get-set, into 4 sub-categories (Neibert, 2014).

Indeed, AGILE works best when designing products to be sold to another organization (Dousey, 2017), so long as critical criteria are met. When the costs associated with revisions are consistent, and at least 80% of the design is incorporated into the next version, Cocomo-based effort estimations indicate that even complex projects can benefit from numerous iterations (Benediktsson et al., 2003). Motivation must also be optimized by using self-organizing teams (Kakar, 2017) high in emotional intelligence (Luong et al., 2021) and the challenge associated with the revisions match each staff member’s needs and desires (Conbey et al., 2011; Javdani Gandomani & Ziaei Nafchi, 2016; Lalsing et al., 2012).

Supervision by the end-user must also match their capacity (Minaya, 2020); otherwise, delivery times may be compromised. For example, Budzier & Flyvbjerg (2013) showed agile methods decrease project delivery times, but Serrador (2015) did not verify this. Conversely, Serrador (2015) discovered the AGILE methods improve both efficiency and overall satisfaction, despite project complexity and staff experience. However, Serrador (2015) also found that AGILE projects report high upfront planning costs, like traditional ADDIE projects, and if substantial planning is done during each revision (Dybå and Dingsøyr, 2008; Coram & Bohner, 2005; Smits, 2006), then total planning time and costs may exceed that of traditional projects. Therefore, planning is key. Not only do plan-driven methods positively impact self-organization, staff motivation and innovation (Kakar, 2017), "by combining agile and traditional approaches, organizations can take advantage of some benefits of agile development without abandoning the stability provided by a traditional approach" (Ciric et al., 2021, p. 111). Indeed, where AGILE methods admit that information learned through the creative process changes the time and cost of the project (Software Engineering Institute, 2017), the fixed cost model associated the pop culture's definition of ADDIE does help more risk-averse organizations tackle content revisions on time (Minaya, 2020). When compared to our historical definition of ADDIE as a set of guiding principles, AGILE methods manifest explicit actions and processes that match the current digital climate, such as tight and clearly defined revision cycle timelines and staff and client communication standards and an appreciation for planning costs.

Therefore, the comparison between competing ISD models relies on the viewpoint each stakeholder brings to the conversation. Curiosity at every level is essential to maximizing the available resources and creating educational experiences that meet the needs of the student or end-user. Both models emphasize the planning phase, the needs of the stakeholders, and the understanding that our world's most helpful tools are created over time and through numerous iterative processes.

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