A Review and Comparison of The SAM and Dick and Carey Instructional Design Models

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As with many systems, the operational activities and methods that make up the nuts, bolts, and cogs of the working apparatus define the whole. These pieces and the processes that guide outcomes commonly undergo constraints which lead to bottlenecks, or inefficiencies in the system (Goldratt & Cox, 2004). The pursuit of ongoing improvement is a dragon many theorists and practitioners chase as they seek to find the best model that fits and improves performance. When it comes to improving human performance and ongoing learning, the field of instructional design and the systems that surround it are a guiding path to ongoing improvement. This is evident in how Reiser et al. (2017) defines, “Instructional design [as] a system of procedures for developing education and training materials in a consistent and reliable fashion” (p.23).

When evaluating and describing instructional design models, Reiser et al. (2017) asserts seven common characteristics that are identifiable in most all instructional design processes (Branch & Merrill, 2017). These characteristics include empirical and iterative processes that center around students, goals, and creativity, as well as, meaningful performance, measurable outcomes, and a team dynamic (Branch & Merrill, 2017). This framework will be applied in describing and evaluating Michael Allen’s (2012) Successive Approximation Model (SAM) for instructional design and Dick and Carey’s (2022) The Systematic Design of Instruction model.

From a visual perspective, the flowcharts that the SAM and Dick and Carey models provide illustrate that both models deeply follow the idea of process. The Dick and Carey model follows nine stages beginning with a focus on defining and analyzing

instructional goals, understanding learner behaviors and characteristics, gathers instructional materials, and plans formative and summative learning evaluations (Kurt, 2015). The SAM model has two levels of complexity depending on the scale of the project but primarily focuses on the iterative approach of evaluating learners' situations, needs, and goals, designing around goals, objectives, and performance, and develops prototypes that represent and evolve into the final learning experience (Allen & Sites, 2012). Both models display many characteristics put forth by Reiser et al. (2017) in their characterization of instructional design. Both exhibit goal-oriented processes, focus on meaningful performance, define and evaluate measurable outcomes, provide opportunities for iteration, involve collaboration from a team, and aim to keep learners in mind. However, the degree to which both models uniquely exhibit these characteristics is finessed in the benefits and criticisms of each.

The environment and landscape for developing digital products today is fast-paced and leans on the agility of the teams. While both approaches leverage process to help streamline instructional design and development, the SAM model's agile approach to development holds a strong benefit over the Dick and Carey model. The SAM model was created in part as a critical response of the inflexibility of the ADDIE model and is seen as a rapid and iterative way to design learning through prototyping and feedback (Mery, 2022). This model's phases center around the learner as a key stakeholder and aims to create and get feedback much quicker than it's linear, waterfall opponents (Allen & Sites, 2012). This approach of cycling through evaluating, designing, and developing mimics it's software development process sibling, agile methodology (Ní Shé et al., 2021). Another key benefit of the SAM model is its scalability based on the size of the

project. A typical SAM model follows a two-phase approach from preparation to iterative design and development, but a three phased version of the SAM model accommodates an iterative development phase beyond the iterative design phase (Allen & Sites, 2012). The three-phase approach separates the design and development phases out to decrease design and development time to learner. It gets feedback from the learner sooner than most.

The Dick and Carey model, has a more linear and instructor focused approach starting heavily with instructional goals and analysis. Their approach to instructional design offers a waterfall like systematic approach to incorporating formative and summative feedback along the way (Phillips et al., 2019). This approach and others like it have roots in a more behaviorist approach to working through each phase step-by-step in contrast to the quick iterative approach that the SAM model takes (Willis, 2009). The benefit seen in this model could be its fit within the design and re-redesign of more academically based learning experiences where more complex and abstract learning occurs (Phillips et al., 2019; Reiser & Dempsey, 2017). Designers working in this model can rely on the quality of information they have from the analysis phase and they can lean on the process and their expertise to gather all necessary materials from contributors in a clear and unambiguous manner (Willis, 2009).

In criticism, while the SAM model is great for its rapid deployment of learning, it also faces challenges. The creator of the model, Michael Allen (2012), admits that the model is more focused on process and less focused on the fundamental knowledge of how to perform as an instructional designer. He thinks, “instructional design can be difficult and often is” (Allen & Sites, 2012). His research has led him to find that

designers have trouble with refining work too soon and perpetually cycling on too long (Allen & Sites, 2012). For Allen, it seems as though there's a nuance in expertise that's necessary in performing and implementing the SAM model at scale. If you're not confident in your instructional toolbox as a designer, using the SAM model could be challenging and lead to an unsuccessful project.

One of the largest criticisms of the Dick and Carey model is that it follows and promotes a lockstep process and could lead to a lack of sustainability over time (Defelice & Sittler, 2010). In concert with hard guide rails on process, other critics have pointed out that the rigid nature of this model and models like it have potentially limited the perspective of instructional designers in such a way that they are missing the connections and interactions of learner needs across the various phases of the process (Stefaniak & Xu, 2020). The Dick and Carey model poses an over emphasis on the process itself and may limit the collaborative aspects of design in certain situations, which could lead to an ineffective learning experience.

Between the two models, the SAM model catches my attention as a more superior model for rapidly developing effective, learner-centered experiences. While it requires a bit of expertise and understanding of the instructional design toolbox, it poses a great framework for collaboration and obtaining input. An interesting observation arose in several of the articles referenced for this paper. Several article authors referred to a move towards design thinking as an approach to combine with or move away from the SAM model. The design thinking approach developed by IDEO exhibits many of the characteristics of instructional design and could complement or incorporate more learner feedback to produce more effective and engaging learning experiences (Ní Shé

et al., 2021). The SAM model exhibits a quick instructional design framework that's scalable based on the project requirements and remains centered around the learners' experience. It incorporated feedback and pursues ongoing improvement. Further research into the intersection of design thinking and the SAM model would be of interest in the future.

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