

## **Guidelines for Incorporating Active Learning Into the Design of Online Management Courses Utilizing the Successive Approximation Model (SAM)**

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### **ABSTRACT**

The growth of distance education had increased by 263% in 2016 (Babson College 2016), with over 6 million students enrolled in online courses (Allen and Seaman 2017). With the onset of new paradigms in online education involving the use of academic coaches, open educational resources, and much larger class sizes, it is important to reflect upon best practices that can aid in the presentation and construction of knowledge in online environments. Through this paper we seek to provide faculty with guidelines to expedite the design process for developing high-quality online courses that incorporate important pedagogical elements, such as active learning, into their online course design. The authors employ the Successive Approximation Model (SAM), an instructional design approach consisting of repeated iterations (Allen et.al., 2012), to support their presentation and practical recommendations for designers of management courses at the undergraduate and graduate levels of study. Findings suggest the importance of feedback and evaluation, design considerations for shortened time frames of online courses, reiterating the importance of students checking their course assignment sites daily, simplicity of course design layout for ease of use on various platforms, and careful considerations regarding redesign of face to face courses into online courses. Such changes lead to improvements in course design and provide insight to instructional designers and evaluators as they seek to assess and assist others in this process.

**Keywords:** *success approximation model, distance education, information systems courses, course design, online learning*

### **INTRODUCTION**

The growth of distance education had increased by 263% in 2016 (Babson College 2016), with over six million students enrolled in online courses (Allen & Seaman 2017). This increase in demand for online courses leads to an associated demand for an increase in instructors to teach these online courses. However, even with this need for an increased number of instructors, some faculty resist becoming involved in teaching online courses as they view distance learning in a negative light (Carraher Wolverton & Guidry Hollier 2019). These faculty cite issues of lower educational quality and extended preparation time as reasons for their sub-optimal view (Graham & Jones 2011). We posit that this onset of new paradigms in online education involving the use of academic coaches, open educational resources, and increasingly larger class sizes can cause turmoil as instructors seek to understand how to revise their pedagogical approaches in this brave new world. Therefore, through this paper, we seek to provide faculty with guidelines to expedite the design process for developing high-quality online courses that incorporate important pedagogical elements, such as active learning, into their online course design. We will also utilize the Successive Approximation Model (SAM) instructional design approach to demonstrate how to simplify the design process of online courses.

To increase the effectiveness and impact of online courses, researchers have sought methods that facilitate interactive learning experiences, such as active learning (Rimanoczy 2016). Active learning is a pedagogical approach that involves collaborative learning, with students engaging in improving their critical thinking skills (Hacisalihoglu et al. 2018; Prince 2004). Extant studies demonstrate the benefits of incorporating active learning into a course (Ul Huda et al. 2016; Laal & Ghodsi 2012; Prince 2004). Active learning has been shown to facilitate a student's ability to apply

knowledge and the development of independent learning skills (Sivan et al. 2000). Moreover, it produces interest in the curriculum (Ul Huda et al. 2016; Laal & Ghodsi 2012; Prince 2004) and has been found to prepare students for their future careers (Sivan et al. 2000). Although active learning is supported by strong evidence of efficacy in higher education courses, the costs associated with transforming instruction to incorporate active learning are often cited as a primary reason for not adopting active-learning instructional practices (Brewer et al. 2018). Therefore, we seek to provide guidelines that inherently integrate active learning elements into the design of an online course. We posit that if active learning is incorporated into the course from the design phase, then the benefits can be achieved with diminished difficulty.

Furthermore, the authors employ the Successive Approximation Model (SAM), an instructional design approach consisting of repeated iterations (Allen & Sites 2012). The premise of this agile approach is to create a continuous cycle of feedback and evaluation throughout the course design process, to facilitate the resolution of problems and identification of opportunities that may arise during the early stages of development. Such efforts can result in cost and time efficiencies (Allen & Sites 2012).

According to Topi (2019), instructors must be able to integrate rapidly changing management practices and technologies into their courses. Indeed, as the former U.S. Secretary of Education, Richard Riley, stated, "We are currently preparing students for jobs that don't yet exist, using technologies that haven't been invented, in order to solve problems, we don't even know are problems yet" (Justice 2010, p.35). Thus, just as organizations are struggling to keep up with the disruption of changing management practices and technologies (Cozzolino et al. 2018), we must also prepare our students by designing our courses in such a way that they are continuously being updated (Carragher Wolverson & Tanner 2019). Thus, we posit that the design methodology utilized in management education should support successive improvement iterations.

The purpose of this paper is to employ the Successive Approximation Model (SAM) to provide practical recommendations for designers of management courses who are increasingly asked to transition their courses into an eLearning environment. The design and development of management courses for online programmes is complex, as communicating management and other business-related course material can present a challenge in a distance learning course (Carragher Wolverson 2018; Schwarz & Zhu 2015). As the SAM is an agile approach to course development, it facilitates continuous improvement in the design of a course.

## **METHODOLOGY**

To collect data for this study, we selected the case study approach. "All case study research starts from the same compelling feature: the desire to derive (an) (up-)close or otherwise in depth understanding of a single or small number of cases 'set' in their real-world contexts" (Bromley & Dennis Basil 1986, p.1). We utilized the single case design (Yin 2018), selecting a university in the southeastern United States that had just implemented an online MBA programme. We administered qualitative surveys consisting of nine questions to the director of distance learning and three instructional designers for the university. We also obtained comments from students to triangulate the data. The convergence of the data collected from these qualitative surveys was utilized in conjunction with the SAM methodology to inform our discussion about recommendations for designing online management courses.

### **Successive Approximation Model (SAM)**

The Successive Approximation Model (SAM) was developed by Allen in 2012 as an instructional design method that represents an alternative to the traditional instructional design model of analysis, design, development, implementation, and evaluation (ADDIE). As the ADDIE approach

is more of a waterfall methodology, the SAM is thought of more as an agile model to instructional design and course development.

With a specific focus on eLearning, the SAM model provides an advantage for business programmes that are working to meet the needs of the changing student population. With many students seeking flexible learning opportunities, online education has grown in popularity. The SAM model fosters creative instructional designs which fit within cost and time constraints.

**Key Finding:** Create a continuous cycle of feedback and evaluation throughout the course design process to facilitate the resolution of problems and identification of opportunities that may arise during the early stages of development.

### ***Preparation Phase***

The first step in the SAM process is to collect background information about the course that the instructor is designing. In this preparation phase, the instructor will gather information relating to their course (Allen & Sites 2012). This information can include the amount of time that the course will take for students to complete. For example, online programs often utilize a different calendar than face-to-face programmes. Some online programs will last seven or eight weeks rather than a traditional 15-week face-to-face programme. The instructor will also want to gather information relating to the classes that will be taken before their course in addition to any courses that have their course as a substitute.

**Key Finding:** As courses in online programmes often have a shortened time frame for offer, instructors will need to redesign their courses for this new format. We recommend this as an opportunity to update and streamline the course for this new audience of students. Unlike traditional students, students in online programmes are often working full time and seek straight-forward presentation of course material.

### ***Iterative Design Phase***

#### *Design*

The next step in the SAM process involves moving from the preparation phase to the iterative design phase. In the iterative design phase, the instructor will begin by developing an initial design of their course (Allen & Sites 2012). The authors recommend that the instructor begin with consideration of their face-to-face course; however, significant changes will be required to translate a face-to-face course into an online environment. Sugar et al. (2007) suggests that attempts to replicate and transfer the activities, interactions, and assignments in face-to-face learning environments to online learning settings presents many challenges and impossibilities. The National Education Association's Guide to Teaching Online Courses (n.d.) states the importance of adaptability in curriculum development and use of materials in online settings. Many factors need to be considered when developing an online course. For some of the students, this may be their first foray into a distance learning environment.

According to Banna et al. (2015) and Carraher Wolverton et al. (2020), engagement plays an important role in stimulating online learning today. Specifically, interactions with content, fellow classmates, and the course instructor can help students to become more active learners (Lear et al. 2010). More recently, Martin and Bollinger (2018) confirmed the importance of these interactions in online settings, with results revealing the particular importance of learner-to-instructor engagement. The findings of this study indicate that active learning can be enhanced through the interactive design and facilitation of online courses (Martin & Bollinger 2018). To promote active learning, strategies such as structured and guided online forum discussions (Martin & Bollinger 2018;

Gokhale & Machina 2018), initial ice-breaking activities (Reeves et al. 2018; Watkins 2014), and regular communication via email from the instructor to students (Martin & Bolliger 2018; Ko & Rossen 2017), rate high in importance across various studies in this area. Student engagement is said to increase when structured and intentionally guided discussions are included in the online course design. This active learning strategy also leads to an increased understanding of the course content presented (Martin & Bolliger 2018). Further, according to the Center for Teaching Innovation at Cornell University (2019), ice-breaking activities help to build productive learning environments and assist students in establishing relationships with one another. Such interactive and meaningful experiences (Watkins 2014) serve to promote and initiate active learning in online settings.

It is recommended that the instructor access distance learning resources to assist in the development of online courses. For example, Quality Matters (QM) addresses assessment in measurement, learner interaction, and accessibility and usability in distance learning courses. Ensuring that a distance learning course meets the Quality Matters (QM) standards has been shown to improve student learning and engagement.

In reflecting on the role that the Office of Distance Learning plays in preparing faculty to design online courses, the distance learning director stated the following:

*The Office of Distance Learning provides professional development for faculty teaching online to support them in learning best practices about online course design and provide an opportunity for them to be an online student. After the initial training, instructional designers support faculty in learning more about activities and tools they can incorporate in their online course through professional development workshops and individual consultations. Instructional designers are available to support faculty as they continue to update and improve their online course.*

Further, the Office of Distance Learning recommends that:

*...faculty blueprint a course before they ever begin building the course, beginning with the learning objectives and aligning those to the assessments, learning activities, and materials.*

An instructional designer in the Office of Distance Learning at the university added:

*The design and development process can be overwhelming, especially when adding technology features. We often find the best approach is to focus on a few improvements or innovations at a time, build confidence with success, evaluate the results, and then expand on that. Just like building a house, you want to start with a proper foundation and supporting design. Planning ahead also helps avoid wasting development time and resources on content and activities that you might later decide to eliminate.*

**Key Finding:** Unlike traditional courses where students can be reminded about assignments each day, online students will need to learn to check their email and course assignment sites. We postulate that instructors should reinforce the training of this dependability skill, as it will prove to be valuable when the student graduates into the workforce. As the students learn to schedule and complete their work without many reminders in their online course, they are more likely to complete their work for their employer successfully and be productive in their future careers.

### *Prototype*

The designer should then move towards the prototype phase. In this step, the designer will transform their course design into a working prototype (Allen & Sites 2012). This typically takes the form of a course website, including online lectures, links, and graphics. The designer should incorporate all their ideas within the prototype, focusing on the specific needs of online students.

In preparing the prototype, the instructors at the university under study are provided with a suggested layout for their course. The director of distance learning provides this to:

*...give faculty a framework to build their content within. The layout also helps them to meet many of the Quality Matters standards in a design that is mobile-friendly. The layout allows students to more easily find things between courses in Moodle, especially in courses with a program that all use the layout, so students can focus their time and attention on the course content.*

As a result, such consistencies can be beneficial to the designer and the students.

**Key Finding:** Online students often utilize mobile devices, so check the design of the site on both a computer and a smaller screen, such as a mobile phone. Keep the layout simple so that if students are checking the site on their phone during their work break, they will easily be able to locate their course material and assignments.

### *Evaluate*

After a prototype of a distance learning course is created, an instructor should have their course evaluated (Allen & Sites 2012). This evaluation should be completed by multiple entities. Some of the evaluators should be familiar with the subject matter, while other evaluators should focus on the design of the course. This evaluation tends to be formal, with a focus on providing helpful and actionable recommendations for the course designer.

After the instructor receives the recommendations from their evaluation, they should work on improving the design of their online course by implementing the recommendations of the evaluation team. Evaluation teams may identify areas where instructional designers may need to clarify instructions, simplify concepts, or expand discussions. As the feedback from the evaluation team should be helpful and actionable, the instructional designer should assess whether the recommended changes will provide increased engagement, learning, or clarity for the online student.

Quality assurance is vital to the success of online programmes. Quality Matters training and course evaluation processes (student and peer) are in place at the institution under study. Additionally, the importance of careful planning and ongoing evaluations help to ensure continuous quality improvement throughout the design and full development of the online course. The director of distance learning stated the following regarding the course evaluation process at the university:

*The course evaluation process is a peer-review process where faculty and instructional designers review a course design based on best practices outlined in the Quality Matters rubric. During the process, reviewers look at the course through the perspective of a student to see if they can easily find information, understand instructions, etc. After spending many hours working on a course design, a designer knows the course very well and may not notice things that are confusing to someone looking at the course for the first time.*

Importantly, at times, the instructor may disagree with the recommendations from the evaluation team. In that case, the instructor should respond to the evaluation team who will assess the discrepancy, and together the instructor and the evaluation team should reconcile the issue.

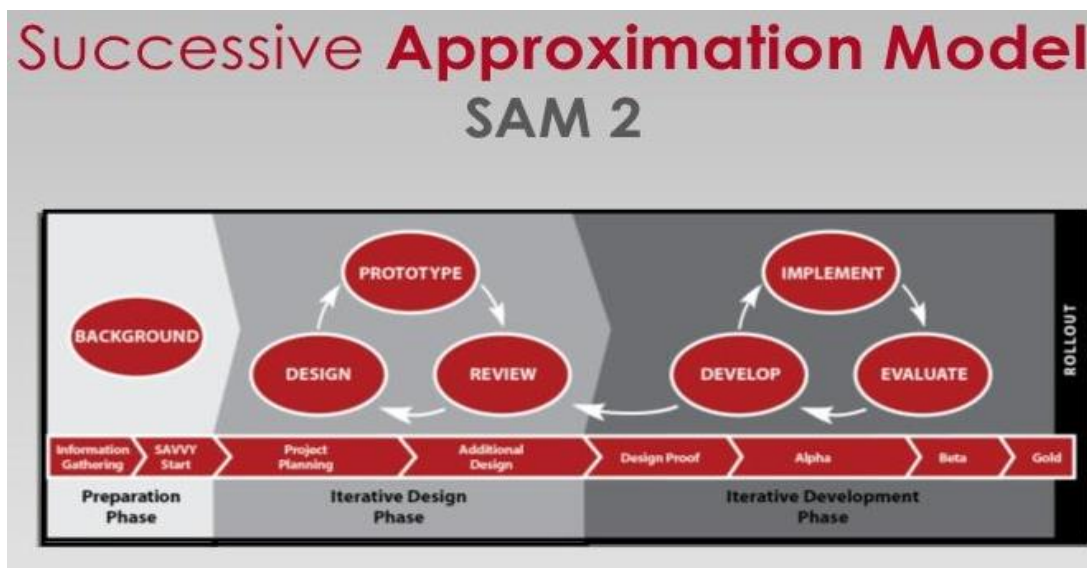
In a further elaboration on the evaluation stage, an instructional designer at the university offered the following:

*The fresh perspectives offered by multiple external reviewers simulate the experience that students will have upon encountering course content for the first time. Also, faculty rarely get the opportunity to see another instructor's course, especially one outside of their discipline, so the peer review is a great chance to trade ideas and see alternate design approaches. One example was a nursing instructor who used VoiceThread to let students tell about their 'ah-ha moments' of when something from the course really inspired them. A reviewer from a science discipline saw that as a great innovation he could add to his course to get students sharing about their own inspirations.*

The iterative design phase is a continual process (Allen & Sites 2012). Therefore, there is a move from the evaluation phase back to the design phase, where the instructor will once again develop a prototype of their course.

**Key Finding:** A face-to-face course will have to be redesigned into an online course. Different elements are important for online students versus hybrid students. Using an iterative development phase, an instructor can utilize the feedback directly from the students (through verbal communications, email, assignment grades) to continuously reevaluate the design of the online course to meet the needs of the student.

The Successive Approximation Model phases - preparation, iterative design, and evaluation - are illustrated in Figure 1 below.



**Figure 1:** Successive Approximation Model: SAM 2 Source: Allen and Sites (2012)

### ***Iterative Development Phase***

In the iterative development phase, the designer moves towards the development of their final course design. As the SAM methodology adopts a continuous improvement approach, the final phase can occur even after the first course is taught (Allen & Sites 2012). While the evaluation team well anticipates some student behaviors and student understandings, it is not possible to predict all issues that will occur in a distance learning course. This is true at the university under study, as changes to the course design and presentation of particularly difficult material were altered during the first offering of several of the online MBA courses. In speaking about the importance of iterative design processes, the director of distance learning stated the following:

*An iterative process allows more room for evaluation and changes throughout the process. This collaboration and feedback can ultimately yield a better design.*

#### *Evaluate*

At this time, the course instructor should be focused on student feedback, including student evaluations at the end of the semester. This feedback will provide the instructor with an evaluation of the clarity of the presentation of the material in addition to the level of cultivation of knowledge.

For example, when presenting a difficult concept in the course, an instructor can measure the level of understanding through feedback from the class. If the lecture and additional material posted in the course lead to student questions and low exam grades, then next semester, an instructor should select alternative or additional course material to supplement the existing material. The iterative design process enables multiple attempts until the feedback from the students can be the desired outcome of the course. For instance, in a graduate-level Health Care Administration course, a student stated that the course “really focused [her]” (personal communication, March 11, 2021) on her goal of becoming a hospital CEO one day. While this online course was not initially designed this way, utilizing the iterative design process, improvements were made after each term.

#### *Develop*

Therefore, in response to the evaluations, the instructor will continue to develop improvements to the course after it has been taught. The instructor will utilize evaluation information to develop improvements to the course.

#### *Implement*

The instructional designer will then implement those improvements within their course environment (Allen & Sites 2012). Those changes will be evaluated by the students taking the course. Thus, the course will continue to be improved, incorporating new information. This will be an iterative process of continuous improvement.

The authors posit that continuous improvement is especially important in management courses, particularly those related to the management of information systems, as the subject matter is constantly changing. Therefore, the iterative nature of the SAM methodology enables continuous improvement of distance learning courses, which is necessary in dynamic areas of study.

The design phase of the process and the associated steps are shown in Table 1 below.

**Table 1:** Important Information for each Design Step

SAM Step	Important
Background	How long is the online course? Are the prerequisites/co-requisites different than the traditional programme?
Design	Which aspects of the course will need to be significantly altered when transitioning to an online setting?
Prototype	What existing online content is available to deliver the course material identified in the previous step?
Review	How is the course viewed by external reviewers?

## CONCLUSION

As the role of technology in education changes rapidly and the offering of fully online academic programmes and courses continues to grow, the need to update our courses in a timely manner is especially important in management courses. We posit that an iterative design method with a continuous improvement focus constitutes a desired factor when transferring face-to-face management courses into an online format. As continuous improvement constitutes a topic that a management instructor teaches, the application of it in designing their course will be more familiar. Furthermore, the focus on promoting active learning in the iterative design phase will help to encourage engagement, critical thinking, and interaction in the online course.

The involvement of instructional designers and evaluation teams in assessing newly designed courses in various stages is a critical part of the online course development process. This process aids in the identification of aspects of the design that may need improvement, and a careful plan is then devised to determine how to rectify any issues. Course developers and instructional designers can both benefit from this continuous improvement process. This leads to improvements in the current course design and provides insight to instructional designers and evaluators as they seek to assess and assist others in this process. Further, Khan et al. (2017) suggests that a thoughtful and deliberate course design process such as this is critical in promoting student engagement in online courses.

The successive approximation model provides a guideline for instructors who are increasingly being asked to design an online course. In addition, the best practices gained from our interviews with distance learning experts, the research findings about designing online courses, and the authors' substantial experience with developing such classes, triangulate to offer management instructors proven recommendations for designing online courses.

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