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**Research Proposal: Designing with Maintenance in Mind:
Considerations for Creating Sustainable Instructional Design Projects**

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Designing with Maintenance in Mind:

Considerations for Creating Sustainable Instructional Design Projects

In an instructional design project, an instructional designer (ID) and a subject matter expert (SME) work together on “an iterative process of planning outcomes, selecting effective strategies for teaching and learning, choosing relevant technologies, identifying educational media, and measuring performance” (Branch & Kopcha, 2014). When IDs begin working with an instructor, they may review the general steps and what to expect from the design process as outlined in the ADDIE approach (Branch, 2008, Branch & Kopcha, 2014), Analysis, Design, Development, Implementation, and Evaluation. They may utilize the Dick and Carey (2022) Systematic Design Model for collaboration to draft learning objectives, set criteria for success and create rubrics, select materials and media, and design formative and summative assessments. Most instructional design models and many others include careful consideration of context and expect instructional design to be an iterative process (Richey, et al., 2010). IDs should select an instructional design model that best fits the goals of the project, and while the models contain some differences, most “include the analysis of instructional problems and the design, development, implementation, and evaluation of instructional procedures and materials intended to solve those problems” (Reiser, 2001).

The ID – SME collaboration period is typically temporary and could be as short as a faculty member attending a workshop, or simply a request for assistance with a specific issue. In a more high-touch and structured collaboration, IDs work on-assignment with specific programs or on specific courses, with the ID moving on to new projects after the design process has been completed. The instructor is left on their own to maintain the course, update content, and make design adjustments to future iterations. It is expected that there will be future changes to the

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design in each iteration. This study aims to research how instructional designers can help to create sustainable courses that only need minor adjustments (or rather, updates that instructors are comfortable making on their own, after the design collaboration period is complete).

Research Question

How can instructional designers analyze the available inputs and context to make design decisions and recommendations that support the instructors' ability and willingness to maintain the course for long-term use?

Theoretical Framework for Research

The following theories and scholars' work provides a basis for this research in supporting sustainable course design. Specifically, it provides a framework of guidance suitable for the environment of instructional designers working in the environment of online higher education. Creating, maintaining, and revising online courses requires various skills that may be best absorbed in the relevant context. For example, a Professor of Finance who is an expert in federal income taxation and estate laws will need to frequently update materials as laws and limits change from year to year. This could require updating HTML web pages, instructional videos, assessments, etc. A financial expert wouldn't normally need to also understand web development or media production, but faculty members teaching online courses do need these skills. This situational skill requirement is the basis for selecting a constructivist perspective, Vygotsky's Sociocultural Theory, Lave and Wegner's Situated Learning Theory as a framework for this research.

Constructivist Perspective

The general constructivist approach lays the foundation for learning through the lived experience of the design process, and for learning from other peers who are going through (or

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have previously gone through the same process). Bednar et al. (1991) define constructivism as “a theory that equates learning with creating meaning from experience.” West (2019) highlights the constructivist emphasis on context, problem-solving, and the learner’s ability to choose their position. This approach is especially fitting when considering the learner is an experienced expert in their own field. Constructivist strategies “include situating tasks in real-world contexts, use of cognitive apprenticeships (modeling and coaching a student toward expert performance), presentation of multiple perspectives (collaborative learning to develop and share alternative views), social negotiation (debate, discussion, evidence giving), use of examples as real “slices of life,” reflective awareness, and providing considerable guidance” (West, 2019). These constructivist strategies fit well with the ID – Instructor collaborative relationship constructs, allowing instructors to co-facilitate the project and choose solutions that will serve them well in the long term (after the ID is no longer present). The strategies also support learner self-efficacy and independence and provide a basis for other applicable theories.

Vygotsky’s Sociocultural Theory

Lev Vygotsky’s Sociocultural Theory emphasized socially meaningful activity and “stresses the interaction of interpersonal (social), cultural-historical, and individual factors as the key to human development” (Schunk, 2020). Specifically, Vygotsky’s key concept of the Zone of Proximal Development (ZPD), which he defines as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978). While Vygotsky’s ZPD is often discussed as expanding what children can accomplish with guidance from an adult, the reasoning can be expanded to fit with IDs and Instructors. IDs cannot create a quality course without the

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instructor's expertly curated content, views, experience, anecdotes, etc. Creating an accessible, engaging, and innovative online course may be out of reach for an instructor with subject-area, rather than pedagogical expertise. Reiser (2017) summarizes "the idea of the ZPD is that the cutting edge of learning is not what students can do individually, but what they can accomplish with the help of a more able other," which "provided a way to conceptualize the transformative impacts of new technology" and fostered the creation of learning communities. Vygotsky's ZPD provides a framework for considering the current level of independent problem-solving, and the next level an individual could reach with assistance from a more experienced partner (Vygotsky, 1978, Reiser, 2017, Schunk, 2020). To effectively determine what types and levels of maintenance instructors will be able to complete on their own after the collaborative design process, IDs need to analyze what types of activities instructors are able to comfortably do before working with an ID. This could include discussing online teaching experience, technical skills, support staff available, etc.

Another key concept stemming from ZPD is instructional scaffolding. Instructional scaffolding "refers to the process of controlling task elements that are beyond the learners' capabilities so that they can focus on and master those features of the task that they can grasp quickly" and like scaffolding in construction, these supports are temporary, designed to be withdrawn (Reiser, 2017). Instructional designers often use scaffolding methods, such as templates and examples that can be used by instructors during course design. The concept of scaffolding could be used to support instructors after their ID has moved on. IDs can determine scaffolding resources that may be helpful to the instructor once they are required to maintain their course themselves.

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Russian-born Vygotsky lived from 1896 to 1924 and “he wrote extensively on the social mediation of learning and the role of consciousness, often in collaboration with colleagues Luria and Leontiev” (Schunk, 2020). His ideas were based on Marxism, and not largely circulated outside of Russia until the 1970s. He joined the Institute of Experimental Psychology in Moscow in 1924 and helped to establish the Institute of Defektology (Schunk, 2020). Vygotsky died from Tuberculosis at age 37 and didn’t live long enough to see many of his works published, or the larger impact they had on future scholars (Schunk, 2020). His works have been a cornerstone for many future theorists and models.

Jean Lave & Etienne Wenger’s Situated Learning Theory

In Lave & Wenger’s (1991) seminal work, *Situated Learning Theory: Legitimate peripheral participation*, they posit that learning is a situated activity that has a central concept they call legitimate peripheral participation (LPP). LPP illustrates the relationship between a master and an apprentice. The learner assists in the production of an artifact, (legitimately) supporting the master while learning about the tools, terminology, and skills used by the master. It provides a basis for describing the relationship between newcomers and old-timers, and their transfer of knowledge and practice. In Lave’s work, she studied communities of midwives, tailors, quartermasters, butchers, alcoholics, nuns, and more. The processes examined in the way those communities learn can be generalized and expanded to other fields and groups. During an instructional design collaboration, the ID and Instructor are in their own master/apprentice relationship. The ID provides pedagogical expertise, and the instructor provides subject expertise.

Lave and Wenger (1991) coined the title “communities of practice” to describe these groups of people with varying experience and expertise. Communities of Practice may form

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organically, as simple gatherings of people who share common interests, or can be formally structured to fit the context of a professional environment, such as a group of professors that will be teaching in a new graduate program to be offered online, online instructors within the same program, or even across the university may form communities of practice to share knowledge and assist each other without the aid of an ID.

Situated learning provides a basis for describing the learning that takes place with an ID – Instructor collaboration. The ID demonstrates the components of designing online courses, such as incorporating learning theory and design models, structuring weekly modules, providing explicit instructions and expectations, assessment transformation, etc. In this example, the instructor is participating and providing content while watching what the ID does with the material. The instructor is the expert in their field, providing guidance to the ID on what the learner will need to be able to successfully complete after the module or course.

Jean Lave is a social anthropologist who was born in California in 1939. She received her bachelor's degree from Stanford University and her doctorate in social anthropology at Harvard University in 1968. Lave is Professor Emerita of Geography at the University of California, Berkeley, and taught at the University of California, Irvine. She was the advisor of coauthor, Etienne Wenger. Etienne, now Wenger-Trayner, is a social learning theorist and consultant, known for his work on communities of practice. He and his wife Beverly Wenger-Trayner are continuing to develop the theory by consulting in a wide variety of contexts to help people develop the capacity to learn with and from each other. Wenger-Trayner describes his work as “profoundly humanistic,” and is one of the most cited authors in the social sciences. To further develop social learning theory, practice, and leadership, Etienne and Beverly recently founded

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the Social Learning Lab in Sesimbra, Portugal. He contributes his interest in learning to the work of Maria Montessori (<https://www.wenger-trayner.com/etienne/>).

Conclusion

Examining the complex nature of an instructional design project through the overarching lens of constructivism, sociocultural learning, and situated learning fits well with the characters, relationships, environmental/contextual setting, and tasks involved. These theories provide a basis for a more focused application of models based on these theories. Instructional designers and their stakeholders collaborate to create engaging, interactive, innovative, and accessible learning experiences. However, if an instructor is not able to maintain the product of the design process (whether due to a lack of technical tools, skills, time, etc.), technology integrations could create a burden instead of an asset. IDs must be careful to make the design process clearly visible to the instructors they work with and must carefully examine the support that instructors are left with once their collaboration is complete.

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