Annotated Bibliography

Ahern, T. C., & Repman, J. (1994). The Effects of Technology on Online Education.
    Journal Of Research On Computing In Education, ***26***(4), 537-546.

In this article, the authors illustrate the effects of two different delivery technologies on the nature of student interaction in online education systems. Two studies were conducted, each focused on a different instructional delivery method. The first study was conducted with graduate students using synchronous two-way video and audio between two remote sites, and the second study was conducted with undergraduate students asynchronously using a computer-mediated communication (CMC) software interface. For the second study, two versions of the software (i.e. IdeaWeb© designed for small group discussion) - a graphic-based discussion map and a text-based interface - were used. Results from the first study showed a high level of teacher-student and student-student interaction, while results from the second study showed that students using the graphic-based interface posted significantly more messages than those using the text-based interface. The studies conducted in this article supports previous research findings that "to promote active learning and high levels of interaction, the course design should implement teaching strategies that produce the desired results" (p. 6). Based on the results, the authors demonstrated that for synchronous and asynchronous online education systems to be effective, the quality of the instructional design is important. In addition, this research focuses on the interaction of multiple technologies rather than on the impact of one technology, and therefore it is easy to see how different technologies can be designed in practice to encourage more interactions in online education systems. On the other hand, the research says very little about a theoretical framework for online interaction, and does not address student characteristics as a factor in their achievement and satisfaction of the online instruction. Overall, the research conducted in this article is valuable for distance education instructors at any level and includes information that can be useful for practical application using different technologies in online learning environments.

Ruey, S. (2010). A Case study of Constructivist Instructional Strategies for Adult Online
    Learning. *British Journal Of Educational Technology*, *41*(5), 706-720.
    doi:10.1111/j.1467-8535.2009.00965.xv

The author of this study investigates how a constructivist-based instructional design, assisted non-degree adult learners to learn in an online environment. The article seeks to address two research questions: (1) "what and how do online adult learners benefit from a constructivist-based online course", and (2) "what improvements are identified that will help strengthen the constructivist-based course in the future" (p. 709). The study examined two classes in an 18-week online graduate level course, over a two semester period, offered at the University of Taiwan. The author effectively sets the stage for the study by reviewing the theoretical framework for constructivist learning theory. The author references the works of constructivist theorists such as Piaget, Vygotsky and Dewey, thereby using theory as a guiding framework for the study. The online course was designed with constructivist instructional principles and included five learning

activities such as synchronous and asynchronous sessions, posting of weekly reports for peer review and discussion, and design and completion of a group project. Results from the study showed that the majority of learners showed positive attitudes towards interactive and collaborative learning, a change in learning habits towards self-directed learning, were able to relate concepts taught in the class to their real-life practice, and learned from each other's experiences. Based on the findings of the study, the author proposed a facilitation model to help "promote active, participatory leaning" (p. 716). Consequently, when all participants are included in the learning process "meaningful authentic constructivist-based online learning could be more substantively achieved" (p. 718). In general, the findings of this study can provide useful insights and practical applications for designing and implementing effective instructional strategies to facilitate adult learning in an online environment using constructivist principles.

Wang, Y., Peng, H., Huang, R., Hou, Y., & Wang, J. (2008). Characteristics of Distance Learners: Research on Relationships of Learning Motivation, Learning Strategy, Self-Efficacy, Attribution and Learning Results. *Open Learning*, *23*(1), 17-28.

In this article, the authors use adapted self-assessment questionnaires to examine the relationships between learning motivation, learning strategies, self-efficacy, and attribution and learning results of 135 distance learners. According to prior research, the main psychological characteristics of distance learners are: learning motivation, self-efficacy, attributions, and the learning strategy. The research approach used in the study was both descriptive and experimental. The results of the study indicate that learning strategy and learning motivation have positive effects on learning results (i.e. higher learning strategy level=higher learning score; and higher learning motivation=higher learning results). In addition, results also indicate that self-efficacy and internal attribution have positive indirect effects on learning. The study is important because identifying and understanding psychological characteristics of distance learners will enable designers/instructors to modify instructional strategies and improve support for distance instruction. There are several practical applications of this study for online instruction that include: (1) Teacher support for learner adaptation to self-directed learning in online environments, (2) Teacher provision of appropriate training to learners about learning strategies to develop learners awareness of different strategies (e.g. strategies for information processing, reflection, study aids etc.), (3) Teacher emphasis and reinforcement of learner self-efficacy (e.g. learner self-reflection on experiences of success and failure), and (4) Teacher support to "inspire learners' learning motivation" because motivation has a direct impact on learners' results. (pp. 25-26). Overall, this research study is a valuable tool for teaching online courses because it provides tangible examples for practical online learning application.