Frameworks and principles for task design.


Summary: This chapter gives an overview of the current state of the art related to frameworks and principles for task design so as to provide a better understanding of the design process and the various interfaces between teaching, researching, and designing. In so doing, it aims at developing new insights and identifying areas related to task design that are in need of further study. The chapter consists of three main sections. The first main section begins with a historical overview, followed by a conceptualization of current frameworks for task design in mathematics education and a description of the characteristics of the design principles offered by these frames. The second main section presents a set of cases that illustrate the relations between frameworks for task design and the nature of the tasks that are designed within a given framework. Because theoretical frameworks and principles do not account for all aspects of the process of task design, the third main section addresses additional factors that influence task design, as well as the diversity of design approaches across various professional communities in mathematics education. The chapter concludes with a discussion of the progress made in the area of task design within mathematics education over the past several decades and includes some overall recommendations with respect to frameworks and principles for task design and for future design-related research.

Classification: D50 D30 A30

Keywords: task design frameworks in mathematics; task design principles in mathematics; history of task design in mathematics; task design and learning theory in mathematics; mathematics task design communities; approaches to task design in mathematics education

doi:10.1007/978-3-319-09629-2_2