

Preface

DISCLAIMER

The title for this publication, *Handbook of Conversation Design for Instructional Applications* was selected in cooperation with IGI Global to highlight the central role of instructional design and conversation within the context of instructional applications. This is not to be misinterpreted as supporting the position that conversations are (or can be) designed. Under most (if not all) conversational frameworks for instruction discussed in this volume, conversations themselves are not designed by experts. Rather, instructional designers and other professions working in this field are concerned more with acquiring knowledge and expertise about the conditions under which conversations occur so that conversations can be leveraged. Thus, the design of conversation in this handbook is systemic in scope and refers to the study of contexts and conditions under which conversations emerge for the purpose of leveraging conversations for desired ends.

INTRODUCTION

There is growing recognition of the important role conversation has in instruction, particularly in the design and development of technologically advanced educational environments. Designing instruction to leverage learning processes with conversation poses serious challenges for designers and instructors. The purpose of this edited book is fourfold, namely to: (1) provide a theoretical and practical overview of conversation design and well-established theoretical frameworks, (2) introduce the reader to various approaches to conversation design for instruction, (3) introduce key areas of conversation design application, (4) discuss new areas and trends in conversation design. Given the rapid growth of information and communication technology (ICT), conversation design provides an invaluable set of tools to deal with a broad range of ‘new’ social interactions possible.

The edited book offers theoretical grounding and practical guidelines for the design and development of instructional applications using multi-disciplinary knowledge bases focused on conversation. It provides theoretical and practical explanations of conversation design used in instructional design and development. It brings together respected authorities from various areas connected to conversation design and includes conceptual perspectives, research studies, and examples of best practices. To this end, over 30 scholars from around the globe provide expertise on a wide array of themes revolving around current work on conversation design.

RATIONALE FOR THIS BOOK

When beginning doctoral studies in 2000, conversation theory and work of the late Gordon Pask were introduced. Pask was a professor in the doctoral program and close colleague and friend of the supervisor, Professor Gary Boyd. Having come from an academic background in philosophy, and cognitive science, there was familiarity with other work on the study of conversation through language pragmatics, narrative theories of mind, and intelligent tutor systems development. What struck at the time was the conflicting view among faculty and students about the study of conversation and how this work applied to instruction. It came to the realization that this conflicting view stemmed largely from differences in discipline based knowledge. For faculty and students with multi-disciplinary backgrounds, this diverse body of work represented one of the most (if not the most) promising approach to instruction for the 21st century. For others who came from a traditional background in education, the study of conversation did not seem directly relevant to instructional design and its application in educational settings. This led to a great deal of cutting edge work in conversation design for instruction to go unnoticed.

There are several reasons for this book. First, those involved in instructional design do not always understand traditions in fields other than the ones having been exposed to. It is believed that conversation design is an underexposed area of instructional design and development that must be better understood to be fully appreciated. This book makes a contribution to the field of instructional design and development by presenting key perspectives on the evolving area of conversation design and by discussing current trends and issues faced by the instructional design community. Second, there is no publication available with representative coverage of past and current work in conversation design for instruction. This edited book attempts to make a unique contribution to the academic literature by bringing together a multidisciplinary body of work focused on the study of conversation and conversation design practices to inform instructional applications. Finally, the rapid growth of interactive technologies over the last 10 years offers instructional designers and developers opportunities not previously possible. This is particularly salient in multimodal instructional systems development where information can now be exchanged in multiple modes, between individuals at vast distances, and simultaneously. This book brings many of the current advances and challenges in conversation design to the forefront. It is hoped that this edited edition will provide a practical text to help guide instructional designers and developers in areas where human and human-computer interaction is highlighted.

ORGANIZATION

The *Handbook of Conversation Design for Instructional Applications* should be of interest to students, instructors, researchers, and managers who need expert knowledge about conversations to inform current instructional design practices and research. This handbook is organized into four sections: Section I. Conceptual Frameworks in Conversation Design, Section II. Conversation and Design for Instructional Applications, Section III. Instructional Applications in Conversation Design, and Section IV. Emerging Trends in Conversation Design. Section I introduces the reader to conversation theory and conversation design. It provides an overview of various conceptual frameworks from which conversation design is rooted. Key contributions from experts cover conceptual and historical developments in conversation theory, conversational pragmatics, cybernetics, intelligent tutoring, and conversation design. Section II introduces the general topic of conversation design and instruction. In the context of conversation design, conversations can be viewed as social experiences through which learning processes occur and

new knowledge emerges. A number of key issues are discussed in this chapter including, face-to-face and online discussion design, design considerations, knowledge construction, and instructional design models. Section III introduces major developments and methodological perspectives emerging from key instructional applications of conversation design. Section IV discusses issues and trends in conversation design. It addresses a number of emerging areas and new directions in conversation design.

The chapters in this handbook provide an invaluable set of tools to deal with a broad range of ‘new’ social interactions possible. In Section I, the introductory chapter traces conversation theory and design to its larger historical and theoretical context. This helps to situate the reader within the emerging field of conversation design developed over the last 40 years in a broad range of contexts. In Chapter II, Bernard Scott provides a personalized chronological account of the development of conversation theory and its applications while working with Gordon Pask at System Research Ltd between 1968 and 1978. This chapter illustrates how conversation theory evolved in a “boot-strapping” manner as a tool and as an explanation of its own significance. Chapter III by Paul Pangaro reviews Pask’s two main frameworks from conversation theory (a structure for the architecture of conversations and a schema for modeling the evolution of conversations) and discusses their application in theory and practice. In Chapter IV, Gary McIntyre Boyd focuses on the human centrality of conversational learning and how Pask’s conversation theory has attempted to address this. This chapter raises key issues surrounding the development of Paskian conversation theory and its limitations. In Chapter V, Ranulph Glanville explores key themes within design and design teaching found within Pask’s conversation theory (CT). This chapter demonstrates the parallels between central design activity and CT. The chapter describes major CT inspired machines (SAKI, Musicolor) and discussed key concepts within CT including interaction, learning, knowledge, and the modeling facility. The thrust of this chapter is about connecting design activity to conversation in terms of how design is taught and in terms of the act of designing itself. Glanville positions conversation and conversation theory as central to the process of design. In concluding Section I, Chapter VI by Janet Holland and Marcus Childress adapts Pask’s conversation theory to the domain of education, highlighting its potential to enhance learning in online environments. What is particularly interesting are the connections the author make between CT and longstanding models of learning in education, notably Bloom’s taxonomy of learning objectives. This chapter also makes strong connections between CT and communities of learning. The chapter ends with a sobering look at attempts to assess learning in conversation and create rubrics to measure the quality of conversation.

Section II presents key theoretical perspectives and applied cases in conversation design and for instruction. In Chapter VII, Gregory MacKinnon reviews major pitfalls of traditional electronic discussion and discusses the development and application of a coding system (the Cognates) grounded in learning theory to promote more substantive electronic discussion. In Chapter VIII, Kit Leung explores how Pask’s conversation theory can be used as a theoretical framework for designing blended courses that use a collaborative inquiry approach for teaching and learning. Chapter IX by Guadalupe de la Cruz Mendoza and Nick Kearney focuses on the design of conversations in online education. The authors address important theoretical considerations and provide practical techniques for structuring and facilitating online conversations for learning. In Chapter X, Lorraine Sherry and Shelley H. Billig examine existing work on instructional conversations and offer advice on designing dialogue to deepen learning. Chapter XI by Gülsün Kurubacak reviews existing work on online bulletin board dialogues (OBBs) and explores strategies and principles of conversation design based on media richness theory. In Chapter XII, Alyssa Wise and Thomas M. Duffy present a model for the design of a conversation space to support knowledge-building based on seminal work by Nonaka. The theoretical framework described in this chapter highlights conversation design to support the mutual development of tacit and explicit knowledge.

Section III presents a series of chapters on current developments and methodological perspectives emerging from key instructional applications of conversation design. Based on grounded theory developed over the last 40 years, Chapter XIII provides a grounded conversation design approach for online learning environments. This approach is applied to two online learning contexts to leverage conversation quality and learning. The chapter suggests how basic grounded conversation techniques can be applied in a variety of online learning environments to study conversation and develop grounded conversation theory. In Chapter XIV, Li Jin and Albert Ingram review the literature of conversation in online environment and provides practical suggestions and strategies for planning online courses and fostering successful online conversation. Chapter XV by Vanessa P. Dennen and Melinda Sota introduces storytelling techniques and discusses how one course used storytelling as an effective tool for promoting conversation among students. In Chapter XVI, Jean Morrow and Janet Holland explore conversation theory as a means of creating an active learning environment in an elementary mathematics methods course. Chapter XVII by Bob Zimmer posits the interpersonal action-learning cycle (IALC) as a model to invite thinking and attentive comprehension from learners in conversation. This chapter illustrates how interpersonal learning takes place within the IALC and offers strategies for stabilizing the IALC in the face of linguistic factors that routinely disrupt its use. Chapter XVIII by Helga Stokes focuses on design conversation amongst stakeholders involved in school change and the design of new learning environments. Based on Bela Banathy's systems theory approach to design conversation, the author conducts a study of school reform efforts at sites in various countries to examine participation in design and decision-making.

Section IV focuses on current trends and addresses a number of emerging areas in conversation design for the 21st century. Based on action research carried out over 30 years in a wide range of organizations, Chapter XIX by Sheila Harri-Augstein and Laurie Thomas core components of their self-organised-learning (SOL) model. The authors draw on a variety of knowledge bases (including Paskian conversation theory) in describing their own approach to modeling personal meaning for effective action. Chapter XX by Elisabeth André focuses on the design and evaluation of embodied conversational agents for educational and advisory software. This chapter posits guidelines for implementing and evaluating multimodal tutorial strategies from teaching dialogues within computer-mediated learning environments. In Chapter XXI, Niels Ole Bernsen and Laila Dybkjær address the importance of spoken dialogue (conversation) in the development of instructional systems that simulate human interactions. This chapter reviews the development of multimodal instructional systems from early intelligent tutors and takes a sobering look at the state of multimodal instructional develop, key applications, and future challenges. In Chapter XXII, Jason Caudill assesses mobile technology and its potential applications in instructional conversation. The author reviews technical advancements that have given instructors a wide variety of tools in conjunction with good design practices. Chapter XXIII by Fung Fai Ng discusses dialogue mapping as a visual thinking tool for facilitating group meetings using a shared display. The author explores the impact of dialogue mapping on collaborative learning along with factors influencing the effectiveness of group meetings in problem-based learning. In the final chapter, Chapter XXIV, Brian Whitworth and Tong Liu discuss how social politeness is relevant to computer system design. The authors provide useful advice to new designers and researchers concerning the importance of understanding social aspects of the Internet and software.