

SOCIAL INTERACTION IN ONLINE LEARNING: A SITUATIONALITIES  
FRAMEWORK FOR CHOOSING INSTRUCTIONAL METHODS.

Brian James Beatty

Submitted to the faculty of the University Graduate School  
as partial fulfillment of the requirements  
for the degree  
Doctor of Philosophy  
in the Department of Instructional Systems Technology,  
Indiana University

June 2002

Accepted by the Graduate Faculty, Indiana University, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

---

Charles M. Reigeluth, Ph.D.

---

Robert, L. Appelman, Ph.D.

Doctoral Committee

---

Curtis J. Bonk, Ph.D.

April 30, 2002

---

Jonathan A. Plucker, Ph.D.

© 2002  
Brian James Beatty  
ALL RIGHTS RESERVED

This dissertation is dedicated to my family, who have sustained my hopes and dreams during the many years of my studies.

Nellie, my lifelong partner and chief assistant  
Elizabeth, the dancer  
Teresa, the singer  
Jennifer, the gymnast  
Katherine, my early morning study companion  
Angela, my late night study companion  
“Baby Beatty,” role TBD

Above all, I give thanks to my Lord and Savior, Jesus Christ. Without divine guidance, insight, and sustenance, none of this would have been possible. Any true and useful meaning I may have captured in these pages belongs ultimately to Him.

## Acknowledgements

I would like to acknowledge the members of my committee for their support and guidance throughout the course of my doctoral studies and the completion of this study. I would like to thank Dr. Charles M. Reigeluth, my committee chair, for his efforts spent reviewing many long chapter drafts and for providing helpful conceptual feedback and comprehensive editing suggestions. I would like to thank Dr. Robert L. Appelman for welcoming me to the Indiana University community, and acting as my program advisor for the past four years. I would like to thank Dr. Curtis J. Bonk for his enthusiastic support of my research endeavors over the years, and his willingness to pour himself tirelessly into his students' experience. ("More is more!") Finally, I would like to thank Dr. Jonathan A. Plucker for his expert guidance during many hours spent in classroom discussions focused on education and social psychology.

I would also like to thank the case authors who agreed to participate in interviews and surveys as part of this study. Without their efforts, first in publishing their own case study research, and secondly in assisting me in answering specific questions about their experiences, this study would not have been completed. My hope is that the findings of this study will, in some way, assist them in their teaching and research in the online classroom.

## Abstract

Online learning has emerged as one of the most important new areas for research and development in the field of instructional technology. Using fundamental learning theory developed in distance education and traditional classroom instruction situations, online learning educators (including instructional designers) are using both new, technology-enhanced instructional methods and more traditional forms of instructional methods to incorporate social interaction in their online learning environments. Prescriptive design guidance should include a discussion of the specific situationalities (learning goals, values, conditions, and outcomes) that lead to the choice of one or more instructional methods in preference to other methods. Most existing design guidance for online learning environments does not address the conditions (an important part of the situationalities) that affect the selection of instructional methods, especially for methods that engage learning participants in social interaction. Using a case survey of many descriptive case studies, interviews with selected authors, and surveys of case authors, this study develops a “situationalities framework” that describes the situationalities – learning goals, values, conditions and effectiveness outcomes – that designers should consider when designing online learning environments. Preliminary prescriptive design guidelines developed from this framework demonstrate the usefulness of the framework for the further development of online instructional theory.

## Table of Contents

<b>CHAPTER 1. INTRODUCTION AND BACKGROUND .....</b>	<b>1</b>
GROWTH IN ONLINE LEARNING .....	2
SOCIAL INTERACTION IN LEARNING THEORY.....	4
IMPORTANCE OF SOCIAL INTERACTION FOR EFFECTIVE LEARNING IN DISTANCE EDUCATION.....	7
NEED FOR INSTRUCTIONAL DESIGN THEORY FOR ONLINE LEARNING .....	7
DEVELOPING INSTRUCTIONAL DESIGN THEORY .....	8
STUDY GOALS .....	11
STUDY OVERVIEW .....	12
<b>CHAPTER 2. REVIEW OF THE LITERATURE.....</b>	<b>14</b>
1. VALUES AND LEARNING GOALS IN SOCIAL LEARNING ENVIRONMENTS .....	14
Social Constructivist Learning Environments .....	15
Socio-cultural Learning Environments .....	16
2. ONLINE LEARNING ENVIRONMENTS.....	18
3. SOCIAL INTERACTIONS IN ONLINE LEARNING ENVIRONMENTS.....	19
Defining social interaction.....	20
Importance of social interaction for effective distance learning.....	22
Levels and types of interaction .....	23
4. DESIGN GUIDELINES FOR SOCIAL INTERACTION IN ONLINE LEARNING ENVIRONMENTS .....	29
Edited volumes.....	29
Individual papers.....	32
Situationalities in case studies .....	34
Sample case.....	35
Situationalities in other cases .....	37
5. RESEARCH QUESTIONS.....	39
<b>CHAPTER 3. METHODS.....</b>	<b>41</b>
GENERATING INSTRUCTIONAL DESIGN GUIDELINES .....	41
CASE SELECTION .....	43
Publication Source .....	43
Recency.....	44
Discussion of learning goals and values .....	45
Instructional methods using social interaction.....	45
Effectiveness of social interaction techniques .....	46
DATA COLLECTION.....	46
Case studies.....	47
Author Interviews .....	47
Expert Review.....	50
DATA ANALYSIS .....	50
Case Analysis .....	51
Interview Analysis .....	53
Cross-case Analysis .....	53

Expert Review.....	54
VALIDITY AND RELIABILITY OF THE RESEARCH .....	54
Internal Validity .....	55
External Validity.....	57
Reliability.....	58
<b>CHAPTER 4. CASE ANALYSIS .....</b>	<b>60</b>
SITUATIONALITY ELEMENTS .....	60
Values.....	61
Learning Goals .....	62
Instructional Methods .....	63
Discussion of effects .....	65
Instructional conditions.....	66
CASE-ANALYSIS REPORT .....	68
Sample report – C127 .....	68
Summary data .....	70
AUTHOR INTERVIEW AND SURVEY FEEDBACK.....	70
Confirmation and correction.....	71
SUMMARY.....	72
<b>CHAPTER 5. CROSS-CASE ANALYSIS .....</b>	<b>74</b>
CLASSIFICATION SCHEMES .....	75
Values.....	76
Goals .....	80
Methods.....	85
Conditions .....	91
<b>CHAPTER 6. SITUATIONALITIES FRAMEWORK.....</b>	<b>98</b>
RELATIONSHIPS BETWEEN SITUATIONALITIES .....	98
Values and Goals .....	99
Goals, Values About Means, and Methods.....	102
Methods and Conditions .....	107
Conclusion .....	118
SITUATIONALITIES FRAMEWORK .....	119
The Framework.....	120
Application.....	124
Final Comments .....	129
Author Feedback.....	130
Additional Insights .....	132
SETS OF CONDITIONS .....	134
Synchronicity and Time .....	135
Skills and Ability and Background .....	136
Motivation and Values.....	137
Motivation and Time.....	138
Class Size and Time .....	139
FINAL COMMENTS.....	140

<b>CHAPTER 7. CONCLUSIONS.....</b>	<b>141</b>
GUIDELINES .....	141
AUTHOR COMMENTARY.....	144
New Directions .....	144
IMPLICATIONS .....	146
Using the Situationalities Framework.....	146
Reporting Situationalities.....	147
Motivating Online Students .....	147
LIMITATIONS.....	149
Context .....	149
Multiple Interpretations .....	151
FUTURE RESEARCH.....	152
Studies in Training Contexts.....	153
Including Hybrids (Expanding) .....	154
Expanding Conditions to Supersystems.....	154
CONCLUDING REMARKS .....	156
<b>REFERENCES .....</b>	<b>158</b>
<b>APPENDIX A. CASE CITATIONS.....</b>	<b>177</b>
<b>APPENDIX B. CASE STUDY SOURCES .....</b>	<b>180</b>
Published Journals (Paper-based) .....	180
Online E-journals .....	180
Major Conference Proceedings.....	181
Published Books – Edited Volumes.....	182
Miscellaneous Sources .....	182
<b>APPENDIX C. INTERVIEW PROTOCOL .....</b>	<b>183</b>
<b>APPENDIX D. SURVEY PROTOCOL.....</b>	<b>184</b>
<b>APPENDIX E. SITUATIONALITIES BY CASE .....</b>	<b>186</b>
<b>APPENDIX F. VALUES BY CLASSIFICATION .....</b>	<b>222</b>
<b>APPENDIX G. GOALS BY CLASSIFICATION.....</b>	<b>224</b>
<b>APPENDIX H. METHODS BY CLASSIFICATION .....</b>	<b>230</b>
<b>APPENDIX I. CONDITIONS BY CLASS .....</b>	<b>241</b>
<b>APPENDIX J. NUMERICAL SUMMARY OF INSTRUCTIONAL METHODS AND CONDITIONS PER CASE .....</b>	<b>253</b>
<b>APPENDIX K. SITUATIONALITIES FRAMEWORK (SUMMATIVE DRAFT) .....</b>	<b>255</b>

## List of Figures and Tables

TABLE 1. CASE REPORT : POOLE, 2000 .....	37
TABLE 2. CASE REPORT : BOURNE, MCMASTER, RIEGER, & CAMPBELL, 1997 .....	38
FIGURE 1. CASE ANALYSIS REPORT FOR C127 (RADA, 1998).....	69
TABLE 3. VALUES AND CASES .....	76
TABLE 4. GOALS AND CASES .....	81
TABLE 5. INTERACTIVITY LEVEL INSTRUCTIONAL METHODS AND CASES .....	88
TABLE 6. ACTIVITY LEVEL INSTRUCTIONAL METHODS AND CASES .....	89
TABLE 7. FOCUS LEVEL INSTRUCTIONAL CONDITIONS AND CASES .....	93
TABLE 8. DETAIL LEVEL INSTRUCTIONAL CONDITIONS AND CASES .....	95
TABLE 9. VALUES AND CATEGORIES OF GOALS .....	100
TABLE 10. GOALS AND METHODS (BY CATEGORY) .....	103
TABLE 11. METHODS AND CONDITIONS (BY CATEGORY) .....	108
FIGURE 2. SITUATIONALITIES FRAMEWORK (SUMMATIVE) .....	121
FIGURE 3. SIX STEPS FOR USING THE SITUATIONALITIES FRAMEWORK .....	122
FIGURE 4. TWENTY GUIDELINES FOR SELECTING ONLINE INSTRUCTIONAL METHODS THAT USE SOCIAL INTERACTION .....	141