

Educational Communications and Technology: Issues and Innovations

Series Editors

J. Michael Spector

M.J. Bishop

Dirk Ifenthaler

For further volumes:

<http://www.springer.com/series/11824>

Roderick Sims

Design Alchemy

Transforming the way we think about learning
and teaching

 Springer

Roderick Sims
Knowledgecraft
Woodbum, NSW
Australia

ISBN 978-3-319-02422-6 ISBN 978-3-319-02423-3 (eBook)
DOI 10.1007/978-3-319-02423-3
Springer Cham Heidelberg New York Dordrecht London

Library of Congress Control Number: 2013956604

© Springer International Publishing Switzerland 2014

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

*for Johanna
who taught me place
for Geoff
who captures suns
for Elle
who beams magic*

Foreword

The sad fact is, much of our formal learning, both face to face and online, is broken. The evidence is ubiquitous, from poorly designed corporate training to some of the education my offspring are experiencing in school. The reasons are many, but one of the necessary components is a design process grounded in enlightened principles and structured to support a strong likelihood of an engaging and effective design.

Existing design processes are mired in traditional or, worse, outdated models of learning. While cognitive science has progressed to situated cognition, design models can still be grounded in behaviourist or information-processing approaches. Social constructivism is recognised as a viable approach, but as yet there is not a systematic design process.

The recognition of the need is growing, exemplified by a resurgence of new design processes incorporating various methods to support successful design, including Michael Allen's Successive Approximation Method to support iteration and David Merrill's Pebble in a Pond approach to more problem-centred learning. I, too, wrote a screed advocating an activity-based curriculum as a way to avoid a content-dump pedagogy.

Many years ago now, I had the pleasure of getting to know Rod Sims when I resided for a while in Australia. He was part of a vibrant community of learning and technology there, and I interacted with him in events both at home and abroad. He combined a cheery manner with a passion for understanding. While I left the wonderful Land Down Under, the internet allowed me to remain aware that he continued his academic work, such as through ITFORUM, a discussion group for those of our ilk. So when he offered the chance to write this foreword, I was honoured and thrilled to see where his thinking had gone. In the context of the above, what a delight it is.

What Rod Sims has done here is link his decades of practical experience with his rich academic background and synthesise a wide variety of models into a coherent whole. His playful conceptualisations and thoughtful discussion make a task that can be challenging into a systematic process that makes sense and yields inspired learning.

His core foci on problems, learners and contexts echoes the best understanding of what matters in creating persistent and meaningful skills. Rod has found a very pragmatic and accessible way to convey the appropriate approach, making the process manageable. And yet the robustness of his approach incorporates working backwards from the need, motivating learners and focusing on creative output.

Rod brings his ideas to life with examples both from his own work and work he has inspired. It is too easy to fall into pedestrian approaches, and the documented creativity helps inspire moving beyond the ordinary, as I similarly attempted to convey in *Engaging Learning* (Quinn, 2005). He also provides templates to support design practice. While seemingly focused on higher education, the principles Rod espouses will carry over to all formal learning, whether K12 or corporate.

Alchemy may not have worked to turn lead into gold, but it produced many scientific advances. Here, Design Alchemy integrates research-based elements into one coherent approach that can turn learning from lead into gold. I implore you to read this book and create better learning designs. The benefits are desperately needed.

Quinnovation, Walnut Creek, CA

Clark Quinn

Reference

Quinn, C.N. (2005). *Engaging Learning: Designing e-Learning Simulation Games*. Pfeiffer.

Preface

This book describes the origins, metamorphosis and application of a holistic, eclectic framework for the design and development of educational spaces in which students are engaged and teachers excited. Known as *Design Alchemy*, the framework is effective and efficient, achieving program and course design goals without compromising quality and providing an integrated set of strategies and principles based on both theory and practice. Design Alchemy extends educational design traditions through defining a practical method by which designers can transform learning and teaching experiences. While primarily directed towards learning and teaching online in the higher education sector, the concepts of Design Alchemy are relevant for all sectors and delivery modes.

But why another book on educational design? Aren't there enough interpretations of instructional design, learning design and curriculum development to meet the needs of those involved in creating intentional teaching and learning experiences? My response is 'not yet'! Learning, teaching and design are dynamic, not static, elements, dependent on the complex and changing world in which they are applied. More importantly, over the past 35 years, I have encountered numerous computer-based products and practice-based strategies that claimed they would revolutionise educational practice, and yet they have not succeeded. Learners and teachers and designers continue to struggle with those very products and strategies, especially those engaged with online education. This book is therefore for all those who are curious learners, creative teachers and innovative designers. For readers new to the field, Design Alchemy provides a practical and effective means to create online learning and teaching environments that maximise the educational experience. For those more experienced, the concepts and suggestions inherent within Design Alchemy will not only confirm their personal practice but also provide triggers for thinking differently about design.

The book is divided into four parts, with each chapter title represented by a question, designed to focus attention on the ideas addressed in the narrative. Preceding Part I, the introductory chapter provides an overview of the reasons why the ancient art of alchemy provides a valuable metaphor for educational design. The first part then examines the **emergence** of the Design Alchemy

framework based on my own research and practice followed by an analysis of its **alignment** with key theories, models and practices and an assessment of paradoxes which can constrain rather than enhance design practice. Having established a rationale for Design Alchemy, the second part addresses the three major elements of the **framework**: *pedagogy* (the mix of theories which inform successful learning), *practice* (the five steps needed to complete a course design) and *assets* (the factors that impact on design strategy). To provide a focus on the **practice** of Design Alchemy, the third part presents a series of case studies, from program to course to activity, which demonstrate application of the method. The final part provides a **self-service** selection of resources designed to assist develop understanding of the practice of a design alchemist, including a manifesto of heuristics and ideas.

In conducting research for this book, I used, where accessible, the primary sources of key researchers and theorists in the field. However, as one of the recommended elements of Design Alchemy is to utilise open resources, I have also used reference points such as Wikipedia (http://en.wikipedia.org/wiki/Main_Page) as resources for definition, analysis and demonstration. Because this content is under a Creative Commons licence, it allows, with attribution, the option to both use and modify that content to support arguments within the narrative. With respect to language, this book is broadly about design for learning and teaching with computer-based technology, and where I use the word *technology* without qualification, it should be read to refer to computer-based and/or network hardware and software deployed to support learning and teaching.

My journey in learning, teaching and design has been long and varied, and I am eternally grateful for the many encounters and interactions I have experienced with colleagues, friends and other luminaries along the way. Although some of these exchanges have been with people I have only read or listened to, all in their own way have helped me form these ideas and encouraged me to bring them together and champion the role of the design alchemist, the person who will make learning engaging, teaching exciting and design rewarding. I would like to thank Allan Ellis, Barbara Grabowski, Belinda Tynan, Bob Spence, Clark Quinn, David Crosby, David Jonassen, David Merrill, Deborah Jones, Douglas Adams, Elena Kays, Stephen Alessi, Jackie Dobrovolny, Kay Tydeman, Laurie Gillespie, Tim Hand, Jan Herrington, Jim Klein, John Hedberg, Kate Sumner, Kit McSwiney, Michael Allen, Michael Spector, Neil Young, Stanley Trollip, Tim Spannaus, Tom Reeves and Tom Robbins.

A very special thank you to Sharon Kensinger. It was only through your support and generosity that I could complete this manuscript. I'm eternally grateful for the quiet space, beautiful surroundings and ambience.

Contents

1	Why Alchemy?	1
	Design Challenges	2
	Design: Science, Art or Alchemy?	4
	Why Alchemy?	9
	References	10
Part I Design Alchemy: Emergence and Alignment		
2	Why Design Alchemy?	13
	Finding Magic	13
	Finding or Losing Design?	15
	Technology or Pedagogy?	18
	Why Design Alchemy?	23
	References	24
3	How Did Design Alchemy Emerge?	25
	Morphic Resonance	25
	Alchemy Emerging 1: The Art of Interactivity (1997)	26
	Alchemy Emerging 2: Proactive Evaluation (2002)	28
	Alchemy Emerging 3: Three-Phase Design (2003)	33
	Alchemy Emerging 4: Design for Learning (2006)	36
	Alchemy Emerging 5: Proactive Design for Learning (2012)	39
	Elements of Design Alchemy	42
	How Did Design Alchemy Emerge?	47
	References	47
4	Which Learning Theories?	49
	Philosophy or Theory?	49
	What Is Knowledge?	50
	What Is Learning?	51
	Constructivism	52

- Social Learning 54
- Situated Cognition 55
- Experiential Learning 57
- Connectivism 58
- Which Learning Theories? 59
- References 60
- 5 Instructional Design or Design Alchemy? 63**
 - Defining Instructional Design 63
 - Traditions of Instructional Design 64
 - Models of Instructional Design 69
 - Challenging Instructional Design 73
 - Reflections 74
 - Instructional Design or Design Alchemy? 76
 - References 76
- 6 Learning Design or Design Alchemy? 79**
 - Why Learning Design? 79
 - Universal Design for Learning 80
 - Learning Designs 82
 - Teaching as Design 83
 - Constructive Alignment 84
 - Open University Learning Design Initiative 88
 - Lanarca Declaration 89
 - Learning Design or Design Alchemy? 90
 - References 90
- 7 Insight or Distraction? 93**
 - Technology, Tool or Trauma? 94
 - To Be, or Not To Be, Credentialed? 98
 - Collaboration or Collusion? 101
 - Information or Interaction? 103
 - To Listen or to Perform? 106
 - Design Distractors 110
 - Insight or Distraction? 116
 - References 116

Part II Design Alchemy: The Framework

- 8 What Is the Design Alchemy Pedagogy? 121**
 - The Design Alchemy Pedagogy 121
 - Inclusive Learning 126
 - Active Learning 128
 - Problem-Solving 130
 - Contextual Learning 133
 - Social Learning 135

Creative Learning 137

Emergence 138

What Is the Design Alchemy Pedagogy? 141

References 141

9 How Does the Design Alchemist Practice? 143

 What’s in the Name? 143

 Practice in Overview 144

 Step 1: Knowledge Application 145

 Step 2: Learning Outcomes 147

 Step 3: Assessment 151

 Step 4: Learning Activities 156

 Step 5: Learning Resources 158

 How Does the Design Alchemist Practice? 159

 References 159

10 What Are the Assets of Design Alchemy? 161

 Assets in Overview 161

 People as Assets 163

 Standards 165

 Programs 170

 Technology 173

 Process Technology 175

 Evidence 177

 What Are the Assets of Design Alchemy? 178

 References 180

Part III Design Alchemy: In Practice

11 Transforming Programs and Courses 183

 Health Technologist Training 183

 Fraud and Corruption 186

 Corporate Law 190

 Science and Mathematics 193

 References 196

12 Activities and Assessment 197

 Discussion or Role-Play? 197

 Which Assessment Type? 204

 Design Alchemy Online 208

 Activities and Assessment 210

 References 210

Part IV Design Alchemy: Self Service

13 Design Alchemy: Self-Service 213

 Syllabus 213

 Being a Design Alchemist 217

 Assessment 224

- 14 Design Alchemy Templates 229**
 - Knowledge Application 229
 - Learning Outcomes 230
 - Assessment, Learning Activities, and Resources 230
 - Design Alchemy Assets 234
 - Course Syllabus 239

- 15 Design Alchemy: A Manifesto 243**
 - Design Alchemy: The Manifesto 243
 - Imagination and Memories 244
 - References 246

- Index 247**