Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

"*Streamlined ID* has been tremendously useful to help develop strategic training plans and federal cybersecurity learning programs. It's been my 'go to' resource for IACET audit reports, annual written course reviews, and ISD suggestions for improvements. We've experienced rapid changes in our sector and are expected to do more with less. AI transformation is the pivotal way forward for daily work streams and design processes (including VILT, self-paced learning, and even podcasting). I'm grateful for the new AI guidance available in this edition. Thank you!"

Tracy Diaz, MAEd
Senior Instructional Systems Designer, Federal Supply Chain Management and Cybersecurity Training, USA

"In a time when the half-life of knowledge is ever shrinking, the need for instructional design strategies that are agile and responsive could not be greater. *Streamlined ID* looks across the vast landscape of ID models and best practices and pulls together the things that matter most in creating high quality effective instruction. This book is a must-have reference for any modern instructional designer."

Stephen Harmon, PhD
Professor and Associate Dean of Lifetime Learning, Georgia Tech, USA

"I regularly use *Streamlined ID: A Practical Guide to Instructional Design* in my class. This book is not only valuable for beginners who are learning the foundational ADDIE framework, but also an outstanding resource for professionals seeking to advance their instructional design skills. I ask students to complete the Streamlined Self-Assessment Checklist: IDT Competencies to evaluate their current abilities and identify areas for improvement, and they find the activity highly engaging and meaningful in their preparation as instructional design professionals. This resource is one of many beneficial features of this book."

Qing Zhang, PhD
Assistant Professor, Xi'an Jiaotong-Liverpool University, China

"As a professor who has relied on the *Streamlined ID* textbook since its very first edition, I can confidently call it a cornerstone resource for any Instructional Design course. The book's clear, step-by-step organization and the number of summary tables, checklists, figures, and practical examples significantly aid student comprehension and application of complex concepts. This text is invaluable for bridging the gap between theory and practice, effectively preparing students for design roles in any professional environment."

Jesús Trespalacios, PhD
Associate Professor, Boise State University, USA

"*Streamlined ID* is a fantastic resource for comprehensively supporting each aspect of the instructional design process. Larson and Lockee provide an updated resource that steps through each ID phase in a format that addresses the needs of learning professionals across all fields. This is a recommended resource for any seasoned instructional designer or designers new to the field."

Chris Miller, EdD
President, Association for Educational Communications and Technology (AECT)
Professor of Education and Director of MSU at Mt. Sterling, Morehead State University, USA

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

STREAMLINED ID

Streamlined ID presents a focused and generalizable approach to instructional design and development – one that addresses the needs of ID novices as well as practitioners in a variety of career environments. Highlighting essentials and big ideas, this guide advocates a streamlined approach to instructional design: producing instruction that is sustainable, optimized, appropriately redundant, right sized, and targeted at continuous improvement.

The book's enhanced version of the classic ADDIE framework (analysis, design, development, implementation, and evaluation) emphasizes the iterative nature of design and the role of evaluation throughout the design/development process. It clearly lays out a systematic approach that emphasizes the use of research-based theories, while acknowledging the need to customize the process to accommodate a variety of pedagogical approaches and practical constraints.

This thoroughly revised third edition reflects recent advances in and evolution of the field, includes updated references, job aids, examples of how to use artificial intelligence (AI) in the design/development process, and includes highlights on the practice of ethical instructional design from noted experts Stephanie Moore and Heather Tillberg-Webb. The book remains a valuable resource for practicing instructional designers working in a variety of career environments and provides clear direction on the process for novices and graduate students.

Miriam B. Larson, PhD, serves as the assistant director of Learning Design and Technology at the Kennedy Krieger Institute. She also teaches graduate courses in learning experience design and instructional design at the Johns Hopkins University School of Education and the University of Tennessee, Knoxville. Her teaching and research focus on preparing instructional designers for success in a wide range of career environments. This work is informed by over 40 years of practical, real-world experience designing instruction for public and private sector organizations across similarly diverse career environments.

Barbara B. Lockee, PhD, is associate vice provost for faculty development and professor of Instructional Design and Technology at Virginia Polytechnic Institute and State University, USA. For over 30 years, her research and teaching have focused on the design of effective learning solutions, with a special emphasis on distance and online learning. She engages in performance consulting in a variety of contexts, including healthcare, military, aerospace engineering, and industrial training. She is past president of the Association for Educational Communications and Technology (AECT).

ETHICAL INSTRUCTIONAL DESIGN CONTRIBUTORS:

Stephanie Moore, **PhD**, is associate professor in the Organization, Information, and Learning Sciences program at the University of New Mexico where she teaches ethics and technology, adult learning, online learning, and multimedia design. She has consulted with many other agencies and corporations including the US Department of State, the Office of Personal Management, the US Air Force, and private companies and institutes. Stephanie is a fellow of the Microsoft AI Economy Institute working to develop

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

two classes – AI for All and AI in Work and Learning – and she has a current NSF grant focused on ethics as design in intelligent and autonomous systems. She also serves as editor-in-chief of *The Journal of Computing in Higher Education* and has published five books and over 60 peer-reviewed articles, proceedings, and chapters, many of which focus on ethics and ed tech/ID.

Heather Tillberg-Webb, **PhD**, currently serves as vice president of business technology solutions at Southern New Hampshire University, USA. In addition to holding leadership roles in educational institutions focused on the thoughtful incorporation of technology into the academic enterprise, she has served as an adjunct instructor in graduate instructional design courses for the past 20 years at institutions such as George Mason University and the University of Missouri Columbia as well as in the Master of Education in the Health Professions program at Johns Hopkins University. Alongside journal articles and book chapters on ethics in instructional design and academic technology, she co-authored the text *Ethics and Educational Technology* (2023) with Stephanie Moore. She earned her PhD in instructional technology from the University of Virginia in 2007.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

STREAMLINED ID

A Practical Guide to Instructional Design

Third Edition

Miriam B. Larson and
Barbara B. Lockee

With illustrations
by
Meg Erlewine and Mikaela L. Fuchs

Access additional website resources for this text at:
www.routledge.com/cw/larson



Routledge
Taylor & Francis Group
NEW YORK AND LONDON

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Designed cover image: © Getty Images

Third edition published 2027
by Routledge
605 Third Avenue, New York, NY 10158

and by Routledge
4 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2027 Miriam B. Larson and Barbara B. Lockee

The right of Miriam B. Larson and Barbara B. Lockee to be identified as authors of this work has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

For Product Safety Concerns and Information please contact our EU representative GPSR@taylorandfrancis.com. Taylor & Francis Verlag GmbH, Kaufingerstraße 24, 80331 München, Germany.

Trademark notice: Product or corporate names may be trademarks or registered trademarks and are used only for identification and explanation without intent to infringe.

First edition published by Routledge 2013

Second edition published by Routledge 2019

ISBN: 978-1-041-02300-5 (hbk)
ISBN: 978-1-041-02299-2 (pbk)
ISBN: 978-1-003-61860-7 (ebk)

DOI: 10.4324/9781003618607

Typeset in Minion Pro
by Apex CoVantage, LLC

Access the Instructor and Student Resources: www.routledge.com/cw/larson

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Dedication

To Jim, my children, and my grandchildren – thank you for the inspiration and support you've provided in this journey. I will be forever grateful for your love and encouragement.

To my students and co-workers – thank you for your creativity, enthusiasm, and insights. Your contributions have enriched this book and cultivated my growth as an educator. ~Miriam

To Bob and Chase, my reasons for being – thank you for your never-ending love and support.

To my students, colleagues, clients, and friends who've inspired this work: thank you for keeping me in the role of a learner. ~Barbara

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Contents

List of Figures **xiv**
List of Tables **xvi**
This Book: At a Glance **xix**
Acknowledgments **xxiv**

1. The Iterative Design Process 1

The Nature of Learning and Instruction 2
The Field of Instructional Design and Technology (IDT) 3
The Nature of Design 6
The Nature of Technology: Product and Process 8
Systematic and Systemic Design 8
What's Involved? ADDIE: An Iterative Design Process 9
Evaluation 11
Learning Environments 13
The Importance of Learning Theory and Research 15
Regular End-of-Chapter Features 16
Principles of Streamlining 17
Instructional Design Career Environments and Competencies 18
Ethics in Practice 22
Test Your Understanding with a Bloom Stretch 24

PART 1 ANALYZE: Introduction **29**

2. Analyze Needs and Project Scope 33

What's Involved? Analyze Needs and Project Scope 36
1. Identify Stakeholders and Establish Expectations 36
2. Identify Roles and Responsibilities 39
3. Identify Problems, Causes, Needs, and Solutions 40
4. Gather/Analyze Data on Needs, Constraints, and Resources 44
5. Draft Goal Statements 49
6. Summarize Needs Analysis Information for Stakeholders 55
Streamlining Needs Analysis and Project Scoping 56
Test Your Understanding With a Bloom Stretch 58
Introducing the *Streamlined ID* Case: The VET Project 60

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

3. Analyze Learners 61

What's Involved? The Learner Analysis Process 63
1. Confirm the Identity of the Target Learner(s) 64
2. Determine the Information Required 64
3. Collect Data and Produce a Learner Profile 66
4. Analyze Learner Data for Design Impacts 69
5. Revisit and Revise Learner Data throughout the Project 80
Streamlining Learner Analysis 81
Test Your Understanding with a Bloom Stretch 83
The VET Case: Learner Analysis 85

4. Analyze Instructional Contexts 87

What's Involved? Analyze Instructional Contexts 89
1. Identify and Analyze the Performance Context 90
2. Identify the Learning Context and Existing Design Constraints 92
3. Align the Learning Context with the Performance Context 93
4. Analyze the Culture of the Performance Context 97
5. Analyze Contextual Relationships and Make Recommendations 101
Streamlining Context Analysis 101
Test Your Understanding with a Bloom Stretch 106
VET Case Study: Context Analyses 107

5. Analyze Content 109

What's Involved? Analyzing Content 112
1. Review Goal Statements and Identify Learning Tasks/Outcomes 113
2. Determine Content Scope 115
3. Classify the Content 122
4. Prioritize and Sequence the Content 134
5. Combine All Analysis Results to Determine Content Treatment 139
6. Format and Seek Stakeholder Feedback and Approval 139
Streamlining Content Analysis 141
Test Your Understanding With a Bloom Stretch 143
VET Case Example: Content Analysis 145

PART 1 ANALYZE: Summary 150

PART 2 DESIGN: Introduction 153

6. Design Learning Theories and Perspectives 157

Theoretical Context and Grounded Design 159
A Brief Survey of Learning Theories 163
Pedagogical Approaches 174
What's Involved? Grounding Design 180
1. Determine How Project Stakeholders Believe Learning Occurs 181
2. Consider the Instructional Goal and the Analysis Results 184
3. Look at the Research on What Works 184
4. Confirm Alignment of Design with Theory and Pedagogy 184

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Alternative ID Processes and Models 185
Cross-Disciplinary Influences 186
Bottom-Line Summary 194
Streamlining Theoretical Grounding 195
Test Your Understanding with a Bloom Stretch 196
VET Case Example: Pedagogical and Theoretical Analysis 199

7. Design Outcomes and Alignment 200

Why Define Learning Outcomes and Align Them? 202
What's Involved? Defining and Aligning Outcomes 203
1. Use Backward Design to Identify Outcomes From KSAs 203
2. Revisit Specificity and Approach for Each Outcome 204
3. Write Actionable Outcomes That Communicate Expectations 211
4. Align Outcomes With Assessments and Instructional Strategies 219
5. Plan How to Communicate Relevant Outcomes to Learners 221
Streamlining Learning Outcome Definition 222
Test Your Understanding with a Bloom Stretch 225
VET Case Example: Outcomes 226

8. Design Assessments 228

Assessment Versus Evaluation 230
What's Involved? Designing Assessments 230
1. Align Assessments with Learning Outcomes 230
2. Design Assessments for Specific Purposes 233
3. Design Assessments That Reflect the Chosen Pedagogy 241
4. Plan for Effective Practice and Feedback 242
5. Use Assessment Data to Evaluate Your Instruction 246
Streamlining the Design of Assessments 249
Test Your Understanding with a Bloom Stretch 251
VET Case Example: Assessments 253

9. Design Instructional Strategies 255

What's Involved? Selecting Strategies 257
1. Select Strategies Aligned with Learner Outcomes and Assessments 258
2. Select Strategies Appropriate to the Context and Approach 263
3. Identify Strategies That Foster the Desired Interactions 269
4. Select Strategies That Motivate 276
5. Select Technologies to Support the Strategies Identified 278
Strategy Frameworks 281
Streamlining Instructional Strategy Design 290
Test Your Understanding with a Bloom Stretch 293
VET Case Example: Strategy Selection 294

10. Design Technologies 297

How Do Technologies Support and Foster Learning? 299
What's Involved? Selecting Technology for Instruction 301
1. Review Project Analysis Data to Inform Decisions 304
2. Select Technologies That Support Design Requirements 307
3. Evaluate and Justify Selections Based on Research and Theory 314

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Keeping Up With Emerging Technologies 317
Streamlining Technology Selection 320
Test Your Understanding with a Bloom Stretch 323
VET Case Example: Technology Selection and Alignment 325

11. Design Instructional Messages 328

The Role of Effective Communication 330
What's Involved? Designing Effective Messages 333
1. Design the Form of the Message to Support Its Function 334
2. Use Theory-Based Principles to Inform Your Message Design 341
3. Identify Learning and Message Design Principles to Address 343
4. Test the Design Formatively 353
Tools for Message Design 354
Streamlining Message Design 356
Test Your Understanding with a Bloom Stretch 357
VET Case Example: Message Design Principles Plan 359

PART 2 DESIGN: Summary 361

PART 3 DEVELOP: Introduction 365

12. Production of Instruction 367

What's Involved? Producing Instruction 369
1. Examine Existing Resources 370
2. Identify General and Specific Production Tasks 375
3. Create the Instructional Products and Learning Experiences 381
4. Observe Standards: Accessibility, Safety, Privacy, and Quality 386
5. Manage Production and Formative Testing of Instruction 395
Streamlining Production 396
Test Your Understanding with a Bloom Stretch 398
VET Case Example: Production Worksheet 400

PART 3 DEVELOP: Summary 402

PART 4 IMPLEMENT: Introduction 403

13. Implementation 405

What's Involved? Implementation: Develop and Deploy 407
1. Identify Implementation Requirements and Tasks 408
2. Establish Standards for Instructional and Technical Support 410
3. Use Project Management Best Practices 411
4. Guide Implementation Logistics and Promote Adoption 418
5. Evaluate and Revise for Continuous Improvement 423
Streamlining Project Management and Implementation 424
Test Your Understanding with a Bloom Stretch 426
VET Design Implementation 428

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

PART 4 IMPLEMENT: Summary **430**

PART 5 EVALUATE: Introduction **433**

What Will Success Look Like? 436

14. Evaluation 439

What's Involved? Evaluating Instruction 440
1. Identify the Key Questions You Wish to Answer with the Evaluation 441
2. Identify and Collect Benchmark Data Relevant to Key Questions 441
3. Plan Evaluation Measures for Each ADDIE Process Activity 442
Our Recommended Evaluation Model 442
Thinking about Evaluation: Analyzing Needs 444
Thinking about Evaluation: Analyzing Learners 444
Thinking about Evaluation: Analyzing Contexts 445
Thinking about Evaluation: Analyzing Content 446
Thinking about Evaluation: Identifying Outcomes and Assessments 447
Thinking about Evaluation: Selecting Strategies 448
Thinking about Evaluation: Selecting Technologies 448
Thinking about Evaluation: Designing Instructional Messages 449
Thinking about Evaluation: Developing Instruction 449
Thinking about Evaluation: Implementing Instruction 450
Other Evaluation Models 452
Streamlining Evaluation 454
Test Your Understanding with a Bloom Stretch 456
The VET Case: Program Evaluation 458

PART 5 EVALUATE: Summary **460**

References **463**
Index **482**

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Figures

F.1	The ADDIE iterative design process	xx
1.1	Contributions to the field of instructional systems design	5
1.2	The iterative ADDIE process	10
1.3	Continuum of learning environments	14
1.4	Dan Coldeway's distance learning quadrants with examples	14
2.1	Analyze needs and project scope	37
2.2	Stakeholders	37
2.3	Needs analysis	40
2.4	Sam's needs analysis	41
2.5	Maslow's hierarchy of needs	42
2.6	Instructional goals and objectives	54
3.1	Analyze learner needs and characteristics	64
3.2	Example of learner personas	70
3.3	How learner data impact designs	71
4.1	Analyze instructional contexts	89
4.2	Coldeway's quadrants example	94
5.1	One way to move from analysis to design	112
5.2	Analyze content	113
5.3	Analysis steps for job or task analysis	118
5.4	Analysis steps for subject matter or content analysis	118
5.5	Topical flowchart illustrating content scope and sequence	122
5.6	Hierarchical chart illustrating dependencies and prerequisites	123
5.7	The domains of learning	124
5.8	Bloom's revised cognitive taxonomy (Anderson et al., 2001)	130
5.9	How learning outcome types inform delivery mode decisions (adapted from Chyung & Trenas, 2009)	131
5.10	Psychomotor and affective taxonomies	133
5.11	The veterinary diagnosis and treatment process	148
5.12	The eLearning format for case progression in the VET program	148
5.13	Fishbone diagram for equine colic	149
P2.1	The instructional design blueprint	155
6.1	Establishing common terminology	161
6.2	Example: from cognitive theory to methods	162
6.3	Pedagogical approaches referenced in *Streamlined ID*	178
6.4	Grounding design	181
6.5	The brain networks	191
7.1	Define and design outcomes	203
7.2	Example of a numbered graphic representation of outcomes	206

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

7.3	Bloom's thinking skills progression	213
8.1	Design assessments	231
8.2	Warring outcomes and assessments	231
8.3	Ethics in assessment	248
9.1	Design instructional strategies	258
9.2	From outcomes to strategies	265
9.3	The scenario development process	289
10.1	Four educational purposes of technology	300
10.2	Select technologies for instruction	302
10.3	Interactions that impact media selections	302
10.4	Delivery mode selection considerations	308
10.5	Selecting technologies	309
10.6	The Clark and McLuhan debates	316
11.1	The classic communication model	331
11.2	Design effective instructional messages	333
11.3	Patti Shank's (2018) tactics for managing memory during instruction	347
11.4	Communication functions of graphics	352
P2.1	The instructional design blueprint	362
12.1	Production of instruction	370
12.2	Creative Commons licensing icons	373
12.3	Using presentation software for a simple storyboard	384
12.4	Applying the UDL principles during production	392
12.5	Effective instructional videos	394
13.1	Implement: develop and deploy the instruction	408
13.2	Sample project implementation workflow	411
13.3	Sample schedule with Gantt chart	413
13.4	Suggested filing system for eLearning development	415
13.5	Instructional design/development process chart	417
P5.1	The instructional design blueprint	434
14.1	Evaluate instruction	441
14.2	Kirkpatrick's four-level evaluation model	442
14.3	Evaluating strategy alignment	448
PS5.1	The instructional design blueprint	461

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Tables

F.1	Icons for Key Instructional Design Principles	xxi
F.2	Who Might Use This Book and How?	xxii
1.1	The Four-Level Kirkpatrick Evaluation Model	13
1.2	Unique or Emphasized Competencies for Specific Career Environments	20
1.3	Practices to Embed Ethics in IDT	24
1.4	A Streamlined Self-Assessment: IDT Competencies	25
P1.1	Sample Form for Project Intake	30
2.1	A Sample of Instructional Goals and Purposes Served	38
2.2	A Sample of Instructional Design Project Roles and Responsibilities	39
2.3	Sample Problems and Alternative Solutions	44
2.4	Differing Views of Problems, Needs, and Solutions	45
2.5	Methods and Tools for Needs Analysis	46
2.6	Marzano's (2001) Factors Impacting Student Academic Achievement	49
2.7	Deciding on the Specificity of Goals	53
2.8	Comparing Goals, Learning Outcomes, and Terminal and Enabling Objectives	54
2.9	Checklist for Needs Analysis	59
2.10	VET Project Design Plan Needs Analysis	60
3.1	Learner Characteristics and Implications for Instructional Design	65
3.2	Sources of Data about Learner Populations	67
3.3	Checklist for Learner Analysis	84
3.4	VET Learner Characteristics and Design Implications	86
4.1	Sample Learning and Performance Contexts	90
4.2	Factors to Consider concerning the Performance Context	91
4.3	Factors to Consider concerning the Learning Context	93
4.4	Planning the Learning Context: Options to Consider, Part 1 of 2	95
4.5	Planning the Learning Context: Options to Consider, Part 2 of 2	96
4.6	Checklist for Context Analyses	106
4.7	VET Case Example: Elaine's Context Analyses	107
5.1	A Sampling of Tools and Methods for Analyzing Content	116
5.2	Instructional Content Classification Chart	124
5.3	Gagné's Types of Learning Outcomes: Cognitive Learning Domain (1 of 2)	127
5.4	Gagné's Types of Learning Outcomes: Cognitive Learning Domain (2 of 2)	128
5.5	Gagné's Types of Learning Outcomes: Psychomotor and Affective Domains	128
5.6	Global and Single-Domain Outcome Taxonomies	130
5.7	Decision Requirement Table (DRT) Example: Essential Nature of Content	136
5.8	Example Priority Rating System	137
5.9	Content Sequencing Strategies and Applications	138
5.10	Why Designers Must Understand the Demands of the Content	140

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

5.11	Checklist for Content Analysis	144
5.12	Example Design Plan Content Analysis, Part 1 of 2	145
5.13	Example: Task Training Decisions	146
5.14	Example Design Plan Content Analysis, Part 2 of 2	147
S1.1	Types of Instructional Analysis and Implications	151
6.1	Behavioral Learning Theory	164
6.2	Cognitive Learning Theory	165
6.3	Constructivist Learning Theory	167
6.4	Social and Situated Theories of Learning	170
6.5	Comparing and Contrasting Pedagogical Approaches	179
6.6	Questions to Ask for Different Pedagogical Approaches	182
6.7	Questions to Contemplate about Pedagogical Approaches	183
6.8	How Key Educational Supports Differ	189
6.9	Learner Differences and Brain Networks Aligned with UDL Principles	190
6.10	UDL Principles with Select Considerations Emphasizing Multiple Forms of Media	191
6.11	Alignment of UDL and Instructional Design Principles and Guidelines	192
6.12	Checklist for Theory, Pedagogy, and UDL	198
6.13	Example of Pedagogical and Theoretical Analysis	199
7.1	The ABCDs of Outcomes, with Examples	207
7.2	Sample Instructivist, Constructivist, and Connectivist Outcomes	209
7.3	Contrasting Learning Activities and Learning Outcomes	211
7.4	Using Bloom's Levels to Define Outcomes	215
7.5	Using Gagné's and Bloom's Taxonomies to Identify Outcomes	217
7.6	Working Backward From Instructional Intentions to Learning Outcomes	218
7.7	Example: Table of Aligned Outcomes, Assessments, and Strategies	220
7.8	Checklist for Designing Learning Outcomes	225
7.9	VET Case Example: Learning Outcomes	227
8.1	Common Learner Guessing Strategies and Designer Assessment Countermeasures	237
8.2	Sample Rubric for Product Evaluation Training	240
8.3	Sample Self-Assessment Prompts for Individuals and Groups	240
8.4	Examples of Aligned Outcomes and Assessments by Pedagogical Approach	243
8.5	Checklist for Developing Assessments	252
8.6	VET Revised Aligned Outcomes and Assessments	253
9.1	Strategies for Gagné's Verbal Information and Select Intellectual Skills Outcomes	259
9.2	Strategies for Gagné's Attitudinal and Psychomotor Skill Learning Outcomes	260
9.3	Examples of the Impact of Learner Analysis Data on Design Strategies	263
9.4	Specific Example of Identifying Assumptions, Approaches, and Strategies	267
9.5	Design Guidelines and Strategies for Instructivist and Constructivist Approaches	268
9.6	Design Guidelines and Strategies for a Connectivist Approach	269
9.7	Strategy Examples by Instructional Intent and Interaction Type	274
9.8	Keller's ARCS Motivational Strategies	278
9.9	Marzano's (2001) Nine Categories of Effective Strategies and Effect Sizes	279
9.10	Scaffolding Guidelines	280
9.11	Gagné's Nine Events of Instruction	283
9.12	Example of a Lesson Plan Using Gagné's Nine Events of Instruction	285
9.13	BSCS Five *E*s Instructional Model	286
9.14	Connectivist Learning Environment Planning Framework	287
9.15	Checklist for Designing Strategies	294
9.16	Example: Final VET Aligned Outcomes, Assessments, and Strategies	295

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

10.1	Technologies to Support Specific Strategies	312
10.2	Using Technologies to Foster Bloom's Thinking Skills	313
10.3	Using Technologies to Support Collaboration and Participation	314
10.4	Technology Selection Checklist	324
10.5	VET Aligned Outcomes, Assessments, Strategies, and Technologies	326
11.1	Description of Elements in the Communication Process	331
11.2	Sample Uses of Sensory Messages and Relevant Factors to Consider	336
11.3	Visual Message Design Principles Aligned With Gagné's Nine Events	346
11.4	Thompson's (1994) Visual Message Design Principles	348
11.5	Visual Message Design Strategies	349
11.6	Message Design Planning Aid	350
11.7	A Sampling of Media Attributes and Features	351
11.8	Checklist for Message Design	359
11.9	VET Sample of Design Principles, Form Factors, and Media Attributes Used	360
12.1	Existing Resources Survey for Stakeholders	371
12.2	Interactivity Levels (Schulmeister, 2003) Adapted for XR (McGowin & Fiore, 2025)	380
12.3	Production Skills and Some Tool Options	382
12.4	Key Accessibility Measures to Address for Learning Content	388
12.5	Checklist for Production	399
12.6	VET Program Production Worksheet	400
13.1	Technical and Instructional Supports During Implementation	410
13.2	Example Review and Approval Log	414
13.3	Differences in Prototype Testing for Different Pedagogical Approaches	420
13.4	Examples of Implementation Logistics by Delivery Mode	422
13.5	Checklist for Implementation	427
13.6	VET Design Plan Implementation Considerations	428
14.1	The Kirkpatrick Four-Level Evaluation Model	443
14.2	Review Response Example	451
14.3	Survey Checklist for a Level 1 Evaluation	457
14.4	VET Program Kirkpatrick Evaluation Plan	458

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

This Book: At a Glance

This book presents a practical, step-by-step approach to designing instruction for a wide range of purposes and career environments. It supports novices across fields as they learn to create effective learning experiences, and the job aids and tips for streamlining the process make it a valuable reference for more experienced practitioners. We've incorporated commonly used methods and theories from the field, along with emerging approaches that show promise for the future, such as the use of artificial intelligence (AI) in the design process.

WHY STREAMLINED ID?

This book provides globally applicable guidelines for IDs across professional contexts yet also highlights the differences in goals and ID practice in various career environments (e.g., higher education, K–12, business and industry, healthcare, and/or government/military). It also acknowledges the needs championed by many for a more responsive, rapid, learner-centered, and ethical process for designing learning experiences. To address these needs, it provides tips for improving and accelerating development, ideas for involving the targeted learners in the entire process, and guidance on the ethical practice of instructional design.

It further emphasizes a ***streamlined approach*** – one that we believe meets the needs of ID novices and practitioners across professional settings. We emphasize design practice that is:

Sustainable – Sustainable instruction is designed and developed with the future in mind. The resources and time devoted to the design/development effort is planned and adjusted to reflect the expected lifespan of the instruction, its importance and complexity, its need for future updating and maintenance, and the possible future need to scale the instruction up or down in size and scope to meet demand.

Optimized – Optimized instruction is efficient and useful. It does what it is supposed to do in the most efficient manner possible, and it maximizes functionality, usability, and productivity. Ideally, optimized instruction is designed so that it can be reused for different purposes and audiences. It also uses methods that optimize the ID's time, including the use of artificial intelligence (AI) when and where appropriate.

Appropriately Redundant – While too much redundancy can frustrate or annoy a learner, appropriate redundancy refers to providing the content in multiple formats so that it is accessible to all learners. Redundancy also refers to provisions that allow the learner to review the instruction again whenever necessary and at a pace that meets his or her needs.

Right Sized – Instructional project *creep* is the well-known problem that evolves when you try to design instruction that is everything to every learner or when multiple stakeholders make requests that end up *supersizing* the learning experience. When you practice right-sized ID, you stick to the essential content and use techniques that give learners options for accessing additional, nice-to-know, or remedial content if and when it is needed.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Continuous Improvement – The IDT field has always emphasized review and revision to improve the quality of instruction and learning. An iterative approach that features frequent formative and usability testing throughout design and development serves to help designers "get it right" earlier in the process. It also helps focus all stakeholders on the need to continuously improve.

WHAT DOES THIS BOOK EMPHASIZE?

We've chosen to stick with a classic instructional design process familiar to those in the field – *with a twist*. The classic ADDIE process – an acronym for analysis, design, development, implementation, and evaluation (Allen, 2003) – has a simplicity that underscores the streamlined approach we advocate. That said, we emphasize throughout the book that the ADDIE ID process is *iterative*, not linear, and that it should be used in a way that reflects responsiveness to the surrounding contexts of instruction (see our conception of the iterative ADDIE process in Figure F.1). We also emphasize that *evaluation* is not merely one element of ADDIE but supports the entire process and should be considered throughout to promote continuous improvement. This third edition stresses the importance of practicing *ethical instructional design*, including the ethical use of AI, along with suggestions for incorporating AI throughout the ADDIE process.

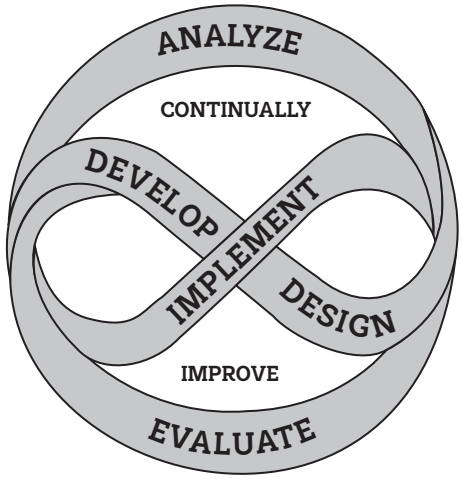


Figure F.1 The ADDIE iterative design process

HOW IS THIS BOOK ORGANIZED?

Each chapter of this book covers a different activity in the ADDIE process, providing essential content, examples, suggested exercises, tables that can be used as job aids, and a common case study example revisited at the end of each chapter. Icons are used to highlight standard sections in each chapter and to identify key design principles to observe, as illustrated in Table F.1.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

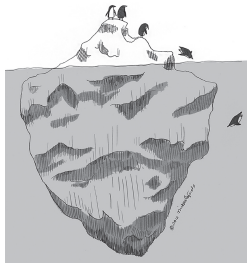
Table F.1 Icons for Key Instructional Design Principles

	**Inquiring Minds Want to Know** provides questions about the chapter contents to focus your attention on the key points to understand and remember.
	**Jargon Alerts** highlight potentially confusing or duplicate terms used in the field of IDT.
	The icons at left serve as cues for several *big ideas* or foundational principles to internalize, as well as false conceptions that can hamper effective practice. Committing these **Foundations** and **Fallacies** to memory will help you avoid mistakes and delays.
	Lightbulb and slashed lightbulb icons highlight the examples and non-examples included in the book, including **Examples** of concepts and practical applications and **Non-Examples** of what to avoid doing in your design practice. Additional examples are provided on the book companion website (see QR code later in this chapter).
	Important notes, key points, lessons learned, and cautions are highlighted with an exclamation point icon.
	A section entitled **What's Involved?** is marked with a step icon. It provides step-by-step best practices for ADDIE tasks in each chapter. You'll also find useful job-aid tables that can serve as just-in-time reference aids for your professional practice.
	**Streamlining** suggestions are provided after the content in each chapter, including ways to use artificial intelligence (AI) for efficient and effective design.
	Each chapter includes tips on using **Artificial Intelligence (AI)** tools effectively in the ADDIE process.
	Suggestions for items and issues to consider as you seek to practice **Ethical** instructional design are noted, when and where applicable.
	Examples of how ID activities and practitioner perspectives vary across the field are highlighted in **Different Career Environments and Perspectives**.
	**Bloom stretch** exercises help you monitor and extend your own learning. These are based on Bloom's revised taxonomy of educational objectives (Anderson, et al., 2001) and address four levels of Bloom's thinking skills taxonomy: Apply, Analyze, Evaluate, and Create. (The Remember and Understand levels are addressed at the beginning of each chapter.)

(*Continued*)

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Table F.1 (Cont.)

	At the close of each chapter, a **Diving Deeper** section notes *additional chapter resources* available on the *Streamlined ID* companion website. Resources include practical exercises, examples, job aids, web links, and books and articles related to the chapter topics.
	A checklist for the ADDIE activities featured in each chapter is included near the chapter's end.
	Finally, each chapter ends with a *practical example* in the form of a common case study that we revisit throughout the book.

As noted, the companion website for this book provides a robust set of resources, examples, job aids, a glossary, and exercises for each chapter, as well as the appendix items from previous editions. These resources are designed to support instructional design practitioners, novices to the field, and instructors teaching instructional design.

www.routledge.com/cw/larson

Table F.2 provides guidance to help you determine how to get the most out of the information in this book.

Table F.2 Who Might Use This Book and How?

I'M . . .	I HAVE TO . . .	I WILL USE THIS BOOK . . .
An Instructor in Higher Education or K–12	• Move some of my courses to an online format; • Adjust my courses to better address the needs of those who will employ my students; • Quickly develop several new courses; • Teach students to design instruction or training.	• As a guide to adjust my instruction for an online environment; • To determine what future employers need from my students; • To help me streamline the course development process, and/or work more effectively with course developers; • To provide my students with a solid resource for learning instructional design and an easy-to-use reference for their future ID practice.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

I'M . . .	I HAVE TO . . .	I WILL USE THIS BOOK . . .
A Course Developer or Technology Coordinator in Higher Ed or K–12	• Support others in the design of face-to-face, blended, and/or fully online courses; • Help others use technology effectively to support learning; • Provide materials to help others design and develop instruction.	• To provide a basis and guide for collaborating with others in the design of instruction; • As a source of best practices to share with others as they design and implement technology-supported instruction; • As a source of job aids for designing instruction.
A Trainer in Business and Industry, Healthcare, Non-Profit, Government, or the Military	• Produce and/or deliver instruction that will improve the performance of employees; • Rapidly produce instruction on new products, services, procedures, or processes; • Produce instruction to respond to applicable standards, regulations, or certification requirements; • Justify training development and implementation efforts.	• As a quick reference guide for producing instruction that improves performance and meets needs in measurable ways; • To help me streamline the ID process so I can keep my organization competitive and employees current with just-in-time instruction or job aids; • To help me produce instruction that prepares others to meet standards, regulations, compliance, or certification requirements.
A Novice Instructional Designer or An Independent IDT Consultant	• Learn about instructional design and development, or fill gaps in my knowledge of the field; • Produce instruction quickly and in a cost-effective manner to maintain an acceptable profit margin; • Either do all steps in the design/development process myself or work with SMEs or an ID team or subcontractors.	• As a primer or quick reference for best practices and ideas; • To streamline my design/development process; • As a guide for effective collaboration and contribution to IDT team efforts or to work successfully with stakeholders and subcontractors in the IDT process.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Acknowledgments

We would like to thank our graduate students from the University of Tennessee, Knoxville (UTK), Virginia Tech (VT), and the Johns Hopkins University for their helpful feedback on the book and website resources. We also extend our thanks to our colleagues Dr. Kibong Song, Dr. Hillary Goldthwait-Fowles, and Harmina Moudgil, whose insightful suggestions strengthened the book job aids and website resources.

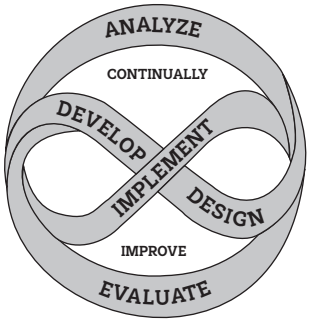
We are grateful to Dr. Eric J. Moore (Kennedy Krieger Institute), distinguished Universal Design for Learning (UDL) scholar, for his valuable feedback on the UDL content in this book, and to Dr. Meggan Graves (UTK), our subject matter expert for the veterinary case study example in each chapter.

Many thanks go to Hannah Hicks and Katherine Tsamparlis at Routledge for their excellent support and assistance. Thanks to their efforts, we feel blessed to be able to share our work with practitioners of instructional design and novices learning our craft.

We'd also like to express our gratitude to graphic artist Meg Erlewine and artist Mikaela Fuchs for the wonderful icons and images that make our content come alive.

Finally, we are honored and thankful for the excellent contributions on ethical design practices from distinguished instructional design and ethics scholars Dr. Stephanie Moore and Dr. Heather Tillberg-Webb. Integrating insights and considerations of ethics in the instructional design process ensure that learning experiences are not only effective but also responsible, equitable, and respectful of learners' diverse contexts and needs. We are deeply grateful to Drs. Moore and Tillberg-Webb, whose guidance sharpens our collective judgment and strengthens the integrity of instructional design practice.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution



CHAPTER 1
THE ITERATIVE DESIGN PROCESS

You are wired to learn, and that's a good thing. Learning helps you adapt and survive in a world that is changing at an ever-increasing rate. In this era of information overload, *the ability to learn* is crucial for:

- Businesses with evolving products, services, and competitors;
- Governments that are struggling to provide basic services to citizens while adjusting to economic, political, societal, and environmental changes;
- Military organizations facing global political change and new technologies;
- Higher education institutions seeking to anticipate and communicate an evolving knowledge base;
- Healthcare organizations addressing changing health needs and new methods; and
- K–12 educators preparing future generations to learn and adapt in a constantly changing world.

Change characterizes every aspect of life in the 21st century. Consequently, lifelong learning is a survival skill for individuals and societies, creating a need for *effective learning experiences*. Practitioners in the field of instructional design and technology (IDT) address this need as they:

- Analyze problems to determine if instruction is a valid solution;
- Identify and limit the scope of instruction to ensure its relevance;
- Design effective learning experiences and environments;
- Select appropriate media and delivery modes;
- Consider ethical, social, and other implications of designs and technology choices; and
- Develop, implement, and evaluate instruction.

With such a broad range of responsibilities, it's easy to become mired in complexity and discouraged from taking a creative approach. That's why it's important to know how to design effective instruction *and* how to *streamline* the process.

DOI: 10.4324/9781003618607-1

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution



INQUIRING MINDS WANT TO KNOW . . .

- What are the origins of the field of instructional design and technology (IDT)?
- What constitutes an effective learning experience?
- How do you determine if your instructional solutions were effective?
- What factors and processes are involved in designing instruction, and how can the processes be streamlined?
- What do you need to **remember** and **understand** from this chapter?
  - ⇒ The meaning of these terms: learning, instruction, technology, design, grounded design, competency, asynchronous and synchronous learning, media comparison studies, stakeholders, and formative and summative evaluation;
  - ⇒ Distinctions between these concepts: systematic design and systemic design, *hard skills* and *soft skills*, and well-structured and ill-structured problems;
  - ⇒ The different career environments where IDT is practiced;
  - ⇒ The range of competencies expected of proficient instructional designers;
  - ⇒ The principles of streamlined instructional design;
  - ⇒ Different ways to classify learning environments;
  - ⇒ The importance of learning theory and research in IDT;
  - ⇒ Ethical considerations for instructional designers, and
  - ⇒ The anticipated impact of artificial intelligence (AI) on the IDT field.

THE NATURE OF LEARNING AND INSTRUCTION

You learn in many ways: through your senses and experiences, by reflecting on those experiences, and by interacting with and observing others. Learning can be intentional or serendipitous and formal or informal. Most educators agree that learning "occurs when experience causes a relatively permanent change in an individual's knowledge or behavior" (Woolfolk, 2005, p. 190), and some also emphasize the change in a learner's connections to knowledge sources (their knowledge networks).

At a basic level, instruction facilitates and supports learning (Spector, 2001a, p. 309). Yet, definitions of instruction vary:

- Distinguished educator John Dewey (1938): Instruction is "a social activity that aims to prepare students to become capable learners."
- IDT pioneers Robert Gagné and Leslie Briggs (1974): The purpose of instruction is "to help people learn" (p. 3) through external events and internal self-instruction.
- Bruner (1966): Instruction is "an attempt to shape intellectual growth" (p. 1).
- Glaser (1976): Instruction involves implementing conditions "to foster the acquisition of competence" (p. 1).
- Biggs (1999): Instruction is "a construction site on which students build on what they already know" (p. 72).
- Stephen Downes (2012): Connectivist learning experiences instruct by creating "an environment where people who are more advanced reasoners, thinkers, motivators, arguers, and educators can practice their skills in a public way by interacting with each other . . ., [and other] people can learn by watching and joining in" (p. 508).

You can design instruction aligned with any and all of these definitions, and this book provides ideas and support to pursue that goal.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution



JARGON ALERT!

What's in a name? There are many different job titles used for those who design instruction and many diverse degree programs that produce practitioners. Knowing the range of titles and terms can be of value when you are searching for research or career positions. Some applicable fields include instructional design and technology, instructional or educational technology, instructional systems design, learning sciences, learning experience design, technical communications, adult learning, performance technology, instructional psychology, online teaching and learning, eLearning, training and development, and open and distance education.

Job titles vary both by industry and by sector, and you'll even find inconsistencies within a particular field. The range of job titles includes corporate trainer, curriculum developer, instructional or educational technologist, instructional designer, learning experience designer, eLearning developer, distance learning coordinator, librarian, media specialist, instructional systems specialist, learning architect, learning experience designer, learning scientist, training and development specialist, and even learning product design engineer! If you've been perusing the job ads, you can probably add a few to the list.

EFFECTIVE LEARNING EXPERIENCES

What characterizes quality instruction and learning experiences that are effective and memorable? While the criteria vary based on many factors, effective learning experiences:

- Capture and maintain attention;
- Communicate the learning objectives and their relevance (a.k.a., the knowledge, skills, and attitudes to be learned);
- Are matched to learner needs and characteristics;
- Provide opportunities for meaningful interaction with content and opportunities to reflect;
- Emphasize essential (need-to-know) knowledge and skills over nice-to-know information;
- Support learner organization of new knowledge and connections to prior knowledge;
- Provide cues for recall and recognition of important information;
- Provide meaningful activities to practice applying new knowledge and skills in authentic settings;
- Assess the learner in a way that is consistent with the learning objectives and the instructional content and learning activities;
- Foster learning through experiences that are motivating and diverse, encourage self-direction, provide practice and feedback, and provide opportunities to collaborate and discuss; and
- Provide accessible and flexible opportunities for all learners through multiple means of representation, multiple means of expression, and multiple means of engagement.

Quality criteria and rubrics have been identified for face-to-face instruction, online instruction, and blended instruction. You can begin to develop your own criteria for quality learning experiences by reviewing standards and rubrics from organizations like the Online Learning Consortium (OLC), Quality Matters, and EDUCAUSE.

THE FIELD OF INSTRUCTIONAL DESIGN AND TECHNOLOGY (IDT)

Explaining what an instructional designer does can be challenging due to the field's constant evolution and broad scope. IDT professionals work in various public and private environments with diverse job titles like instructional technologist, eLearning developer, distance learning coordinator, librarian, media specialist, instructional systems specialist, learning experience designer, and more (as listed in the previous Jargon Alert).

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution



REAL-WORLD EXAMPLE

At her 10-year high school reunion, Shawna was greeted by the reunion coordinator, who asked, "Can you remind me what you do again?" Shawna detailed her role as an instructional designer, emphasizing her work with various organizations, the multimedia products she had developed, and her use of the ADDIE process to design learning experiences. She recalled having to correct her job title in the coordinator's draft of her reunion booklet biography, explaining that she was an instructional designer, not an industrial or interior designer. Later, Shawna overhead the coordinator telling another graduate, "Oh, you're in advertising? I think that's what Shawna does too – she mentioned something about those ADDY awards." Shawna sighed, wondering if she should have described herself as an instructional technologist, but people often misunderstood and thought she was an information technologist and worked with computer coding and networking.

The discipline emerged during the 20th century and evolved quickly as a result of the military training needs of World War II (Reiser, 2001a, 2001b). Influences that shaped the field can be traced back to the early Greek philosophers Aristotle and Plato, who pondered the nature of knowledge and truth and whether they are external or internal to a person (Saettler, 2004; Moore & Tillberg-Webb, 2023). While the nature of IDT is continually evolving and foundational tenets are frequently challenged, two practices continue to be central to the field: "the use of media for instructional purposes and the use of systematic instructional design procedures" (Reiser & Carr-Chellman, 2024, p. 11).

IDT is both an art and a science. As one of the creative design fields it qualifies as an art, yet it is also rooted in research-based methods and learning theories (Moore et al., 2002; Skinner, 1954). Educator Robert Morgan, an early pioneer in the field, supported Dewey's and Piaget's calls for a science of education (Dewey, 1929; Piaget, 1969). Along with his colleagues Robert Gagné, Leslie Briggs, and Robert Branson, Morgan developed a systematic approach known as instructional systems design (ISD) (Tomei & Balmert, 2001).

ISD represents a very structured approach to the design of educational experiences, making use of contributions from a variety of fields (see Figure 1.1). Management science contributes systems theory, planning and project management, cost analysis, and scheduling; the learning sciences contribute early instructional theories, learning research and theories, developmental psychology, and systematic design; and communications technology contributes communications theory, media selection, and the interactivity and instructional methods necessary to design and deliver effective messages (Larson, 2004; Reiser, 2001b; Richey et al., 2011).

For many years, the IDT field was known merely as instructional technology (IT), in part due to a focus on the emergence of audiovisual instructional media. However, the definition used by practitioners for *technology* has expanded, and there's been a corresponding emphasis in the field on both *hard* skills (technical competencies) and *soft* skills (design skills, effective communication, analysis skills, change management, etc.). It also now encompasses areas as diverse as the learning sciences and human performance technology (HPT). As a result, "IT" no longer communicates an accurate picture of the scope of the field. Furthermore, use of that abbreviation is problematic since it is often mistakenly interpreted as referring to *information* technology.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

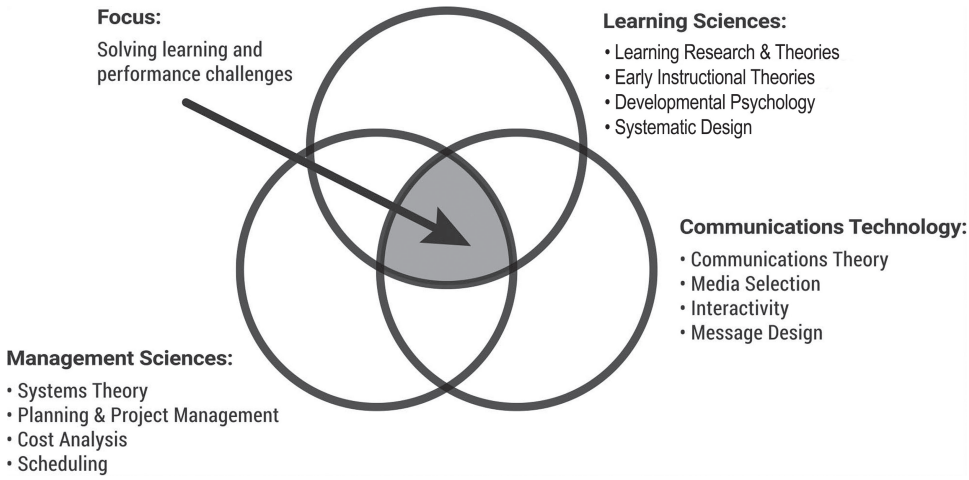


Figure 1.1 Contributions to the field of instructional systems design

In a popular text on current issues in the field, Reiser and Carr-Chellman (2024, p. 10) also refer to the field as **instructional design and technology** (**IDT**). The title is a good one because it communicates the importance of both soft skills (design skills) and hard skills (technology skills) in professional practice. However, since technology is always changing, it is the soft skills that distinguish IDT practitioners from other "IT" professionals. These design skills persist over time and apply across contexts. In 1994, the Association for Educational Communications and Technology (AECT) defined IDT as "the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning" (Seels & Richey, 1994, p. 1).

More recent definitions of the field increasingly emphasize the *ethical* dimensions of practice. For instance, a 2008 definition describes the field as the "study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Januszewski & Molenda, 2008, p. 1). This shift has been accompanied by a growing body of literature exploring the ethical considerations and implications of instructional design decisions, technology selections, and implementation processes (Moore & Tillberg-Webb, 2023; Moore, Lachheb, & Abramenka-Lachheb, 2025).

This book focuses on the soft skills necessary for professional practice, explaining how hard and soft skills interact to produce well-designed and effective instruction that incorporates ethical considerations. We then provide practical recommendations on how to *streamline* that process to meet the demands of any design challenge. (See the IDT competencies inventory in Table 1.4 for examples of both soft and hard skills used in the field.)

There are numerous approaches used in the field to guide practice, but one of the most predominant and long-standing is ADDIE – an acronym that reflects a process involving analysis, design, development, implementation, and evaluation. Molenda (2003) claims that ADDIE is not really a model but is a "colloquial term used to describe a systematic approach to instructional development" (p. 34) that evolved informally to describe the systematic ISD process described earlier (Molenda, 2010). Branch (2009) details how ADDIE has evolved over time to be more robust, describing it as a "product development paradigm . . . [that] continues to prove its effectiveness . . . as a way to organize the common procedures associated with instructional design" (pp. 1–2). In alignment

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

with general trends in research and practice, we refer to ADDIE as it is commonly referred to in the field – as a process or framework that includes the five general phases of instructional design (Dousay et al., 2024).

Like the ADDIE process, the field of IDT is also evolving to accommodate perspectives and techniques contributed by other fields. This includes other disciplines involved in education and training, such as the learning sciences, learning design, and learning experience design. It also draws theory, inspiration, and techniques from other design fields, including user experience design. In this edition of *Streamlined ID*, we expand on the IDT repertoire to include principles and methods drawn from these new influences, as well as the increasing emphasis on ethics-related aspects of IDT work. To read more about the history and evolution of IDT, see the website resources for this chapter.

THE NATURE OF DESIGN

Design is a soft skill practiced in many different disciplines. Architects design living spaces; engineers design everyday objects, software interfaces, and industrial systems; and graphic designers and artists design visual messages. How are these types of design similar to the design carried out by teachers, trainers, and instructional designers?

In his classic book *The Design of Everyday Things* (2013), Donald Norman elaborates on how product designers often fail to attend to the needs of those for whom they are designing. Norman cautions against becoming a "self-centered designer" (p. x) who chooses a solution because he or she finds it personally pleasing rather than choosing it for how it will serve the end user. Instructional designers must guard against a similar danger: that of ignoring the needs and characteristics of the learner and instead seeking to be a "learner-centered designer." What other helpful generalizations can we make about the nature of design that can inform our practice? Across disciplines and job tasks, *design*

- Is a complex endeavor involving knowledge of many disciplines;
- Is a learning process;
- Is a reflective conversation with the materials of the situation;
- Is dependent on the context of the situation;
- Is iterative;
- Can be improved through collaboration and multiple perspectives;
- Is a goal-directed process;
- Produces something with practical utility;
- Involves generating solutions for ill-defined problems;
- Involves transforming design requirements into design specifications; and
- Involves a combination of technical skills and creativity, rational and intuitive thought processes (Norman, 2013; Rowland, 1993; Schön, 1987).

Norman (2013) emphasizes that good design is "an act of communication between the designer and the user" (p. xi). The success of the designer's message is dependent on how well the designed product explains itself. In the case of instructional design, the learner must be able to relate to and understand the instruction, particularly if it is stand-alone, without the benefit of a "live" instructor to explain it. Norman goes on to describe certain design principles that apply to product design, and these same principles can be applied when designing instruction:

- Provide learners with a conceptual model to aid their understanding;
- Provide feedback so learners understand the effect of their actions; and

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

- Build in constraints that make it impossible for the learner to do something the wrong way and affordances that make it easy to perceive how to do something the right way.

Take away a valuable tip from Norman to apply to your ID practice: *become an astute observer of people, of instruction, and of how people interact with instruction.* As you refine this ability, you will be able to identify problems AND offer effective instructional solutions.

THE NATURE OF DESIGN PROBLEMS

All design fields involve ***problem-solving.*** Sometimes the problems solved are straight-forward, have a clear structure, and are well defined. Other times the problems are complex and ill defined. Solving ***well-structured problems*** is a straight-forward process because it is generally easy to analyze the existing situation, identify the problem and all the parameters involved, define the ideal situation, and follow structured, straight-forward methods to solve the problem. For instance, there are well-established and appropriate methods to use for changing the tire on a car or truck.

Instructional design is often characterized as an ***ill-structured*** process because it frequently deals with ill-structured problems (Jonassen, 1997; Rowland, 1993). Well-structured problems *do* exist in the IDT field, but the more challenging design problems are those that are ill structured. An ***ill-structured problem*** is not well defined, many of its elements are inconsistent or unknown, and the goals are often unclear. These varying factors and conditions create complications that result in multiple possible solutions and no obvious right answers. To solve these problems, the designer must simultaneously understand:

- The needs and characteristics of multiple learners;
- Numerous situational constraints and resources;
- Different conditions occurring in multiple contexts; and
- Multiple perspectives of the populations involved.

Consider the contrast between the following well-structured and ill-structured design challenges, taken from the field of architectural design:

Well-structured challenge – An architect is given a specific budget and timeline and is tasked with adjusting a standard townhouse design for the size of a level building site, producing a cookie-cutter plan for a building complex that has already been duplicated numerous times in the city.

Ill-structured challenge – An architect is given an unspecified budget, a problematic building site, very few goals and constraints, and a vague client request that cutting-edge green technology be used in the design. This version of the challenge is much more ill structured. If the architect is an expert with a highly developed knowledge base in the field, his or her vast experience may reduce the complexity of the task so that it can be quickly accomplished. However, the problem will remain ill structured and challenging if the architect knows very little about green technologies.

Now consider an ill-structured challenge from the IDT field. How easy do you think it would be to train graduate geology students to predict the impact of a potential tsunami caused by a 9.0-point earthquake, 50 miles offshore in multiple areas where there have been no previously recorded earthquakes? And what if you also wanted them to be able to provide recommendations for precautionary measures in those areas?

Imagine the complexity of making recommendations for both high-population first-world countries and high- and low-population third-world countries! In such a situation, there are many unknowns, and the

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

recommendations would require these graduate students to have knowledge in areas other than geology, including sociology and culture, demographics, geography, infrastructure, and more.

The challenge of ill-structured design problems is clear: you must understand and consider all the content, learners, contexts, systems, and conditions involved; generate multiple alternative solutions; select and justify a solution; and then implement that solution and adjust it based on feedback. This challenge illustrates the value of using an iterative, systematic, and systemic design process (addressed later in this chapter).

THE NATURE OF TECHNOLOGY: PRODUCT AND PROCESS

When you mention the word "technology," educators typically envision physical *products* such as computers, videos, mobile tablets, and electronic whiteboards. Even pencils are a form of technology! However, many do not realize that the word "technology" has both a *product* meaning and a *process* meaning. The etymology of the word "technology" hints at this process meaning. The word comes from the Greek *tekhnologia*, which means "a systematic treatment of an art or craft" (Garrison & Anderson, 2003, p. 33). Therefore:

> instructional technology is the systematic *process* of designing instruction, through the analysis of educational challenges, application of learning theories, and the use of technology *products* to support solutions to those challenges.

In its infancy, the field of IDT emphasized instructional media and the use of audiovisual materials. Over time, the field has evolved to emphasize two main areas that reflect both the *product* and *process* meanings of instructional technology:

1. The use of different types of *physical media* to communicate instructional messages and support teaching and learning; and
2. The use of *systematic approaches* – or methodical, step-by-step, iterative processes – to analyze learning needs and to design, develop, implement, and evaluate instruction to meet those needs.

The effective use of media and systematic processes, supported by research-based theories, prepares you to practice instructional design in a variety of other fields, yielding a career that is satisfying and continually interesting. In the same way that veterinarians apply biological theories to the care of animals and accountants apply mathematical theories to solve financial challenges, instructional designers apply theories from many fields (including the learning sciences, educational psychology, media, communications, systems, and more) to solve educational problems and challenges and to meet educational needs.

SYSTEMATIC AND SYSTEMIC DESIGN

To produce instructional products, IDT professionals use a ***systematic*** design process, described by Smith and Ragan (2005) as "the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (p. 4). In the following section, you will read about the steps involved in a typical, systematic instructional design and development project.

Effective instructional design is also ***systemic***. A *system* is an interdependent set of items that form a unified whole. Therefore, systemic design is holistic (or wholistic) and considers all the systems that impact, and are impacted by, the learner. Since human beings are social, we tend to be part of several systems that impact how we learn (Bronfenbrenner, 1979).

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution



SYSTEMS EXAMPLE

A first-generation college student enrolled in a civil engineering degree program is impacted by multiple systems. She must complete courses for her degree program, as well as fulfil the university's general education requirements. Her department is part of the university's college of engineering, and the university is part of a state system of public higher education, governed by federal laws. These interconnected systems impact her education and, in turn, society.

Additionally, her academic success is affected by personal systems. Her family's support, her peer influences, and her work/study program responsibilities all influence her persistence in her studies and the success of her efforts. If she has a roommate who is loud and inconsiderate, and the library closes at 9:00 p.m., she will be further challenged in finding a quiet study location so she can focus on mastering the course requirements.

Ideally, designers of instruction and learning environments consider the potential influence of the systems that impact the tasks involved in learning. When this happens, it is more likely that barriers to learning will be identified and removed or minimized, content to be learned will be enhanced, and individuals will be scaffolded effectively to support their efforts to achieve the desired learning.

Considering systemic influences may enable you to design better instruction or may merely ensure that you acknowledge project constraints over which you have no control. For example, if you were designing a unit of instruction for fifth graders on writing short stories, how do you think it would impact the success of your materials if you discovered that the parents of 50% of the children in the class had read books to their children regularly since kindergarten, while the parents of the other 50% had never read to their children at all? Or how might the availability of funding for online instruction influence your decision on whether to use a face-to-face or an online format for your college biological field methods course? Systems issues are *contextual* issues, and instructional designers must address them – or at least acknowledge them – because they ultimately impact how, and how well, the target audience learns (context issues are addressed in Chapter 4). Your observation and thoughtful reflection about the systems and interactions involved in a particular project will enable you to produce more effective instruction.

Considering systemic impacts also allows you to take a more applied approach to ethical practice. When a new learning technology is implemented in a school district or organization, it often impacts people, their work, and their learning in different ways. For example, during the COVID-19 pandemic, the closure of physical spaces led many districts, organizations, and colleges to shift to fully online instruction. However, this transition created widespread access and equity issues for students, teachers, instructors, and families, due to differences in access to reliable internet connectivity, equipment, and suitable space for teaching or learning from home. Some districts recognized these disparities, and in response, they provided alternatives. Some formed partnerships with local public television and radio stations to broadcast lessons, and some arranged for weekly distribution and collection of paper lesson packets.



WHAT'S INVOLVED? ADDIE: AN ITERATIVE DESIGN PROCESS

This book highlights just one of many processes that have been developed to guide the design of instruction. Figure 1.2 illustrates the classic systematic ADDIE process of instructional design, with a slightly different layout. Again, ADDIE stands for analyze, design, develop, implement, and evaluate. While many describe

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

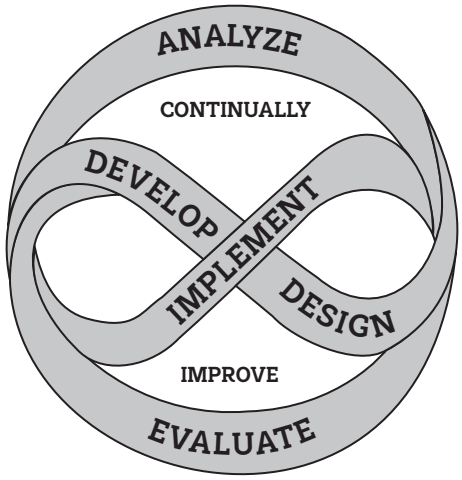


Figure 1.2 The iterative ADDIE process

the process as linear, in this book, we emphasize that the ADDIE elements represent *activities* rather than phases or stages that are carried out repeatedly, or *iteratively*, throughout the life of an instructional project. Our version of the process uses the verb form of these activities to indicate action, and its shape emphasizes the iterative nature of the process involved.

Note that the illustration incorporates the infinity symbol because this process really *can* seem to go on forever. Yet the phrase "continually improve" communicates why. If you're not improving the instruction, you should at least be continuously improving your design and development skills. A description of each phase or major activity of the ADDIE process follows. IDs iteratively move back and forth between these activities throughout the project life cycle. The words ***Review – Approve – Revise*** are listed between the activities listed here to emphasize that the designers, *subject matter experts (SMEs)*, and other stakeholders are continually revising and improving the instruction throughout the process.

Analyze

- Problems, challenge, the expectations of stakeholders, and the needs;
- Instructional goals, available resources, and project constraints;
- The targeted learners;
- Instructional contexts or environments;
- The content, prerequisites, and priorities; and
- Possible ethical issues from human and systemic impacts.

REVIEW – APPROVE – REVISE

Design

- Aligned learning outcomes, assessments, and teaching/learning strategies;
- A design rationale;
- Instructional messages, supporting media, and delivery systems;
- Content priorities, chunking, and sequencing;
- Creative solutions to ethical issues such as accessibility or bias; and
- Plans for evaluation and project management.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

REVIEW – APPROVE – REVISE

Develop/Produce

- Content, scripts, storyboards, multimedia, and adaptations of existing content;
- Accessible prototypes to be reviewed and tested for usability and representation;
- Revisions and final instructional deliverables; and
- Implementation guidelines.

REVIEW – APPROVE – REVISE

Implement

- A project management plan and approval process during development;
- Stakeholder engagement; and
- The instruction and learning experiences during deployment.

REVIEW – APPROVE – REVISE

Evaluate and Continually Improve

- Formatively during development, based on feedback from reviews and testing;
- Summatively during and after implementation;
- The learning environment to address negative impacts resulting from both instructional and non-instructional factors (such as impacts on learner stress, mental health, and well-being); and
- Throughout the project to improve teamwork and the ID workflow process.

EVALUATION

Planning for a successful design means *beginning with the end in mind*. You should start with a concrete picture of what success will look like for your learners. You then evaluate the instruction against that benchmark throughout your project.

Note that in the ADDIE process image (Figure 1.2), the word *evaluate* undergirds the rest of the process to emphasize the supportive and ongoing nature of that activity. *Continuous* evaluation produces feedback that facilitates *continuous improvement* of the instruction.

The evaluation process is both *formative* (ongoing during analysis, design, development, and implementation activities) and *summative* (appraised after completion and implementation of the instruction). For example, when an artist steps back to analyze a picture he is in the process of painting, he is conducting a formative evaluation. When his clients view the painting in a gallery, it is being summatively evaluated.

Planning for both formative and summative evaluation should begin early in a project and should involve all key stakeholders. At the start of any instructional design/development project, identify the evaluative questions you want to answer by the end of the project, such as "*What will success look like?*" Collaborate with stakeholders to develop a set of guiding questions – or ***key questions*** – that the evaluation measures will address. Your evaluation plan should also identify the aspects of the design to be assessed, the formative and summative measures to be used, and the criteria to guide how you interpret the results to determine success.

Definitions of a successful implementation should address desired consequences as well as the possible unintended negative consequences for each design solution option. Include both instructional and

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

non-instructional consequences. This process enables you to anticipate and plan for early mitigation of potential unintended consequences for the solution chosen. For example, the optimal design for a summer training program for student athletes would include both the desired health benefit outcomes and the potential risks, such as heat exhaustion. Key questions might include:

- Have the desired health outcomes of endurance, strength, and flexibility been achieved?
- Is the program improving performance metrics relevant to the athletes' sports?
- Are athletes maintaining or improving physical fitness without adverse effects?
- How frequently are heat-related dehydration and heat exhaustion reported?
- Are safety protocols (hydration breaks, shaded rest areas, medical oversight) being followed consistently?

During the design and development process, *formative evaluation measures* are used to:

- Validate the analysis data and confirm the direction and scope of the project;
- Determine content accuracy, completeness, and scope;
- Test and ensure the functionality, usability, and effectiveness of the instruction; and
- Identify revisions to ensure the instruction supports the project goal and meets the learner needs identified.

During and after deployment of the instruction, *summative evaluation measures* serve to:

- Assess the effectiveness of the instruction in meeting the original project goal and successfully supporting mastery of the learning outcomes;
- Provide data to demonstrate a return on investment (ROI); and
- Identify revisions to support continuous improvement over time.

There are many evaluation models used in the field of IDT, and using an established model can be helpful in planning and implementing evaluation measures. These models represent diverse approaches aimed at assessing the effectiveness, efficiency, and impact of educational programs and instructional interventions. Your choice of an evaluation model or methods should be based on your need. An excellent overview and reference for pre–21st century educational evaluation is James Popham's (1993) *Educational Evaluation*, which categorizes and describes many theories and models for evaluating education and instruction, along with techniques for gathering data, sampling, measuring, analyzing, and evaluating results. More recently, Johnson and Van Haneghan (2025) provide a comprehensive review of key evaluation models commonly utilized in the instructional design process.

Here are some popular evaluation models used in the field of IDT, along with a brief description of why you might choose them:

Daniel Stufflebeam's CIPP model is a well-known, comprehensive model that features four components – context, inputs, process, and products. It can be applied throughout the life cycle of a project. Stufflebeam developed CIPP in the late 1960s (1971, 1983), but the utility and generalizability of the model were greatly enhanced and expanded through the work and collaboration of Dr. Guili Zhang (Stufflebeam & Zhang, 2017).

Patton's utilization-focused evaluation (U-FE) model (2008) emphasizes designing evaluations for the specific intended users and uses of the instruction to support the practical application of findings by stakeholders. Michael Quinn Patton's framework has 17 steps and is highly relevant for online learning programs in which stakeholder engagement and use of results for decision-making are crucial.

Kirkpatrick's four-level evaluation model (Kirkpatrick, 1959a, 1959b, 1960a, 1960b; Kirkpatrick & Kirkpatrick, 2006) is one of the earliest models developed to evaluate training and instruction,

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

and it's still in use today. It evaluates instructional programs across four levels: reaction, learning, behavior, and results, as illustrated in Table 1.1. While primarily summative in nature, the first two levels can also be used formatively with test participants representative of your target audience to determine the effectiveness of early instructional prototypes.

In Chapter 14 we provide a more comprehensive treatment of evaluation, but we include it here to emphasize that it's important to think about, plan for, and implement evaluation measures *throughout* the ADDIE process. Furthermore, none of these models have been revised to incorporate the ethical issues that should also be evaluated. Therefore, in that chapter, we briefly revisit the other ADDIE activities to highlight how evaluation can be incorporated throughout the process, and we extend those practices to incorporate the evaluation of various ethical considerations.

LEARNING ENVIRONMENTS

Across the span of your career, you will likely design instruction for a variety of different learning environments and for individuals, as well as for collaborative groups. Learning environments may feature asynchronous and/or synchronous activities, in face-to-face and/or virtual settings. ***Asynchronous instruction and learning*** activities occur outside the constraints of place and time: that is, at a time and location most convenient for the learner. Note these examples of asynchronous instruction:

- A written correspondence course that can be completed at the learner's home or work location;
- Online self-study materials that can be completed by learners from a personally convenient location at any hour of the day or night; and
- An online course that requires learners to post comments and reply to peer comments on a virtual discussion board accessible via the internet at any time and from any location.

Synchronous instruction and learning activities occur in real time and involve groups of individuals learning at the same time, in the same physical location or the same virtual location. Note these examples of synchronous learning activities:

- Traditional face-to-face courses and workshops;
- Online classes that meet in real time by means of audio- or video-conferencing equipment; and
- Online webinars and presentations that allow for audience-presenter or peer-to-peer interaction.

Table 1.1 The Four-Level Kirkpatrick Evaluation Model

LEVEL	WHAT THE LEVEL MEASURES
LEVEL I: LEARNER REACTION	Evaluations conducted at this level measure the reaction and satisfaction of learners with the learning experience.
LEVEL II: LEARNING	This level measures the degree to which the learners acquired the intended knowledge, skills, and attitudes from the instruction, as defined by the desired learning outcomes for the instruction. Also known as "assessment."
LEVEL III: BEHAVIOR	This level evaluates the degree to which learners transfer and apply the knowledge, skills, and attitudes they learned from the instruction once they leave the learning environment and return to or enter the performance environment (e.g., in a job, in the next course, in life). This level also known as "performance" or "transfer."
LEVEL IV: RESULTS	This level measures the degree to which the results are attributable to the instruction and their influence on the sponsoring organization's mission and goals. This level also known as "impact."

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

You might be tasked with designing instruction that is highly structured, directed, and formal. Or you might be asked to design unstructured, informal learning experiences that allow the learner to self-direct and control what they access and the time, place, path, and/or pace of instruction.

As technology advances, new possibilities for learning activities and environments are continually being conceived and developed. The variety of possibilities can be confusing, and since instructional design is rarely carried out in isolation, you should become familiar with some of the more common classifications of learning environments so you can communicate with others during design discussions. Note the continuum of learning environments illustrated in Figure 1.3 and consider the various descriptions of those environments that you may encounter as you work with others to design learning experiences.

One key means of categorizing learning experiences and environments is to identify where and when the instructional interactions will take place. Dan Coldeway's quadrants are often used to categorize distance learning environments, as well as other learning environments (Simonson, 2003). Figure 1.4 illustrates the four quadrants of Coldeway's matrix that plot time and place to distinguish four classifications of learning environments:

- Same time/same place;
- Same time/different place;
- Different time/same place; and
- Different time/different place.

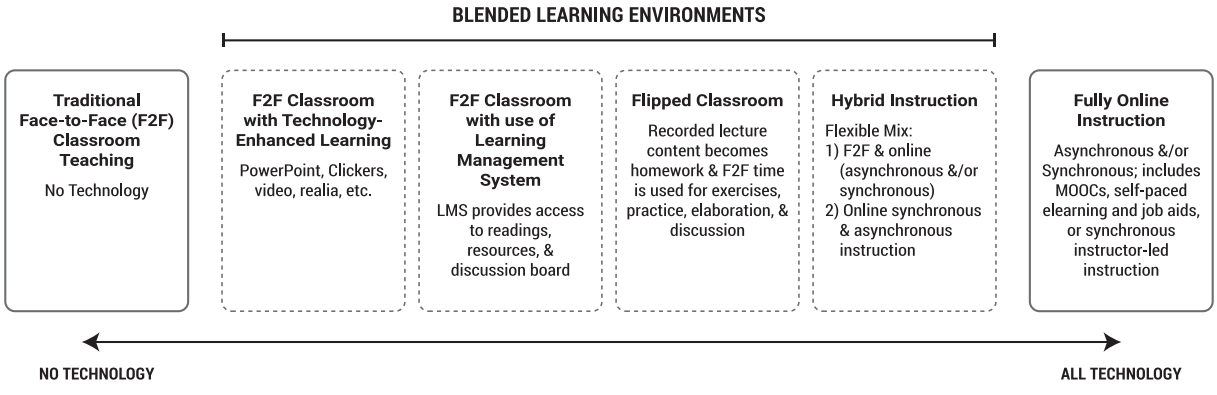


Figure 1.3 Continuum of learning environments

	SAME PLACE	DIFFERENT PLACE
SAME TIME	Traditional face-to-face (F2F) synchronous classroom instruction	Online synchronous instruction via audio and/or video conferencing technologies
DIFFERENT TIME	Laboratory-based instruction OR Self-paced tutorials available on lab or library computers	Asynchronous online instruction including self-paced work, discussion forums, correspondence courses, online job aids, etc.

Figure 1.4 Dan Coldeway's distance learning quadrants with examples

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Fortunately, today's technologies enable people to learn: anytime, anyplace, with anyone, anywhere, online or offline, collaboratively or individually. Such environments may be technology-enhanced physical spaces or virtual spaces enabled by technology. Learning occurs in formal spaces such as classrooms and informal places such as in coffee shops, aboard mass transportation, and in hallways. Even in formal spaces, the previously traditional lecture format is increasingly giving way to learning activities that include group work, student-led presentations, and a variety of interactions between students and the instructor. Here is a sampling of environment categories for which instruction is typically designed:

Traditional Face-to-Face – Face-to-face (F2F) environments include everything from K–12 classes and post-secondary courses to business training classes and workshops, traditional apprenticeships and on-the-job training (OJT), teaching labs, and enrichment classes offered by community and religious or civic organizations. F2F learning experiences are rarely offered without any technological aids whatsoever (first square in Figure 1.3) but more commonly are technology enhanced with PowerPoint presentations, clicker technologies, or smartboards. F2F experiences are increasingly supplemented with online materials typically accessed via a learning management system (LMS), and OLC uses the term "web-facilitated course" (Allen & Seaman, 2007; Picciano & Seaman, 2007) to describe face-to-face courses that deliver up to 29% of the content online. Many F2F instructors are *flipping* their courses, requiring students to consume the content outside class and using physical class time to address misconceptions and facilitate hands-on, application-based activities (Berrett, 2012).

Online – In these learning environments, the instruction is delivered online via the internet or via an internal company intranet system, either synchronously or asynchronously. OLC reports that at least 80% of the content for such courses is delivered online.

Hybrid/Blended – Hybrid or blended learning environments consist of some combination of face-to-face and online activities. (The OLC sets the percentage of online activity for blended courses at 30–79%.) These terms are sometimes also used to refer to online learning experiences that feature a mix of synchronous and asynchronous interactions. While the terms "blended" and "hybrid" are often used interchangeably, note that some organizations have distinct meanings for each term.

Personal Learning Environments (PLE) – PLEs include the tools, communities, and services that make up an individual's learning environment, enabling them to access, select, and organize a broad range of resources to pursue their own learning goals and direct their own learning (Educause, 2009). PLEs may also include enterprise social networking services used for communication within companies via an organization's intranet or via restricted access to a private network on the internet.

Performance Support Systems – Performance support systems range from paper-based job aids to network-based knowledge management systems housed on an organization's intranet. Such aids are designed to support job performance by delivering information to individuals and groups when they need it, without formal training. These aids provide *just-in-time* or *point-of-need* access to reference documentation, tutorials, job aids, and other materials through a user interface.

THE IMPORTANCE OF LEARNING THEORY AND RESEARCH

There are many factors that influence learning, and these elements and circumstances are the focus of research studies in the field of instructional design. Much of this research is carried out using a foundation of one or more *formal learning theories.* These theories reflect certain assumptions about knowledge and how people learn that are held by educators and researchers from a variety of fields.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Studying these learning theories and the assumptions upon which they are based will equip you to make informed decisions about how to present content and the strategies to use in instruction. This is called **grounded design**, and knowing how to justify design decisions on the basis of their alignment with a specific theory base is an important competency for IDs. Even if a client or major stakeholder dictates the theory base to be used for a project, your knowledge of that theory and its associated methods is key to producing a quality, grounded design. Chapter 6 ("Design Learning Theories and Perspectives") provides more details on assumptions about learning and learning theories, which represent just one of the many elements that influence the design of instruction.

Regardless of career environment, knowledge of learning theories is almost always cited as desirable in IDT job advertisements. Competent instructional designers have knowledge about a variety of learning theories and learning assumptions and know how to use them as a basis for their designs. In addition, they justify their designs by using valid *research* on measures and *best practices* that support those assumptions. If you know the research and you can use it effectively for justification, your design will be grounded in theory and research and will be more likely to foster learning success.



CAUTION! MEDIA COMPARISON STUDIES

As you study the research, note that there are many media comparison studies that attempt to illustrate the value of mediated instruction over traditional instruction (i.e., instruction that utilizes more advanced technologies than traditional face-to-face lectures and handouts, per Heinich, 1968). These studies also try to compare the learning that results from instruction delivered by two different technologies. Such studies are flawed because in social sciences research, there are many human variables that you cannot control in an experimental study.

Comparison studies typically result in findings that claim "no significant difference" between the learning results for the compared treatments. A major critic of such studies, the noted researcher and theorist Richard Clark, wrote a classic article (1983) that argued that instructional media made excellent vehicles for storing and delivering instructional messages but were not responsible for learning. Instead, learning is promoted by factors such as the instructional content, the strategies used to promote learning, and the engagement of the learner in the learning activities. It is essential to remember that instructional designers should ***select technologies to support specific instructional strategies*** (addressed in Chapter 10).

REGULAR END-OF-CHAPTER FEATURES

This book provides several regular features at the end of each chapter that reflect elements of the design/development process. There are practical exercises in a section called "Bloom's Stretch" that provide an opportunity to test your own understanding and a "Diving Deeper" section with additional resources on the topic. Then there are features that contain information we would categorize as "really nice to know," but you don't necessarily "need to know." If you're new to the field, you may want to come back to these features later, after you've got some experience under your belt. If you're a practitioner and are using this book as either a reference guide or to refine your practice, you may find these features very helpful.

We'll introduce each of these features here, then watch for them at the end of each chapter:

- Suggestions for "streamlining" the activities carried out during the ADDIE process, including how to use artificial intelligence (AI) to accelerate and refine your work;
- Examples of different perspectives and the ADDIE activities used in different career environments; and
- Commentary on the ethical practice of instructional design and development.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

We also introduce a common case study in Chapter 2. We revisit that case at the end of the other chapters to elaborate on how to apply the activities featured in each chapter.

PRINCIPLES OF STREAMLINING

There are numerous steps, methods, and metrics available for each activity listed in the ADDIE process. However, you may not have the time or resources to complete all the ADDIE activities for every project. This book is based on the idea that, in most cases, the entire design/development process can be *streamlined* (made more efficient and effective) by taking shortcuts or using faster and simpler methods. The use of faster and simpler methods frees up more time for "testing" the instruction so you can produce more efficient and effective instruction. (A notable exception to the use of this approach would be the development of critical, life-and-death instruction for which the stakes are often too high to rush the process.) With this approach in mind, let's consider five principles of streamlining that can help you design and develop instruction more efficiently and effectively.



STREAMLINING THE INSTRUCTIONAL DESIGN PROCESS

Practice Sustainable ID

Whenever possible, design with the future in mind. In many design fields, research has identified sustainability as a key priority (Manfra, 2005). Sustainability is a key concern in IDT as well. Ask yourself:

- What is the life expectancy of the instruction? How long will it be used?
- How often will it need updating? Has maintenance and updating been planned for in the budget?
- Is the design scalable so it can easily be expanded to meet the needs of a wider audience or scaled back for a smaller audience?

Practice Optimized ID

Whenever possible, design so that all, or portions of, the instruction can serve multiple purposes. Ask yourself:

- Can the instruction components be used by multiple courses or training applications?
- Are there other needs in the organization that the instructional elements could also address, such as providing informational material for knowledge management systems or marketing materials?
- Should the instruction be developed as a series of learning objects or a set of case studies that could serve multiple functions?
- Might the instruction be recycled in the future, and, if so, how can it be designed to make its reuse and revision easy tasks?
- Are there existing materials that can be used or slightly adjusted to meet all or a portion of the need? If there are existing materials that need revision, what is the least change that can be made for the greatest effect?

Practice Redundant ID

Now this principle must be applied carefully because if you force a learner to view redundant materials, they can become frustrated and annoyed. However, it is always wise to provide access to redundant

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

instructional elements for review purposes or as a backup plan, in case the main delivery system fails or cannot be accessed by all learners. Ask yourself:

- If a learner does not have the correct equipment or has a disability that prevents them from accessing all elements of the instruction, how can I provide an alternate format or means of delivery?

Practice Right-Sized ID

Stakeholders often communicate conflicting needs or propose a multitude of purposes for an instructional project. As a result, you can end up with "supersized" instructions that go way beyond the immediate need or that, in attempting to meet all needs, really don't adequately meet anyone's needs. Take a right-sized approach and, for any given design project, ask yourself:

- What is the essential material that must be covered versus the nice-to-know material?
- How can I produce high value per volume of instruction?
- What topics are likely to hold long-term constant value or apply to the widest audience? What topics hold special value and cannot be easily obtained from other sources?
- If the instruction will be used in multiple locations or for multiple purposes, can I produce a generic version that can be locally and easily customized?
- Can I start on a small scale and develop a design that works and then add components that repeat the basic design plan with applicable variations, as time and money allow?

Practice Continuous Improvement

This is a cornerstone principle of all instructional design, and it underscores the iterative nature of the process. Surprisingly, it also aligns well with a philosophy of streamlining because, when an instructional designer tests their ideas and ***prototypes*** early and often with key stakeholders and representatives from the target audience, it results in instruction that continually gets more accurate and more effective at meeting the identified needs.

Each chapter in this book addresses how ADDIE activities can be streamlined according to these principles and provides examples to help you design more efficient and effective instruction.



INSTRUCTIONAL DESIGN CAREER ENVIRONMENTS AND COMPETENCIES

Since learning generally occurs in every human interaction and relationship, people who design instruction work in many fields and in both formal and informal learning environments. For example, instructional designers are employed in higher education, K–12 education, business and industry, government, military, healthcare, and non-profit organizations. In each of these environments, the different values, priorities, and purposes for education impact the way in which ID is carried out.

Note how the competencies listed in Table 1.2 differ by career environment. The requirements for the extent of an instructional design and its justification also tend to differ by career environment. For some business environments, you must include a ***return on investment (ROI)*** study with your design document to justify your efforts, while in K–12 environments, you would provide objectives and a lesson plan. This book highlights some of those differences through explanations and examples.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution



FOUNDATIONAL FACT: LEVERAGING AI FOR ID

A key element of both optimized and right-sized ID is content that is developed in an efficient and cost-effective manner. The use of artificial intelligence (AI) in education has emerged as a leading trend in recent years, but the practice of using AI to plan, design, implement, and evaluate learning experiences has a long history dating back to the 1950s and B.F. Skinner's teaching machine (Skinner, 1961; Lockee et al., 2008). AI tools can be used to assess learner knowledge, develop personalized learning pathways, and assess learning progress. More recently, innovations in AI are being leveraged to streamline the ID process from start to finish.

Such technologies can be used to collect and analyze needs assessment data, plan learning objectives, develop storyboards, curate existing content, create instructional audio and video, and design assessments aligned with targeted learning outcomes. Additionally, AI tools can be integrated as instructional support tools, such as interactive agents that guide and engage learners throughout the learning experience. These intelligent tutors can provide real-time feedback and assess learning formatively and summatively. Scholars are conceptualizing new ways of reflecting these AI capabilities into design approaches. For example, Hilali and Chergui (2025) proposed ADGIE (for analysis, design, generation, individualization, evaluation) as a methodology to guide instructional designers in their use of AI throughout the ADDIE process. We'll highlight some of their suggestions in the book.

Along with emerging capabilities for the use of AI in the ID process comes an evolving set of challenges. Open AI tools often generate inaccurate or incomplete educational content, underscoring the need for familiarity with your topic to judge its accuracy and relevance. Student data privacy, systemic bias, and other ethical considerations also come into play when using AI in the ID process. Enhancing awareness of these important issues is a key feature of this edition.

CAUTION: When using public or open-access AI tools, it is essential to exercise caution and avoid sharing or uploading any sensitive, confidential, or legally protected information subject to privacy regulations. This includes – but is not limited to – data governed by:

- FERPA (Family Educational Rights and Privacy Act);
- HIPAA (Health Insurance Portability and Accountability Act);
- GDPR (General Data Protection Regulation); and
- Copyright and intellectual property laws.

Examples of such data include personally identifiable information (PII), protected health information (PHI), financial records, proprietary or confidential business content, and intellectual property (IP). While some AI platforms allow you to opt out of data retention or the use of data to train AI models, ***there is no universal guarantee of confidentiality***. Information shared with public AI tools may be stored, reviewed, or used to improve model performance, depending on the provider's data policies. Consequently, many organizations are investing in ***enterprise-grade AI systems*** that offer enhanced security, privacy controls, and compliance with regulatory standards.

Bottom line: Treat all public AI tools as potentially non-secure environments. Always follow your organization's data governance policies and consult with legal or IT departments when in doubt.

Because the field is so broad, the role of an instructional designer also ranges widely. The title of instructional designer is applied to instructors who develop and teach their own materials, to those who work with subject matter experts (SMEs) to develop classroom or online courses, and to design team members producing portions of stand-alone content for corporations and universities.

In any of these roles, your knowledge of how the different technologies foster and support learning will enable you to make effective choices as you design instruction. Of course, as Norman (2013) says,

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Table 1.2 Unique or Emphasized Competencies for Specific Career Environments

CAREER ENVIRONMENTS WITH AREAS OF COMPETENCY AND SPECIFIC SKILLS	
In all these environments, IDs must be able to think logically and strategically, define and solve instructional problems, identify factors requiring non-instructional solutions, communicate effectively (oral, written, interpersonal, and cross cultural), and make informed use of instructional design strategies and technologies.	
Business & Industry	• Business communication skills of persuasive and technical writing, public speaking and presenting, and the ability to justify the return on investment (ROI) of training initiatives; • Interpersonal skills and how to incorporate them into training, including motivation, coaching, persuasion, leadership, negotiation, team skills, and cross-cultural awareness; • Analytic competencies like critical thinking, problem definition and problem-solving, front-end and performance gap analysis, strategy/intervention application, and business research skills; • Project and resource management, leadership and soft skills, contracting/outsourcing skills; • Business acumen and strategic knowledge like organization and industry insight, systems thinking, change management and adaptation, customer- and human-centric foci, global perspective, scalable solutions, cost-benefit and ROI analysis, and business training/talent development trends (e.g., AI-driven personalized learning, microlearning, just-in-time support, upskilling/reskilling, data-driven performance improvement, emotional intelligence); and • Knowledge of emerging technologies, and the selection, use, and evaluation of technologies.
Higher Education	• Teaching experience and effective strategies for synchronous/asynchronous online instruction; • Interpersonal skills for working with faculty subject matter experts; • Knowledge and experience creating multimedia instruction; • Familiarity with research on best practices for instructional design, development, and delivery; • Knowledge of and experience in using learning theories as a basis for instructional designs; • Production of grant proposals; and • Knowledge of and/or experience in telecommunications and distance learning.
K–12 Education	• Knowledge of K–12 state, national, and Common Core standards and accessibility standards; • Design aligned and differentiated instruction and apply Universal Design for Learning (UDL); • Familiarity with adaptive and personalized learning, gamification, and learning analytics; and • Library media specialists: information literacy, digital citizenship, equitable access, resource selection, media design and production, professional development, and cooperative planning.
Military	• Familiarity with emerging/evolving tactics, technologies, and advanced operational systems; • Ability to track evolving threats, design for stress management and reduction of cognitive load; • Design of immersive (AR/VR) simulations that reflect mission complexity and ambiguity; • Knowledge of military terminology, DoD training standards, classification protocols, command structures, and accreditation requirements for secure environments; • Knowledge of distributed mission training (DMT), joint capabilities integration, data analytics, adaptive learning systems, performance metrics and tracking, AI-driven personalization, and networked training architectures connecting simulators across locations; and • Knowledge of adult learning and military-specific ID concepts and phrases like "knowledge, skills, abilities, and behaviors (KSABs) required for mission readiness."

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

CAREER ENVIRONMENTS WITH AREAS OF COMPETENCY AND SPECIFIC SKILLS	
Government	• Knowledge of Section 508 accessibility standards and laws and regulations for privacy, copyright, cybersecurity, and federal compliance and government security protocols that impact training; • Knowledge of federal/state codes, compliance regulations, and performance standards; • Ability to apply for and obtain federal- and state-funded grants; • Project management and oversight and evaluation of contract ID services; and • Knowledge of public service values and interagency collaboration.
Healthcare	• Critical thinking and diagnostic reasoning in healthcare environments and familiarity with HIPAA, patient rights, and medical technologies, standards, and procedures; • Interpersonal skills including team skills, and cross-cultural awareness and communication; • Project and resource management of healthcare training with a patient-centered focus; • Competence in researching medical and healthcare specialty topics, procedures, and equipment to create a knowledge base for accurate, engaging, and efficient training; • Knowledge of adult learning principles, case studies, and effective and authentic assessment; and • Effective strategies to train a variety of learners from patients to neurologists.

Bartell (2001), Cabral-Cardoso (2001), Grimwald (2001), Kim (2015), Klein and Kelly (2018), Koszalka et al. (2013), Martin et al. (2022), Reiser et al. (2024), Tasker and Packham (1993), and Trimby (1982).

"Technology changes rapidly; people change slowly" (p. xiv), so the ability to observe people and how they interact with technology is also essential.

Over the years, different professional groups have come up with lists of competencies for instructional designers. The International Board of Standards for Training, Performance, and Instruction (ibstpi, n.d.) defines a ***competency*** as "an integrated set of skills, knowledge, and attitudes that enables one to effectively perform the activities of a given occupation or function to the standards expected" (see www.ibstpi.org).

Often, instructional design competencies vary by career environment. For example, skill in the methods used for human performance improvement (HPI) is a competency cited by organizations geared more to business and industry environments. (Recall that Table 1.2 provides a list of competencies unique to specific career environments.)

Based on your career goals, you can consult one or more of the lists of competencies and standards developed for IDT. Organizations with competency lists and/or standards include the Association for Talent Development (ATD), the International Society for Performance Improvement (ISPI), the Association for Educational Communications and Technology (AECT), the Society for Information Technology and Teacher Education (SITE), the International Society for Technology in Education (ISTE), and the Society for Applied Learning Technology (SALT). Links to some of these lists are provided on the book website. Ultimately, all effective instructional designers carry out a process of design that is systematic, systemic, and iterative. Consider your career goals and then do a little research to figure out the specific competencies required for competent instructional designers in the career environment of your choice.

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

A review of these competencies across career environments reveals similarities in two areas – the general iterative process of instructional design and the prevalence of key interpersonal skills, such as communication, teamwork/collaboration, cross-cultural interactions, motivation, and leadership. Solomonson (2008) stated,

> [T]he truly fluent instructional designer will have not only a certain level of mastery in terms of what may be considered the "technical" aspects of design itself, but also a certain level of mastery in terms of the consultative, decision-making, and relationship management aspects of the client-interaction that is, within the context of people.
>
> (p. 12)

Consultation and negotiation skills are imperative throughout the design process (Kim, 2015), and without a positive, respectful relationship among all stakeholders, it will be challenging, if not impossible, to make progress toward the desired outcomes. Explore the "Streamlined Self-Assessment" at the end of this chapter to consider your own interpersonal skills and how they might align with common expectations in the practice of instructional design.



ETHICS IN PRACTICE

Although historically, ethics have largely been treated as codes of conduct, in this edition, we introduce "ethics as design", (Whitbeck, 1996) in which ethical issues are entangled aspects of the problems and problem spaces we work on and in as IDT professionals. Whitbeck identified how ethical issues are like any other design problem: complex, ill-structured, and requiring creative solutions. For example, in engineering design, engineers incorporate ethical issues such as safety or environmental impact as design constraints or parameters, which influences the solutions they devise.

In instructional design there are ethical considerations to make at every stage of the ADDIE process. Designers – individually and as teams – must weigh the embedded constraints and values in every project and ask curious questions aimed at balancing risks and benefits. Across design cases, the literature, and historical texts in the field, three overarching themes related to ethics in IDT practice continually arise: *reflection*, *interrogation*, and *design*. Throughout the book, we'll use these core ideas from Moore and Tillberg-Webb (2023) to explore applied approaches to ethics.

Reflection

Professional ethics can be thought of as a form of reflective practice, and key tools used to take an applied approach include problem framing and reflective questions. Schön (1987) described reflection in action as a process designers use to confront problematic situations. As part of this process, designers define the problem through "problem framing" and engage in an iterative conversation with the problem or situation during the design process. Svihla (2020) defines problem framing as a process by which professionals "take ownership of and iteratively define what the problem really is, decide what should be included and excluded, and decide how to proceed in solving it" (para. 2). As designers, we can explicitly acknowledge ethical considerations and intentionally frame them into the learning design problems we're creating for. Gray and Boling (2016) and Moore, Lachheb, and Abramenka-Lachheb (2025) discuss multiple examples of how designers regularly fold ethics into their design philosophies and problem-framing processes as well as embedding ethics into their practice. In the context of IDT, Tracey and Baaki (2014) described

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

reflection in action as follows: "When a designer is presented with a complex problem or situation, the designer shows a series of questioning, making a decision, reflecting on the consequences of the decision, then making another move" (p. 4).

In terms of using reflective practice, Moore and Griffin (2022) explained that ethics as reflective practice occurs when designers ask particular types of questions throughout their design and development processes, just as they ask other questions about function, feasibility, and so on.

As one example, Ingraham and Boyd (2020) devised three reflective questions that they asked themselves throughout brainstorming, storyboarding, and prototyping in order to recognize implicit bias and reduce racial stereotyping in their design: does this design include people of color, do those characters reflect any racial stereotypes, and who is performing that character? Using reflective questions, they centered ethical considerations as part of their design parameters.

Interrogation

Interrogation entails asking critical questions about technology and the outcomes of its use. For instance, Davies (1981) called upon the instructional design field to critically evaluate the implications of new technology for learning. Interrogative approaches can look like the Civics of Technology framework developed by Krutka, Heath, and colleagues (e.g., Heath et al., 2023; Krutka et al., 2019, 2020). Their "technoethical audit" guides educators to ask critical questions about unintended or less obvious problems that might arise or the learning opportunities afforded or constrained by a particular technology. Other designers have explored the use of speculative design, critical design, and futurism to imagine both harmful and beneficial outcomes and to inform design decisions (e.g., Svihla & Kachelmeier, 2022; Dunne & Raby, 2015; Winchester, 2018; Ferris et al., 2024; Sutherland, 2024).

Design

From reimagining traditional instructional design methods and strategies to developing new ones, practicing designers can embed ethics through a variety of design practices, as summarized in Table 1.3.

TAKING A "DEEP" APPROACH TO IDT

While this book advocates a streamlined approach to the ID process, the more you learn about the practice of ID and different technologies, the better equipped you'll be to make decisions about streamlining. Whether you are a novice instructional designer or an experienced designer, we recommend taking a ***deep approach*** to learning about instructional design and technology *throughout* your career. Commit to becoming a lifelong learner in the field with an approach characterized by:

- Active interest and personal engagement, powered by an intention to understand;
- Connecting new ideas to your previous learning;
- Seeking to gain an overview of a topic, develop an accurate "mental model" of it, and identify its central point;
- Creating outlines and structures;
- Questioning, using evidence critically, and drawing and testing conclusions; and
- Seeking to identify the purpose of a task or see it in its wider context (McCune & Entwistle, 2000).

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Table 1.3 Practices to Embed Ethics in IDT

DESIGN PHILOSOPHIES	PROBLEM FRAMING	ETHICAL ANALYSIS	STAKEHOLDER INVOLVEMENT	REFLECTION IN ACTION
Articulate an individual or shared design philosophy that includes statements of values, priorities, and commitments.	Draft a problem statement for a current design effort and revise it – individually or in a group – to frame ethical considerations into the problem; devise a central question.	Identify both potential benefits and potential harms; create a table or chart that can then be used to inform possible solutions or approaches.	Facilitate stakeholder input throughout the entirety of a design project; participatory design can be a useful design framework to center learners and other stakeholders.	Develop a set of specific questions you can use that reflect priority ethical considerations throughout all phases of design.

SPECULATIVE DESIGN	CRITICAL DESIGN	MORAL IMAGINATION	FRAMING FRONT-END ANALYSES WITH ETHICS	HUMAN- OR LEARNER-CENTERED DESIGN
Activities or design process that question and imagine future scenarios to illuminate both potential harms and potential desired futures.	Designed artifacts or processes focus on illuminating problems and challenge norms	Imagining what should be or could be, thinking outside the box to imagine more alternatives	Incorporating ethical considerations or issues into standard front-end analyses like learner analysis, needs analysis, context analysis, and so on.	Solving problems and creating solutions that prioritize the needs, wants, and limitations of the end users of a product or service and/or the humans in any given system.

Selected examples from Gray and Boling (2016), Moore and Tillberg-Webb (2023), and Moore, Lachheb, and Abramenka-Lachheb (2025).

Ultimately, effective IDT is a combination of all the concepts discussed in this chapter, and more! It is broad and varied; involves product and process; is systematic, systemic, and iterative; it's ethical, and it is supported by learning theory and research. Begin now to take a deep approach, marking the concepts of interest to you as you encounter them in this book so you can revisit and explore the topics further in the future. The resources under "Diving Deeper" at the end of each chapter and resources on the text website provide a starting point for exploring the depth and breadth of practice in the field of IDT.

TEST YOUR UNDERSTANDING WITH A BLOOM STRETCH

When you think you're ready, you can test your understanding of the concepts covered in this chapter with the following exercises based on the levels of Bloom's revised taxonomy of thinking skills (Bloom's taxonomy is discussed further in Chapter 5).

Apply



You can apply your understanding of systems theory to identify the different systems involved in your choice of a specific educational system. Briefly describe how each sub-system impacts the other systems involved. For example, you could describe the systems in your state's public education organization, those involved in a multinational company, the systems that interact in a third-world health organization, military or governmental training systems, or the interaction of various sub-systems that impact an institute of higher education.

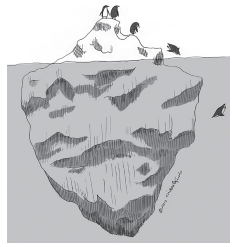
Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Analyze Do an internet search to find three examples each of good and bad instruction. Provide a bulleted list for each example that briefly describes the good and bad design elements.

Evaluate Locate a list of criteria for online instruction and then use it to evaluate one of the good and one of the bad examples of instruction you found for the previous "Analyze" activity.

Create Pick and choose from the various competency lists available to create a table of competencies that you could use for personal professional development. For each competency, the table should state the desired competency or standard, the sponsor organization, a rating of your own proficiency for that competency or standard, and your ultimate proficiency goal.

DIVING DEEPER



Want to know more? Much of what you've read in this chapter represents just the tip of the iceberg. To dive deeper, complete the **IDT competencies self-assessment** (Table 1.4), or access these resources on the text companion website:

- Links to IDT and training development bloggers to follow in order to keep up with new developments;
- Professional organizations that publish IDT competencies and a competency goal worksheet; and
- Resources on the history of IDT, IDT competencies, learning environments, and ID models.



Table 1.4 A Streamlined Self-Assessment: IDT Competencies

Instructions: Rate yourself on each competency that applies to the type of IDT career to which you aspire (**A** = Always, **U** = Usually, **S** = Sometimes, **R** = Rarely, **N** = Never). Consider those competencies you wish to strengthen and the actions you could take to improve in those areas. If you are unfamiliar with any of the concepts referenced in this self-assessment, you can learn more about those concepts in future chapters of *Streamlined ID*.

STATEMENTS OF COMPETENCE	A	U	S	R	N
PLANNING & ANALYSIS SKILLS					
1. (Learner Analysis) I accurately analyze learner needs and characteristics to develop appropriate instructional and mediated solutions.					
2. (Needs Analysis) I use a variety of methods to identify and/or confirm the needs for a project and the gap between what is and what should be.					
3. (Learning/Performance Context Analysis) I am adept at identifying the demands of the learner's final performance environment and designing a learning environment to align with it to foster the transfer of knowledge and skills.					
4. (Content Analysis) I use several different methods of content analysis and organization, and I select from among those methods based on the nature of the content, the demands of the learning tasks, and the needs and characteristics of the learners.					
5. (Planning & Workflow) I use a systematic process and workflow to plan and carry out my projects.					
6. (Planning) I estimate and track my time on each major design/development task and consult my own historic records for future project scheduling.					

(*Continued*)

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Table 1.4 (Cont.)

STATEMENTS OF COMPETENCE	A	U	S	R	N
DESIGN SKILLS					
7. (Objectives, Alignment) I am proficient at identifying desirable learning objectives for instructional content and aligning appropriate assessments and teaching/learning strategies with those objectives for the proposed instruction.					
8. (Assessment) In my design practice I distinguish between and use measurements for assessment OF learning and assessment FOR learning, and I use self- and peer assessments to promote metacognition and assessment AS learning.					
9. (Strategies) I design using a wide range of strategies to foster all five types of interaction: learner-to-content, learner-to-instructor, learner-to-learner, learner-to-context, and learner-to-self.					
10. (Strategies) I design engaging instructional and learning activities for all three domains of learning using frameworks such as Marzano's nine categories of effective strategies, Keller's ARCS motivational model, Gagné's nine events of instruction, Bloom's revised taxonomy of thinking skills.					
11. (Learning Environments) I design effective mediated learning materials and learning experiences and environments for online asynchronous instruction, online synchronous instruction, and hybrid/blended environments.					
12. (Grounded Design) I effectively apply principles from the major learning theories in the design of my instruction.					
13. (Technology Selection) I know the advantages and disadvantages of different technologies for teaching and learning, and I make technology selections based on how technology will support an instructional purpose.					
MULTIMEDIA/TECHNOLOGY DEVELOPMENT SKILLS					
14. (Technology Skills) I am able to create instructional materials using these technologies: one or more learning management systems (LMS), productivity software (s/w) (word processing, spreadsheet, presentation, database), cloud-based productivity s/w and storage system(s), photo editing s/w, audio and video editing s/w, screen recording s/w, eLearning authoring s/w, data visualization s/w, learning analytics systems, project management s/w, social networking, curation programs, video caption editing and other accessibility s/w, etc.					
15. (Technological Flexibility) I can easily move between a PC and a Mac to accomplish tasks.					
16. (Technical Expertise) I have a good working knowledge of the installation, use, and troubleshooting skills required for effective technology use.					
17. (Formative Development) I use SME reviews of initial content and formative usability testing of prototypes during development to ensure that my final product successfully meets learner needs, project goals, and client expectations.					
IMPLEMENTATION & EVALUATION SKILLS					
18. (Implementation) I am informed about and implement best practices in instructional delivery and training, and I always have a backup plan.					
19. (Evaluation Measures) I identify and collect benchmark data and develop appropriate measures at all four of the Kirkpatrick model levels to evaluate the effectiveness of an instructional project.					

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

STATEMENTS OF COMPETENCE	A	U	S	R	N
IMPLEMENTATION & EVALUATION SKILLS					
20. (Accessibility & UDL) I can evaluate and recommend changes to instruction for accessibility and Universal Design for Learning (UDL).					
21. (Copyright & OER) I can evaluate instruction for copyright compliance and can find and use open educational resources | (OER) in instruction.					
22. (Coordinating Reviews) I competently lead multi-stakeholder review meetings to gain consensus on instructional drafts and prototypes.					
23. (Testing) I am comfortable planning and carrying out usability studies to test the viability of my own or others' instructional designs and products.					
PROJECT MANAGEMENT/PERSONAL ORGANIZATIONAL SKILLS/TRAINING SKILLS					
24. (Project Management) I provide competent consultation services to clients to establish project goals and future direction.					
25. (Personal Skills) When I encounter a problem or challenge that is not easily overcome, I am persistent and eventually figure out a good solution.					
26. (Project Management) I develop milestone schedules with deliverables and due dates, monitor and track project progress, and effectively manage multiple projects and/or team tasks to complete projects on time and within budget, informing others of any notable variances when necessary.					
27. (Personal Skills) My file organization and version control systems are logical and intuitive so others can easily find files if I am not available.					
28. (Training) I develop and facilitate effective and engaging synchronous training for both face-to-face and online synchronous venues.					
INTERPERSONAL & COMMUNICATION SKILLS					
29. (Consultation/Work with SMEs) I clearly communicate general project goals and set expectations with my clients and subject matter experts at the beginning of a project and encourage them to develop and communicate their own goals for our interaction.					
30. (Teamwork) I effectively collaborate with design team members and SMEs to carry out instructional design and development tasks.					
31. (Writing) My writing is clear, concise, and appropriate for the required purpose, whether for an audiovisual script, instruction on a procedure, an explanation, a client email, a persuasive piece, or a report to management.					
32. (Persuasion) I excel at articulating and "selling" the value of instructional design, inspiring and obtaining "buy-in," and building confidence in others.					
33. (Public Speaking) My speaking style is informative and engaging and persuasive when it needs to be. I thoroughly but concisely address the content that has been announced as the topic of my presentation, and I am aware of, and honor, my time limits.					
34. (Active Listening) I listen to others carefully and attempt to confirm my understanding by restating what they have said in my own words.					

(*Continued*)

Copyright Material – Provided by Taylor & Francis
Review Copy – Not for Redistribution

Table 1.4 (Cont.)

STATEMENTS OF COMPETENCE	A	U	S	R	N
KNOWLEDGE, RESEARCH, & SELF-IMPROVEMENT					
35. (Learning Theories & ID) I possess a thorough knowledge of learning theories and IDT research literature and can apply it to justify my design decisions or to help others identify or support a design option.					
36. (Reflection) I reflect on the challenges of my work and my success in tackling those challenges, making necessary adjustments to improve.					
37. (Potential Bias/Blind spots) I analyze the problem or challenge to be addressed for a project, and I try to see it from different perspectives.					
38. (Reflection) I reflect on completed projects, note what worked well and what did not work, and seek to find better methods for the future.					
39. (Professional Development) I make time to become informed about emerging technologies, to learn to use new tools, to learn about new learning and technology theories, and to attend and present at IDT-relevant conferences, seminars, and workshops.					