

Contents

Introduction	1
1. Designing successful conservation education and outreach	6
1.1 The need for conservation education and outreach	6
1.2 Designing education and outreach programs	9
1.3 Planning	11
1.3.1 Review the mission	11
1.3.2 Identify goals and objectives	11
1.3.3 Identify target audiences	14
1.3.4 Include audience members and potential partners	17
1.3.5 Make an inventory of resources and constraints	18
1.3.6 Select activities and messages	18
1.4 Implementation	20
1.4.1 Pilot test activities	20
1.4.2 Program operations	21
1.5 Evaluation	22
1.5.1 Designing an evaluation	23
1.5.2 Evaluation objectives	23
1.5.3 Data collection for an evaluation	26
1.6 Summary	32
2. Learning and teaching	33
2.1 What is learning?	33
2.2 Learning and mental activity	35
2.2.1 Brain-based learning	37
2.3 Learning, experience, and reflection	39
2.3.1 Experiential learning cycle	41
2.3.2 Constructivism	43
2.3.3 Inquiry learning	46
2.4 Learning and social interaction	48
2.4.1 Activity theory	49
2.4.2 Social learning	50
2.4.3 Cooperative learning	51
2.5 Focus on thinking skills	53
2.5.1 Bloom's taxonomy	53
2.5.2 Critical thinking	54
2.5.3 Creative thinking	55
2.5.4 Systems thinking	56
2.6 Integrating learning theories	58
2.7 Summary	59

3. Changing conservation behaviors	61
3.1 Defining behavior	61
3.2 Informational needs	63
3.2.1 Theory of planned behavior	63
3.2.2 Elaboration likelihood model of persuasion	65
3.3 Influence of social groups	67
3.3.1 Diffusion of innovation	67
3.4 Self-efficacy	69
3.5 Motivation	70
3.5.1 Self-determination theory	70
3.5.2 Flow of behavior change model	71
3.5.3 Needs and benefits as motives	72
3.6 Conservation program development to influence behavior	74
3.7 Supportive environments are key	74
3.7.1 The reasonable person model	74
3.8 Designing programs to support change	76
3.8.1 The value-belief-norm model	77
3.8.2 Environmental citizenship behavior model	78
3.9 Summary	79
4. Conservation education in schools	81
4.1 Communicating with schools	83
4.1.1 Planning	83
4.1.2 Implementation	86
4.1.3 Evaluation	89
4.2 Acting as a resource for schools	89
4.2.1 Planning	89
4.2.2 Implementation	89
4.2.3 Evaluation	96
4.3 Supporting academic standards	97
4.3.1 Planning	97
4.3.2 Implementation	101
4.3.3 Evaluation	105
4.4 Integrating conservation education into legislation and educational policy	105
4.4.1 Planning	105
4.4.2 Implementation	106
4.4.3 Evaluation	106
4.5 A sample of approaches to conservation education in schools	108
4.6 Environment-based education	108
4.6.1 Planning	109
4.6.2 Implementation	109
4.6.3 Evaluation	110
4.7 Education for sustainability	111
4.7.1 Planning	112

4.7.2 Implementation	115
4.7.3 Evaluation	115
4.8 Summary	116
5. Making conservation come alive	117
5.1 Hands-on activities	117
5.1.1 Planning	118
5.1.2 Implementation	120
5.1.3 Evaluation	122
5.2 Storytelling	123
5.2.1 Planning	124
5.2.2 Implementation	126
5.2.3 Evaluation	127
5.3 Games	127
5.3.1 Planning	128
5.3.2 Implementation	130
5.3.3 Evaluation	131
5.4 Case studies	131
5.4.1 Planning	132
5.4.2 Implementation	135
5.4.3 Evaluation	136
5.5 Role-play	137
5.5.1 Planning	137
5.5.2 Implementation	139
5.5.3 Evaluation	140
5.6 Contests	140
5.6.1 Planning	141
5.6.2 Implementation	142
5.6.3 Evaluation	142
5.7 Field trips	143
5.7.1 Planning	144
5.7.2 Implementation	146
5.7.3 Evaluation	148
5.8 Backcountry skills	149
5.8.1 Planning	149
5.8.2 Implementation	153
5.8.3 Evaluation	153
5.9 Summary	154
6. Using the arts for conservation	155
6.1 Emotion, art, and learning	157
6.2 Visual arts for the protection of natural areas	158
6.2.1 Planning	161
6.2.2 Implementation	161
6.2.3 Evaluation	162

6.3	Art exhibits	163
6.3.1	Planning	164
6.3.2	Implementation	166
6.3.3	Evaluation	168
6.4	Hands-on arts programs	169
6.4.1	Planning	170
6.4.2	Implementation	171
6.4.3	Evaluation	173
6.5	Environmental literature	174
6.6	Keeping an environmental journal	176
6.6.1	Planning	176
6.6.2	Implementation	177
6.6.3	Evaluation	179
6.7	Environmental theater	180
6.7.1	Planning	181
6.7.2	Implementation	181
6.7.3	Evaluation	182
6.8	Music and the environment	182
6.8.1	Singing a conservation message	184
6.8.2	Planning	184
6.8.3	Implementation	184
6.8.4	Evaluation	186
6.9	Summary	186
7.	Connecting classes and communities with conservation	187
7.1	Service-learning	189
7.1.1	Planning	189
7.1.2	Implementation	192
7.1.3	Evaluation	194
7.2	Issue investigation	196
7.2.1	Planning	197
7.2.2	Implementation	197
7.2.3	Evaluation	199
7.3	Project-based learning	200
7.3.1	Planning	202
7.3.2	Implementation	203
7.3.3	Evaluation	205
7.4	Public participation in scientific research	206
7.4.1	Planning	208
7.4.2	Implementation	212
7.4.3	Evaluation	213
7.5	Mapping	215
7.5.1	Planning	216
7.5.2	Implementation	217
7.5.3	Evaluation	219
7.6	Summary	220

8. Networking for conservation	222
8.1 Environmental groups and clubs	223
8.1.1 Planning	224
8.1.2 Implementation	225
8.1.3 Evaluation	227
8.2 Workshops and seminars	228
8.2.1 Planning	228
8.2.2 Implementation	233
8.2.3 Evaluation	234
8.3 Public presentations	235
8.3.1 Planning	235
8.3.2 Implementation	237
8.3.3 Evaluation	239
8.4 Information booths	239
8.4.1 Planning	240
8.4.2 Implementation	243
8.4.3 Evaluation	243
8.5 Professional posters	244
8.5.1 Planning	244
8.5.2 Implementation	247
8.5.3 Evaluation	247
8.6 Conferences	247
8.6.1 Planning	248
8.6.2 Implementation	253
8.6.3 Evaluation	253
8.7 Special events	254
8.7.1 Planning	255
8.7.2 Implementation	256
8.7.3 Evaluation	256
8.8 Partnerships	257
8.8.1 Planning	258
8.8.2 Implementation	258
8.8.3 Evaluation	262
8.9 Summary	262
9. Marketing conservation	263
9.1 Planning a social marketing program	266
9.1.1 Selecting a behavior	266
9.1.2 Assessing the audience	266
9.1.3 Communicating opportunities	268
9.1.4 Creating and selecting messages	269
9.1.5 Program implementation	271
9.1.6 Program evaluation	271
9.2 Social marketing tools	273
9.3 Signs, billboards, and posters	274
9.3.1 Planning	274

9.3.2 Implementation	276
9.3.3 Evaluation	276
9.4 Prompts	277
9.4.1 Planning	277
9.4.2 Implementation	278
9.4.3 Evaluation	278
9.5 Feedback	279
9.5.1 Planning	280
9.5.2 Implementation	280
9.5.3 Evaluation	281
9.6 Models	281
9.6.1 Planning	281
9.6.2 Implementation	283
9.6.3 Evaluation	284
9.7 Commitment	284
9.7.1 Planning	285
9.7.2 Implementation	286
9.7.3 Evaluation	287
9.8 Incentives and disincentives	287
9.8.1 Planning	287
9.8.2 Implementation	289
9.8.3 Evaluation	290
9.9 Press interviews	290
9.9.1 Planning	291
9.9.2 Implementation	292
9.9.3 Evaluation	292
9.10 Paid and public advertisements	293
9.10.1 Planning	294
9.10.2 Implementation	295
9.10.3 Evaluation	295
9.11 Summary	295
10. Getting your message out using the written word	297
10.1 Opinion articles	297
10.1.1 Planning	298
10.1.2 Implementation	298
10.1.3 Evaluation	301
10.2 Blog posts	302
10.2.1 Planning	302
10.2.2 Implementation	303
10.2.3 Evaluation	305
10.3 News releases	306
10.3.1 Planning	306
10.3.2 Implementation	306
10.3.3 Evaluation	311

10.4 Brochures	311
10.4.1 Planning	311
10.4.2 Implementation	312
10.4.3 Evaluation	314
10.5 Fact sheets and flyers	315
10.5.1 Planning	316
10.5.2 Implementation	317
10.5.3 Evaluation	319
10.6 Guidebooks	319
10.6.1 Planning	320
10.6.2 Implementation	322
10.6.3 Evaluation	324
10.7 Summary	326
11. Taking advantage of technology	327
11.1 The World Wide Web	329
11.1.1 Planning	331
11.1.2 Implementation	333
11.1.3 Evaluation	334
11.2 Social media	335
11.2.1 Planning	336
11.2.2 Implementation	337
11.2.3 Evaluation	339
11.3 Video	340
11.3.1 Planning	342
11.3.2 Implementation	344
11.3.3 Evaluation	345
11.4 Distance education	347
11.4.1 Online training and resources	348
11.4.2 Internet conferences	348
11.4.3 Planning	349
11.4.4 Implementation	350
11.4.5 Evaluation	351
11.5 Other technologies	351
11.5.1 Computer simulation and modeling	352
11.5.2 Podcasts	352
11.5.3 Apps	353
11.5.4 Geocaching	353
11.5.5 Environmental monitoring	354
11.6 Summary	355
12. Designing on-site activities	356
12.1 Laying the foundation: initial steps for designing on-site programs	356
12.2 Guided walks	358
12.2.1 Planning	359

12.2.2 Implementation	362
12.2.3 Evaluation	363
12.3 Exhibits	363
12.3.1 Planning	365
12.3.2 Implementation	369
12.3.3 Evaluation	372
12.4 Demonstrations	372
12.4.1 Planning	373
12.4.2 Implementation	374
12.4.3 Evaluation	375
12.5 Nature awareness and study	376
12.5.1 Planning	377
12.5.2 Implementation	378
12.5.3 Evaluation	381
12.6 Facility design	382
12.6.1 Planning	382
12.6.2 Implementation	385
12.6.3 Evaluation	386
12.7 Summary	387
References	389
Index	415