Index

ability
entity theory of, 40
fear-of-failure mentality and, 32–33, 48–50
self-deception and, 37–39
ability game, 49
academic competition. See competition
academic engagement. See also intrinsic task engagement
developmental strategies for, 3–4
as educational goal, 27–29
grades-focused learning and, 2–3
motivation and, 27–29
performance objectives and, 2–3
promotion of, 2–3
psychological nature of, 2–3
teacher enthusiasm as factor in, 89
academic improvement, grading in
fluenced by, 236–237
academic promise.
See promise
academic wooden leg,
achievement by conformance, 61–63
defined, 61–62
instructor responsibilities, 63
students and, 62–63
perceived roles of, 62–63
responsibilities of, 63
achievement by independence, 64
Achievement Motivation, Self-Worth Theory of action potential, 182
alliance-building
through equity in grading, 115–116
in grade-choice arrangement system, 218–219
in student-centered learning, 113–116
between students and GSIs, 26
in teacher-centered learning, 113–116
anticipation mode, course coverage and, 72
anxiety. See also test anxiety
academic wooden leg and, 37
failure and, 37
among students, 252
appraisal stage, of test anxiety, 44
appreciation, as intangible goal, 173
assessment, of students
course design and, 157–159
through customized testing, 203–204
as cycle, 194–201. See also Primary Trait Analysis
instruction as factor in, 174–175
as novice problem solvers, 175–178
fear as factor in, 178
in information processing, 176
recognition of insufficient information, 177–178
with self-monitoring, 176–177
through proactive testing, 204, 206–209
for subject-matter interest, 91
teaching to the test in, 209–211
certification functions of, 209
assignments. See teaching assignments
Beery, Richard, 21. See also fear-of-failure mentality
behavioral sciences, course design for, 150–152
Bierbohm, Max, 68–69
Bloom, Benjamin, 106–108
blueprint for change, in course design, 3–4, 116–117
benchmark narratives in, 227–232, 261
causal system construction, 149, 259
course syllabus, 243, 260–262
discipline characteristics in, 137–138, 258
instructional paradigms in, 182–188, 259–260
introductory meetings, 256
knowledge in, prerequisites for, 139–140, 258
learning objectives in, 138–139, 258
mental skills in, prerequisites for, 138–139, 258
Primary Trait Analysis in, 260–261
problem solving components in, 144, 258–259
teachable problems, 116–118, 257

285
blueprint for change, in course design (cont.)
teaching assignment creation, 183–187, 260
trait analysis in, 195–200
visual metaphors in, 150–154, 259
Calfee, Robert, 174
Campbell, David, 238
Camus, Albert, 144
capstone tasks, 117–118, 123–124
causal system, construction of, 149, 259
chronological instructional paradigms, 180–182
Churchill, Winston, 202–203, 244
classrooms, learning dynamics in
with help giving, 76–78
with help seeking, 75–76
GSIs and, 76
overstrivers and, 74–75
power as influence on
perceptions of, 82–83
power-sharing between instructors and
students, 83–84
section meetings, 74
teaching to the test and, 78–81
efficiency mentality, 79
fairness as part of, 79–81
cognitive apprenticeship, 191–192
cognitive mapping, 165
cognitive processes. See also mental skills
for intelligent novices, 162
intrinsic task engagement as, 7–8
mental skills. See mental skills
coherence
in course curriculum, 25
in student-centered learning, 110–113
in teacher-centered learning, 110–113
Coleridge, Samuel, 71–72
Combs, Arthur, 240
communication
between faculty and GSIs, 267
in goal-setting, 169–172
of fairness, 170–171
for intrinsic task engagement, 169–170
competency
in grade-choice arrangement system,
minimum levels of, 220–221
through instruction paradigm structures,
180
intellectual, 65
standards of excellence established through,
158–159
competition, academic
GPAs and, 238–239
grading equity and, 241–243
job sorting through, 238–239
occupational success and, 238–239
merit-based grading and, 242
myths about, 237–243
overstrivers and, 238–239
real-world implications from, 240–241
concept mapping, 204–206
conditional knowledge, 164
content coverage
in course design, 159–160
goal-setting and, 136
content knowledge, 141
declarative knowledge and, 141
grade-weighting for, 224
productive thinking and, 189
transfer of, 165
cooperation in classroom, grading influenced
by, 236–237
course design. See also blueprint for change
case studies for, 121–123, 156–157
learning objectives for, 157
coherence in, 25
content coverage in, 159–160
coverage of, 69–73
anticipation mode in, 72
learning via thinking in, 72–73
through lecture method, 70–71
testing efficiency, 71–72
grading rules in, clarity of, 155
interior architecture of, 147–154
students as part of
objectives of, 155–157
performance assessments of, 157–159
system analysis for, 147–154
in behavioral sciences, 150–152
causal system construction, 149
for teaching problems, 148
visual metaphors in, 150–154
transfer of knowledge issues, 160–167
access of stored knowledge, 163–164
far, 166–167
instructional implications for, 164–166
near, 166–167
prior knowledge as factor in, 162–163
transparency in, 25
criterion-referenced grading, 88–89, 215–216
grade-choice arrangement system and, 216
cult of efficiency, 68–69
curiosity, 8
c customized testing
productive thinking through, 203–204
self-administered, 204
test anxiety and, 47
declarative knowledge, 141
delayed vindication strategy, 54
diaries and journals
intrinsic motivation through, 97
student-generated research through, 130
Dickinson, Emily, 73
discounting teaching strategy, 55–56
disengagement, in intrinsic task engagement, 14–15
doubt
as self-destructive cycle, 52–54
as self-fulfilling prophecy, 53
drive-theory for motivation, 237–238
effort, fear-of-failure mentality and, 48–50
effortless thought, 192–193
Einstein, Albert, 150
emotions
intrinsic task engagement and, 8–9
anxiety of, 8–9
test anxiety and, 43
end-of-term assessment forms, 265
engagement strategies. See also academic engagement; disengagement; intrinsic task engagement
for subject-matter interest, among students, 90–92
entity theory, of ability, 40
equity, in grading, 25–26
academic competition and, 241–243
through alliance-building, 115–116
under grade-choice arrangement system, 218
excellence, standards of
competency and, 158–159
through goal-setting, 136, 154–160
student objectives in, 155–157
student performance assessments, 157–159
grade-weighting and, 222–225
for content knowledge, 224
fairness and, 224
function and process of, 223
incentives through, 224
student motivation through, 224–225
inconsistent, 232–234
standard setting, 225–232
benchmark narratives for, 227–232
grade cutoffs in, 227–231
nominal scales of, 226
extra-credit, 234–236
extra-learning, 234–236
extrinsic motivation, 10–13
through tangible rewards, 10–11
faculty
end-of-term assessment forms, 265
GSIs and, relationship strategies with, 265–268
communication as part of, 267
at end of term, 268–269
for grading, 267–268
through mentoring plans, 264, 268–271
through pre-term meetings, 264
during term, 266–268
failure. See also fear-of-failure mentality; test anxiety
appreciation for, 89–90
avoidance of, 33–39
through non-participation, 33–34
through procrastination, 35
grade-choice arrangement system and, 219–220
overstrivers and, 41–42
test anxiety and, 46–47
self-handicapping strategies for, 35–37
anxiety, 37
erratic goal-setting, 36–37
procrastination, 36
self-worth theory and, 31–32
ability and, 32–33, 48–50
self-deception about ability and, 37–39
subject-matter interest and, 91
fairness
goal-setting and, communication of, 170–171
in grade-choice arrangement system, 221–222
grade-weighting and, 224
of sample tests, 81–82
in test construction, 79–81
far knowledge transfer, 166–167
fast learners, 190–191
fear, in problem solving, 178
fear-of-failure mentality, 21–22, 31–32
ability and, 32–33, 48–50
self-deception about, 37–39
effort and, 48–50
motivation and, 48
formative feedback, through grades, 214
Pried, Robert, 156, 158–159, 230
on inconsistent excellence, 232–233
goal-based testing, 210
goal-setting. See also course design communication in, 169–172
content coverage and, 136
in design process, 135
erratic, failure through, 36–37
GSIs forms, 265
laundry list approach to, 136
low, 37
purpose of, 137
standards of excellence established through, 136, 154–160
competence in, 158–159
student objectives, 155–157
student performance assessments, 157–159
teachable problems and, 136
GPA. See grade-point average
grade grubbing (excessive grade focus), 1
grade-choice arrangement system, 216–222
alliance-building in, promotion of, 218–219
grade-choice arrangement system (cont.) concerns over, 219
criterion-referenced grading and, 216
failure and, 219–220
fairness in, 221–222
grade equity under, 218
luck in, 221–222
minimum levels of competency for, 220–221
outcome linkages in, 217–218
rules of, 216
student efforts, strengthening strategies for, 217–218
student-generated research and, 217
grade-point average (GPA), 157
grades, grading and
for academic improvement, 236–237
for cooperation, 236–237
in course design, clarity of, 155
criterion referenced, 88–89, 215–216
cutoffs for, 227–231
equity in, 25–26
through alliance-building, 115–116
extra-credit for, 234–236
extra-learning and, 234–236
fear of, 22–24
focus on
academic engagement and, 2–3
causes of, 1–2
by students, 1
formative feedback through, 214
future promise, 236–237
GSIs and, 23
faculty relationships as influence on, 267–268
on unbalanced focus on grades, 1
intangible factors in, 236–237
loathing of, 22–24
long-term impact of, 213
merit-based, 215–216, 242
rationing of, 23, 215
relative, 215
self-worth theory and, 213
for student enthusiasm and interest, 236–237
subject-matter interest and, declining
importance of, 90
grade-weighting, 222–225
for content knowledge, 224
fairness and, 224
function and process of, 223
incentives through, 224
student motivation through, 224–225
grading equity. See equity, in grading
grading on a curve (i.e., norm-referenced grading) (ie. norm-referenced grading), 23

Graduate Student Instructors (GSIs, i.e.,
Teaching Assistants). See also
teacher-centered learning
alliance-building among, 26
defined, 275
drought of-term assessment forms, 265
faculty relationships with, 264–268
communication as part of, 267
at end of term, 268–269
for grading, 267–268
through mentoring plans, 264, 268–271
through pre-term meetings, 264
during term, 266–268
goal-setting forms for, 265
grades and, 23
unbalanced focus on, 1
help giving and, 76–78
perceived power of, 82–83
professional development guidelines for,
263–271
self-worth theory and, 56–58
doubt as self-destructive cycle, 52–54
SIs and, 23

Hammerstein, Oscar, 31
Heider, Fritz, 38
hierarchical instructional paradigms, 179–180
hierarchical model, for problem solving, 139–147
component categorization in, 144
content knowledge in, 141
declarative knowledge and, 141
metacognitive knowledge in, 142–144
planning with, 143
self-monitoring of, 142–144
procedural knowledge in, 142
purpose of, 144–146
higher-order thinking, 72–73
holistic approach, in Primary Trait Analysis, 199–200, 227
inclusion, in learning approaches, 113–116
inconsistent excellence, 232–234
inert knowledge, 164
information processing
by experts, 176
by students, 176
Inge, Dean, 43

Index
Index 289

as cycle, 194–201. See also Primary Trait Analysis
paradigm structures for, 182–188, 259–260
chronological, 180–182
competency gains through, 180
hierarchical, 179–180
means-end, 181–182
spiral, 179–180
through proactive testing, 204, 206–209
spreadsheets, 182–188
benefits of, 187–188
sample assignments, 183–187
teaching assignment creation, 183–187
student assessment informed by, 174–175
teaching to the test in, 209–211
instructional spreadsheets. See spreadsheets
instructor, 183, 260
instructors. See also classrooms, learning
dynamics in; Graduate Student Instructors; teacher-centered learning
achievement by conformance and, 63
achievement by independence and, 64
as co-dependent, 69
enthusiasm for subject-matter, 89
as expert problem solvers, 175–178
fear for, 178
information processing by, 176
recognition of insufficient information by,
177–178
self-monitoring by, 176–177
perceived role of, 60–61
power-sharing with students, 83–84
teaching to the test for, 78–81
efficiency mentality, 79
fairness as part of, 79–81
intellectual competency, 65. See also mental skills
intellectual processes
admiration of, 5–6
critical shifts in, for students, 64–67
intellectual scaffolding. See scaffolding
intellectual novices, 162
intrinsic motivation, 10
justification effect theory and, 94
over-rewarding of, 94–102
revaluation of, 94–95
self-improvement strategies, 96–99
benefits of, 98
through diaries and journals, 97
familiarity of task and, 100–102
novelty of task and, 100–102
problem-focused approach to, 97
success and, 86–93
appreciation of failure, 89–90
criterion referenced grading, 88–89
maximization of, 88–89
for overstrivers, 87
student interest as factor in, 89–93, 103–104
intrinsic task engagement, 3
admiration of intellectual process and, 5–6
case study, 15–20
challenging tasks as part of, 26
as cognitive process, 7–8
commitment to, 5
components of, 6–10
emotional, 8–9
motivation, 7, 10–13
social, 9–10
concentration as part of, 5
defined, 4–10, 12–13
disengagement and, 14–15
grinders and, 14
implementation phase for, 245–249
experiments in, 247–248
graduate seminar for, 246–247
results in, 248–249
involvement as part of, 13
overstrivers and, 14
research phase for, 245
teacher enthusiasm as factor in, 89
introductory meetings, in blueprint for change, 256
involvement, in intrinsic task engagement, 13
job sorting, 238–239
occupational success and, 238–239
journals. See diaries and journals
justification effect theory, 94
Kettering, Charles, 135
knowledge. See also learning
in blueprint for change, prerequisites for,
139–140, 258
conditional, 164
content, 141
declarative knowledge and, 141
grade-weighting for, 224
productive thinking and, 189
transfer of, 165
declarative, 141
inert, 164
metacognitive, 142–144
planning with, 143
self-monitoring of, 143–144
for problem solving, 139–140
procedural, 142
production deficiencies, 164
learned helplessness, 67
learning. See also classrooms, learning
dynamics in; intellectual processes
in blueprint for change, 138–139, 258
learning. (cont.)
curiosity and, 8
Dickinson on, 73
inclusion and, 113–116
mastery, 189–191
drill and practice application in, 190
fast learners and, 190–191
slow learners and, 190–191
subject-matter enthusiasm and, 89–90
thinking compared to, 72–73
lecture method, 70–71
Lincoln, Abraham, 31
luck, in grade-choice arrangement system, 221–222
mastery learning, 189–191
drill and practice application in, 190
fast learners and, 190–191
slow learners and, 190–191
means-end analysis, 181–182
in proactive testing, 207
means-end paradigm structures, 181–182
mental skills
in blueprint for change, prerequisites for, 138–139, 258
for problem solving, 139–140
mentoring, of GSIs, 264, 268–271
merit-based grading (i.e., criterion-referenced grading) (i.e., criterion-referenced grading), 215–216, 242
metacognitive knowledge, 142–144
planning with, 143
productive thinking and, 191–194
self-monitoring of, 143–144
motivation. See also intrinsic motivation
academic engagement and, 27–29
as drive, 27
drive-theory interpretation of, 237–238
extrinsic, 10–13
through tangible rewards, 10–11
as goal-driven, 27–29
through grade-weighting, 224–225
problem solving and, 146–147
for task engagement, 7, 10–13
near knowledge transfer, 166–167
Nietzsche, Friedrich, 118
novelty, of tasks, 100–102
occupational success, 238–239
for overstrivers, 238–239
overstrivers
academic competition and, 238–239
classroom learning dynamics and, 74–75
defined, 14
failure and, 41–42
GPA and, 157
intrinsic motivation for, 87
occupational success for, 238–239
test anxiety and, 46–47
planfulness, 193–194
planning
mentoring, by faculty, 264, 268–271
with metacognitive knowledge, 143
in student-centered learning, 193–194
playfulness, as teaching tool, 120
Polanyi, Michael, 168
preparation stage, of test anxiety, 44–45
Primary Trait Analysis, 194–201
application of, 195–200
assessment of, 200–201
in blueprint for change, 260–261
critique of, 200–201
GSIs and, 196–197
holistic approach in, 199–200, 227
rubrics in, 195
sample cases studies for, 195–200
proactive testing
instruction through, 204, 206–209
productive thinking through, 204
student assessment through, 204, 206–209
transparency in, 207
problem solving. See also goal-setting
in blueprint for change, 144, 258–259
concept mapping in, 204–205
discipline characteristics, 137–138
by expert problem solvers, 175–178
fear of, 178
information processing by, 178
recognition of insufficient information, 177–178
self-monitoring, 176–177
for future problems, 167–168
interconnected nature of, 168
low-profile risks, 167–168
without precedent, 168
hierarchical model for, 139–147
component categorization in, 144
content knowledge in, 141
metacognitive knowledge in, 142–144
procedural knowledge in, 142
purpose of, 144–146
learning objectives and, identification of, 138–139
outline for, 139
mental skills and knowledge required for, 139–140
motivation and, 146–147
by novice problem solvers, 173–178
fear as factor in, 178
in information processing, 176
recognition of insufficient information, 177–178
with self-monitoring, 176–177
planfulness and, 193–194
system analysis in, 147–154
by students, 148–149
teachable problems and, 136
for transfer of knowledge issues, 160–164
wisdom and, 193–194
procedural knowledge, 142
productive thinking and, 189
transfer of, 165
procrastination
for avoidance of failure, 35
as self-handicapping failure strategy, 36
production deficiencies, 164
productive thinking, 189–194
assessment of, 201–204
teachable problems and, 136
through customized testing, 203–204
through proactive testing, 204
content knowledge and, 189
mastery learning and, 189–191
drift and practice application in, 190
fast learners and, 190–191
slow learners and, 190–191
metacognition enhancement through, 191–194
procedural knowledge and, 189
project method, of teaching, 102
promise, academic, among specific students, 236–237
rationing of grades, 23, 215
Redford, Robert, 68–69
relative grading, (i.e., norm-referenced grading) (i.e., norm-referenced grading), 215
research, e.g. student-generated research retrieval-deficit theory, 43
reverberating circuit of worry, 43
rewards
extrinsic motivation through, 10–11
over-rewarding for intrinsic motivation, 94–102
revaluation of, 94–95
Rogers, Carl, 117
rubrics, in Primary Trait Analysis, 195
sample tests, 81–82
scaffolding, intellectual, 172. See also goal-setting; problem solving
Schumann, Robert, 7
section meetings, 74
self-administered customized testing, 204
self-improvement strategies, for intrinsic motivation, 96–99
benefits of, 98
through diaries and journals, 97
familiarity of task and, 100–102
novelty of task and, 100–102
problem-focused approach to, 97
self-monitoring
by expert problem solvers, 176–177
metacognitive knowledge in, 143–144
by novice problem solvers, 176–177
self-worth theory, 20–21
fear of failure and, 21–22, 31–32
ability and, 32–33, 48–50
self-deception about ability and, 37–39
future research agenda with, 251–253
through assessment of theory, 251
ethnicity as influence on, 252
for student anxiety, 252
student stress and, 252
grades and, 213
GSIs and, 56–58
doubt as self-destructive cycle for, 52–54
teaching and, 50–58
delayed vindication strategy, 54
discounting teaching strategy, 55–56
self-justification strategies, 54–56
teaching strategies and, 249–251
skill-deficit theory, 43
slow learners, 190–191
social processes, intrinsic task engagement and, 9–10
spiral instructional paradigms, 179–180
spreadsheets, instructional, 182–188
benefits of, 187–188
sample assignments, 183–187
teaching assignment creation, 183–187
Stam, Allan, 59
standards of excellence. See excellence student anxiety, 252
student-centered learning, 106–113
alliance-building in, 113–116
coherence in, 110–113
course design with, 109–110
disadvantages of, 108–110
inclusion in, 113–116
planning in, 193–194
transparency in, 110–113
student-generated research, 128–133
academic benefits of, 132
acquisition of research skills, 128–129
through diaries and journals, 130
grade-choice arrangement system and, 217
methodology for, 129–130
students. See also assessment, of students; classrooms, learning dynamics in achievement by conformance and, 62–63
perceived roles of, 62–63
responsibilities of, 63
achievement by independence and, 64
alliance-building among, 26
cooperation among, rewards for, 236–237
cult of efficiency and, 68–69
fear-of-failure mentality for, 21–22, 31–32

Index
students. (cont.)
focus on grades by, 1
future promise of, 236–237
goal-setting by, standards of excellence
established through, 136, 154–160
competence in, 158–159
performance assessments, 157–159
student objectives, 155–157
grade grubbing by, 1
grinders, 14
intellectual processes for, critical shifts in, 64–67
overstrivers, 14
power of
perceptions about, 82–83
power-sharing with instructors, 83–84
role of, perceptions about, 60–61
in achievement by conformance, 62–63
sample tests and, fairness of, 81–82
self-worth theory and, 20–21
subject-matter interest for, 89–93, 103–104
engagement strategies for, 90–92
rewards for, 236–237
system analysis by, 148–149
on teacher enthusiasm for subject-matter, 89
subject-matter enthusiasm and interest
effort expenditure with, 91
failure and, reassessment of, 91
grades and
declining importance of, 90
as intangible factor for, 236–237
idiosyncratic nature of, 92–93
for instructors, 89
teachable problems and, 120–121
learning influenced by, 89–90
past success as factor in, 91–92
for students, 89–93, 103–104
engagement strategies, 90–92
success
teachable problems, 116–121, 133–134. See also
standard-based research
by academic discipline, 126
in blueprint for change, 116–118, 257
capstone tasks and, 117–118, 123–124
cooperation as solution to, 119
goal-setting and, 136
information sources for, 119
multiple solutions for, 117–118
playfulness and, 120
representative academic disciplines and,
119–120
resource access limitations and, 125–126
sample of, 118
subject-matter interest for instructors, 120–121
system analysis and, 148
teacher-centered learning, 106–113
alliance-building in, 113–116
through grade equity, 115–116
coherence in, 110–113
inclusion in, 113–116
taxonomy of teaching objectives, 106–108
transparency in, 110–113
problem-focused approach to, 112–113
teachers. See instructors
teaching. See also Graduate Student
Instructors; instructors
performance models for, 31
playfulness as tool, 120
project method, 102
self-worth theory and, 50–58
delayed vindication strategy, 54
discounting teaching strategy, 55–56
self-justification strategies in, 54–56
taxonomy of objectives, 106–108
teaching assignments, creation of, 185–187, 260
teaching to course goals, 209–210
teaching to the test
assessment of students through, 209–211
certification functions of, 209
goal-based testing compared to, 210
for GSIs, 78–81
efficiency mentality, 79
fairness as part of, 79–81
instructor and, 209–211
test anxiety, 42–47
appraisal stage of, 44
customized testing and, 47
emotional forms of, 43
overstrivers and, 46–47
physiological form of, 43
preparation stage of, 44–45
recovery-deficit theory for, 43
test-taking circuit of worry and, 43
skill-deficit theory for, 43
test-taking stage and, 45–47
test construction, fairness in, 79–81
Index

293

trait analysis, 195–200
transfer of knowledge
cognitive mapping and, 165
for content knowledge, 165
for course design, 160–167
access of stored knowledge, 163–164
far knowledge, 166–167
instructional implications for, 164–166
near knowledge, 166–167
prior knowledge as factor in, 162–163
for domain-specific content, 161
through practical applications, 165
problem solving for, 160–164
through task meaningfulness, 165–166
for procedural knowledge, 165
transparency
in course curriculum, 25
in proactive testing, 207
in student-centered learning, 110–113
in teacher-centered learning, 110–113
problem-focused approach in, 112–113
visual metaphors, in course design, 150–154, 259
wisdom, 193–194

testing
customized
productive thinking through, 203–204
self-administered, 204

test anxiety and, 47
efficiency of, course coverage and, 71–72

proactive
instruction through, 204, 206–209
means-end analysis in, 207
productive thinking through, 204
student assessment through, 204, 206–209
transparency in, 207
sample, 81–82
test-taking stage, for test anxiety, 45–47

thinking
higher-order, 72–73
learning compared to, 72–73
productive, 189–194
assessment of, 201–204
content knowledge and, 189
mastery learning, 189–191
metacognition enhancement through, 191–194
procedural knowledge and, 189

Tompkins, Jane, 109–110, 171