American Educational Research	factors impacting performance
Association, 10	analysis, 46
American Psychological	assessments, 60–62
Association, 10	measures, 44–45
Association, 10	school and instructional
benchmarking, 7–8	practices, 56–59
bias	student-centered factors,
defined, 11–12	59–60
measurement, 11–15, 27	teacher factors, 51–56
Black students, performance of,	test takers' home and
12–13, 34–35, 148, 156	background, 47–51
12–13, 34–33, 146, 130	selected countries, 38–44
Chinese Taipei, 160–164. see also	culture's impact on test-taking
Taiwanese test takers and	patterns, 33–35, 147–158,
	166
performance	100
differences in OTL patterns,	analysis, 151–153
118–125, 142	comparison of Black and White
educational policies, 172–173	test takers, 148–149
omission patterns, 110–116	high-context culture groups
professional development	vs low-context culture
activities for teachers, 174	groups, 152–157
test speededness, 116–117, 143	measures, 151
test-wiseness patterns, 108–118	research hypotheses, 150
country selection, 25	
country distinctions and the	differential item function (DIF),
similarities, 62–74	12–15, 24
criteria for selection, 38	comparison of Black and White
distinct characteristics of	test takers, 12–13
countries, 66–67	conditions to conduct, 14–15
educational history and reform	definition, 12
efforts of countries, 39-40	explanations and sources of, 14

educational accountability systems, 39	application of mathematical
8th grade assessment, 3, 5	procedures, 61–62
comparison of countries, 63–65,	average scale score and rank,
67–71, 73–78, 89–107	87–88
cultural differences impact,	commonalities with other
151–152, 154, 156–158,	countries, 67–74
163–164	distinct characteristics of
differences in OTL patterns,	performance, 66–67
119–124	4th and 8th grade students,
high-context culture countries,	75–76
158	frequency of assessments, 60-61
influencing factors	influencing factors
home and background factors,	distractor choices, 144
47–51	home and background factors,
student-centered factors, 59-62	47–51
teacher factors, 51–59	item bias, 138–139
item performance, 128, 132, 137,	nutrition issues, 50–51
142, 144	parental expectations of
low-context culture countries, 157	children's educational
percentage of omissions, 111–	goals, 50
116, 162	school and instructional
performance patterns, 80–81,	practices, 57–59
83–89	student-centered factors, 59–60
test speededness, 116–118	teacher factors, 51–56
test-wiseness skills, 109–111	math achievement scores, 85
	vs. Qatari students, 95–96,
fairness issues on assessments, xiv	104–106
Filling in the Blanks: Understanding	vs. Taiwanese students, 89–90,
the Black White	97–100
Achievement Gap, xiii	vs. United States, 94–95,
Finland, 160–164	103–104
differences in OTL patterns,	<i>p</i> -value, 83–84, 128–129, 152
118–125, 142	4th grade assessment, 4–5
educational policies, 173	comparison of countries, 63–66,
omission patterns, 110–116, 145	69–70, 72, 74–78, 89–107
professional development	cultural differences impact, 151,
activities for teachers, 175	153, 155–157, 164
test speededness, 116-117, 143	differences in OTL patterns,
test-wiseness patterns, 108–118	119–124
Finnish students, performance of	influencing factors

Index 187

home and background factors, identifying item bias, 14, 28–33, 47 - 51128-129 student-centered factors, 59-62 measures, 127–128 teacher factors, 51-59 OTL differences, 19–21, 26–27, item performance, 127, 132, 30, 118–126, 130–131, 142, 135-136, 143 168, 170 percentage of omissions, sources of item bias, 29, 130-135, 138-141 111–116, 162 performance patterns, 80-82, strategy formation and usage, 84-89 28, 31, 132–133, 143–146, test speededness, 116-118 162-163 test-wiseness skills, 109-111 test speededness, 26, 30-31, 116-117, 131–132, 142–143 **Graduate Record Examination** test takers' omit patterns, 32–33, 110, (GRE), 18 134–135, 144–145, 162–163 test wiseness, 108-118, 167-168 high-context culture countries, and test performance, 34–35, low-context culture countries, and test 38, 68–69, 77, 152–157, 166 performance, 34-35, 39, 68-69, 76-77, 152-157, 166 international assessments benchmarking process, 7–8 mathematics test performance, 13, comparison of major, 4 31, 59-62, 168 concerns and shortcoming of of males and females in the utilizing, 8-9 United States, 13, 148 impact on education systems, 1–2 student-centered factors and, 59 and policy, 6-7 variations in language and, 167 test fairness, 9-10 item bias, 11-12 National Council on Measurement in Education, 10 identifying, 28–33, 128–129 sources of, 29-33, 130-135, No Child Left Behind Act (2002), 138-141 42 - 43item-level performance, 27-28 contextual issues, 29, 130, opportunity to learn (OTL), 19–21, 141-142 26-27, 30, 118-126, 142, differences in omission patterns, 168, 170 144-145 distractor choices, 24, 31–32, parental expectations of children's educational goals, 47, 50, 133-134, 144-145,

68, 160

162–163, 166

PIRLS, 4, 48–50, 58	item bias, 137–138, 140
predictive bias, 11–12	language of the test, 49–50
Program for International Student	nutrition issues, 50–51
Assessment (PISA), 2–3,	own room and Internet access,
6–7	48
impact of, 7	parental expectations of
PISA shock, 6	children's educational
report, use of, 7	goals, 50
<i>p</i> -value, or the proportion of test,	school and instructional
83–84, 128–129, 152	practices, 57–59
	student-centered factors, 59-60
Qatar, 160–164	teacher factors, 51–56
differences in OTL patterns,	math achievement scores, 86
118–125, 142	vs. Finnish students, 95–96,
educational policies, 173	104–106
omission patterns, 110–116	vs. Taiwanese students, 92–93,
professional development	101–103
activities for teachers, 174	vs. United States, 96–97,
test speededness, 116–117, 143	106–107
test-wiseness patterns, 108–118	<i>p</i> -value, 83–84, 128–129, 152
variations in language and impact	•
on performance, 167	Science, Technology, Engineering,
Qatari students	and Mathematics (STEM)
application of mathematical	fields and education, 3
procedures, 61–62	Standards for Educational and
average scale score and rank,	Psychological Testing, 10–21
87–88	categorization of fairness, 11
commonalities with other	differential item function (DIF),
countries, 67–74	12–15
distinct characteristics of	general views of test fairness, 10–11
performance, 66–67	item bias issues, 11–12
4th and 8th grade students,	purpose of, 10
75–76	status of construct measured, 15
frequency of assessments, 60-61	student performance
impact of culture on test	school and instructional
performance, 152–153	practices, 56–59
influencing factors	student-centered factors, 59-60
distractor choices, 144	teacher factors, 51–56
home and background factors,	test takers' home and
47–51	background, 47–51

Index 189

Taiwanese test takers and	average scale score for each
performance, 40	country, 87
application of mathematical	for Chinese Taipei, 85, 87–93,
procedures, 61–62	97–103
average scale score and rank,	cycles of assessment
87–88	administrations, 84–108
commonalities with other	definitions of content domains,
countries, 67–74	81–83
distinct characteristics of	for Finland, 85, 87–91, 94–100,
performance, 66–67	103–106
4th and 8th grade students,	magnitude of difference between
74–76	countries, 83–84, 89–108
frequency of assessments, 60-61	<i>p</i> -value, or the proportion of
impact of culture on test	test, 83–84
performance, 152–153	mathematics test, 80-83
influencing factors	measures, 80–83
distractor choices, 144	OTL differences, 26–27
home and background factors,	for Qatar, 86–88, 92–93, 95–97,
47–51	101–107
item bias, 136–140	test wiseness, 26
item context, 141–142	for United States, 86–88, 91–92,
language of the test, 49–50	94–97, 100–101, 103–104,
nutrition issues, 50–51	106–107
own room and Internet access,	test-based accountability measures,
48	9, 38, 42–43, 78
parental expectations of	test developers, recommendations
children's educational	for, 170–171
goals, 50	test fairness, issues in
teacher factors, 51–56	access to construct as
math achievement scores, 85	measured, 15
vs. Finnish students, 89–90,	cultural impact, 33–35, 166
97–100	equitable treatment, 11
vs. Qatari students, 92–93,	language, 49–50, 66–67, 70, 72,
101–103	76, 167
vs. United States, 91–92,	measurement bias, 11–15,
100–101	165–166
<i>p</i> -value, 83–84, 128–129, 152	opportunity to learn, 19–21
teaching to the test, 9	test content, 17
test and subtest performance, 25–27,	test context, 17–18
80–108	test response, 18–19

test-wiseness skills, 167–168	nome and background factors,
validity of interpretation, 15–19	45, 47–51
test speededness, 26, 30-31, 116-	language skill, 48–49
117, 142–143	learning environment, 59-62
test wiseness skills, 26, 108–118,	learning mathematics, 59–60
167–168	own room and Internet access,
The Arbuthnot Assessment Fairness	47–48
(TAAF) Framework,	parental expectations of
23–35. see also country	children's educational
selection; culture's impact	goals, 50
on test-taking patterns;	parent survey, 48–49
item-level performance;	school and instructional
test and subtest	practices, 56–59
performance	teacher factors, 51–56
phases, 23–35, 159–164	sampling strategy, 5
recommendations to	test speededness, 116–117
stakeholders, 169–175	
for improving pedagogical	United States, 160–164
practices and improve	differences in OTL patterns,
learning, 173–174	118–125, 142
for policy making, 172–173	educational policies, 172–173
for test developers, 170–171	impact of culture on test
strategy formation and usage, 31,	performance, 148–150, 156
132–133, 143–145	omission patterns, 110–116
utilization of, 169	professional development
12th grade assessment, 3, 5	activities for teachers, 174
Trends in International Mathematics	test speededness, 116–117, 143
and Science Study	test-wiseness patterns, 108–118
(TIMSS) assessment, 2–6	United States students,
academic expectations, 60-61	performance of
content domains, 112–113	application of mathematical
mathematics and science tests,	procedures, 61–62
domains of, 5	average scale score and rank,
percentage of omissions,	87–88
110–111, 113–116	commonalities with other
performance in different	countries, 67–74
countries, 51–56, 89–107	distinct characteristics of
questionnaire	performance, 66–67
academic expectations, 60	4th and 8th grade students, 75–76
	frequency of assessments, 60–61

Index 191

influencing factors
distractor choices, 144
home and background factors,
47–51
item bias, 136, 138–139
nutrition issues, 50–51
parental expectations of
children's educational
goals, 50
school and instructional
practices, 57–59
student-centered factors, 59–60

teacher factors, 51–56
math achievement scores, 86
vs. Finnish students, 94–95,
103–104
vs. Qatari students, 96–97,
106–107
vs. Taiwanese students, 91–92,
100–101
p-value, 83–84, 128–129, 152

White students, performance of, 12–13, 34–35, 148