Index

Note: Page references in italics refer to illustrative material.

A & W Root Beer Float, 53–6
A not-A test, 275–6. See also Discrimination tests
expected test results, 279
method of sample presentation, 279
number and order of sample presentation, 279
test results, 279
total number of samples, 277
AC Nielsen, 126
Academics, sensory analysts as, 12–14
Acceptance
attitudes, 353
beliefs, 353
color, 351
cross-cultural effects, 354–5
cultural and social factors, 354
environment and, 358
flavor/aroma, 352
food use situations, 358
health claims, 356–7
identical foods, 359
ingredient formulation, 356–7
meal context, 357–8
neophobia and, 353
nutrition claims, 356–7
opinions, 353
packaging, 352
preservation techniques, 357
processing techniques, 357
product category and, 355
product information and, 355–6
taste, 352
temperature, 352–3
test location and, 359
Acceptance tests, 230–231
Acceptance rating, 293–4
“no-preference” responses, 236–7
overall performance, 231
panel size, 332
relations among variables, 231
Accreditation, 377–8
Activity analysis, 67
“Add Excitement” respondents, 149, 152
Additive constants, 163–4
Addressable Minds™, 386, 389, 390–93
ADL Flavor Profile, 9
ADL method, 217
Advancing behaviors, 30
Advertising
guidance, and concept research, 154
market share analysis and, 138
product development and, 385
Advertising agencies, 47, 73, 118
Affinity groups, 250–51
Age, 336
Anesthesia, 353
Alltria, 57
American Demographics, 125
American Society for Testing and Materials (ASTM), 171
Analysis of variance (ANOVA), 142, 214
Anxiety, 36, 38
Applied research, 365–6
Apprentice, The, 77
Aroma, 192–3, 202, 352
Art of Innovation, The, 70
Art of Possibility, The, 78
Arthur D. Little Inc., 2–3
Flavor Profile® method, 2–3, 168, 289–90
Asimov, Isaac, 123
Assets, wasted, 90
Association for Chemoreception Sciences (ACHEMS), 372, 374, 377
Attitude and usage studies, 125
Attitudinal approach, 174

Howard R. Moskowitz, Jacqueline H. Beckley, and Anna V.A. Resurreccion.
© 2012 Blackwell Publishing Ltd. Published 2012 by Blackwell Publishing Ltd.
Attributes, 160
  descriptive analysis of, 211
image, 169
intensity, 222
JAR scales, 192–4
liking, 173–5
modeling, 291–4
  descriptive/predictive equations, 293–4
  graphical methods, 291–3
  response surface method, 294–303
sensory, 169
  sensory directional, 169
Australian consumers, 354
Avon, 57
Baby foods, concept research, 156
Baked LAY©, 29
Bakken, David, 61
Bar code, 126
Bartoshuk, Linda, 5
Basis set, 179
Behavioral modeling, 125
Bellas, Michael, 53
Benchmarking, 222–6
  business issues in, 224–5
  conditions associated with, 225
  consume attitudes and, 224
  consumer changes, 223–4
  consumer surveys, 225
  consumer tests, 225
cost, 224–5
definition of, 219
descriptive analysis, 225
documenting changes in, 225–6
frequency of, 224–5
market condition changes, 223, 223–4
procedures used in, 225
product changes, 223–4
Benefits testing, 137–8
Beverage Marketing Corp., 53
Bias, 325
Binomial distribution, 235
Blind testing, 356
*Blink*, 122
*Blown to Bits*, 116
Books, 374–5
Booths, 339
Boston Pangborn Symposium, 12
Box–Behnken design, 183, 184
Bradbury, Ray, 123
Brainreserve, 123
Brand
  blind vs. branded ratings, 202–3
customer liking and, 355–6
management of, 21, 28
  value of, 201–3
Brandmarks, 157, *158*
Breach of trust, 111
Bread, labeling, 356
Breakthrough ideas, 164, 387
Buckets, 35, 64, 159
Buckingham, Marcus, 109
*Business Builders*, 12–14
Business decisions
  formulation of, 208
  sensory research and, 208
Business plan, 218
Business process design, 87
Buy It!*TM*, 130
Buying behavior, 221
Caffeine, 354
Cain, William, 5
Calibration session, in description analysis, 322
“Camping out” research, 47
Canonical analysis, 311
Carbonated soft drinks, 53
carry-over effects, 339
category appraisal, 176–81
category scales, 286, 340
center for creative leadership, 109
central location facilities, 171–2
central location intercept test, 248–55. See also
  home use tests; laboratory tests
  advantages of, 248
  affinity groups, 250–51
  consumer panel, 250
  disadvantages of, 249
  handling of test samples, 253–4
  number of panelists in single test session, 252–3
  number of products evaluated by single panelist, 253
  orienting panelists, 252
  panel size, *331*, 332
  preparations and serving considerations, 252
  in response surface method, 296
  screening for consumer panelists, 251–2
  shopping mall intercepts, 250
  size of panel, 250
  sources of panelists, 250–51
test facilities, 254–5
  what the panelist does, 253
central location tests, 172
Character profiles, 67
*Chemical Senses*, 374
*Chemical Senses and Flavor*, 374
Chemists, 6
Chief consumer office (CCO), 96–9
<table>
<thead>
<tr>
<th>Index</th>
<th>411</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children, hedonic scales for,</td>
<td>344, 345</td>
</tr>
<tr>
<td>Chinese consumers,</td>
<td>354</td>
</tr>
<tr>
<td>Chi-square ($X^2$) test,</td>
<td>236</td>
</tr>
<tr>
<td>Chocolate peanut spread,</td>
<td>302–3</td>
</tr>
<tr>
<td>Choice economy,</td>
<td>207</td>
</tr>
<tr>
<td>Church panels,</td>
<td>327</td>
</tr>
<tr>
<td>Citric acid,</td>
<td>354</td>
</tr>
<tr>
<td>Civic organizations, panelists from,</td>
<td>250–51</td>
</tr>
<tr>
<td>Claim substantiation,</td>
<td>212</td>
</tr>
<tr>
<td>Clarke, Isaac C.,</td>
<td>123</td>
</tr>
<tr>
<td>Classic behaviors,</td>
<td>30</td>
</tr>
<tr>
<td>Classics,</td>
<td>11</td>
</tr>
<tr>
<td>Clausi, Al,</td>
<td>92</td>
</tr>
<tr>
<td>Clifton, Donald,</td>
<td>109</td>
</tr>
<tr>
<td>CLT. See Central location intercept test</td>
<td></td>
</tr>
<tr>
<td>Cluster analysis,</td>
<td>296, 309</td>
</tr>
<tr>
<td>Coca-Cola®,</td>
<td>146, 147, 148, 152, 153</td>
</tr>
<tr>
<td>Coefficient of determination ($R^2$),</td>
<td>307</td>
</tr>
<tr>
<td>Coffees, sensory perception segmentation,</td>
<td>197–201</td>
</tr>
<tr>
<td>Cola concepts. See also Concept research</td>
<td>-</td>
</tr>
<tr>
<td>conjoint analysis,</td>
<td>154</td>
</tr>
<tr>
<td>experimental designs,</td>
<td>148</td>
</tr>
<tr>
<td>experimentally designed studies,</td>
<td>146, 147</td>
</tr>
<tr>
<td>mind-set segments,</td>
<td>152</td>
</tr>
<tr>
<td>psychographic segments,</td>
<td>152</td>
</tr>
<tr>
<td>respondent segmentation,</td>
<td>150–51</td>
</tr>
<tr>
<td>utilities for,</td>
<td>150–52</td>
</tr>
<tr>
<td>Collins, Jim,</td>
<td>122</td>
</tr>
<tr>
<td>Color,</td>
<td>351</td>
</tr>
<tr>
<td>- objective measurements,</td>
<td>284</td>
</tr>
<tr>
<td>- sensitivity analysis,</td>
<td>188–9</td>
</tr>
<tr>
<td>Colorimeter,</td>
<td>284</td>
</tr>
<tr>
<td>Combinations,</td>
<td>141, 142</td>
</tr>
<tr>
<td>Commercial packaging,</td>
<td>352</td>
</tr>
<tr>
<td>Commercial Revolution,</td>
<td>117</td>
</tr>
<tr>
<td>Commoditization,</td>
<td>111</td>
</tr>
<tr>
<td>Communication, poor,</td>
<td>111</td>
</tr>
<tr>
<td>Competitor elements,</td>
<td>164</td>
</tr>
<tr>
<td>Concept,</td>
<td>135–7</td>
</tr>
<tr>
<td>- applied vs. academic research,</td>
<td>365–6</td>
</tr>
<tr>
<td>- comparable format,</td>
<td>162</td>
</tr>
<tr>
<td>- four-element,</td>
<td>405</td>
</tr>
<tr>
<td>- length,</td>
<td>160</td>
</tr>
<tr>
<td>- package designs as,</td>
<td>155–7</td>
</tr>
<tr>
<td>- positioning,</td>
<td>136</td>
</tr>
<tr>
<td>- product,</td>
<td>135–6</td>
</tr>
<tr>
<td>- systematic development of,</td>
<td>139–41</td>
</tr>
<tr>
<td>- text-only,</td>
<td>136</td>
</tr>
<tr>
<td>- with text and graphics,</td>
<td>136</td>
</tr>
<tr>
<td>Concept development,</td>
<td>47–8</td>
</tr>
<tr>
<td>- benefits testing,</td>
<td>137–8</td>
</tr>
<tr>
<td>- conjoint analysis,</td>
<td>139–41</td>
</tr>
<tr>
<td>- early stage,</td>
<td>135–7</td>
</tr>
<tr>
<td>- interest model,</td>
<td>146–8</td>
</tr>
<tr>
<td>Concept research</td>
<td>-</td>
</tr>
<tr>
<td>- advertising guidance and,</td>
<td>154</td>
</tr>
<tr>
<td>- analytical approaches,</td>
<td>162–4</td>
</tr>
<tr>
<td>- benefits testing,</td>
<td>137–8</td>
</tr>
<tr>
<td>- elements,</td>
<td>164</td>
</tr>
<tr>
<td>- in-field considerations,</td>
<td>160–61</td>
</tr>
<tr>
<td>- interest model,</td>
<td>162</td>
</tr>
<tr>
<td>- knowledge building,</td>
<td>153</td>
</tr>
<tr>
<td>- number of elements,</td>
<td>164–5</td>
</tr>
<tr>
<td>- number of respondents,</td>
<td>165</td>
</tr>
<tr>
<td>- persuasion model,</td>
<td>162</td>
</tr>
<tr>
<td>- product guidance and,</td>
<td>153</td>
</tr>
<tr>
<td>- self-authoring studies,</td>
<td>165</td>
</tr>
<tr>
<td>- sensory analysts in,</td>
<td>137</td>
</tr>
<tr>
<td>- small- vs. large-scale studies,</td>
<td>165</td>
</tr>
<tr>
<td>- as strategic tool,</td>
<td>155</td>
</tr>
<tr>
<td>- up-front design,</td>
<td>160–61</td>
</tr>
<tr>
<td>Concept scores,</td>
<td>138</td>
</tr>
<tr>
<td>Concept testing,</td>
<td>138–9</td>
</tr>
<tr>
<td>Conferences,</td>
<td>374, 375–7</td>
</tr>
<tr>
<td>Conjoint analysis,</td>
<td>139–41</td>
</tr>
<tr>
<td>- concept elements,</td>
<td>141</td>
</tr>
<tr>
<td>- experimental design,</td>
<td>139–40</td>
</tr>
<tr>
<td>- as master idea mixer,</td>
<td>404</td>
</tr>
<tr>
<td>- ordinary least squares regression,</td>
<td>141</td>
</tr>
<tr>
<td>- scalability of,</td>
<td>157–60</td>
</tr>
<tr>
<td>Consequences,</td>
<td>64</td>
</tr>
<tr>
<td>Constructive alternativism,</td>
<td>49</td>
</tr>
<tr>
<td>“Consultants Corner”,</td>
<td>123</td>
</tr>
<tr>
<td>Consumer acceptance</td>
<td>-</td>
</tr>
<tr>
<td>- attitudes,</td>
<td>353</td>
</tr>
<tr>
<td>- beliefs,</td>
<td>353</td>
</tr>
<tr>
<td>- color,</td>
<td>351</td>
</tr>
<tr>
<td>- cross-cultural effects,</td>
<td>354–5</td>
</tr>
<tr>
<td>- cultural and social factors,</td>
<td>354</td>
</tr>
<tr>
<td>- environment and,</td>
<td>358</td>
</tr>
<tr>
<td>- flavor/aroma,</td>
<td>352</td>
</tr>
<tr>
<td>- food use situations,</td>
<td>358</td>
</tr>
<tr>
<td>- health claims,</td>
<td>356–7</td>
</tr>
<tr>
<td>- ingredient formulation,</td>
<td>356–7</td>
</tr>
<tr>
<td>- meal context,</td>
<td>357–8</td>
</tr>
<tr>
<td>- neophobia and,</td>
<td>353</td>
</tr>
<tr>
<td>- nutrition claims,</td>
<td>356–7</td>
</tr>
<tr>
<td>- opinions,</td>
<td>353</td>
</tr>
<tr>
<td>- packaging,</td>
<td>352</td>
</tr>
<tr>
<td>- preservation techniques,</td>
<td>357</td>
</tr>
<tr>
<td>- processing techniques,</td>
<td>357</td>
</tr>
<tr>
<td>- product category and,</td>
<td>355</td>
</tr>
<tr>
<td>- product information and,</td>
<td>355–6</td>
</tr>
<tr>
<td>- taste,</td>
<td>352</td>
</tr>
</tbody>
</table>
Consumer acceptance (Continued)
temperature, 352–3
test location and, 359
Consumer acceptance tests
acceptance tests, 230–39
vs. market research tests, 229–30
panels, 230
preference tests, 230–39
reasons for, 213
scale, 230, 266
venues for, 238–63
central location intercept tests, 248–55
home use tests, 255–63
laboratory tests, 238–48
mobile test laboratories, 255
Consumer affective test, 210, 211
Consumer behavior, 221
Consumer Design Panel, 77
Consumer insights, 10
Consumer learning, 76–8
Consumer needs/wants
assessing, 49–50
cost development and, 47–8
defining, 50–51
emotion and, 50
hierarchy of needs, 50
impact of sensory analysts on, 88
need state, 50
personal constructs and, 49
unconscious and, 50
values and, 49
Consumer panel
age of, 336
appropriate users, 333–5
demographic characteristics, 326–7, 336–7
employees vs. nonemployees, 324–5
error estimation, 332–3
frequency of product use, 335–6
gender, 336–7
geographic location, 337
organization or church panels as sources of, 327
random sampling, 324
recruiting, 333
screening for, 251–2
screening questionnaire, 334–5
selecting consumers, 323
size of, 328–32
sources of, 250–51
statistical sampling, 323–4
Consumer perception, 221
Consumer Powered Design, 77
Consumer research
beliefs and practices in, 92–3
cohere in, 74
focus groups, 70–72
goals of, 42
integration with sensory research, 97
ipsative analysis, 57–8
lead users, 73–4
segmentation, 117–18
sensory research and, 209
structure, 50–51
Consumer surveys, 225
Consumer tests, 225
in response surface method, 296, 302
Consumer understanding
approaches, 61–2
find out phase in, 67–74
focus phase in, 62
frame phase in, 62–7
outcomes, 66
steps in, 62–74
value diagram, 63
Consumer(s), 42–4
behavioral trends, 58–9
buying behavior, 221
concept research, 161
experience, 51–2
line extension and, 398
mind-sets, 118, 121–32
in product development, 212–13
product perspectives, 84–9
as respondents, 172–3
understanding, 61–2
Continuous monitoring system, 225–6
Contour plots, 303, 304–5
Cool hunter, 123
Cooper, Robert, 21, 43
Correlation analysis, 306
Correlation coefficient, 306
Correspondence analysis, 314
Counterintuitive Marketing, 100
Crave It™, 130, 149
additive constants, 163–4
Crave It® Study, 11, 129
Creative Destruction process, 29
Cross-cultural effects, 354–5
Cross-functional teams, 29
Cross-validation, 307
Custom research, 127–8
Daily research, 106
DAROMA (directional scale value for aroma), 193
Data
bad, 162
consistency, 192–6
coping with, 11–12
dependent variable, 145
interest model, 146–8
interpreting, 146–8
<table>
<thead>
<tr>
<th>Index Item</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>persuasion model, 145–6</td>
<td>145–6</td>
</tr>
<tr>
<td>total panel, 145–6</td>
<td>145</td>
</tr>
<tr>
<td>transformation, 145</td>
<td></td>
</tr>
<tr>
<td>Data Classics, 12</td>
<td></td>
</tr>
<tr>
<td>Data Elaborates, 12</td>
<td></td>
</tr>
<tr>
<td>Data Imaginers, 12</td>
<td></td>
</tr>
<tr>
<td>“Day-in-the-life-of” research, 47</td>
<td></td>
</tr>
<tr>
<td>Deal With It!™, 60, 130</td>
<td></td>
</tr>
<tr>
<td>Decision-making</td>
<td></td>
</tr>
<tr>
<td>benchmarking and, 225</td>
<td></td>
</tr>
<tr>
<td>corporate, 1–2, 7</td>
<td></td>
</tr>
<tr>
<td>cross-cultural factors, 354</td>
<td></td>
</tr>
<tr>
<td>fact-based, 1</td>
<td></td>
</tr>
<tr>
<td>information and, 35</td>
<td></td>
</tr>
<tr>
<td>sensory and, 208</td>
<td></td>
</tr>
<tr>
<td>Deconstruction, 155, 156</td>
<td></td>
</tr>
<tr>
<td>Décor, 358</td>
<td></td>
</tr>
<tr>
<td>Demand economy, 2, 52, 53, 98, 115</td>
<td></td>
</tr>
<tr>
<td>Demographic questionnaire, 242–6</td>
<td></td>
</tr>
<tr>
<td>Demographics, 72–3, 124–5</td>
<td></td>
</tr>
<tr>
<td>Dental liquid diets, 356</td>
<td></td>
</tr>
<tr>
<td>Department/group organization, 85</td>
<td></td>
</tr>
<tr>
<td>Dependent variable, 145</td>
<td></td>
</tr>
<tr>
<td>Descriptive analysis, 285–9</td>
<td></td>
</tr>
<tr>
<td>benchmarking and, 219, 225</td>
<td></td>
</tr>
<tr>
<td>panel, 287–9</td>
<td></td>
</tr>
<tr>
<td>panelists, 285–6</td>
<td></td>
</tr>
<tr>
<td>in response surface method, 296</td>
<td></td>
</tr>
<tr>
<td>scales used in, 286–7</td>
<td></td>
</tr>
<tr>
<td>testing methods, 289–91</td>
<td></td>
</tr>
<tr>
<td>Flavor Profile® method, 289–90</td>
<td></td>
</tr>
<tr>
<td>hybrid descriptive analysis, 291</td>
<td></td>
</tr>
<tr>
<td>quantitative descriptive analysis, 290</td>
<td></td>
</tr>
<tr>
<td>Spectrum descriptive analysis, 290–91</td>
<td></td>
</tr>
<tr>
<td>texture profile method, 290</td>
<td></td>
</tr>
<tr>
<td>warm-up samples, 289</td>
<td></td>
</tr>
<tr>
<td>Descriptive/predictive equations, 293–4</td>
<td></td>
</tr>
<tr>
<td>Diary panels, 125</td>
<td></td>
</tr>
<tr>
<td>Diary studies, 126–7</td>
<td></td>
</tr>
<tr>
<td>“Die Organischen Geschmacksstoffe”, 373</td>
<td></td>
</tr>
<tr>
<td>Difference testing, 168, 177</td>
<td></td>
</tr>
<tr>
<td>Dijon Pangborn Symposium, 11</td>
<td></td>
</tr>
<tr>
<td>Discipline, 106–7</td>
<td></td>
</tr>
<tr>
<td>Discriminant function analysis, 214, 309–11</td>
<td></td>
</tr>
<tr>
<td>Discrimination tests, 270–76</td>
<td></td>
</tr>
<tr>
<td>coding of samples, 277</td>
<td></td>
</tr>
<tr>
<td>comparison of, 276–80</td>
<td></td>
</tr>
<tr>
<td>corporate needs, 168–9</td>
<td></td>
</tr>
<tr>
<td>duo-trio test, 270–71</td>
<td></td>
</tr>
<tr>
<td>expected test results, 279</td>
<td></td>
</tr>
<tr>
<td>magnitude of sensory differences between samples measured by d’, 279–80</td>
<td></td>
</tr>
<tr>
<td>method of sample presentation, 279</td>
<td></td>
</tr>
<tr>
<td>A not-A test, 275–6</td>
<td></td>
</tr>
<tr>
<td>paired comparison test, 275</td>
<td></td>
</tr>
<tr>
<td>power of the test, 280</td>
<td></td>
</tr>
<tr>
<td>probability of chance guessing, 279</td>
<td></td>
</tr>
<tr>
<td>test results, 279</td>
<td></td>
</tr>
<tr>
<td>three alternative forced choice test, 273–5</td>
<td></td>
</tr>
<tr>
<td>total number of samples, 277</td>
<td></td>
</tr>
<tr>
<td>triangle test, 271–2</td>
<td></td>
</tr>
<tr>
<td>two alternative forced choice test, 272–3</td>
<td></td>
</tr>
<tr>
<td>Door-to-door household surveys, 258</td>
<td></td>
</tr>
<tr>
<td>Doubt, 92</td>
<td></td>
</tr>
<tr>
<td>Dr. Pepper Snapple Group, 53–4</td>
<td></td>
</tr>
<tr>
<td>Dream Society, 51</td>
<td></td>
</tr>
<tr>
<td>Drucker, Peter, 38, 117</td>
<td></td>
</tr>
<tr>
<td>Dubner, Stephen, 122</td>
<td></td>
</tr>
<tr>
<td>Dummy variable modeling, 143</td>
<td></td>
</tr>
<tr>
<td>Duo-trio test, 270–71. See also Discrimination tests</td>
<td></td>
</tr>
<tr>
<td>coding of samples, 277</td>
<td></td>
</tr>
<tr>
<td>expected test results, 279</td>
<td></td>
</tr>
<tr>
<td>magnitude of sensory differences between samples measured by d’, 280</td>
<td></td>
</tr>
<tr>
<td>method of sample presentation, 279</td>
<td></td>
</tr>
<tr>
<td>number and order of sample presentation, 279</td>
<td></td>
</tr>
<tr>
<td>power of the test, 280</td>
<td></td>
</tr>
<tr>
<td>probability of chance guessing, 279</td>
<td></td>
</tr>
<tr>
<td>test results, 279</td>
<td></td>
</tr>
<tr>
<td>total number of samples, 277</td>
<td></td>
</tr>
<tr>
<td>DuPont, 140</td>
<td></td>
</tr>
<tr>
<td>Economic man, 84</td>
<td></td>
</tr>
<tr>
<td>Economics, 57</td>
<td></td>
</tr>
<tr>
<td>Elaborates, 11</td>
<td></td>
</tr>
<tr>
<td>Elements, 397–8</td>
<td></td>
</tr>
<tr>
<td>classifying, 159</td>
<td></td>
</tr>
<tr>
<td>concept, 142, 164–5</td>
<td></td>
</tr>
<tr>
<td>creating, 143, 159</td>
<td></td>
</tr>
<tr>
<td>editing, 159</td>
<td></td>
</tr>
<tr>
<td>IdeaMap®, 159</td>
<td></td>
</tr>
<tr>
<td>length of, 160</td>
<td></td>
</tr>
<tr>
<td>number of, 164–5</td>
<td></td>
</tr>
<tr>
<td>product, 64</td>
<td></td>
</tr>
<tr>
<td>types of, 164</td>
<td></td>
</tr>
<tr>
<td>Emotion elements, 164</td>
<td></td>
</tr>
<tr>
<td>Employees</td>
<td></td>
</tr>
<tr>
<td>bias, 325</td>
<td></td>
</tr>
<tr>
<td>consumer panel, 324–5</td>
<td></td>
</tr>
<tr>
<td>demographic characteristics, 326–7</td>
<td></td>
</tr>
<tr>
<td>overparticipation in panels, 325–6</td>
<td></td>
</tr>
<tr>
<td>product rating, 325</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship, 117</td>
<td></td>
</tr>
<tr>
<td>Environment, 358</td>
<td></td>
</tr>
<tr>
<td>Equal-intensity contours, 297–8</td>
<td></td>
</tr>
<tr>
<td>Error analysis, 67</td>
<td></td>
</tr>
<tr>
<td>estimation, 332–3</td>
<td></td>
</tr>
<tr>
<td>scaling by, 141</td>
<td></td>
</tr>
<tr>
<td>Euclidean distance, 309</td>
<td></td>
</tr>
</tbody>
</table>
## Index

<p>| European Chemoreception Research Organization (ECRO) | 374 |
| European Sensory Network | 168 |
| Evaluation of samples | 339 |
| Executional elements | 164 |
| Experience Economy | 51, 122 |
| Experience Panel | 77 |
| Experiential thread | 58 |
| Experimental design | 139–40, 143 |
| conjoint analysis, 139–40 elements, 144, 145 |
| Plackett-Burman screening, 143, 144 |
| in response surface method, 296 |
| response surface method, 302 |
| Experimental designs, Mind Genomics™, 390–92 |
| Experts, 337 |
| as respondents, 172–3 |
| EXPLOR award | 128 |
| Extension | 398 |
| ( F ) ratio | 326 |
| ( F ) statistic | 307 |
| Facebook® | 123 |
| Face-to-face interviews | 221 |
| Facial scales | 344, 345 |
| Factor analysis | 214, 308–9 |
| Factor scores | 179, 180 |
| Fats | 59 |
| Fear | 92 |
| Fechner, G.T. | 140, 168 |
| Fifth Discipline, The | 29, 74 |
| Find Out phase. See also Consumer understanding considerations in, 67–8 |
| in consumer understanding, 67–74 |
| demographics, 72–3 |
| ethnographic methods in, 69 |
| focus groups, 70–2 |
| lead users, 73–4 |
| mind-sets, 73–4 |
| Fiske, Donald | 108 |
| FIVE Dysfunctions of a TEAM | 122 |
| “Flash” message | 157, 158 |
| Flavor | 202, 352 |
| Flavor leadership | 3 |
| Flavor Profile® method | 2–3, 168, 172, 289–90 |
| Flavoring, sensitivity analysis | 188–9 |
| Flow analysis | 67 |
| “Fly-on-the-wall” research | 47 |
| Focus groups, 101–4 |
| Find Out phase | 70–72 |
| market opportunity assessment, 217–18 |
| panel size | 331 |
| qualitative research | 211 |
| Focus phase, in consumer understanding | 62 |
| Food acceptance | 352–3 |
| attitudes and | 353 |
| beliefs and | 353 |
| color | 351 |
| commercial packaging and | 352 |
| cross-cultural effects, 354–5 |
| cultural and social factors | 354 |
| flavor/aroma | 352 |
| opinions and | 353 |
| taste | 352 |
| temperature and | 352–3 |
| Food action rating (FACT) scale, 266 |
| Food neophobia | 353 |
| Food Technology | 124 |
| Food use situations | 358 |
| Forbes magazine | 125 |
| Frame phase, in consumer understanding | 62–7 |
| Frameworks | 121 |
| Frankfurters |
| JAR scales | 190–91 |
| package designs | 155, 157 |
| Freakonomics | 122 |
| Free number matching | 286 |
| Free standing insert (FSI) | 160 |
| Friedman’s two-way analysis of variance | 341 |
| Frito-Lay | 29 |
| Fully anchored scales | 340 |
| Future Shock | 123 |
| Fuzzy front end, sensory research and | 44–6 |
| Fuzzy groups | 100 |
| Gender | 336–7 |
| General Foods Corp., 92, 290 |
| General Mills | 57 |
| General Motors | 128 |
| Genetic engineering | 357 |
| Geodemographics | 124, 149 |
| “Geography of Trust, The”, 109 |
| Gillette | 57 |
| Gladwell, Malcolm | 117, 122 |
| Global New Products Database® | 127 |
| Goal profile | 189 |
| Golden Software Inc. | 298 |
| Good to Great | 122 |
| Gourmet food | 355 |
| Graphical methods | 291–3 |
| Green, Paul | 140 |
| Griffin, Abbie | 43 |
| Grocery stores | 17, 58, 244, 248, 251 |
| Häagen Dazs®, 208 |
| Half yearly research, 107 |
| Harvard Business Review | 75 |
| Hazard analysis and critical control points (HACCP) | 220 |</p>
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazards, 38, 46–7</td>
</tr>
<tr>
<td>Health claims, 356–7</td>
</tr>
<tr>
<td>Health messages, 157, 158</td>
</tr>
<tr>
<td>HealthFocus®, 128</td>
</tr>
<tr>
<td>Hedonic scales, 170, 264–5, 342–51</td>
</tr>
<tr>
<td>2-point, 170</td>
</tr>
<tr>
<td>3-point, 170, 265, 343, 344</td>
</tr>
<tr>
<td>5-point, 170, 265, 343, 344</td>
</tr>
<tr>
<td>7-point, 265, 343, 344</td>
</tr>
<tr>
<td>9-point, 170, 264–5, 342–3, 343, 344</td>
</tr>
<tr>
<td>for children, 344, 345</td>
</tr>
<tr>
<td>design, 351</td>
</tr>
<tr>
<td>facial, 344, 345</td>
</tr>
<tr>
<td>open-ended questions, 350</td>
</tr>
<tr>
<td>position of demographic questions, 349</td>
</tr>
<tr>
<td>position of overall liking rating in questionnaire, 347–9</td>
</tr>
<tr>
<td>purchase intent questions, 350</td>
</tr>
<tr>
<td>question sequence, 347</td>
</tr>
<tr>
<td>questionnaire construction, 346–7</td>
</tr>
<tr>
<td>questionnaire design, 344–6, 351</td>
</tr>
<tr>
<td>questionnaire format, 350</td>
</tr>
<tr>
<td>questionnaire length, 349–50</td>
</tr>
<tr>
<td>questionnaire pretesting, 350–51</td>
</tr>
<tr>
<td>questions to be answered, 346</td>
</tr>
<tr>
<td>respondent fatigue, 350</td>
</tr>
<tr>
<td>scale points, 170</td>
</tr>
<tr>
<td>verbal descriptors, 170</td>
</tr>
<tr>
<td>Heinz, H.J., 57</td>
</tr>
<tr>
<td>Helpful Staff, 12–14</td>
</tr>
<tr>
<td>Heraclitus, 17</td>
</tr>
<tr>
<td>Herbert, Frank, 123</td>
</tr>
<tr>
<td>Hershey Foods Corp., 128</td>
</tr>
<tr>
<td>Hierarchical value map, 62</td>
</tr>
<tr>
<td>Hierarchy of needs, 50</td>
</tr>
<tr>
<td>Hires, Charles, 53</td>
</tr>
<tr>
<td>Historical analysis, 67</td>
</tr>
<tr>
<td>Home placement tests. See Home use tests</td>
</tr>
<tr>
<td>Home use tests, 172, 255–63. See also Central location intercept test; Laboratory tests</td>
</tr>
<tr>
<td>advantages of, 256</td>
</tr>
<tr>
<td>data collection, 261–3</td>
</tr>
<tr>
<td>interviews, 261–2</td>
</tr>
<tr>
<td>self-administered questionnaire, 262</td>
</tr>
<tr>
<td>telephone interviews, 262–3</td>
</tr>
<tr>
<td>disadvantages of, 257</td>
</tr>
<tr>
<td>facilities, 259</td>
</tr>
<tr>
<td>Internet and, 368–9</td>
</tr>
<tr>
<td>panel size, 257–8, 331, 332</td>
</tr>
<tr>
<td>procedures, 259</td>
</tr>
<tr>
<td>product acceptance measurement, 261</td>
</tr>
<tr>
<td>product samples and placement, 259–60</td>
</tr>
<tr>
<td>recruitment and placement, 258–9</td>
</tr>
<tr>
<td>Hotels, for central location tests, 248</td>
</tr>
<tr>
<td>Household surveys, 258</td>
</tr>
<tr>
<td>HUT. See Home use tests</td>
</tr>
<tr>
<td>Hybrid descriptive analysis, 291</td>
</tr>
<tr>
<td>Hypotheses, 65</td>
</tr>
<tr>
<td>Identical foods, 359</td>
</tr>
<tr>
<td>IDEO, 36, 61, 70</td>
</tr>
<tr>
<td>IDEO Method Card, 76</td>
</tr>
<tr>
<td>Idiographic profile, 58</td>
</tr>
<tr>
<td>Image attributes, 169</td>
</tr>
<tr>
<td>Imaginers, 11</td>
</tr>
<tr>
<td>Industrial Revolution, 117</td>
</tr>
<tr>
<td>Information framing, 355</td>
</tr>
<tr>
<td>Information Resources Inc., 126</td>
</tr>
<tr>
<td>Information technology, antenatal natural history, 19</td>
</tr>
<tr>
<td>Ingredients, 356–7</td>
</tr>
<tr>
<td>surrogate, 179</td>
</tr>
<tr>
<td>In-home placement tests. See Home use tests</td>
</tr>
<tr>
<td>InnovaidTM, 396, 397, 399</td>
</tr>
<tr>
<td>Innovation, 18, 393–5, 405</td>
</tr>
<tr>
<td>i-Novation, 129</td>
</tr>
<tr>
<td>Insight Panel, 75, 77</td>
</tr>
<tr>
<td>InspirationTM, 36</td>
</tr>
<tr>
<td>Institute of Food Technologists, 4, 48, 369, 376</td>
</tr>
<tr>
<td>Instron® Universal Testing Machine, 284</td>
</tr>
<tr>
<td>Insurance, 212</td>
</tr>
<tr>
<td>Intellectual tension, 50</td>
</tr>
<tr>
<td>Interest model, 146–8, 162</td>
</tr>
<tr>
<td>International Symposium on Olfaction and Taste Conferences, 375</td>
</tr>
<tr>
<td>Internet</td>
</tr>
<tr>
<td>custom research, 128</td>
</tr>
<tr>
<td>home use tests, 369</td>
</tr>
<tr>
<td>sensory research and, 368–9</td>
</tr>
<tr>
<td>survey research, 125</td>
</tr>
<tr>
<td>trend-spotting, 123</td>
</tr>
<tr>
<td>Interval scale, 341–2</td>
</tr>
<tr>
<td>Interviews, 221, 261–2</td>
</tr>
<tr>
<td>Invention, 395–6, 398–9, 405</td>
</tr>
<tr>
<td>Ipsative analysis, 57–8</td>
</tr>
<tr>
<td>Ipsos, 130</td>
</tr>
<tr>
<td>Irwin Broh @ Associates, 128</td>
</tr>
<tr>
<td>Isointensity contours, 188–9</td>
</tr>
<tr>
<td>It! Foundation Studies, 129–30</td>
</tr>
<tr>
<td>It™ database, 129</td>
</tr>
<tr>
<td>Iterative approach, 165</td>
</tr>
<tr>
<td>Jacobs, Harry, 3, 5</td>
</tr>
<tr>
<td>Japanese Chemoreception Organization, 374</td>
</tr>
<tr>
<td>Japanese consumers, 354</td>
</tr>
<tr>
<td>JAR (just-about-right) scale, 189–92, 267–70. See also Scales</td>
</tr>
<tr>
<td>data consistency, 192–6</td>
</tr>
<tr>
<td>optimal product, 195–6</td>
</tr>
<tr>
<td>self-designed ideal, 196–7</td>
</tr>
</tbody>
</table>
Index

JAR (just-about-right) scale (Continued)
  sensory attributes and, 192–4
  wandering sensory unit in, 193–4

Jensen, Rolf, 51

JND (just noticeable difference), 193

Job description, 85

Job postings, 93

Job tasks, 86

Johnson, S.C., 57

Johnson, Spencer, 122

Journal of Marketing, 382

Journal of Product Innovation Management, 123

Journal of Sensory Studies, 123

Journal of Texture Studies, 374

Journals, 374–5

Kapsalis, John, 4

Kelly, George, 49

Kelly, Tom, 70

Kendall’s coefficient of concordance, 341

Knowledge
  bubbles, 36, 37
  building, 153
  concept research, 153
  of customer, 56
  elicitation, real-time, 217–8
  embracing, 28–9
  getting, 106–7
  from information, 34
  managing, 107–8
  objectivity and, 66
  perspicacity and, 66
  sound biting, 35
  veracity and, 66

Knowledge mapping, 31–4
  data reduction rules in, 34–5
  data sources, 32
  graphic representation, 36–8
  making information real in, 34
  steps in, 33
  tools, 32
  visualization system, 36
  why it works, 34–8

Koster, E.P., 374

Kraft Foods, 57

Kramer shear-compression test, 284

Labels, 158
  consumer liking and, 355–6
  value of, 201–3

Laboratory tests, 238–48. See also Central location intercept test; Home use tests
  advantages of, 238–9
  attendance, 246
  database, 238

demographic questionnaire, 242–6
  disadvantages of, 239–40
  employees vs. nonemployees, 241
  incentives to participate in, 247
  location and design of test facility, 247–8
  mobile test laboratories, 255
  no-shows, 246
  outsourcing of testing function, 241–3
  panel, 238
  panel screening, 243–6
  panel size, 340, 331, 332
  panelist recruitment, 240–41
  products per sitting, 238, 248
  using local residents, 241
  venues for, 238

“Lady tasting tea”, 370

Large-scale studies, 165

LAROMA (liking of aroma), 193

Legal documentation, 212

Lencioni, Patrick, 122

Levitt, Steven, 122

Life magazine, 123

Lifetime research, 107

Lighting, 358

Lightspeed Research, 125

Liking, 173–6. See also Acceptance tests
  attitudinal approach, 174
  attribute, 174
  drivers, 173–5
  hedonic scales. See Hedonic scales
  optimizing, 196
  overall, 174
  product information and, 355–6
  response-response analysis, 174
  sensory attribute and, 174
  simple degree of, 263–5

Line scale, 340

Linear scale, 286

Linkage map, 62

Linkage theory, 50

Low-carbohydrate foods, 59

Low-fat foods, 59

Magnitude estimation scale, 286–7

Maier, Corinne, 115

Mall intercept, 250, 258–9

Mann-Whitney test, 341

Mapping, 371

Mapping methods, 214

Margarine
  formulations, 182
  optimal, attribute profile of, 181
  optimal formulations for, 186
  R-R attribute analysis, 175
sensory attributes, 179
sensory vs. liking, 177
sensory-liking surface for, 177
Market opportunity assessment, 217–8
Market research, 10. See also Sensory research
currency tests, 138
conjoint measurement in, 140
vs. consumer acceptance tests, 229–30
customer needs and, 45
customer/consumer perspectives, 84–9
definition of, 42
goals of, 42
job listings, 94–5
mind-set, 108–9
old vs. new paradigm, 110
panels, 230
participants, 209–10
scale, 230
vs. sensory analysis, 9–10
vs. sensory tests, 209–10
silos, 92–3
stimuli testing, 209
Market researchers
job listings, 94–5
mind-set, 108–9
professional courses, 94–5
vs. sensory researchers, 365–6
Market share analysis, 138
Market strategy, in product implementation, 219–20
Marketing Management, 61
Marketing Science Institute, 51
Maslow, Abraham, 50
McBurney, Donald, 5
McKinsey, 118
McMath, Robert, 52
Meal context, 357–8
Means-end chain, 50
Measure of consistency, 163
Mega-trends, 123
Meiselman, Herbert, 5
Messages, mixed, 111
Meta-trends, 123
Microsoft Outlook®, 116
Milky Way II®, 219
Mind Genomics™, 129, 383–93
experimental designs, 390–92
individual minds, 383–4
mind-set segments, 384–5
segments in population, 387–90
for sensory professionals, 392–3
Mind-set, 11–12
consumers, 73–4, 118, 121–32
framework, 121
market researchers, 108–9
segments, 383, 384–5, 388
sensory analysts, 12–14, 87
Mintel International Group, 127
Mixmaster®, 400
Mobile test laboratories, 255
Modeling, 291–4
descriptive/predictive equations, 293–4
graphical methods, 291–3
response surface method, 294–303
uses of, 291
Money, in research, 90
Monosodium glutamate (MSG), 354
Monthly research, 107
Moskowitz, Howard, 5, 129, 374
Moskowitz Jacobs, Inc., 403
Mouthfeel, 202
Muffins, test concept for, 386
Multidimensional scaling, 214, 314, 370
Multivariate analysis, 307–14
canonical analysis, 311
cluster analysis, 309
correspondence analysis, 314
discriminant function analysis, 309–11
factor analysis, 308–9
multidimensional scaling, 314
multivariate multiple regression, 311
partial least squares regression analysis, 311–12
preference mapping, 312–13
principal components analysis, 308
stepwise discriminant analysis, 310–11
Multivariate multiple regression, 311
MyProductAdvisor.com, 128
Mysurvey.com, 125
Nabisco, 208
Naisbitt, John, 123
Natick Laboratories, 3, 5
Natural Health Institute (NHI), 128–9
Need states, 50
Needs
assessing, 49–50
defining, 50–51
emotion and, 50
hierarchy of, 50
hierarchy of needs, 50
impact of sensory analysts on, 88
need state, 50
personal constructs and, 49
unconscious and, 49
values and, 49
Neophobia, 353
Network analysis, 125
Index

Neural imaging, 130
Neuroeconomics, 84
Neuromarketing, 130
New Coke®, 212, 219
New product development process, 18
  benchmarking in, 222–6
  broken, 222
  consumer learning during, 76–8
  consumer research and, 43
  consumer-centric, 48
  consumers in, 212–13
  cross-functional teams in, 29
  discovery phase of, 44–6
  failure cost/rate of, 207–8
  in information vacuum, 207
  Internet and, 369
  knowledge-centric company and, 28–9
  milestones, 215–21
  past learning, 17–20
  response surface method, 295–303
  roles of, 28
  sensory perception and, 211
  sensory research and, 214–15
  speed to market, 213
  stages in, 215
  steps in, 216
  timeline, 22–7
  value diagram, 91
New York Academy of Sciences, 375
Nex-Gen systems, 21
Nielsen, 126, 127
Nielsen Center, 128
NIH (not invented here), 18
NIMBY (not in my backyard), 18
Noise, influence of, 358
Nominal scale, 341
Nomothetic groups, 146
NPD, 126
NOP World, 126
“No-preference” choice, 234, 236–7
Null hypothesis, 234–5, 322
  expected test results, 279
  method of sample presentation, 279
  origins of, 140
  probability of chance guessing, 279
  test results, 279
  total number of samples, 277
Paired comparison test, 275. See also Discrimination tests
  advantages of, 233–4
  combining with other tests, 238
  data analysis for, 234–5
  disadvantages of, 234
  misusing, 238
  no-preference, 234
Panel size, 328–30
  acceptance tests, 332
  calculations, 329–30
  central location tests, 331, 332
  criterion, 329
  focus groups, 331
  home use tests, 257–8, 331
  laboratory tests, 240, 331
  relevant differences, 329
  simulation study, 330–31
  variability, 329
Panelists. See also Respondents
  age of, 336
  appropriate users, 333–5
  demographic characteristics, 326–7, 336–7
  in descriptive analysis, 285–6
  employees vs. nonemployees, 324–5
  error estimation, 332–3
  fatigue, 350
  frequency of product use, 335–6
  gender, 336–7
  geographic location, 337
  number of, 250
  organization or church panels as sources of, 327
  orienting, 252
  prerecruited, 250
  random sampling, 324
  recruiting, 333
  screening for, 251–2
  screening questionnaire, 334–5
  selecting consumers, 323
  statistical sampling, 323–4
  what they do, 253
Obesity, 60
Objectivity, 66
  knowledge and, 66
Observations, 68–9
Odor, 352, 355
Optimization, 195, 219, 291, 403–4
Ordinal scale, 341
Ordinary least squares (OLS), 141, 145
Organizations, 110, 327
Outliers, 122
Outlook®, 116
Overall acceptance, 222
Overdelivery, of products, 190, 192
Overgeneralization, in research, 90
Packaging, 352
  designs, 155–7
  guidance, and concept research, 154
  systematic analysis of, 158
Paired preference tests, 231–5
  advantages of, 233–4
  combining with other tests, 238
  data analysis for, 234–5
  disadvantages of, 234
  misusing, 238
  no-preference, 234
Nutritional information, 356–7
Obesity, 60
Objectivity, 66
  knowledge and, 66
Observations, 68–9
Odor, 352, 355
Optimization, 195, 219, 291, 403–4
Ordinal scale, 341
Ordinary least squares (OLS), 141, 145
Organizations, 110, 327
Outliers, 122
Outlook®, 116
Overall acceptance, 222

Overdelivery, of products, 190, 192
Overgeneralization, in research, 90
Packaging, 352
  designs, 155–7
  guidance, and concept research, 154
  systematic analysis of, 158
Paired comparison test, 275. See also Discrimination tests
  expected test results, 279
  method of sample presentation, 279
  origins of, 140
  probability of chance guessing, 279
  test results, 279
  total number of samples, 277
Paired preference tests, 231–5
  advantages of, 233–4
  combining with other tests, 238
  data analysis for, 234–5
  disadvantages of, 234
  misusing, 238
  no-preference, 234
Panel size, 328–30
  acceptance tests, 332
  calculations, 329–30
  central location tests, 331, 332
  criterion, 329
  focus groups, 331
  home use tests, 257–8, 331
  laboratory tests, 240, 331
  relevant differences, 329
  simulation study, 330–31
  variability, 329
Panelists. See also Respondents
  age of, 336
  appropriate users, 333–5
  demographic characteristics, 326–7, 336–7
  in descriptive analysis, 285–6
  employees vs. nonemployees, 324–5
  error estimation, 332–3
  fatigue, 350
  frequency of product use, 335–6
  gender, 336–7
  geographic location, 337
  number of, 250
  organization or church panels as sources of, 327
  orienting, 252
  prerecruited, 250
  random sampling, 324
  recruiting, 333
  screening for, 251–2
  screening questionnaire, 334–5
  selecting consumers, 323
  statistical sampling, 323–4
  what they do, 253
Panels
- affinity groups, 250–51
- central location intercept tests, 250
- in descriptive analysis, 287–9
- expert, 337
- recruiting, 240–41
- reference stimuli, 288–9
- screening, 243–6
- selection criteria and approach, 287–8
- training, 288
- Pangborn, Rose Marie, 8, 43, 373, 377
- Pangborn Symposium, 3–5, 11–12, 375
- Pantry panels, 126–7
- Partial least squares (PLS), 214
- Partial least squares regression analysis, 311–12
- Pasta products, branded, 356
- Pastry muffins, 385
- Pearson correlation coefficient, 153, 306
- Peller, Clara, 60
- People, in research, 90
- Pepsi TM, 152
- Perception and Opinion of People (POP), 77
- Perception research, 34
- Personal constructs theory, 49
- Perspicacity, 66
- knowledge and, 66
- Persuasion model, 145–6, 162
- PERT Research, 130
- Physicochemical measurements, 283–5
- Pillsbury Company, 208
- Pine & Gilmore, 53
- Plackett–Burman screening, 143, 144, 183, 184
- Planning, inputs, 119
- Popcorn, Faith, 123
- Popcorn Report, The, 123
- Positioning concept, 136
- Post-It® Notes, 19, 66
- knowledge mapping and, 34
- PowerPoint, 19, 34, 65
- Preference mapping, 312–13
- Preference tests, 231–2
- binomial distribution and tables, 235
- chi-square test, 236
- methods, 231
- “no-preference” responses, 236–7
- paired, 231–5
- ranking, 267
- Preferred title, 86
- Prerecruited panelists, 250
- Preservation techniques, 357
- Principal components analysis, 179, 308
- Principles of Sensory Evaluation of Food, 373
- Probability, 305–6
- Processing techniques, 357
- Procrustes mapping, 371
- Procter & Gamble, 18, 43, 57, 85
- Product, optimal, 195
- Product assessment methods, 221
- Product attributes, 160
- descriptive analysis of, 211
- image, 169
- intensity, 222
- JAR scales, 192–4
- liking, 173–5
- modeling, 291–4
- descriptive/predictive equations, 293–4
- graphical methods, 291–3
- response surface method, 294–303
- sensory, 169
- sensory directional, 169
- Product category, 355
- Product commercialization, 215, 216
- Product definition, 218
- Product development, 38
- benchmarking in, 222–6
- consumer learning during, 76–8
- consumer research and, 43
- consumer-centric, 48
- consumers in, 212–3
- discovery phase of, 44–6
- in information vacuum, 207
- Internet and, 369
- knowledge-centric company and, 28–9
- milestones, 215–21
- past learning, 17–20
- response surface method, 295–303
- roles of, 28
- sensory research and, 214–15
- speed to market, 213
- stages in, 215
- steps in, 216
- timeline, 22–7
- value diagram, 91
- Product Development and Management Association (PDMA), 377
- Product Development Competition, 47–8
- Product implementation and marketing, 215, 216, 218–20
- benchmarking, 219
- market strategy and testing, 219–20
- product optimization, 219
- prototype development, 218–19
- Product information, 355–6
- Product introduction, 400
- Product launch and evaluation, 215, 216, 220–22
- Product lifecycle management, 28
- Product modeling, 176–81
- category appraisal, 176–81
- response surface analysis, 177
- steps in, 178
Index

Product name, 157, 158
Product quality, 283–5
color, 284
Kramer shear-compression test, 284
objective measurements of, 283–5
snapping test, 285
texture, 284
Product research, 85
incorrect/nonproductive, 87–9
problems in, 87–9
wasted assets in, 90
Product strategy and definition, 215, 216, 217–18
business plan, 218
market opportunity assessment, 217–18
product definition, 218
strategic plan, 217
Product support, 220–21
Product testing
attribute types, 169–70
brands, 201–3
corporate needs, 168–9
interpretation, 167–8
JAR scale, 189–96
labels, 201–3
modeling, 291–4
descriptive/predictive equations, 293–4
graphical methods, 291–3
response surface method, 294–303
uses of, 291
models, 176–81
origins of, 167–8
professionalization of, 2
rationales, 167–8
respondents, 172–3
base size, 173
consumers as, 172–3
experts as, 172–3
response surface modes, 182–7
reverse engineering, 189
sensitivity analysis, 187–9
sensory preference segmentation, 197–201
sensory tests, 170–72
venues for, 170–72
central location facilities, 171–2
home use, 172
Product(s)
applied vs. academic research, 365–6
concept, 135–6
consumer perspectives on, 84–9
elements, 64
flavor leadership, 3
frequency of use, 335–6
guidance, and concept research, 154
overdelivery of, 190, 192
reference point, 219
segmentation, 382–3
signature of, 169
underdelivery of, 190, 192
Professionalism, 12–14, 52, 56–7
Profiles, 141
Projects, failure of, 90
Protein engineering, 357
Protocept, 135, 137, 218
Prototypes, 183, 218–19
Psychographics, 125, 148–9
Psychometrics Society, 372
Psychophysics, 5, 124–5, 172, 187
p-value, 306
QDA method, 9, 172
Qualitative research, 99–106
focus groups, 101–4, 211
guidelines, 105–6
merging with quantitative research, 104–5
Quality control, 291
Quality Functional Development (QFD), 43
Quantitative descriptive analysis (QDA), 290
Quantitative research, 99–106
focus groups, 101–4, 211
guidelines, 105–6
merging with qualitative research, 104–5
Quantitative thinking, 6–7
Quarterly research, 107
Questionnaires, 262
construction, 346–7
design, 344–6, 351
format, 350
home use tests, 262
length of, 349–50
open-ended questions, 350
position of demographic questions, 349
position of overall liking rating in questionnaire, 347–9
pretesting, 350–51
purchase intent questions, 350
question sequence, 347
questions to be answered, 346
self-administered, 262
R&D department, 210
Radio frequency identification (RFID), 126
Random sampling, 324
Ranking methods, 266, 341
Ratio scales, 340, 342
Realities, 49
Real-time knowledge elicitation, 217
“Reduced-fat” information, 357
Reference food, 357–8
Reference point, 219
Regression analysis, 306–7
Index 421

Regression modeling, 297
Reidel Publishing Company, 374
Religious organizations, panelists from, 250–51
Remedies, 38, 46–7
Replications, 332–3
Research
applied vs. academic, 365–6
checklist of questions, 120
coherence in, 74
custom, 127–8
inputs, 119
qualitative, 99–106
quantitative, 99–106
secondary research services, 127
semi-syndicated, 128–32
syndicated, 126–7
Residuals, 307
Respondents, 172–3. See also Panelists
"Add Excitement", 149, 152
base size, 173
custom evaluation, 160
custom research, 165
customers as, 172–3
experts as, 172–3
fatigue, 350
number of, 160, 161, 165
product testing, 172–3
"Total Experience", 152
"Traditional", 149, 152
Response surface analysis, 177
Response surface method (RSM), 182–7, 294–304, 370–71
Box-Behnken design, 183, 184
counter for equal levels of consumer acceptance, 298
contour plots, 303, 304, 305
descriptive tests, 296
experimental designs, 186, 296, 302
graphically representing equal-intensity contours, 297–8
history of, 294
interpreting results of, 298–302
known ingredients and process conditions, 182–5
learning from, 303
Plackett-Burman design, 183, 184
problems in, 182–3
product development with, 295–303
in product optimization, 219
prototypes, 183
regression modeling, 297
statistical analysis, 302
Response-response analysis, 174
Return to investment (ROI), 119
Reverse engineering, 189, 195
Roasted low-fat peanuts, product development, 295–303
counter for equal levels of consumer acceptance, 298
descriptive tests, 296
experimental designs, 296
graphically representing equal-intensity contours, 297–8
regression modeling, 297
Roper Starch Worldwide, 126
rule developing experimentation (RDE), 395–6
Rules Directed Experimentation (RDE), 130
Sales, 221
Same/different test, 275
Samples
carry-over effects, 339
evaluation booths, 339
evaluation of, 339
SAROMA (strength of aroma), 193
Scales, 172, 263–70
category, 286, 340
criteria for selecting and developing, 342
in descriptive analysis, 286–7
ease of use, 161, 340
food action rating, 266
graphically representing equal-intensity contours, 297–8
fully anchored, 340
hedonic measurement, 264–5, 342–51
interval, 341–2
JAR, 267–70
levels of, 341–2
line, 340
magnitude estimation, 286–7
multidimensional, 214, 314, 370
nominal, 341
ordinal, 341
ranking methods, 266
ratio, 340, 342
subjective measurement, 339–51
unstructured linear, 286
Scale-up, 220
Scanner data, 126
Schumpeter, Joseph, 29
Science fiction, 123
Screener, 333
Screening questionnaire, 333
Secondary research services, 127
Security-check questions, 251
Segmentation, 148–53, 162
consumer research, 117–18
innovative products, 382–3
sensory preference, 197–201
Self-administered questionnaire, 262
Index

Self-authoring studies, 165
Self-designed ideal, 196–7
anchoring, 197
consistency, 197
Semantic scale, 159
Semi-syndicated research, 128–32
Semon, T., 125
Senge, Peter, 29, 74
Sensitivity analysis, 187–9
Sensometrics Conference, 4
Sensometrics Society, 6, 372
Sensory analysis, 2–4
direction of, 11
emergence of, 2–3
evolution of, 373
goals of, 42
vs. market research, 10
role of, 110
statistical thinking in, 6–7
test objectives, 210–12
Sensory analysts
academic, 12–14, 13, 365–6
as academic contractor, 366–7
accreditation of, 377–8
Addressable Minds™, 392–3
applied, 365–6
approaches by, 214
business builder, 12–14, 13
chemists as, 6
in concept research, 137
coping with data, 11–12
helpful staff, 12–14, 13
history, 1–2
impact on consumer needs/wants, 88
job description, 85
job listings, 94
job tasks, 86
vs. market researchers, 365–6
methods used by, 86
Mind Genomics™, 392–3
mind-sets of, 12–14, 87
preferred titles, 86
in product development, 209
professional courses, 94
as professional researcher, 366–7
professionalism study, 12–14, 88
professionalization of, 377–8
role of, 210
test objectives, 210–12
workplace success criteria, 87
Sensory attributes, 169
as drivers of liking, 175–6
JAR scales, 192–4
liking and, 174
Sensory directional attributes, 169
Sensory education, 369–70
Sensory evaluation, definition of, 42
Sensory Evaluation Division (SED), 376
Sensory Evaluation Practices, 374
Sensory Evaluation Techniques, 374
Sensory field, 94
Sensory laboratory tests, 238–48
advantages of, 238–9
attendance, 246
database, 238
demographic questionnaire, 242–6
disadvantages of, 239–40
employees vs. employees, 241
incentives to participate in, 247
location and design of test facility, 247–8
no-shows, 246
outsourcing of testing function, 241–3
panel, 238
panel screening, 243–6
panel size, 240
panelist recruitment, 240–41
products per sitting, 238, 248
using local residents, 241
venues for, 238
Sensory preference segmentation, 197–201
coffee, 197–201
by magnitude of reaction to one product, 198
by pattern of liking ratings to products, 199
by sensory level corresponding to maximum achievable rating, 199
Sensory research. See also Market research
actionability, 367–8
books, 374–5
business decisions and, 208
conferences, 375–7
consumer needs and, 45
consumer research and, 209
definition of, 42
fuzzy front end and, 44–6
goals of, 42
integration with consumer research, 97
Internet and, 368–9
journals, 374–5
laboratory tests, 238–48
product development and, 214–15
statistics, 370–72
Sensory tests
blind-labeled, 211–12
consumer panel
demographic characteristics, 326–7
employees vs. nonemployees, 324–5
organization or church panels as sources of, 327
random sampling, 324
selecting consumers, 323
statistical sampling, 323–4
Index 423

expert panel for descriptive analysis, 322
vs. market research, 209–10
objectives, 210–12
panel size, 328–32
participants, 209–10
stimuli testing, 209
uses of, 211–12
venues for, 170–72
Sequence mapping, 67
Serving temperature, 352–3
Shadow boxes, 77
Shopping mall intercepts, 250, 258–9
Signature, product, 169
Silos, 31, 92–3, 397, 399, 400
Simple difference test, 275
Sloan, Elizabeth, 124
Small-scale studies, 165
Smiley face scale, 344, 345
Smith, Adam, 116
Smith, Preston, 108
Smith, Wendell, 382
SnackWell®, 29
Snapping test, 285
Social media, 123
Social organizations, panelists from, 250–51
Society of Sensory Professionals, 4
Sopheon.com, 31
Sound biting, 35, 63
Soups, labeling, 356
Soybean oil, 356
Spectrum Descriptive method, 290–91
Spectrum method, 9, 172
Speed to market, 213
Split-sample validation, 315
SPSS (Statistical Package for the Social Sciences), 19
Squared multiple, J42
Stage-Gate™, 21, 43, 44, 208
Statistical programs, 214
Statistical sampling, 323–24
Statistics, 6–7, 370–72
canonical analysis, 311
cluster analysis, 309
correspondence analysis, 314
discriminant function analysis, 309–11
factor analysis, 308–9
multidimensional scaling, 314
multivariate methods, 307–14
multivariate multiple regression, 311
partial least squares regression analysis, 311–12
preference mapping, 312–13
principal components analysis, 308
stepwise discriminant analysis, 310–11
Stengel, Jim, 122
Stepwise discriminant analysis, 309–11
Stevens, S.S., 5
Stimuli testing, 209
Strategic plan, 217
Strategy, inputs, J19
Stretch elements, 164
Structuralism, 8
Supply economy, 2, 53, 115
Surfer Access System Program®, 298
Surrogate ingredients, 179
Surveys, 93, 225
Swedish Institute for Food Preservation Research, 3, 10
Swedish Institute for Food Research, 3
SymphonyIRI Group, 126, 127
Syndicated research, 126–7
Target population, 323
Taste, 202, 352
Taste test booths, 171
Taste testing, 171
Tchong, Michael, 123
Telephone interviews, 221, 258, 262–3
Temperature, 352–3
Tension, 50
Test concepts, 141
Test location, 359
Test protocols, 359–60
test samples, handling of, 253–4
Texture, 202
objective measurements, 284
Texture profile analysis (TPA), 284
Texture profile method, 290
Three alternative forced test (3-AFC), 273–5
magnitude of sensory differences between samples measured by d’, 280
method of sample presentation, 279
number and order of sample presentation, 279
power of the test, 280
test results, 279
total number of samples, 277
Thurstonian scaling, 141
Time, loss of, 90
Time magazine, 123
Timeline, 22–7
Tipping Point, The, 122
Titchener, Edward Bradford, 8
Toffler, Alvin, 123
Tomato purees, 356
“Total Experience” respondents, 149, J52
Total panel, 145–6
“Traditional” respondents, 149, J52
Tragon Corp., 290
Trained panels, 337–8
Transgenic products, 356
Trendscaping, 123
Index

Trend-spotting, 123–4
Trial production, 220
Triangle test, 271–2. See also Discrimination tests
expected test results, 279
method of sample presentation, 279
number and order of sample presentation, 279
probability of chance guessing, 279
test results, 279
total number of samples, 277
Tried first bias, 233
Trump, Donald, 77
Trust, 110–11
“Truth toxins”, 132
Tuorila, Hely, 3
“Twelve Steps to Test Market”, 43
Twitter®, 123
Twitter™, 34–5
Two alternative forced choice (2-AFC) test, 272–3.
See also Discrimination tests
magnitude of sensory differences between samples measured by d’, 280
method of sample presentation, 279
number and order of sample presentation, 277
power of the test, 280
probability of chance guessing, 279
test results, 279
total number of samples, 277
Type I error, 306
Type II error, 306

Uncertainty, 92
Unconscious mind, 50
Underdelivery, of products, 190, 192
Understanding & Insight Group, 129
United Business Media PLC, 126
University of California at Davis, 369
University of Georgia, 369
Unstructured linear scales (ULS), 286
U.S. Army Natick Laboratories, 3, 5
U.S. Census, 124–5
U.S. Quartermaster Corps, 3
Usage studies, 125

Validation, 307
Valuable distinctions, 48
Value diagram, 63, 67, 91
Values, 49, 64

Variables, functional relations among, 214
Vegetable soup, blind and branded ratings for, 202–3
Vegetarian vegetable soup, blind and branded ratings for, 202–3
Venue, 358
Veracity, 66
knowledge and, 66
Vignettes, 141
Visio™, 36
Visualization, 34
Voice of the customer, 43
Von Sydow, Erik, 10, 97

“Walk-outs”, 249
Wal-Mart, 126
Wandering scores, 339
Wants
assessing, 49–50
concept development and, 47–8
defining, 50–51
emotion and, 50
hierarchy of needs, 50
impact of sensory analysts on, 88
need state, 50
personal constructs and, 49
unconscious and, 50
values and, 49
Warm-up samples, 289
Wasted assets, 90
“Weak signals”, 19
Wealth of Nations, 116
Weaning foods, concept research, 156
Weekly research, 106
Wharton School of Business, 140
White spaces, 17
Who Moved My Cheese?, 122
Whole product utility, 84
Wilcoxon signed ranks test, 341
Wind, Jerry, 140
Win-lose thinking, 111
Winning at New Products, 43
Workplace, criteria for success in, 87
Wundt, Wilhelm, 174

Yearly research, 107
Yes/no options, 142, 143, 168
Yoshida, Masaki, 371