FDE443 SENSORY ANALYSIS

Lesson-7

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Product controls-Sample Presentation

Order, Coding, and Number of Samples

✓As part of any test, the order, coding, and number of samples presented to each subject must be monitored.

✓***The order of presentation*** should be ***balanced*** so that each sample appears in a given position an equal number of times.

Product controls-Sample Presentation

Order, Coding, and Number of Samples

✓*The order of presentation*

  ✓For example, possible positions for three products, A, B, and C, to be compared in a ranking test:

    ✓ABC — ACB — BCA — BAC — CBA — CAB

  ✓presentation of the six possible combinations an equal number of times

✓The presentation also should be ***random:*** draw sample cards from a bag or use a compilation of random numbers.

Product controls-Sample Presentation

Order, Coding, and Number of Samples

Coding:

✓Avoid single and double letters and digits

✓Do not use letters or numbers representing companies, area codes, and test numbers or samples.

✓The table of ***three-digit random numbers*** for product coding

Random Orders of the Digits 1 to 9: Arranged in Groups of Three Columns

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862 245 458 396 522 498 298 665 635 665 113 917 365 332 896 314 688 468 663 712 585 351 847
223 398 183 765 138 369 163 743 593 252 581 355 542 691 537 222 746 636 478 368 949 797 295
756 954 266 174 496 133 759 488 854 187 228 824 881 549 759 169 122 919 946 293 874 289 452
544 537 522 459 984 585 946 127 711 549 445 793 734 855 121 885 595 152 237 574 611 145 784
681 829 614 547 869 742 822 554 448 813 976 688 959 714 912 646 873 397 159 155 136 463 363
199 113 941 933 375 651 414 891 129 938 862 572 698 128 363 478 214 841 314 437 792 874 926
918 481 797 621 743 827 377 916 966 426 657 246 423 277 685 533 937 223 582 946 323 626 519
335 662 875 282 617 274 635 379 287 791 334 139 117 963 448 957 451 585 821 829 267 512 638
477 776 339 818 251 916 581 232 372 374 799 461 276 486 274 791 369 774 795 681 458 938 171

653 489 538 216 446 849 914 337 993 459 325 614 771 244 429 874 557 119 122 417 882 714 769
749 824 721 967 287 556 628 843 725 731 553 253 183 653 988 431 788 426 875 838 457 927 475
522 967 259 532 618 624 396 562 134 563 932 441 834 787 231 958 232 537 439 956 531 345 352
475 172 986 859 925 932 282 924 842 642 797 565 399 896 596 282 441 784 258 684 625 662 291
894 333 612 728 869 487 741 259 476 127 286 736 257 168 847 316 969 692 786 549 949 559 526
116 218 464 191 132 218 573 786 258 296 471 372 618 935 353 747 123 863 644 161 793 196 847
381 641 393 375 354 193 165 615 587 384 119 187 965 572 112 695 615 941 361 375 376 871 633
968 755 847 643 773 765 439 478 611 978 868 898 546 319 775 169 896 275 513 222 114 233 184

742 421 226 286 522 618 471 218 397 745 461 477 478 535 957 674 132 228 442 225 444 171 151
859 878 392 311 659 772 935 447 834 117 658 161 754 654 176 883 855 195 637 751 586 948 513
964 593 137 574 288 994 582 961 746 336 983 782 611 988 833 265 969 584 564 683 197 214 326
177 636 674 897 167 157 856 524 662 598 145 926 362 777 415 931 313 317 195 137 959 536 985
228 755 915 955 946 233 647 653 425 674 719 543 549 826 669 429 576 773 756 392 632 725 879
591 214 851 669 394 349 299 192 179 261 332 294 896 299 782 397 791 659 921 569 811 683 762
636 167 789 438 413 565 118 889 253 452 577 859 125 141 241 746 444 841 313 446 225 362 248
415 982 543 743 835 826 364 776 988 923 224 615 283 462 328 512 228 466 278 874 373 499 437
383 349 468 122 771 481 723 335 511 889 896 338 937 313 594 158 687 932 889 918 768 857 694

975 973 235 811 761 226 637 382 741 767 894 371 128 972 161 911 427 164 461 991 792 256 194
257 752 667 227 813 488 598 198 979 388 921 926 715 349 644 846 879 242 695 222 633 595 526
723 395 174 453 276 732 323 866 583 826 562 817 397 556 786 358 755 996 249 676 461 614 485
448 524 951 982 455 999 451 434 695 693 788 493 951 231 259 667 318 655 374 559 577 873 747
539 881 529 664 594 555 779 629 168 442 377 685 449 128 532 232 241 418 536 733 348 162 919
661 469 312 748 942 671 284 777 354 939 116 158 583 615 977 525 193 871 833 818 154 449 333
394 647 493 599 628 317 846 255 416 174 449 269 276 883 828 193 984 529 758 164 215 938 272
882 216 786 376 187 864 912 941 837 551 233 744 634 464 313 474 536 333 927 345 889 387 658
116 138 848 135 339 143 165 513 222 215 655 532 862 797 495 789 662 787 112 487 926 721 861
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Instructions

(1) To generate a sequence of three-digit random numbers, enter the table at any location, e.g., closing the eyes and pointing. Without inspecting the numbers, decide whether to move up or down the column entered. Record as many numbers as needed. Discard any numbers that are unsuitable (out of range, came up before, etc.). The sequence of numbers obtained in this manner is in random order.

(2) To generate a sequence of two-digit random numbers, proceed as in (1), but first decide, e.g., by coin toss, whether to use the first two or last two digits of each number taken from the table. Treat each three-digit number in the same manner, i.e., discard the same digit from each. If a two-digit number comes up more than once, retain only the first.

(3) Random number tables are impractical for problems such as: "place the numbers from 15 to 50 in random order."

Instead, write each number on a card and draw the cards blindly from a bag or use a computerized random number generator such as PROC PLAN from SAS.®

(Meilgaard et al. 2006)

Product controls-Sample Presentation

Order, Coding, and Number of Samples

❑ *The number of samples:*

➢ with cookies or bisquits, the the upper limit: eight or ten may be

➢ with beer, the the upper limit: six or eight

➢ products with a high carryover of flavor, such as smoked or spicy meats, bitter substances, or greasy textures may allow only one or two per test

➢ visual evaluations can be performed on series of 20 to 30 samples

Product controls-Product Sampling

✓How much of a product is required

✓The history of the products to be tested

✓Information about prior handling of experimental and control samples

Product controls-Product Sampling

✓ ***The source of the product:*** when and where it was made.

✓ ***The testing needs***: how much product will be needed

- ✓ All of the product should come from one source (same place, same line, same date, etc.).
- ✓ If the product is not uniform, blend and repackage the different batches

✓ ***The storage:*** where the sample has been and under what conditions.

- ✓ Comparing two products for a processing or ingredient variable
- ✓ Differences in age, storage temperature and humidity, shipping storage and humidity, packaging differences, etc.

Panelist Controls

Panel Training or Orientation

✓Instruction for the handling of samples, the use of the scoresheet, and the information sought in the test.

✓The training of panelists: They should be familiar with:

  ➢The test procedures
  ➢The scoresheet design
  ➢The type of judgment/evaluation required

Panelist Controls

Panel Training or Orientation

✓The test procedures:

  ✓ the amount of sample to be tasted at one time
  ✓ delivery system (spoon, cup, sip, slurp)
  ✓ the length of time of contact with the product (sip/spit, short sniff, one bite/chew)
  ✓ the disposition of the product (swallow, expectorate, leave in contact with skin or remove from skin)

✓The scoresheet design: instructions for evaluation, and questions, terminology, and scales for expressing judgment

✓The type of test (difference, description, preference, acceptance)

Panelist Controls

Product/Time of Day

✓The time of day when the product to be tested is normally used or consumed.

✓Not recommended;

✓The tasting of highly flavored or alcoholic products in the early morning

✓Product evaluation after meals or coffee breaks

Panelist Controls

Panelists/Environment

✓To avoid biases control the test environment

  ✓colored lights, high humidity, or enclosed testing area, may cause anxiety or distraction

✓For panelists : the orientation and time to feel comfortable with the test protocols, and to provide them with enough information