

DELORES HEISSERER CHAMBERS

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Education

Ph.D. Sensory Analysis (Foods and Nutrition) - 1994, Kansas State University

M. S. Foods and Nutrition - 1992, Kansas State University

B.S. Marketing Management and Computer Science - 1982, Additional course work in dietetics and nursing 1987-90, Southeast Missouri State University

Other Training

Professional Courses Attended at Culinary Institute of America, Hyde Park, NY

“Street Foods for Chefs”, 2011; “Specialty and Hearth Breads Boot Camp”, 2010; Pastry Boot Camp”, 2009; “Techniques of Healthy Eating Boot Camp” 2008; “Basic Training”, 2003

“Nami Teppanyaki Cooking”, J.W. Marriott Cooking School, Bangkok, Thailand, 2009

The Oriental Thai Cooking School, Mandarin Oriental, Bangkok, Thailand, 2003

Thai Cooking Classes, Nipa Restaurant, Landmark Hotel, Bangkok, Thailand, 2003

Certification

Gelato Manufacturing Techniques & Ingredient Science, Carpigiani Gelato University, Bologna, Italy, 2010

Study Tours as Participant

“Discovering the Culinary Treasures of Sardinia” Sardinia, Italy, 2015

“A Gathering of Weavers”, Cusco, Peru, 2014

“Fabric of India” (Merchandising): K-State, Colorado State and Univ. of Missouri, India, 2011

“Argentina Food and Culture”, American Dietetic Association, Food and Culinary Professionals Practice Group, Argentina, 2011

“Culinary Treasures of Greece”, American Dietetic Association, Food and Culinary Professionals Practice Group, Greece, 2010

“Gastronomic and Cultural Exchange Tour of Italy”, American Dietetic Association, Food and Culinary Professionals Practice Group, Italy, 2007

“Vineyards and Kitchens in France”, American Dietetic Association, Food and Culinary Professionals Practice Group, France, 2005

Other

“A World of Flavors”, Annual Culinary Enhancement Workshop, Manhattan, KS, 2009

“K-State Leadership Seminar”, Kansas State University, 2008

“Flavors of the Mediterranean”, Annual Culinary Enhancement Workshop, Manhattan, KS, 2007

“Excellence in teaching and learning: Teachers as learners”, K-State’s Fourth Annual Teaching Renewal Retreat, Kansas State University, 2007

“Excellence in Teaching and Learning: Always in Style”, K-State’s Third Annual Teaching Renewal Retreat, Kansas State University, 2006

“Celebrating the Diversity of the American Plate”, Workshop, American Dietetic Association, Food and Culinary Practice Group, St. Louis, 2005

Sensory Evaluation in the Wine Industry, ASTM Committee Sensory Division, 2004

“The Character of Our Commitments”, 7th Annual K-State Leadership Seminar, 2003

Graphic Thinking and Group Facilitation, Grove Consultants, 1998

Focus Group Moderation Course, RIVA Training Institute, 1996
Various webinars sponsored by the American Dietetic Association

Related Experience

Kansas State University, The Sensory Analysis Center, Co-Director 1995-present, and **Human Nutrition**, Instructor 1995-1999, Research Asst. Professor, 1999-2002, Assistant Professor, 2002-2008, Associate Professor 2008-2012, Professor, 2012-present

Revamped and teach “Science of Foods”, a lecture/laboratory course that is the primary foods course for human nutrition and dietetics students. Developed distance/online course for HN 413 Science of Foods. Teach “Sensory Descriptive Analysis” and developed the distance/online version of that course. Co-Direct a Research and Teaching Center for product testing and evaluation that includes both descriptive sensory studies and consumer evaluation of products. Supervise professionals, students, and panelists who conduct evaluation of foods, beverages, and other products such as over-the-counter pharmaceuticals for corporate and other business clients, trade associations, and government and university projects. Provide non-traditional educational experiences for students and professionals, guest lecture in classes, and team taught “Sensory Evaluation of Foods” one semester.

The Kellogg Co., Section Manager, Product Evaluation Services, 1994-1995

Managed a group of professional staff and technicians primarily responsible for conducting sensory studies including descriptive, discrimination, and consumer research. Staff also responsible for chemical shelf-life studies and physical measures (e.g., moisture content). Established guidelines for consumer research guidance testing, re-focused descriptive panel training, and initiated screening and orientation for discrimination panels. Worked with product developers and marketing research to evaluate new and reformulated products. Developed training course and associated materials for applied sensory evaluation and consumer testing workshop for employees.

Moskowitz Jacobs, Inc., Project Manager, 1993-1994

Coordinated consumer projects with field services, designed market research studies including questionnaire design, analysis, and data interpretation. Directed staff responsible for various phases of product testing. Assisted with statistical designs for product optimization and category appraisal. Planned and conducted statistical design workshop. Represented company at trade shows.

Consultant, 1992-94, 1998-1999

Conducted studies relating sensory data to physical and chemical data. Gave presentations to middle and upper management on results of projects. Wrote handbook for conducting statistical analysis of sensory data on the SAS computer software. Gave internal corporate workshops.

Coors, Inc., Sensory Evaluation Department, Graduate Intern, 1992

Established on-going descriptive training program using attribute references. Conducted sensory panels and product aging study. Screened and tested a large group of employee panelists. Gave presentations to R&D staff and management.

Kansas State University, The Sensory Analysis Center, Graduate Research Assistant, 1990-1992, 1994.

Coordinated a 2-year international quality control program for a major corporation, including panel training, experimental design, product acquisition and preparation, data analysis, and report writing. Supervised staff for projects and wrote project and management summaries. Planned and conducted studies on products such as cheese, salt and salt containing foods, frankfurters, and pizza. Assisted with consumer market research studies including quantitative and focus group projects. Taught laboratory section of beginning food science class including planning and organizing laboratory experiences for 20 students.

Awards

“International Educator Award”, Kansas State University, 2010

“Faculty Research Excellence Award”, College of Human Ecology, Kansas State University, 2009

“Best Paper” award in Marketing & Culture, 3rd International Conference on O-CHA (Tea), Shizuoka, Japan, 2007

Finalist, "Graduate Paper Competition in Sensory Analysis", Institute of Food Technologists 1993

2nd place and Certificate for Research Excellence, "Food Science Graduate Research Paper Competition", Institute of Food Technologists and Procter and Gamble, 1992

Nina Browning Graduate Study Fellowship 1990-1991

Graduate Student Advising

Doctoral Students Completed

2 students (Jeehyun Lee and Martin Talavera, 2009)

Doctoral Students in Progress

1 student (Katherine Gallo)

Master's Students Completed

15 students (Amy Donelan, 2015; Kelly Fuhr, 2015; Yoona Chung, 2014; Sara Brekke, 2013; Ashley Miller, 2012; Christie Ledeker and Donald McGrew, 2011; Marissa Brown and Elizabeth Kraterfield, 2010; Susan Hooge, Gaewalin Opadissakoon and Kelly Thompson, 2007; Martin Talavera, 2006; Jeehyun Lee and Seonhee Kong, 2004)

Master's Students in Progress

6 students (Frank Farello, Erika Fletcher, Kara Gustafson, Leslie Hall, Han Li, Erin Smieja)

Awards

2nd place Society of Sensory Professionals, WIKI competition (Ashley Miller), 2011

3rd place, Society of Sensory Professionals, WIKI competition (Christie Ledeker), 2011

2nd place, Society of Sensory Professionals, WIKI competition (Christie Ledeker), 2010

1st place, International Sensory Project Design Competition, Sponsored by Sensory Spectrum, 2009 (Team of 2 students and last year of the competition); 2007 (Team of 5 students); 2006 (Team of 5 students); 2005 (Team of 6 students)

1st place, "Milk aftertaste: Relating descriptive analysis data to acceptability of milk to teenaged girls", Graduate Research Competition, 2nd International Conference on Functional Foods, Jeju Island, Korea (Jee Lee), 2004

1st place, supervised research, Institute of Food Technologist Sensory Graduate Research Paper Competition (AnnMarie Allison), 2002

Graduate Student Internships

Nestlé, Freemont, MI (2 student)

Kellogg's, Battle Creek, MI (2 students)

ConAgra, Lincoln, NE (2 students)

Schick Wilkinson Sword, Milford, CT (1 student)

McCormick Seasoning, Baltimore, MD (1 student)

Staley, Decatur, IL (1 student)

Supervised International Learning through Research

Thailand, Argentina, Estonia, China, Italy, India, Poland, Turkey, and South Korea

Professional Activities

Editorial Boards

Journal of Sensory Studies 2002-present

Kasetsart (Thailand) Journal of Science, 2007-present

Planned and led study tours for students, faculty, and professional colleagues

Turkey (2015)

Thailand (2012)

Argentina (2010)

South Korea (2008)

Assisted in planning study tours for students, faculty, and professional colleagues

India (2011, 2013)

Thailand (2011)

Spain (2010)

Thailand (2006)

International Standards Organization (ISO) Committee on Sensory and Consumer Research

Standards, U.S. Chief of Delegation, 2003-present, delegation member 1996-2003

ASTM International, Committee on Sensory Evaluation: Chair of Subcommittee on International

Standards, 2001-present; Chair, Task Group on Proficiency (Accreditation), 1998-2002

Scientific Committees: Society of Sensory Professionals, 2010; Pangborn Sensory Sciences

Symposium, 2009; SPISE, 2012, 2014

Royal Thai Academy “Sensory Evaluation Dictionary” committee, 1 of 2 International Advisors,

2009-present

Food and Culinary Practice Group, American Dietetic Association, Food and Culinary Study

Tour Research committee, 2010

Institute of Food Technologists, Sensory Evaluation Division Strategic Planning Committee

member and Program, Committee member, 2002-2004

Phi Tau Sigma Food Science honorary, K-State Section Secretary, 1998-1999

Publications

- Kosa, K., Cates, S.C., Bradley, S., Godwin, S. and Chambers, D.H., 2015. Consumer shell egg consumption and handling practices: Results from a national survey. *J. Food Protection*. 78: 1312-1319.
- Vázquez-Araújo, L., Adikari, K., Chambers, E. IV, Chambers, D.H., and Carbonell-Barrachina, A.A., 2014 Cross-cultural perception of six commercial olive oils: A study with Spanish and US consumers. *Food Science and Technology International*. In press
- Soontrunnarungsri, A., Chambers, D, Oupadissakoon, C., and Chambers, E. 2014. Comparison of sensory properties of freshly harvested and 1-year storage Thai rice. *Food and Applied Bioscience Journal*. 2: 67-82
- Ledeker, C.N., Suwonsichon, S., Chambers, D.H., and Adhikari, K. 2014. Comparison of Sensory Attributes in Fresh Mangoes and Heat-treated mango purees prepared from Thai Cultivars, *LWT – Food Science and Technology*. 56: 138-144.
- Lee, J., Chambers, D.H., and Chambers, E. IV. 2014. A comparison of the flavor of green teas from around the world. *J. Sci. Food Agric*. 97: 1315-1324.
- Lee, J., Chambers, D., and Chambers, E. IV. 2013. Sensory and Instrumental Flavor Changes in Green Tea Brewed Multiple Times. *Foods*. 2: 554-571.
- Lee, J., Chambers D.H., Chambers, E. IV, Adhikari, K., and Moo, Y. 2013. Volatile aroma compounds in various brewed green teas. *Molecules*. 18:10024-10041.
- Miller, A.E. and Chambers, D.H. 2013. Descriptive Analysis of Flavor Characteristics for Black Walnut Cultivars. *J.Food Sci*. 78: S887-893.
- Miller, A.E. and Chambers, D.H. 2013. Descriptive analysis and consumer acceptance of black walnut cultivars in a sugar cookie base. *LWT – Food Science and Technology*. 53: 139-145.
- Miller, A.E., Chambers, E.IV., Jenkins, A., Lee, J., and Chambers, D.H., 2013. Defining and Characterizing the “Nutty” Attribute Across Food Categories. *Food Quality and Preference*. 27: 1-7.
- Ledeker, C., Chambers, D., Chambers, E.IV, and Adhikari, K. 2012. Changes in the Sensory Characteristics of Mango Cultivars during the Production of Mango Puree and Sorbet. *J. Food Sci*. 77: S348-S355
- Koppel, K. and Chambers, D. H. 2012. Flavor Comparison of Natural Cheeses Manufactured in Different Countries. *J. Food Sci*. 77: S177-187.
- Vázquez-Araújo, L., Chambers, D., and Carbonell-Barrachina, 2012. A. A. Development of a Sensory Lexicon and Application by an Industry Trade Panel for *Turrón*, a European Protected Product. *J. Sensory Stud*. 27: 26-36.
- Lee, J., Chambers, D.H., Schmidt, K. 2012. Using descriptive sensory data to predict teenage girls acceptability of milk. In "Proceedings: Integrating Sensory Evaluation to Product Development An Asian Perspective" ed. Valentin, D., Pêcher, C., Nguyen, D.H., Chambers, D. H., and Abdi, H. Vietnam Natl. Univ. Publishing House, HoChiMinh City. pp. 73-83.
- Chambers, D.H., Lee, J., and Chun, S. 2012. Using sensory techniques in a cross cultural study of Korean and American food safety habits. In "Proceedings: Integrating Sensory Evaluation to Product Development An Asian Perspective" ed. Valentin, D., Pêcher, C., Nguyen, D.H., Chambers, D. H., and Abdi, H. Vietnam Natl. Univ. Publishing House, HoChiMinh City. pp. 147-154.

- Valentin, D., Pêcher, C., Nguyen, D.H., Chambers, D. H., and Abdi, H. (editors). "Proceedings: Integrating Sensory Evaluation to Product Development An Asian Perspective" Vietnam Natl. Univ. Publishing House, HoChiMinh City.
- Koppel, K., Chambers, E.IV, Chambers, D. H. 2011. Flavour and Acceptance of Estonian Cheeses. *Agron. Res.* 9: 409-414.
- Choi, H., Yang, C., Choi, K., Kim, H., Chambers, D., and Bae, I. 2011. Characteristics of Gouda Cheese Supplemented with Korean Traditional Yakju. *Korean J. Food Sci. Anl. Resour.* 31: 872-878.
- Talavera-Bianchi, M., Chambers, D.H., 2011. Chambers, E. IV, Adhikari, K., and Carey E.E., 2011. Sensory and chemical properties of organically and conventionally grown pac choi (*Brassica rapa* var. Mei Qing Choi) change little during 18 days of refrigerated storage. *LWT – Food Science and Technology.* 44: 1538-1545.
- Chambers, D.H., Esteve, E. and Retiveau, A. 2010. Effect of milk pasteurization on flavor properties of seven commercially available French cheese types. *J. Sensory Stud.* 25: 494–511
- Lee, J. and Chambers, D.H. 2010. Flavors of green tea change little during storage. *J Sensory Studies* 25: 512-520.
- Lee, J., Chambers, D.H. Descriptive Analysis and U.S. Consumer Acceptability of Six Green Tea Samples from China, Japan, and Korea. *J. Food Science.* 75: S141-S147.
- Talavera-Bianchi, M. Chambers, E. IV, Carey, E., and Chambers, D.H. 2010. Effect of Organic Production and Fertilizer Variables on the Sensory Properties of Pac Choi (*Brassica rapa* var. Mei Qing Choi) and Tomato (*Solanum lycopersicum* var. Bush Celebrity). *J. Sci. Food Agric.* 90: 981-988.
- Talavera-Bianchi, M. Adhikari, K., Chambers, E. IV, Carey, E., and Chambers, D.H. 2010. Relation between Developmental Stage, Sensory Properties, and Volatile Content of Organically and Conventionally Grown Pac Choi (*Brassica rapa* var. Mei Qing Choi). *J. Food Sci.* 75: S173-S181.
- Hooge, S and Chambers, D. 2010. A comparison of basic taste modalities, using a descriptive analysis technique, for varying levels of sodium and KCl in two model soup systems. *J. Sensory Stud.* 25: 521–535
- Talavera-Bianchi, M., Chambers, E. IV, and Chambers, D.H. 2010. Describing flavor using fewer and simpler "HITS" (high identity traits) profiling: an example with cheese. *J. Sensory Studies.* 25: 481-493
- Talavera-Bianchi, M., Chambers, E. IV, and Chambers, D.H. 2010. Lexicon to describe flavor of fresh leafy vegetables. *J. Sensory Studies.* 25: 163-183.
- Lee, J., Chambers, E. IV, Chambers, D.H., Chun, S.S., Oupadissakoon, C., and Johnson, D.E. 2010. Consumer acceptance for green tea by consumers in the United States, Korea, and Thailand. *J. Sensory Studies.* 25 (S1): 109-132.
- Lee, J. and Chambers, D.H. 2009. Sensory descriptive evaluation: brewing methods affect flavour of green tea. *Asian. J. Food Agro-Ind.* 2: 427-439.
- Thompson, K.R., Chambers, D.H., and Chambers, E. IV. 2009. Sensory characteristics of ice cream produced in the United States and Italy. *J. Sensory Studies.* 24: 396-414.
- Oupadissakoon, G., Chambers, D.H., and Chambers, E.IV. 2009. Comparison of the sensory properties of ultra-high-temperature (UHT) milk from different countries. *J. Sensory Studies.* 24: 427-440.
- Chambers, D.H. and Munoz, A.M. 2009. Focus-group evaluation of nutrition education displays by Hispanic adults who live in the USA. *Health Education.* 109: 439-450.

- Suwonsichon, S., Chambers, E. IV, Chambers, D.H., Milliken, G.A. 2009. Effects of oral rinsing on the perception of residual cooling and burn in highly mentholated toothpaste. *J. Sensory Studies*. 24: 290-300.
- Chambers, D.H., Lee, J., Chambers, E. IV. 2008. Descriptive sensory analysis of samples of green tea from around the world. *Proceeding: Third International Conference on Tea Culture and Science*. University of Shizuoka Press, Japan. MI-P-104 pp. 1-2.
- Chambers, E. IV., Lee, J., Chambers, D.H., Chum, S., Oupadissakoon, C. 2008. Consumer acceptability of green tea in three countries. *Proceeding: Third International Conference on Tea Culture and Science*. University of Shizuoka Press, Japan. MI-P-103 pp. 1-2.
- Lee, J., Chambers, D.H., Adhikari, K., Yoon, Y. 2008. Flavor and Volatile compound changes of green tea when infused multiple times. *Proceeding: Third International Conference on Tea Culture and Science*. University of Shizuoka Press, Japan. Pr-P-116. pp. 1-2.
- Talavera-Bianchi, M. and Chambers, D.H., 2008. Simplified lexicon to describe flavor characteristics of western European cheeses. *J Sensory Studies*. 23: 468-484
- Allison, A.M., Chambers, E. IV., and Chambers, D.H. 2007. Repeated testing and rinsing regimens for toothpastes with various cooling and burn intensities: Impact on discrimination and repeatability. *J. Sensory Studies*. 22:695-712.
- Lee, J. and Chambers, D.H. 2007. A lexicon for flavor descriptive analysis of green tea. *J. Sensory Studies*. 22: 256-272.
- Lee, J., Chambers, D.H., Chambers, E. IV. 2007. Green tea flavor description: A focus on differences in green and brown flavor notes. In "Proceedings: New Trends in Sensory Evaluation of Food and Non-Food Products" ed. Valentin, D., Nguyen, D.H., and Pelletier, L. Vietnam Natl. Univ. Publishing House, HoChiMinh City. pp. 75-84.
- Kosa, K.M., Cates, S.C., Karns, S.A. Godwin, S.L., and Chambers, D.H. 2007. Consumer home refrigeration practices: Results of a web-based survey. *J. Food Protection*. 70: 1640-1649.
- Cates, S.C., Kosa, K.M., Karns, S., Godwin, S.L., and Chambers, D.H. 2007. Consumer storage practices for refrigerated ready-to-eat foods: Results of a web-enabled survey. *Food Protection Trends*. 27: 530-543.
- Kosa, K.M., Cates, S.C., Karns, S., Godwin, S.L., and Chambers, D.H. 2007. Consumer knowledge and use of open dates: Results of a web-based survey. *J. Food Protection*. 70: 1213-1219.
- Godwin, S.L., Chen, F., Chambers, E. IV, Coppings, R., and Chambers, D.H. 2007. A comprehensive evaluation of temperatures within home refrigerators. *Food Protection Trends*. 27: 168-173.
- Retiveau, A., Chambers, D.H., and Esteve, E. 2005. Developing a lexicon for the flavor description of French cheeses. *Food Quality and Preference*. 16: 517-527.
- Allison, A.M. and Chambers, D.H. 2005. Effects of residual toothpaste flavor on flavor profiles of common foods and beverages. *J. Sensory Studies*. 20: 167-186.
- Chambers, D.H., Chambers, E. IV, and Johnson, D.E. 2005. Flavor description and classification of selected natural cheeses. *Proceedings of the 5th International conference on Culinary Arts and Sciences*. 5: 641-654.
- Francis, L.L., Chambers, D.H., Kong, S.H., Milliken, G.A., Jeon, I.J., and Schmidt, K.A. 2005. Serving temperature effects on milk flavor, milk aftertaste, and volatile compound quantification in nonfat and whole milk. *J. Food Science*. 70: S413-418.
- Chun, S., Chambers, E. IV, and Chambers, D. H. 2005. Perception of pork patties with shiitake (*Lentinus Edode* P.) mushroom powder and sodium tripolyphosphate as measured by Korean and United States consumers. *J. Sensory Studies*. 20: 156-166.

- Dowell, K.J., Chambers, E. IV, Milliken, G.A., and Chambers, D.H. 2005. Predicting interstimulus intervals between samples for capsaicin-containing salsa with a range of heat levels. *J. Sensory Studies*. 20: 187-199.
- Chambers, D.H., Allison, A.M., and Chambers, E. IV. 2004. Training effects on performance of descriptive panelists. *J. Sensory Studies*. 19: 486-499.
- Chambers, D.H., Higgins, M.M., Roeger, C., and Allison, A-M.A. 2004. Nutrition education displays for young adults and older adults. *Health Education*. 104: 45-54.
- Vara-Ubol, S., Chambers, E. IV, and Chambers, D.H. 2004. Sensory characteristics of chemical compounds potentially associated with beany aroma in foods. *J. Sensory Studies*. 19: 15-26.
- Francis, L.L., Lee, J., Chambers, D.H., Jeon, I.J., Simmons, S.R., and Schmidt, K.A. 2004. Quantification of volatile flavor compounds in off-flavor and commercial reduced-fat milk samples. *Proceedings of Dairy Days*. 2004. pgs. 3-9.
- Francis, L.L., Kong, S.H., Chambers, D.H., Jeon, I.J., Simmons, S.R., and Schmidt, K.A. 2004. Serving temperature effects on milk flavor, milk aftertaste, and volatile-compound quantification in nonfat and whole milk. *Proceedings of Dairy Days*. 2004. pgs. 16-21.
- Lotong, V., Chambers, E. IV, and Chambers, D.H. 2003. Categorization of commercial orange juices based on flavor characteristics. *J. Food Science*. 68: 722-725.
- Lotong, V., Chambers D.H., Dus C., Chambers E. IV, and Civille G.V. 2002. Matching results of two independent highly trained sensory panels using different descriptive analysis methods. *J. Sensory Studies*. 17: 429-444.
- Stahlman, L. B., Garcia, J. M., Chambers, E., Smit, A. B., Hoag, L., and Chambers, D.H. 2001. Perceptual ratings for pureed and molded peaches for individuals with and without impaired swallowing. *Dysphagia*, 16, 254-262.
- Allison, A.A., Chambers, E. IV, Civille, G.V., Milliken, G., and Chambers, D.H. 2001. Effects of fat on temporal cooling by menthol in lozenges. *J. Food Science*. 66: 1219-1224.
- Lotong, V., Chambers, E. IV, and Chambers, D.H. 2000. Determination of the sensory attributes of wheat sourdough bread. *J. Sensory Studies*. 15: 309-326.
- Otremba, M., Dikeman, M.E., Milliken, G.A., Stroda, S.L., Chambers E. IV., and Chambers D.H. 2000. Interrelationships between a descriptive texture profile sensory panel and descriptive attribute sensory panel evaluations of Longissimus and Semitendinosus muscles. *Meat Science*. 54: 325-332.
- Allison, A.M., Chambers, E. IV, Milliken, G., and Chambers, D.H. 1999. Effects of interstimulus rinsing and time on measurements of capsaicin heat in tomato salsa. *J. Sensory Studies*. 14: 401-414.
- Chambers, E. IV and Chambers, D.H. 1999. Evaluating the flavor of meat. In *Proceedings of the 52nd Reciprocal Meat Conference*, American Meat Science Association, Kansas City, MO, pp 75-77.
- Chambers, D. H., Chambers E. IV, Seitz, L.M., Sauer, D.B., Robinson, K., and Allison, A.M. 1998. Sensory characteristics of chemical compounds potentially associated with smoky aroma in foods. *Food Flavors*, 9: 187-194.
- Chambers, D.H., Chambers E. IV, and Bowers, J.R. 1996. Consumer acceptance of commercially available frankfurters. *J. Sensory Studies*, 11: 85-101.
- Levis, P.A, Chambers, E. IV, Chambers, D.H., and Hollingsworth, M.G. 1996. Consumer use of package directions for familiar and unfamiliar products. In. Gelinas, A.D. (Ed.) *A Sensory techniques used in conducting packaging research with consumers*, STP 1316, ASTM, West Conshohocken, PA pp 16-24.

Heisserer (Chambers), D.M. and Chambers E. IV. 1993. Determination of the sensory flavor attributes of aged natural cheese. *J. Sensory Studies*. 8: 121-132.

Published International Standards

ISO 13300 -1, Sensory Analysis – General guidance for the staff of a sensory evaluation laboratory – Part 1: Staff responsibilities, Chambers, D.H., 2006

ISO 13300 -2, Sensory Analysis – General guidance for the staff of a sensory evaluation laboratory – Part 2: Recruitment and training of panel leaders, Chambers, D.H., 2006.

Presentations and Workshops (some presented by co-authors) in U.S.

“Evaluation of Chicken Meat Juice on Hands, Chicken, Packages and Contact Surfaces during the after Grocery Shopping”, IAFP, Indianapolis, Indiana, 2014

“Food Thermometer Usage among Consumers Who Cook Raw Poultry: Results of a National Survey”, IAFP, Indianapolis, Indiana, 2014

“Activities that Engage the Senses”, Florida Health Care Activities Coordinators Annual Conference, Daytona Beach, Florida, 2014

"Beef Flavor Workshop", Beef CheckOff, Olathe, Kansas, 2013

“Comparing Food Safety Behavior of Female Elderly in the US and Republic of Korea”, 7th International Food Safety Conference, 2012, Dubai, UAE

“Food Safety: Hand Washing, Temperatures, and Safe Cooking of Meat”, 2011, Food Safety - One Health Kansas Conference, Olathe, Kansas

“A comparison of green teas from around the world”, 2nd Society of Sensory Professionals Conference, Napa, California, 2010, 2nd Society of Sensory Professionals Conference, Napa, California, 2010

“Developing a multi-country reference system using cheese”, 2nd Society of Sensory Professionals Conference, Napa, California, 2010

“Relationship of consumers’ food related attitudes in three countries to differences in hedonic ratings of jerky products”, 2nd Society of Sensory Professionals Conference, Napa, California, 2010

“Sensory characteristics and classification of plain yogurts”, 2nd Society of Sensory Professionals Conference, Napa, California, 2010

“Comparison of volatile aroma compounds in various green teas”, American Chemical Society, Washington D.C., 2009

“Adjusting texture scale references for Asian markets”, Society of Sensory Professionals Inaugural Conference, Cincinnati, OH, 2008.

“Response time: Does it add information to acceptance?”, Society of Sensory Professionals Inaugural Conference, Cincinnati, OH, 2008.

“Describing flavor using fewer and simpler terms: An example with cheese”, Society of Sensory Professionals Inaugural Conference, Cincinnati, OH, 2008.

“A comparison of basic taste modalities, using a descriptive analysis technique, for varying levels of sodium and KSC in two model soup systems”, Society of Sensory Professionals Inaugural Conference, Cincinnati, OH, 2008.

“Relationship between descriptive attributes and flavor volatiles of Thai rice”,

“Flavor changes of green tea during 2 years of storage”, Society of Sensory Professionals Inaugural Conference, Cincinnati, OH, 2008.

“A comparison of green tea preference maps for consumers in three countries”, Institute of Food Technologists Annual Meeting, New Orleans, LA, 2008.

- “Flavor characteristics of artisan goat cheese from the United States”. Institute of Food Technologists Annual Meeting, New Orleans, LA, 2008.
- “Comparisons of flavor volatiles of raw and cooked Thai rice of different varieties”. 235th ACS national Meeting, New Orleans, LA, 2008
- “Simplified lexicon to describe flavor characteristics of western European cheeses”, 7th Pangborn Sensory Science Symposium, Minneapolis, MN, 2007.
- “Flavor changes of green tea when brewed multiple times”, 7th Pangborn Sensory Science Symposium, Minneapolis, MN, 2007.
- “Flavor changes of green tea when brewed differently”, 7th Pangborn Sensory Science Symposium, Minneapolis, MN, 2007.
- “Consumer language selection for flavors associated with Potassium Chloride (KCL) in model soup systems”, 7th Pangborn Sensory Science Symposium, Minneapolis, MN, 2007.
- “Saltiness and sensory properties of mashed potatoes containing sea, kosher, or table salts”, Institute of Food Technologists Annual Meeting, Chicago, IL, 2007.
- “Comparison of Sensory Properties of UHT Milk from Different Countries”, Institute of Food Technologists Annual Meeting, Chicago, IL, 2007.
- “Flavor characteristics of commercial fresh and dried mushrooms”, Institute of Food Technologists Annual Meeting, Orlando, FL, 2006.
- “Pregnant Women’s and Seniors’ Storage Practices for Refrigerated Ready-to-Eat Foods: Results of a Web-Enabled Panel Survey”, Reaching At-Risk Audiences and Today’s Other Food Safety Challenges, Denver, CO, 2006.
- “Storage practices for smoked seafood: Results from a web-based survey”, Association of Research Directors, 14th Biennial Research Symposium, Atlanta, GA, 2006.
- “Consumers food safety and home refrigeration practices: results of a web-based survey” American Dietetic Association Annual Meeting, Honolulu, HI, 2006.
- “Characterization and comparison of typical ice creams available in Italy and the United States”, Institute of Technologist Annual Meeting, New Orleans, 2005.
- “Consumer attitudes and factors influencing meat use”, Institute of Technologies Annual Meeting, New Orleans, 2005.
- “Quantification of volatile flavor compounds in fresh and different off-flavor low fat milks”, ADSA ASAS PSA Annual Meeting, St. Louis, 2004.
- “Serving temperature effects on milk flavor, milk aftertaste, and volatile compound quantification in nonfat and whole milk”, ADSA ASAS PSA Annual Meeting, St. Louis 2004.
- “Effect of shiitake (*Lentinus edodes* P.) mushroom powder and sodium tripolyphosphate on texture and flavor of pork patties”, Institute of Food Technologists Annual Meeting, Las Vegas. 2004.
- “Descriptive sensory characteristics of beef jerky prepared by different methods”, Institute of Food Technologists Annual Meeting, Las Vegas, 2004.
- “Sensory characteristics of chemical compounds potentially associated with “beany” flavor in foods”, Institute of Food Technologists Annual Meeting, Chicago, 2003.
- “Effects of repeated product consumption: Measuring the potential for introducing an unfamiliar flavor into a market”, Institute of Food Technologists Annual Meeting, Chicago, 2003.
- “Development and evaluation of wheat protein beverage”, Institute of Food Technologists Annual Meeting, Chicago, 2003.

- “Adapting a lexicon for the flavor description of French cheeses: A useful tool for cheese categorization, classification and promotion”, Institute of Food Technologists Annual Meeting, Chicago, 2003
- “Comparing Korean and U.S. consumers perceptions of pork with added phosphate and mushroom”, 5th International Sensory Sciences Symposium, Boston, Massachusetts, 2003.
- “Categorization of commercial orange juice based on sensory flavor characteristics”, Institute of Food Technologists Annual Meeting, Anaheim, California, 2002.
- “Sensory characteristics of commercial and “fresh” soymilks”, Institute of Food Technologists Annual Meeting, Anaheim, California, 2002.
- “Milk pasteurization affects flavor properties of commercial French cheeses”, Institute of Food Technologists Annual Meeting, Anaheim, California, 2002.
- “Residual toothpaste flavor and its effect on flavor profiles of common foods and beverages”, Institute of Food Technologists, New Orleans 2001 (Winner Sensory Evaluation Graduate Student Research Competition).
- “Using sensory analysis to develop more successful pizza for children”, SSE Inc., Marshall, MN, 2001.
- “Developing guidelines for creating and modifying nutrition education displays for low income families”, Society for Nutrition Education Annual Meeting, Charleston, SC, 2000
- “Issues in accreditation and certification for sensory analysis”, ASTM seminar, Toronto, Canada, 2000.
- “Sensory testing for product success”, SSE Inc. Research Seminar, Marshall, MN, 2000
- “The importance and use of descriptive sensory analysis in quality assessment”, PacifiChem, Honolulu, 2000.
- “Increased training of descriptive panelists improves performance”, Institute of Food Technologists Annual Meeting, Chicago, IL, 1999.
- “Evaluating the Flavor of Meat”, American Meat Science Association 52nd Annual Reciprocal Meat Conference, Stillwater, OK, 1999.
- “Sensory characterization of smokiness in foods”, Institute of Foods Technologists, Atlanta, GA, 1998.
- “Effects of time and interstimulus rinsing on perception of capsaicin heat in tomato salsa”, Institute of Foods Technologists, Atlanta, GA, 1998.
- “Effect of product presence on trade-off analysis of concepts: A case study with frankfurters”, International Food Technologist Annual Meeting, Orlando, FL, 1997.
- “Sensory analysis fundamentals: Procedures and uses”, US Department of Commerce Seminar for Standards Representatives from Russia and the Newly Independent States, Manhattan, KS, 1996.
- “How to use sensory analysis in your business”, Kansas Food Processors Workshop, Manhattan, KS, 1996.
- "Sensory analysis: Procedures and protocols", Kellogg's Latin America Research and Development Conference, Anaheim, CA, 1995.
- "Saltiness of foods containing selected sodium salts of varying anion size", Institute of Food Technologists Annual Meeting, Chicago, IL, 1993.
- "Determination of the sensory attributes of cheese flavor and classification of cheese based on flavor", Institute of Foods Technologists Annual Meeting, New Orleans, LA, 1992.

Outside the U.S.

- “Using Wordle to Analyze CATA Data: An Example with Olive Oil, 11th Pangborn Sensory Science Symposium, Gothenburg, Sweden, 2015
- “Consumer Behavior when Shopping for and Storing Poultry may Result in Cross-Contamination, IAFP, Cardiff, Wales, 2015
- “Sensory Characteristics and Classification of Plain Yogurts”, Food Innovation Asia, Bangkok, Thailand, 2014
- “Consumer Food Safety: Global Interest and Individual Realities”, Global Food Safety Conference, Barcelona, Spain, 2013
- “Using Sensory Methods to Study Cross Cultural Food Safety Behaviors, 10th Pangborn Sensory Science Symposium, Rio de Janeiro, Brazil, 2013
- “Using Sensory Techniques in a Cross Cultural Study of Korean and American Food Safety Habits”. SPISE, Ho Chi Minh City, Viet Nam, 2012.
- “Milk Aftertaste: Relating Descriptive Sensory Data to Teenage Girls’ Acceptability of Milk”. SPISE, Ho Chi Minh City, Viet Nam, 2012.
- “Comparing Food Safety Behavior of Female Elderly in the US and Republic of Korea”, Seventh Dubai International Food Safety Conference and IAFP’s First Middle East Symposium on Food Safety, Dubai, United Arab Emirates, 2012
- Key Note Speaker “Effect of Information on Consumer Response in the U.S. to Beverages Containing Functional Ingredients”, Food and Function, Kosice, Slovakia, 2011
- “Foods from Around the World”, Tallinn University of Technology Seminar, Tallinn, Estonia, 2011
- “Flavor of Estonian Cheeses” European FLAVOUR Conference, Tallin, Estonia, 2011
- “Flavor Diversity and Acceptance of Estonian Cheeses”, 8th International Cheese Symposium, Cork, Ireland, 2011
- “Flavor Characterization of Diverse Goat Cheeses in the United States” 8th International Cheese Symposium, Cork, Ireland, 2011
- “Comparison of Sensory Attributes in Fresh Mangoes and Heat-treated Mango Purees from Various Cultivars” 9th Pangborn Sensory Science Symposium, Toronto, Canada, 2011
- “Defining and Characterizing the ‘Nutty’ Attribute Across Food Categories” 9th Pangborn Sensory Science Symposium, Toronto, Canada, 2011 (presentation in September)
- “Designing and maintaining a sensory program”, 3rd Joint Estonia/Finnish Product Development Conference, Tallin, Estonia, 2010
- “Issues in establishing a sensory program”, Malaysian Conference on Sensory Analysis, Kuala Lumpur, Malaysia, 2010
- “Few differences in sensory or chemical composition of organic or conventionally grown pac choy (bok choy) during 18 days of refrigerated storage” 4th European Conference on Sensory Evaluation, Vittoria-Gastiz, Spain, 2010
- “Condimental Vegetable Flavors in Kimchi“. Condimental Vegetables Research Center Conference, Sunchoen, South Korea, 2009
- “Flavor changes of green tea when brewed multiple times”. SPISE, HoChiMinh City, Viet Nam, 2009.
- “A comparison of green tea preferences in Thailand, Korea, and the United States”. 47th Kasetsart University Annual Conference. Bangkok, Thailand, 2009
- “The impact of food information on consumer acceptance scores for beef jerky with Thailand, Korea and US consumers”, 8th Pangborn Sensory Science Symposium, Florence, Italy 2009

- “Flavor changes of green tea when brewed at different temperatures and time”, Food Innovation Asia, Bangkok, Thailand, 2009
- “Perceptual sensory mapping of green teas from various countries”, 14th World Congress of Food Science and Technology, Shanghai, China, 2008.
- “A lexicon for flavor descriptive analysis of green tea”, Summer Program In Sensory Evaluation, HoChiMinh-City, Vietnam, 2007.
- “Knowledge and practice of in-home food safety by consumers”, 10th European Nutrition Conference. Paris, France, 2007.
- “Testing products from around the world”, 1st Thailand Sensory Network Symposium, Bangkok, Thailand, 2006.
- “Cheese production and use”, Suncheon National University Research Seminar, Suncheon, South Korea, 2006.
- “Flavor description and classification of cheese from around the world”, Agriculture Workshop, Suncheon National University, Suncheon, South Korea, 2006.
- “Consumer knowledge and use of dates on product packaging: Results of a web-based survey”, International Association for Food Protection Conference, 53rd Annual Meeting, Calgary, Alberta, Canada, 2006.
- “An in-home investigation of the conditions under which refrigerated foods are stored”, International Association for Food Protection Conference, 53rd Annual Meeting, Calgary, Alberta, Canada, 2006.
- “Consumer storage practices for refrigerated ready-to-eat foods: Results of a web-based survey of pregnant women”, International Association for Food Protection Conference, 53rd Annual Meeting, Calgary, Alberta, Canada, 2006.
- “Application of sensory analysis for small businesses”, Suncheon National University, Small Business Seminar, Suncheon, South Korea, 2005.
- “Application of sensory analysis”, Suncheon National University, Department of Plant Sciences, Suncheon, South Korea, 2005.
- “Flavor description and classification of selected natural cheeses”, International Conference on Culinary Arts and Sciences, Warsaw, Poland, 2005.
- “U.S. consumer acceptance of different qualities of green tea from Japan, Korea, and China”, AmorePacific Corporation, Management Seminar, Seoul, South Korea. 2005.
- “Descriptive analysis of green teas from Japan, Korea, and China”, AmorePacific Corporation, Management Seminar, Seoul, South Korea. 2005.
- “An overview of sensory analysis in the evaluation of green teas”, Suncheon National University, Department of Plant Sciences, Suncheon, South Korea. 2005.
- “Sensory perception and evaluation”, Suncheon National University, Suncheon, South Korea, 2004.
- “Milk aftertaste: Relating descriptive analysis data to acceptability of milk to teenaged girls”, 2nd International Conference on Functional Foods, Jeju Island, South Korea. 2004.
- “Characterization Italian ice creams”, A Sense of Identity, European Conference on Sensory Science of Food and Beverage, Florence, Italy, 2004.
- “Validation of a diary record for chocolate snack consumption”, Fifth International Conference on Dietary Assessment Methods. Chiang Rai, Thailand, 2003.
- “Guidelines for creating nutrition education displays for low income populations”, International Conference on Poverty, Food, & Health in Welfare, Lisbon, Portugal, 2003.
- “A questionnaire for evaluation of nutrition education programs for low-income young children”, International Conference on Poverty, Food, & Health in Welfare. Lisbon, Portugal, 2003.

- “Consumer screening and selection”, Consumer Testing Workshop, Kasetsart University, Industrial Development and Food Institute, Bangkok, Thailand, 2003.
- “Product selection, preparation, and testing controls”, Consumer Testing Workshop, Kasetsart University, Industrial Development and Food Institute, Bangkok, Thailand, 2003.
- “Developing nutrition education displays: Similarities and differences between young and older adult populations”, Xth International Food Choice Conference, Wageningen, Netherlands, 2002.
- “Use of non-vitamin, non-mineral supplements and “medicinal” foods in the United States”, Xth International Food Choice Conference, Wageningen, Netherlands, 2002.
- “Measuring the interactions of products and concepts for food service”, International Congress on Culinary Arts and Sciences, Cairo, Egypt, 2001.
- “Comparison of consumers and descriptive sensory panelists for describing the ‘eating experience’ of products”, Third International Congress on Culinary Arts and Sciences, Cairo, Egypt, 2001.
- “Developing nutrition education displays: Similarities and differences between young and older adult populations”, International Congress of Nutrition, Vienna, Austria, 2001.
- “Flavor of common foods and beverages as affected by use of toothpaste.” The 4th Pangborn Sensory Science Symposium, Dijon, France, 2001.
- “Matching results of two independent highly trained sensory panels using different descriptive analysis methods”, The 4th Pangborn Sensory Science Symposium, Dijon, France, 2001.
- “Determination of the sensory attributes of selected commercial and “fresh” soymilks”, The 4th Pangborn Sensory Science Symposium, Dijon, France, 2001.
- “Adapting a lexicon for the flavor description of French cheeses and classification of French cheeses based on flavor”, The 4th Pangborn Sensory Science Symposium, Dijon, France, 2001.
- “Use of sensory analysis in product development”, Chulalongkorn University Research Seminar, Bangkok, Thailand, 2000.
- “Tracking contaminants that cause smoky and musty off-odors in foods”, United Nations Food and Agriculture Organization Food Data Conference, Rome, Italy, 1999.
- “Understanding Consumers: Fat Intake Using Diary Records for Snack Foods”, United Nations Food and Agriculture Organization Food Data Conference, Rome, Italy, 1999.
- “Measuring responses to food products and concepts: What do the interactions tell us?”, The 3rd Pangborn Sensory Science Symposium, Ålesund, Norway, 1998.
- “Development of a record form for tracking intake of snack foods over a period of several weeks”, Third International Conference on Dietary Assessment, Arnhem, Netherlands, 1998.
- “Sensory characteristics of chemical compounds associated with smoky aroma in foods”, 9th International Flavor Conference, Limnos, Greece, 1997.
- “Interactions of products and concepts and their effects on consumer trade-offs”, World Congress of Food Science and Technology, Budapest, Hungary, 1995.
- “Consumer use of package directions for familiar and unfamiliar food products”, ASTM Symposium on Sensory Applications to Packaging, Montreal, Canada, 1994.

Grants

- "Development of a Coffee Lexicon for Evaluating Climate, Production, and Processing Effects in Specialty Coffees", 2013-2015. \$85,000. Norman Borlaug Foundation (approved pending receipt of expanded proposal)
- "Development of science-based and consumer-focused messages to improve consumers' storage, handling, and preparation of poultry, eggs, and poultry products", 2012-2017. \$2,498,000. US Department of Agriculture (Co-Principal Investigator with S. Godwin, D. Chambers, and S. Cates)
- "Beef Flavor Workshop", 2013, \$35,000. Beef CheckOff.
- "Understanding international consumer needs and testing strategies for food product development", 2009-2012, \$140,370, US Department of Agriculture (Co-Principal Investigator with E. Chambers and K. Adhikari)
- "Evaluation of product characteristics", 1998 – 2018, \$178,240 Peryam & Kroll Research Inc. (with E. Chambers)
- "Food industry management enhancement program", 2008-2011, \$156,000, US Department of Agriculture (Co-Principal Investigator with Vincent Amanor-Boadu and Karen Schmidt)
- "Sensory characteristics of meat jerky and consumer preferences for jerky of health conscious and non-health conscious consumers in two countries", 2007-2009, \$2,500, Lewis (Frances A.) Research Fund – KSU Foundation.
- "Characterizing consumer handling, storage, and use of product labels and dates to develop risk communication messages for ready-to-eat foods" 2004-2007, \$ 597,890 United States Department of Agriculture (Principal Investigator from KSU with S. Godwin, R. Morales).
- "Keeping calcium in the diet – Perceptions of milk", 2002-2004, \$89,958, Kansas Health and Nutrition Fund (with K. Schmidt).
- "Quality of sulfuryl flouride (profume) treated wheat", 2000-2003, \$120,794, Dow Agrosiences (with S. Bhadrirajy, P. Seib, M. Willyard, D. Eustace, F. Padula).
- "Consumer perceptions of meat and meat products: A longitudinal follow-up", 2003, \$1,000, College of Human Ecology Internal Research Award (with E. Chambers and S. McGraw).
- "Re-engineering a basic food science course", 1999-2002, \$18,500. American Dietetics Association (R. Gould, E. Chambers, B. Barrett, D. Canter).
- "Evaluation of wheat protein as a beverage ingredient", 2001-2002, \$15,000, K-State Research and Extension (with T. Herald, F. Aramouni).
- "Focus group training", 1999-2000, \$15,025, Kansas Department on Aging (with E. Barrett).
- "Dietary interviews", 1998, \$5,600, Tennessee State University and United States Department of Agriculture.

Contracts

- In addition to contracts listed below, more than \$ 2,000,000 in contract fees for Sensory Testing through the Sensory Analysis Center
- "Sensory information assistance", 2000-2005, \$7,800, Penford Products Co. (with E. Chambers)
- "Sensory quality evaluation", 2000-2005, \$20,066, Bush Brothers and Company
- "Sensory analysis assistance", 2000-2004, \$106,749, SSE Foods Inc. (Schwan's/Tony's) (with E. Chambers)
- "Product evaluation", 2001-2003, \$9,375, Excel Corporation
- "Consumer testing assistance", 2001-2003, \$11,950, Lipton/Lawry's.
- "Product evaluation", 2001–2003, \$10,400, Hormel Foods Corporation

- “Evaluation of meat products”, 2000-2002, \$ 38,197, Farmland Foods Inc.
- “Quality of fresh cut fruit”, 2001, \$49,995, Chiquita Brands, Inc. (with E. Chambers).
- “Evaluation of products”, 2000-2002, \$45,000, Kraft Foods/Oscar Mayer.
- “Visual properties of food”, 1999-2000, \$67,180, SC Johnson Corp. (with E. Chambers).
- “Using discussion groups to match concepts and products”, 1999-2000, \$750, Farmland Industries.
- “Meat cooking time evaluation”, 1998-1999, \$2,000, Farmland Industries.

Family Nutrition Program Subgrants (Funded)

- “Developing videos for meat preparation”, 2003–2004, \$65,000 (with K. Walsten).
- “Cookin’ with skill”, 2002–2003, \$ 96,000, (with K. Walsten).
- “Understanding needs of participants for food preparation information”, 2001–2002, \$109,000, (E. Chambers and K. Walsten).
- “Improving visual information in nutrition education materials”, 1999-2000, \$61,000.
- “Nutrition for young, limited resource parents”, 1998-1999, \$76,000.