

CURRICULUM VITAE

Steven M. Downing
Associate Professor of Medical Education
University of Illinois at Chicago
Department of Medical Education (MC 591)
College of Medicine
808 South Wood Street
Chicago, Illinois 60612-7309
312.996.6428
E-mail: sdowning@uic.edu

EDUCATION

Ph.D. 1979	Educational Psychology Michigan State University, College of Education Major: Educational Psychology: Educational Measurement Minors: Medical Education, Statistics and Research Design, Learning Theory
M.S. 1973	Special Education Indiana University, School of Education
B.A. 1967	Classical Language Marian College

APPOINTMENTS

2002 - 2010 UIC-DME	Associate Professor of Medical Education University of Illinois at Chicago (UIC) Department of Medical Education (DME)
2001-2002 UIC-DME	Visiting Professor of Medical Education University of Illinois at Chicago (UIC) Department of Medical Education (DME)
2000 - 2001 D&A	Consultant Downing & Associates
1992- 2000 ABIM & ICE	Senior Psychometrician American Board of Internal Medicine (ABIM) Director and Senior Program Manager Institute for Clinical Evaluation (ICE)

1987-1992 NBME	Deputy Vice President Director, Department of Client Programs Senior Evaluation Officer National Board of Medical Examiners (NBME)
1986-1987 ACT	Director Health Programs Test Development Department American College Testing, Inc. (ACT)
1983-1987 ACT	Assistant Director Health Programs Test Development Department American College Testing, Inc. (ACT)
1979-1983 MSU-OMERAD	Assistant Professor (non-tenure track) Office of Medical Education Research and Development (OMERAD) Michigan State University, College of Human Medicine
1982-1983 MSU-GRAMEC	Director GRAMEC/OMERAD Office of Research Consultation Grand Rapids Area Medical Education Center (GRAMEC) Michigan State University, College of Human Medicine
1980-1982 MSU-GRAMEC	Coordinator of Educational Development Grand Rapids Area Medical Education Center (GRAMEC) Michigan State University, College of Human Medicine
1979-1980 MSU-GRAMEC	Coordinator of Surgical Education Grand Rapids Area Medical Education Center (GRAMEC) Michigan State University, College of Human Medicine
1976-1979 MSU-OMERAD	Specialist Emergency Medicine Certification Examination Project Michigan State University, College of Human Medicine, OMERAD
1975-1976 MSU-OMERAD	Graduate Research Assistant Michigan State University, College of Human Medicine, OMERAD
1974-1976 MSU-COE	Instructor, Educational Measurement Michigan State University, College of Education (COE)
1972-1975 MSU-OMERAD	Graduate Research Assistant Michigan State University, College of Human Medicine, OMERAD

PEER-REVIEWED PUBLICATIONS

Maatsch, J.L., Downing, S.M., Holmes, T. & Sprafka, S. Toward a testable theory of physician competence: **An experimental analysis of a criterion-referenced specialty certification library.** *Proceedings of the Seventeenth Annual Conference on Research in Medical Education*, 1978, 399-408.

Downing, S.M., & Maatsch, J.L. **The effects of clinically relevant multiple-choice items on the statistical discrimination of physician clinical competence.** *Proceedings of the Eighteenth Annual Conference on Research in Medical Education*, 1979, 124-129.

Downing, S.M. **The assessment of clinical competency on the emergency medicine specialty certification examination: Validity of clinically relevant multiple-choice items.** *Annals of Emergency Medicine*, 1980, 9, 554-556.

Downing, S.M., Mann, J.D., & Tomlinson, S. M. **The effect of academic preparation on medical technologists registry examination performance.** *American Journal of Medical Technology*, 1982, 48, 1105-1107.

Peirce, J.C., & Downing, S.M. **The evolution of competency in internal medicine: The validity of a clinical performance measure.** *Proceedings of the Twenty-First Annual Conference on Research in Medical Education*, 1982, 105-110.

Downing, S.M., English, D.C., & Dean, R.E. **Resident ratings of surgical faculty: Improved teaching effectiveness through feedback.** *The American Surgeon*, 1983, 49, 329-332.

Downing, S.M., Richards, R.K., Peirce, J.C., & Maatsch, J.L. **Development of a community-based office of research consultation.** *Journal of Medical Education*, 1983, 58, 902-904.

Downing, S., Maatsch, J., Huang, R., Barker, D., & Munger, B. **Reliability and validity of objective examinations.** *Proceedings of the Twenty-Third Annual Conference on Research in Medical Education*, 1984, 65-69.

Huang, R., Maatsch, J., Downing, S., Barker, D., & Munger, B. **Reliability and validity of ratings of physician performance.** *Proceedings of the Twenty-Third Annual Conference on Research in Medical Education*, 1984, 70-75.

Maatsch, J.L., Huang, R.R., Downing, S., Barker, D., & Munger, B. **The predictive validity of test formats and a psychometric theory of clinical competence.** *Proceedings of the Twenty-Third Conference on Research in Medical Education*, 1984, 76-82.

Maatsch, J.L., Huang, R.R., Downing, S.M., & Munger, B.S. **Examiner assessments of clinical performance: What do they tell us about clinical competence?** *Evaluation and Program Planning*, 1987, 10, 13-17.

Haladyna, T.M., Downing, S.M. **A taxonomy of multiple-choice item-writing rules.** *Applied Measurement in Education*, 1989, 2, 37-50.

Haladyna, T.M., Downing, S.M. **Validity of a taxonomy of multiple-choice item-writing rules.** *Applied Measurement in Education*, 1989, 2, 51-78.

Dawson-Saunders, B., Nungester, R.J., & Downing, S.M. **A Comparison of single best answer multiple-choice items (A-type) and complex multiple-choice items (K-type).** *Proceedings of the Twenty-Eighth Annual Conference on Research in Medical Education*, 1989, 161-166.

Case, S.M., & Downing, S.M. **Performance of various multiple-choice item types on medical specialty examinations: Types A,B,C, K, and X.** *Proceedings of the Twenty-Eighth Annual Conference on Research in Medical Education*, 1989, 167-172.

Downing, S.M. **True-False, alternate-choice and multiple-choice items: A research perspective.** *Educational Measurement: Issues and Practice*, 1992, 11, 27-30.

Haladyna, T.M. & Downing, S.M. **How many options is enough for a multiple-choice test item?** *Educational and Psychological Measurement*, 1993, 53, 999-1010.

Zipes, D.P., Downing, S.M., Kangilaski, R., & Norcini, J.J. **The first cardiac electrophysiology examination for added qualifications: American Board of Internal Medicine.** *Pacing and Clinical Electrophysiology*, 1994, 17(8), 1327-1331.

Downing, S.M. & Haladyna, T.M. **Evaluating Licensure and Certification Examination Programs.** *CLEAR Exam Review*, 1995, VI(1), 23-26.

Downing, S.M., Baranowski, R.A., Grosso, L.J., & Norcini, J.J. **Item type and cognitive ability measured: The validity evidence for multiple true-false items in medical specialty certification.** *Applied Measurement in Education*, 1995, 8, 189-199.

Downing, S.M. & Haladyna, T.M. **A model for evaluating high-stakes testing programs: Why the fox should not guard the chicken coop.** *Educational Measurement Issues and Practice*, 1996, 15(1), 5-12.

Downing, S.M., Norcini, J.J., Kangilaski, R., Popp, R.L., & Cheitlin, M.D. **Still-frame simulation of cardiac motion studies: Validity evidence from the Cardiovascular Disease Certification Examination.** *Academic Medicine*, 1996, 71(1), s43-45.

Norcini, J.J., & Downing, S.M. **The relationship between training program characteristics and scores on the Cardiovascular Disease Certifying Examination.** *Academic Medicine*, 1996, 71(1), s46-48.

Norcini, J.J, Lipner, R.S., & Downing, S.M. **How meaningful are scores on a take-home recertification examination?** *Academic Medicine*, 1996, 71(10), s71-73.

Downing, S.M. **Test validity evidence: What about face validity?** *CLEAR Exam Review*, 1996, VII (2), 31-33.

Downing, S.M. & Haladyna, T.M. **Test item development: Validity evidence from quality assurance procedures.** *Applied Measurement in Education*, 1997, 10(1),61-82.

Haladyna, T.M., Downing, S.M., Rodriguez, M.C. **A review of multiple-choice item-writing guidelines for classroom assessment.** *Applied Measurement in Education*. 2002, 15(3), 309-333.

Downing, S.M., **Threats to the validity of locally developed multiple-choice tests in medical education: Construct-irrelevant variance and construct underrepresentation.** *Advances in Health Sciences Education*. 2002, 7, 235-241.

Downing, S.M. **Construct-irrelevant variance and flawed test questions: Do multiple-choice item writing principles make any difference?** *Academic Medicine*. 2002, 77(10), S103-104.

Downing, S.M. **Guessing on selected-response examinations.** *Medical Education*. 2003, 37:670-671.

Downing, S.M. **Item Response Theory: Applications of modern test theory in medical education.** *Medical Education*. 2003, 37:739-745.

Downing, S.M. **Validity: On the meaningful interpretation of assessment data.** *Medical Education*. 2003, 37:830-837.

Downing, S.M., Lieska, N.G., & Raible, M.D. **Establishing passing standards for classroom achievement tests in medical education: A comparative study of four methods.** *Academic Medicine*. 2003, 78, s85-87.

McGaghie, W.C., Downing, S.M., & Kubilius, R. **What is the impact of commercial test preparation courses on medical examination performance?** *Teaching and Learning in Medicine*. 2004, 16(2), 202-211.

Downing, S.M., & Haladyna, T.M. **Validity threats: Overcoming interference with proposed interpretations of assessment data.** *Medical Education*. 2004, 38:327-333.

Yudkowsky, R., Downing, S., Klamen, D., Valaski, M., Eulenberg, B., & Popa, M. **Assessing the head-to-toe physical examination skills of medical students.** *Medical Teacher.* 2004, 26(5): 415-419.

Haladyna, T.M. & Downing, S.M. **Construct-irrelevant variance in high-stakes testing.** *Educational Measurement: Issues and Practice.* 2004, 23(1): 17-27.

Holzman, G.B., Downing, S.M., Power, M.J., Williams, S.B., Carpentieri, A., & Schulkin, J. **Resident performance on the CREOG in-training examination: Years 1996-2002.** *American Journal of Obstetrics and Gynecology.* 2004, 191: 359-363.

Downing, S.M. **Reliability: On the reproducibility of assessment data.** *Medical Education.* 2004, 38: 1006-1012.

Auewarakul, C., Downing, S.M., Jaturatumrong, U., & Praditsuwan, R. **Sources of validity evidence for an internal medicine student evaluation system: An evaluative study of assessment methods.** *Medical Education.* 2005, 39: 276-283.

Hasnain, M., Connell, K.J., Downing, S.M., Olthoff, A., & Yudkowsky, R. **Toward meaningful evaluation of clinical competence: The role of direct observation in clerkship ratings.** *Academic Medicine.* 2004, 79(10): S21-S24.

Downing, S.M. **Threats to the validity of clinical teaching assessments: What about rater error?** *Medical Education.* 2005, 39: 353-355.

Downing, S.M. **The effects of violating standard item writing principles on tests and students: The consequences of using flawed test items on achievement examinations in medical education.** *Advances in Health Sciences Education.* 2005, 10:133-143.

Auewarakul, C., Downing, S.M., Praditsuwan, R., & Jaturatumrong, U. **Item analysis to improve reliability for an internal medicine undergraduate OSCE.** *Advances in Health Sciences Education.* 2005, 10: 105-113.

Downing, S.M., Tekian, A., & Yudkowsky, R. **Procedures for establishing defensible absolute passing scores on performance examinations in health professions education.** *Teaching & Learning in Medicine.* 2006, 18(1): 50-57.

Downing, S.M. **Face validity of assessments: Faith-based interpretations or evidence-based science?** *Medical Education.* 2006, 40:7-8.

Stagnaro-Green, A.S. & Downing, S.M. **Use of flawed multiple-choice items by the *New England Journal of Medicine* for continuing medical education.** *Medical Teacher.* 2006, 2: 566-568.

Yudkowsky, R., Downing, S.M., & Ommert, D. **Prior experiences associated with residents' scores on a communication and interpersonal skill OSCE.** *Patient Education and Counseling.* 2006, 62:362-373.

Yudkowsky, R., Downing, S.M., & Sandlow, L.J. **Developing an Institution-based Assessment of Resident Communication and Interpersonal Skills.** *Academic Medicine.* 2006, 81: 1115-1122.

Sedlack, R.E., Baron, T.H., Downing, S.M., & Schwartz, A.J. **Validation of a colonoscopy simulation model for skills assessment.** *American Journal of Gastroenterology.* 2006, 101:1-11.

Iramaneerat, C., Yudkowsky, R., Myford, C., & Downing, S.M. Quality control of an osce using generalizability theory and many-faceted Rasch measurement. *Advances in Health Sciences Education.* 2008, 13(4): 479-493.

Yudkowsky, R., Downing, S.M., & Wirth, S. **Simpler standards for local performance examinations: The Yes/No Angoff and Whole-test Ebel.** *Teaching and Learning in Medicine.* 2008, 20(3):212-217.

Varkey, P., Natt, N., Lesnick, T., Downing, S. & Yudkowsky, R. **Validity evidence for an objective structured clinical examination to assess competency in systems-based practice and practice-based learning and improvement: A preliminary investigation.** *Academic Medicine.* 2008, 83(8): 775-780.

Yudkowsky, R., Downing, S.M., & Popescu, M. **Setting Standards for Performance Tests: A Pilot Study of a Three-level Angoff Method.** *Academic Medicine.* 2008, 83(10): s13-16.

Trudel, J.L., Bordage, G., & Downing, S.M. **Reliability and validity of key features cases for the self-assessment of colon and rectal surgeons.** *Annals of Surgery.* 2008, 248(2): 252-258.

Carriere, B., Gagnon, R., Charlin, B., Downing, S., & Bordage, G. **Assessing clinical reasoning: Validation of a script-concordance test in pediatric emergency medicine.** *Annals of Emergency Medicine.* 2009, 53(5): 647-652.

Fromme, H.B., Karani, R., & Downing, S.M. **Direct observation in medical education: Review of the literature and evidence for validity.** *Mount Sinai Journal of Medicine.* 2009, 76(4): 365-371.

Corcoran, J., Downing, S., Tekian, A, & DaRosa, D. **Composite score validity in clerkship grading.** *Academic Medicine.* 2009, 84(10): s120-123.

Korndorffer, James R., Kasten, S., & Downing, S. M. **Use of Validity in Surgical Education Literature: A Call for the Utilization of Consensus Standards.** *American Journal of Surgery.* 2010, 199(1): 99-104.

Dyrbye, L. N., Szydlo, D.W., Downing, Sloan, J.A., & Shanafelt, T.D. **Development and preliminary psychometric properties of a well-being index for medical students.** *BMC Medical Education.* 2010, 10:8.

Books - Edited

Downing, S.M. & Haladyna, T.M. (Eds.) (2006). *Handbook of Test Development.* Mahwah, NJ: Lawrence Erlbaum Associates.

- In Japanese translation, Hiroshi Ikeda, translation editor (2009)

Downing, S.M. & Yudkowsky, R. (Eds.) (2009). *Assessment in Health Professions Education.* New York and London: Routledge.

Book Chapters

LaDuca, A., Downing, S.M., & Henzel, T.R. (1995). **Systematic item writing and test construction.** In Impara, J.C (Ed.), *Licensure Testing: Purposes, Procedures, and Practices* (pp. 117-148). University of Nebraska-Lincoln: Buros Institute of Mental Measurements.

Downing, S.M. (2002). **Assessment of Knowledge with Written Test Forms.** In Norman, G.R., Van der Vleuten, C.P.M., Newble, D.I. (Eds.). *International Handbook for Research in Medical Education* (pp. 647-672). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Downing, S.M. (2006). **Twelve Steps for Effective Test Development.** In Downing, S.M. & Haladyna, T.M.. (Eds.). *Handbook of Test Development* (pp. 3-25). Mahwah, NJ: Lawrence Erlbaum Associates.

Downing, S.M. (2006). **Selected-Response Item Formats in Test Development.** In Downing, S.M. & Haladyna, T.M.. (Eds.). *Handbook of Test Development* (pp. 287-301). Mahwah, NJ: Lawrence Erlbaum Associates.

Downing, S.M. & Yudkowsky, R. (2009). **Introduction to Assessment in the Health Professions.** In Downing, S.M. & Yudkowsky, R. (Eds.) *Assessment in Health Professions Education* (pp. 1-20). New York and London: Routledge.

Downing, S.M. & Haladyna, T.M. (2009). **Validity and Its Threats.** In Downing, S.M. & Yudkowsky, R. (Eds.) *Assessment in Health Professions Education* (pp. 21-56). New York and

London: Routledge.

Downing, S.M. (2009). **Statistics of Testing.** In Downing, S.M. & Yudkowsky, R. (Eds.) *Assessment in Health Professions Education* (pp. 93-118). New York and London: Routledge.

Yudkowsky, R., Downing, S.M. & Tekian, A. (2009). **Standard Setting.** In Downing, S.M. & Yudkowsky, R. (Eds.) *Assessment in Health Professions Education* (pp. 119-148). New York and London: Routledge.

Downing, S.M. (2009). **Written Tests: Constructed-Response and Selected-Response Formats.** In Downing, S.M. & Yudkowsky, R. (Eds.) *Assessment in Health Professions Education* (pp. 149-184). New York and London: Routledge.

Kasten, S.J., Korndorffer, J.K., & Downing, S. (2010). **Validity: Giving Meaning to Assessments.** *Guide for Researchers in Surgical Education* (pp. 99-114). Woodbury, CT: Ciné-Med Publishing.

Downing, S.M. (2010). **Test Development.** In Baker, E., Peterson, P. & McGaw, B. (Eds.). *International Encyclopedia of Education*, 3d Ed.. Oxford, UK: Elsevier

Other Publications: Non-Peer Reviewed

Downing, S.M. (1998). [Review of the book *Certification: A NOCA Handbook*]. *Journal of Educational Measurement*. 35(1), 89-92.

Downing, S.M. **Passing Standards for Small Testing Programs: Maintaining a Level Playing Field.** *NOCA News*. February, 2004: 10-11.

Kamin, C. & Downing, S. (2009). **A History of the Department of Medical Education (DME) at the University of Illinois College of Medicine (UIC): Contribution to Moving the Field Forward.** In Schwartz, A (Ed.) *Moving Medical Education Forward* (pp. 15-18). Chicago: UIC Department of Medical Education, College of Medicine.

Unpublished Reports

Downing, S.M. (1977). **Multiple-Choice Item Writing Handbook.** E. Lansing, MI: Michigan State University, Office of Medical Education Research and Development.

Downing, S.M. (1979). **An Analysis of the Effects of Different Multiple-Choice Item Selection Strategies on the Reliability and Validity of Measures of Physician Competence in Specialty Certification.** Unpublished doctoral dissertation, Michigan State University, College of Education.

Maatsch, J.L., Huang, R., Downing, S.M., & Barker, D. (June, 1983). **Predictive Validity of Medical Specialty Examinations: A Final Report.** Grant No. HS 02038-04, National Center of Health Services Research, Michigan State University, Office of Medical Education Research and Development.

Downing, S.M. (2000). **Item Writing Handbook: Principles of Effective Item Writing.** Metuchen, NJ: Sunrise Systems, Inc.

Peer-Reviewed Paper Presentations

Hunter, R.F., Hunter, J.E., Downing, S.M., Lopis, J.E., & Wilson, F.R. **An inventory to measure attitudes toward leadership training in a classroom setting.** A paper presented at the annual meeting of the Midwestern Society of Multivariate Experimental Psychology, Chicago, IL, 1977.

Wilson, P.W., Downing, S.M., & Ebel, R.L. **An empirical adjustment of the Kuder-Richardson 21 reliability coefficient to better estimate the Kuder-Richardson 20 coefficient.** A paper presented at the annual meeting of the American Educational Research Association, Toronto, Ontario, Canada, 1979.

Downing, S.M., & Dean, R.E. **Faculty evaluation model for a university-affiliated general surgery residency program.** A paper presented at the annual meeting of the Midwest Surgical Association, Mackinac Island, MI, 1980.

Downing, S.M., & Ebel, R.L. **The usefulness of an external item analysis criterion in the construction of measures of professional competence.** A paper presented at the annual meeting of the American Educational Research Association, Boston, MA, 1980.

Downing, S.M. **Faculty development with community faculty: An adult education approach.** A paper presented at the annual meeting of the Generalists in Medical Education, Washington, D.C., 1981.

Maatsch, J.L., & Downing, S.M. **Measuring physician competence.** A paper presented at the Third Annual British Virgin Islands Medical Conference, Roadtown, Tortola, British Virgin Islands, 1981.

Peirce, J.C., & Downing, S.M. **The evolution of competency in internal medicine: Theoretical considerations and initial studies.** A paper presented at the annual meeting of the Association of Program Directors in Internal Medicine, San Francisco, CA, 1983.

Downing, S.M., & Goldstein, J.C. **A microcomputer application in continuing medical education: A computerized patient-management problem.** A paper presented at the Eighth Annual Symposium on Computer Applications in Medical Care, Washington, D.C., 1984.

Haladyna, T.M., & Downing, S.M. **A quantitative synthesis of research on multiple-choice item writing.** A paper presented at the annual meeting of the American Psychological Association, Toronto, Ontario, Canada, 1984.

Mann, J.D., Downing, S.M., & Springer, J.R. **Influence of personality on surgical judgment in the performance of celiotomy for suspected appendicitis.** A paper presented at the annual meeting of the American Psychological Association, Toronto, Ontario, Canada, 1984.

Haladyna, T.M., & Downing, S.M. **A quantitative review of research on multiple-choice item writing.** A paper presented at the annual meeting of the American Educational Research Association, Chicago, IL, 1985.

Downing, S.M., Maatsch, J.L., Huang, R., & Munger, B.S. **The development of a criterion-referenced specialty certification examination in emergency medicine.** A paper presented at the international conference of the World Federation for Medical Education, Ottawa, Ontario, Canada, 1985.

Maatsch, J.L., Huang, R., Downing, S.M., & Munger, B.S. **Studies of the reliability and validity of examiner assessments of clinical performance: What do they tell us about clinical competence?** A paper presented at the international conference of the World Federation for Medical Education, Ottawa, Ontario, Canada, 1985.

Munger, B.S., Maatsch, J.L., Huang, R., & Downing, S.M. **The predictive validity of a criterion-referenced specialty certification examination in emergency medicine.** A paper presented at the international conference of the World Federation for Medical Education, Ottawa, Ontario, Canada, 1985.

Haladyna, T.M., & Downing, S.M. **Functional distractors: Implications for test-item writing and test design.** A paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA, 1988.

Downing, S.M. **Teaching versus assessment: Implications of releasing test items for an in-training examination.** A paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA, 1988.

Downing, S.M. **Practical approaches to standard setting: Norm-referenced approaches.** Presented at the annual meeting of the American Educational Research Association, New Orleans, LA, 1988.

Downing, S.M., **True-false and alternate-choice formats: A review of the research.** In G. Sax (Chair), *Expanding the Technology for Test-Item Writing*. A symposium conducted at the annual meeting of the National Council on Measurement in Education, Boston, MA, 1990.

Downing, S.M., **Beyond the Bubble: New Directions for Competency Testing.** Presented at the annual meeting of the National Clearinghouse on Licensure, Enforcement and Regulation (CLEAR), Seattle, WA, September, 1990.

Downing, S.M., Dawson-Saunders, B., Case, S.M., & Powell, R.D. **The psychometric effects of negative stems, unfocused questions, and heterogeneous options on NBME Part I and Part II characteristics.** A paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL, 1991.

Downing, S.M., **Alternate-choice items: Do fewer options yield more efficient measurements?** In J. Veloski (Chair), *Alternatives to the five option MCQ: Fewer options, more options or none of the above?* A symposium conducted at the annual meeting of the National Council on Measurement in Education, Chicago, IL, 1991.

Downing, S.M., **Exploration of alternative standard setting methods for clinical simulations.** In A. LaDuca (Chair), *Strategies for setting standards on performance assessments of physicians' clinical skills*. A symposium conducted at the annual meeting of the Generalists in Medical Education, New Orleans, LA, 1992.

Downing, S.M. **What steps can be taken to enhance examination security?** In L. Grosso (Chair), *A security breach on a "high-stakes" test: Prevention, Detection, Cost*. A symposium conducted at the annual meeting of the American Educational Research Association, Atlanta, GA, 1993.

Downing, S.M., Case, S.M., Norcini, J.J., & Veloski, J. **Objective item types for achievement measurement in the health professions: Matching formats to content.** A symposium presented at the annual meeting of the Generalists in Medical Education, Washington, DC, 1993.

Subhiyah, R.G., & Downing, S.M. **K-type and A-type items: Comparing psychometric characteristics in a certification examination setting.** A paper presented at the annual meeting of the National Council on Measurement in Education, Atlanta GA, 1993.

Baranowski, R.A., Downing, S.M., Grosso, L.J., Poniatowski, P.A., & Norcini, J.J. **Item type and ability measured: The validity of multiple true-false items.** A paper presented at the annual meeting of the National Council on Measurement in Education, 1994.

Downing, S.M., Grosso, L.J., Norcini, J.J. **Multiple true-false items: Validity in medical specialty certification.** A paper presented at the annual meeting of the National Council on Measurement in Education, 1994.

Downing, S.M., & Haladyna, T.M. **Test item development: Validity evidence from quality assurance procedures.** In T. Haladyna (Chair), Validating Licensing and Certification Test Score Interpretations and Decisions. A symposium conducted at the annual meeting of the American Educational Research Association, San Francisco, 1995.

Downing, S.M., & Norcini, J.J. **The dependability of absolute passing scores: An efficient standard setting method using item relevance ratings.** A paper presented at the annual meeting of the American Educational Research Association, New York, 1996.

Subhiyah, R.G., Featherman, C.M., Reshetar, R., Arnold, G., & Downing, S.M. **Modern testing applications in medical education.** A skills acquisition session presented at the seventeenth annual conference for Generalists in Medical Education, San Francisco, 1996.

Downing, S.M., & Baranowski, R.A. **Qualitative evidence of test item validity.** A skills acquisition session presented at the seventeenth annual conference for Generalists in Medical Education, San Francisco, 1996.

Downing, S.M. **Using item analysis data to improve take-home exams.** In S.M. Downing (Chair), Issues in Measurement: Using Take-Home Examinations in the Recertification Process. A symposium conducted at the annual meeting of the American Educational Research Association, Chicago, 1997.

Downing, S.M., & Baranowski, R.A. **Developing tests in the changing world of medical education: A collaborative model.** A skills acquisition session presented at the eighteenth annual conference for Generalists in Medical Education, Washington, DC, 1997.

Downing, S.M., & Norcini, J.J. **Constructed response or multiple-choice: Does the format make a difference for prediction.** In T. Haladyna (Chair), Constructed Response or Multiple-Choice: A Research Synthesis. A symposium conducted at the annual meeting of the American Educational Research Association, San Diego, 1998.

Downing, S., Reshetar, R., Guille, R., Norcini, J., Fierman, C., & Feldman, M. **A efficient group-consensus procedure for establishing absolute passing standards.** A paper presented at the Eighth International Ottawa Conference on Medical Education and Assessment, Philadelphia, July, 1998.

Downing, S.M., Reshetar, R.A., Guille, R.A., & Norcini, J.J. **The effect of reusing identical multiple-choice questions on high-stakes certification examinations.** A paper presented at the 109th Annual Meeting of the Association of American Medical Colleges, New Orleans, LA, November, 1998.

Reshetar, R.A., Guille, R.A., Downing, S.M. & Norcini, J.J. **Trends in the percentages and performance of USMGs and IMGs attempting internal medicine subspecialty certification 1989 through 1997.** A paper presented at the 109th Annual Meeting of the Association of American Medical Colleges, New Orleans, LA, November, 1998.

Baranowski, R.A., & Downing, S.M.. **A computerized assessment of electrocardiographic interpretation.** In R. Reshetar and L. Gross (Chairs), Practical issues in implementing small-scale, high-stakes computerized testing programs. A symposium conducted at the annual meeting of the American Educational Research Association, Montreal, CA, April, 1999.

Downing, S.M., Yudkowsky, R., Klamen, D., & Valaski, M. **Head-to-toe standardized patient examinations: Some scaling issues.** A paper presented at the 10th Ottawa Conference on Medical Education, Ottawa, Ontario, Canada, July, 2002.

Yudkowsky, R., Downing, S.M., Klamen, D., & Valaski, M. **Factors underlying a measure of interpersonal skill during a head-to-toe standardized patient examination.** A paper presented at the 10th Ottawa Conference on Medical Education, Ottawa, Ontario, Canada, July, 2002.

McGaghie, W., Downing, S.M., & Kubilius, R. **What is the impact of commercial test preparation courses on medical examination performance?** A paper presented at the Association of American Medical Colleges Central Region Group on Educational Affairs spring meeting, Iowa City, IA, March, 2003.

Yudkowsky, R., Sandlow, L., Downing, S., Eulenberg, B., Olthoff, A., Ommert, D. & Popa, M. **An institution-wide assessment of residents' interpersonal and communication skills.** A paper presented at the Association of American Medical Colleges Central Region Group on Educational Affairs spring meeting, Iowa City, IA, March, 2003.

Yudkowsky, R., Eulenberg, B., & Downing, S. **An Institution-Wide Assessment of Residents' Interpersonal and Communication Skills.** Poster presentation at the Annual Meeting of the Association of Standardized Patient Educators, Virginia Beach, VA, July, 2003.

Tekian, A., Downing, S.M., & Yudkowsky, R. **Establishing Effective and Defensible Passing Standards or Grading Levels.** Small group discussion paper presentation at the Annual Meeting of the Association of American Medical Colleges, GEA/GSA, Washington, DC, November, 2003.

Yudkowsky, R., Downing, S., Olthoff, A., & Ommert, D. **Does Prior Experience with Standardized Patients Affect Interpersonal and Communication Skill Ratings of Residents?** Paper presentation at the Annual Meeting of the Association of American Medical Colleges, GEA/GSA, Washington, DC, November, 2003.

Downing, S.M. **The Effects of Violating Standard Item-Writing Principles: The Impact of Flawed Test Items on Classroom Achievement Tests and Students.** Paper presentation at the Annual Meeting of the American Educational Research Association, San Diego, CA, April, 2004.

Carriere, B., Charlin, B., Gagnon, R., Downing, S., & Bordage, G. **Correlation between global evaluations of residents and their performance on a script concordance test in pediatric emergency medicine.** Paper presentation at the Fifth Annual MHPE Summer Conference, Chicago, IL, July, 2004.

Yudkowsky, R., Downing, S., Olthoff, A., & Ommert, D. **Does prior experience with standardized patients affect interpersonal and communication skill ratings of residents?** Paper presentation at the Fifth Annual MHPE Summer Conference, Chicago, IL, July, 2004

Stagnaro-Green, A., & Downing, S.M. **Use of flawed multiple-choice questions by the *New England Journal of Medicine* for continuing medical education.** Paper presentation at the Annual Meeting of the Association of American Medical Colleges, RIME, Boston, MA, November, 2004.

Stagnaro-Green, Deng, W., Downing, S.M., & Crosson, J. **Theoretical model evaluating the impact of weighted percent versus standard scores in determining third year clerkship grades.** Paper presentation at the Annual Meeting of the Association of American Medical Colleges, RIME, Boston, MA, November, 2004.

Yudkowsky, R., Downing, S.M., Auewarakul, C., & Lodhavia, T. **Using the Hofstee method to establish passing standards for a medical school clinical skills assessment.** Paper presentation at the Annual Meeting of the Association of American Medical Colleges, RIME, Boston, MA, November, 2004.

Yudkowsky R., Downing S.M, Auewarakul C., & Lodhavia T. **Using the Hofstee Method to Establish Passing Standards for a Medical School OSCE.** Abstract presented at the Annual Meeting of the Association of American Medical Colleges, RIME, Boston, MA, November, 2004.

Downing, S.M., Tekian, A., & Yudkowsky, R. **Establishing feasible, effective and defensible absolute passing standards for medical school performance examinations.** Workshop presented at the annual meeting of the Association of American Medical Colleges, GEA, Boston, MA, November, 2004.

Haladyna, T.M., & Downing, S.M. **Test Development 101: Planning a Testing Program.** Symposium presented at the annual meeting of the Association of Test Publishers, Scottsdale, AZ, February 28, 2005.

Downing, S.M., & Haladyna, T.M. **Planning and Developing a Testing Program.** Invited workshop presented at the annual meeting of the National Council on Measurement in Education, Montreal, CA, April, 2005.

Smidt-Afek, N., Parren, T., Snyder, C., Novak, T., Yudkowsky, R., & Downing, S. **Validity Evidence for a Communication Assessment Instrument.** Paper presentation at the annual meeting of the Society of Teachers of Family Medicine, New Orleans, LA, May, 2005.

Gilliand, W., Bordage, G, Downing, S., & Pangaro, L. **Simulated vs. Hospitalized Patients to Teach History Taking and Physical Exam Skills.** Paper presentation at the Sixth Annual MHPE Summer Conference, Chicago, IL, July, 2005.

Carriere, B., Bordage, G., Downing, S., Gagnon, R. & Charlin, B. **Correlation Between Script-Concordance-Tests (SCT) and global ratings of residents in emergency pediatrics.** Paper presentation at the Sixth Annual MHPE Summer Conference, Chicago, IL, July, 2005.

Trudel, J.L., Bordage, G., Downing, S. **Reliability and Validity of Key Features Cases for the Self-Assessment of Surgical Specialists.** Abstract presented at the Annual Meeting of the Association of American Medical Colleges, RIME, Washington, DC, November, 2005.

Downing, S.M. **Testlet Reliability: Estimating the Measurement Precision of Selected-Response Item Sets.** Paper presentation at the Annual Meeting of the American Educational Research Association, San Francisco, CA, April 2006.

Haladyna, T.M. & Downing, S.M. **Planning and Developing a Testing Program.** Workshop presented at the annual meeting of the National Council on Measurement in Education, San Francisco, CA, April 2006.

Yudkowsky, R., Downing, S.M., & Tekian, A. **Establishing Defensible Passing Standards for Medical School Performance Examinations.** Workshop presented at the 12th International Ottawa Conference on Clinical Competence, New York, NY, May 2006.

Kassam, N., Skakun, E., Downing, S., & Bordage, G. **Validity Evidence for an Undergraduate Internal Medicine OSCE.** Abstract presented at the Annual Meeting of the Association of American Medical Colleges, RIME, Seattle, WA, November, 2006.

Downing, S. M. **Assessment Methods and Issues; Politics and Policies of Grading.** Presentation, Association of Surgical Education, Toronto, Ontario, Canada, April, 2008.

Downing, S. M., Corcoran, J., & Schindler, N. **The Policies and Politics of Grading: Standard Setting in a Surgery Clerkship.** Workshop, Association of Surgical Education, Toronto, Ontario, Canada, April, 2008.

Dyrbye L.N., Shanafelt, T.D., Downing S., & Sloan J. **A Distress Index for Medical Students: Developments and Findings from a Content Validation Study.** Oral presentation, 2008 BMA-AMA-CMA International Conference on Doctors' Health: Doctors' Health Matters - Finding the Balance, London, November, 2008

Korndorffer, J.R., Kasten, S.J., & Downing, S.M. **Use of Validity in Surgical Education Literature: A Call for the Utilization of Consensus Standards.** Paper presentation at the Annual Meeting of the Association of Surgical Education, Salt Lake City, UT, April, 2009.

Corcoran, J., Schindler, N., & Downing, S. **Can Students at Risk of Failing a Surgery Clerkship be Identified at Midterm?** Poster presentation at the Annual Meeting of the Association of Surgical Education, 2010.

Funded Research

Downing, S.M., Principal Investigator & Georges Bordage, Co-investigator. **Content validity study of USMLE Step 1 Examinations.** Funding Agency: National Board of Medical Examiner. Term: September, 2002 to February, 2003.

Downing, S.M., Principal Investigator, Georges Bordage, & Anne Koerber. **Maximizing measurement efficiency and reliability: Optimum number of options for multiple-choice items and optimum number of items for case-based testlets.** Joint Commission on National Dental Examinations (JCNDDE)/American Dental Association (ADA). Term: September 15, 2006 to August 31, 2007. Award: \$29,488. Final Report: January, 2008.

Teaching

Spring, 2002: MHPE 494, Assessment Methods: With Reed Williams.

Summer, 2002: MHPE 494, Research Instrument Design: With Alan Schwartz.

Fall, 2002, MHPE 502, Instruction and Assessment: With Mark Gelula and Ara Tekian.

Summer, 2003: MHPE 494, Test Construction—Developing Objective Achievement Tests in the Health Professions. (New Course)

Summer, 2003: MHPE 494, Assessment Methods--Advanced (New Course)

Fall, 2003: MHPE 502, Instruction and Assessment (on-line): With Gelula and Tekian

Spring, 2004: MHPE 494, Assessment Methods—Advanced (on-line)

Spring, 2004: MHPE 596, Independent Study in Assessment – Clinical Assessment Methods (Julia Corcoran, MD, FACS)

Fall, 2004: MHPE 502, Instruction and Assessment: With Mark Gelula and Ara Tekian.

Fall, 2004: MHPE 494, Test Construction—Developing Objective Achievement Tests in the Health Professions. (on-line)

Fall, 2005: MHPE 502, Instruction and Assessment: With Mark Gelula and Ara Tekian. **(on-line)**

Fall, 2005: MHPE 494, Assessment Methods—Advanced (on campus)

Summer, 2006: MHPE 494, Test Construction—Developing Objective Achievement Tests in the Health Professions. (on-campus)

Fall, 2006: MHPE 502, Instruction and Assessment: With Mark Gelula and Ara Tekian. **(on-campus)**

Fall, 2006: MHPE 494, Assessment Methods—Advanced (on-line)

Summer, 2007: MHPE 494, Test Construction—Developing Objective Achievement Tests in the Health Professions. (on-campus)

Fall, 2007: MHPE 494, Assessment Methods—Advanced (on campus)

Fall, 2007: MHPE 502, Instruction and Assessment: With Mark Gelula and Ara Tekian. **(on-line)**

Fall, 2008: MHPE 502, Instruction and Assessment: With Ara Tekian. **(on campus)**

Spring, 2009: MHPE 494, Assessment Methods—Advanced (on-line)

Fall, 2009: MHPE 502, Instruction and Assessment: With Ara Tekian and Carol Kamin **(on-line)**

Summer 2010: MHPE 494, Assessment Methods—Advanced (on campus)

MHPE Thesis/Project Advisees

Main advisor, Narmin Kassam, MD, FRCPC. **Some validity evidence for an objective structured clinical examination (OSCE) from an internal medicine clerkship.** *Completed: February, 2003. Winner: Best Paper Award, 2003 MHPE Summer Conference*

Main advisor, Naomi Smidt-Afek, MD. **Evaluation of a communication skills assessment tool.** *Completed: July, 2003.*

Main advisor, Kenneth Faber, MD, FRCSC. **A comparison of generic and rotation specific forms for the assessment of orthopaedic resident performance.** *Completed August, 2004.*

Main Advisor: Saman Aziz, MD. **A Modified Ebel Standard Setting Method for Standardized Patient Examinations in Undergraduate Medical Education.** *Completed April 2005.*

Main Advisor: Julia Corcoran, MD. **Validity evidence of surgery assessments and relationship to other clerkship assessments.** *Completed 2008.*

Main Advisor: Ximena Trivino, MD. **Comparison of standard setting methods for an internal medicine OSCE.** *Completed July 2009.*

Main Advisor: Elspeth M. McDougall, MD. **Validity evidence for laparoscopic simulators.** *Completed August 2008.*

Main Advisor: Pam Lipsett, MD. Thesis topic: **Generalizability Theory and Qualitative Analysis to Gender in Multi-source Performance Assessments of Surgical Residents in Training** *Completed July 2010*

Main Advisor: Liselotte (Lotte) Dyrbye, MD. **Evaluation of a distress index for medical students.** *Completed March 2009.*

Main Advisor: Ramzi Sabra, MD. Thesis topic: **Reliability and Validity of a Structured Interview Used in Assessment of Non-cognitive Qualities of Applicants.** *Completed April 2010.*

Main Advisor: Pam Derstine, PhD. Thesis Topic: **Generalizability Issues in Ratings**

Main Advisor: James R. Korndorffer Jr. MD. Thesis topic: **Assessment in surgical education using simulators.**

Main Advisor: Claire Touchie, MD. Thesis topic: **Test Blueprinting.**

Main Advisor: Kevin Van Kanegan, DDS. Thesis topic: **Qualitative methods used for standard setting with portfolios.**

MHPE Thesis/Project Committee Member

Judith Trudel, MD – Completed October 2003
Rukhsana Zuberis, MD - Completed July 2002
William R. Gilliland, MD – Completed December 2003
Scott North, MD – Completed June 2004
J. Fred Watkins, MD – Completed October 2005
Melanie Richards, MD – Completed June 2005
Al DePolo, DO -- Completed September 2005
Benoit Carriere, MD, FRCPC – Completed May 2005
Cherdsak (Jom) Iramaneerat, MD – Completed March 2004
Alex Stagnaro-Green, MD – Completed June 2005
Robert E. Sedlack, MD – Completed July 2006
Melchor Sanchez-Mendiola, MD -- Completed December 2007
Prathibha Varkey, MD – Completed October 2007
Amy Turner – Completed October 2007
Alan Okrainec, MD -- Completed June 2009
Ayse Gurel, MD – Completed December 2009
Gilles Chiniara, MD – Completed July 2009
Annabelle Cumyn, MD – Completed March 2010
Albert Veron, MD -- Completed June 2009
Avinash Supe, MD
Monica Lypson, MD – January 2010

Doctoral Student Advisees: UIC College of Education

Sarah Austin – Dissertation: Hierarchies of Abilities and Activity Demands in Allen Diagnostic Module 2nd Ed.: A Validity Study. Completed August 2009

Cherdsak (Jom) Iramaneerat, MD, MHPE – Dissertation: A Validity Study of a Communications Skills Assessment of Medical Residents. Completed September 2007

Don Straub, PT. Dissertation: Test Development Issues in Physical Therapy

Other Advisees: ECFMG and Other Short-Term Fellows

Chirayu Auewarakul, MD, PhD: 2003, Validity issues for assessment systems in internal medicine, Faculty of Medicine, Siriraj Hospital, Thailand

Nirmal Baral, MD: 2003, Assessment issues at B.P. Koirala Institute of Health Sciences, Dharan, Nepal

Pairoj Boonluksiri, MD: Winter, 2004, Assessment issues, Hatyai Hospital, Songkhla, Thailand

Joyti Nagamoti, MD, PhD Cand: Summer, 2004, Performance Assessment, J. N. Medical College Belgaum, Karnataka, India

Uchenna Onwudiegwu, MB, Ch.B. 2004-05, Assessment Issues, Obafemi Awolowo University, Nigeria.

Suzette Mendoza, MD. 2004-05, Assessment Issues, University of the East/Ramon Magsaysay Memorial Medical Center, Quezon City, Philippines.

Service Commitments—Department of Medical Education and College of Medicine

COM Committee on Admissions, Elected member, 2004-2008

COM M1 Course Integration Steering Committee, Appointed member, 2005-2006

COM M2 Course Integration Steering Committee, Appointed member, 2005-2006

COM M1 and M2 Appraisal Committees, Appointed member, 2001-2005

COM Curriculum Committee, Elected member, 2009-

COM Committee on Instruction and Appraisal, Elected member, 2009

DME Advisory Committee, Elected Member, 2003-

DME Search Committees: Medical decision-making; Testing Service director, 2002, 2004

DME Search Committees: Two faculty positions, 2007

DME Promotions and Tenure Committee, Appointed member, 2002-2003; 2005-

DME International Affairs Committee, Member, 2002-2005

MHPE Admissions Committee, Member, 2001-2006

MHPE Curriculum Committee, 2004-2005

MHPE Faculty Affairs Committee, 2004-2005

MHPE Graduate Affairs Committee, 2005-

Clinical Performance Center, Technical consultant to staff, 2001-

Faculty Development: Assessment Topics with M1 and M2 faculty; Fall, 2003;

UICOM Rockford faculty, 2001, 2006

UIC Faculty Fellows, Assessment Issues, 2003-

Judge, UIC-COM Student Research Forum, 2005 - 2007

OTHER PROFESSIONAL ACTIVITIES

Professional Memberships

American Educational Research Association (AERA), 1973 -
Member, Division I Annual Meeting Program Committee, 2005-2006

National Council on Measurement in Education (NCME), 1973 -
Co-chair, NCME Membership Committee (2004-05)

Professional Journal/Paper Reviewer

1995-2006: American Educational Research Association, Division I; Division D
1995-2006: National Council on Measurement in Education
1995-2004: Research in Medical Education Section, AAMC
1998-2002: Ottawa Conference on Medical Education
2000- : *Journal of Educational Measurement*
2001- : *Teaching and Learning in Medicine*
2001- : *Advances in Health Professions Education*
2002- : *Medical Education*
2003-2005: *Educational Measurement* (4th Edition), Chapter reviewer: Licensure and
Certification Testing
2003- : *Applied Measurement in Education*
2004-2008: *Biomedical Central -- Medical Education*
2005- : *Journal of General Internal Medicine*
2005-2006: NBME Stemmler Fund for Medical Education
2006- : *Educational Assessment*
2006- : *Medical Teacher*
2009- : *International Journal of Testing*

Invited Professional Conference Session Chair and/or Discussant

1995-2007: American Educational Research Association
1995-1999: National Council on Measurement in Education
1995-2004: Research in Medical Education Section, Association of American
Medical Colleges
1998-2002: Ottawa Conference on Medical Education
2002- : UIC-MHPE Summer Conference
2006 UIC-DME-MHPE Summer Conference, Chairman

Selected Consultations

American Council on Education (GED), 2007
American Board of Cosmetic Surgery, 2000-
American Board of Hospice and Palliative Medicine, 2000-2001
American College of Obstetricians and Gynecologists, 1994-2007
American Osteopathic Board of Internal Medicine, 1991-
Association for Healthcare Philanthropy, 2000-2002
National Association of State Boards of Accountancy, 1995 -

Invited Presentations and Workshops

"The New Multiple Choice Test" Presented at the annual meeting of the Council on Resident Education in Obstetrics and Gynecology/Association of Professors of Gynecology and Obstetrics, New Orleans, LA, March, 1989.

"Multiple-Choice Item Writing Workshop" Presented at Southern Illinois University School of Medicine, Department of Surgery, Springfield, IL, July, 1989.

"National Board Examinations: An Update" Presented at Michigan State University College of Human Medicine, East Lansing, MI, February, 1990.

"Multiple-Choice Item Writing Workshop" Presented at Michigan State University College of Human Medicine, East Lansing, MI, February, 1990.

"Constructing Patient Management Problem Simulations: A Workshop for the American Academy of Otolaryngology--Head and Neck Surgery" Presented in Chicago, IL, February, 1990.

"Educational Measurement: Issues and Practice in Medical Education" Presented at the University of Washington, School of Medicine, Department of Medical Education, Seattle, WA, September, 1990.

"An update on NBME Policies and Procedures" Presented at the Medical University of South Carolina School of Medicine, Charleston, SC, November, 1990.

"Multiple-Choice Item Writing Workshop for Faculty Development" Presented at the University of South Carolina School of Medicine, Columbia, SC, November 1990.

"Alternate-Choice Items: Do Fewer Options Yield More Efficient Measurements?" Presented at Jefferson Medical College, Philadelphia, PA, April, 1993.

"Testing Higher-Order Cognitive Knowledge using Objectively Scored Test Items" Presented at the University of Illinois College of Medicine at Rockford, IL, October, 1998.

“Med Ed 101: Written Examinations.” Presented at the University of Kansas Medical Center, Kansas City, KS, April, 1999.

“Multiple-choice item writing techniques and item banking.” Presented at the Universidad Central del Caribe, College of Medicine, San Juan, Puerto Rico, August, 1999.

“Everything you ever did NOT want to know about objective tests.” Presented at the University of Kansas Medical Center, Kansas City, KS, November, 1999.

“The validity of assessments: A contemporary view of validity issues.” Invited faculty seminar, University of Illinois at Chicago, Department of Medical Education, Chicago, IL, December, 2001.

“Peeking into the Future of the Uniform CPA Examination: Computer-Adaptive Testing for High-Stakes Licensure Examinations.” Presented at the Western Regional meeting of the National Association of State Board of Accountancy (Examination Review Board), Las Vegas, NV, June, 2002.

“Writing Effective Test Questions.” Invited faculty development seminar, University of Illinois at Chicago-Rockford Campus, College of Medicine, June, 2002.

“Hofstee Standard Setting.” Invited workshop, Association of Hospital Philanthropy, San Antonio, TX, September, 2002.

“Generalizability Theory: A Brief Introduction.” Invited seminar, Bern Masters in Medical Education Course, UIC-DME, October 2, 2002.

“Clinical Performance Assessment and Rater Error: Can Rater Error be Eliminated?” Invited keynote address, Academy of Teaching Excellence, University of Illinois at Chicago, College of Medicine, October, 2002.

“Fundamentals of Achievement Assessment: Item Writing, Quality Control, and the Statistics of Testing.” Invited faculty development series, University of Illinois at Chicago, College of Medicine, October-December, 2002.

“Assessment of Medical Student Curricular Progress: The Good, the Bad, and the Ugly.” Invited presentation to faculty curriculum retreat, UMDNJ—New Jersey Medical School, Newark, NJ, January, 2003.

“Writing Effective Test Items to Test Higher-Order Knowledge.” Invited workshop, Michigan State University, March, 2003.

“Improving Objective Testing in Health Professions Education: Writing Effective Test Items.” Invited workshop, Midwestern University, Downers Grove, IL, May, 2003.

“The System of Medical Student Assessment at the University of Illinois.” Invited presentation, University of British Columbia, College of Health Disciplines, Vancouver, British Columbia, Canada, June, 2003.

“Question Writing 101: Everything you Need to Know to Create High Quality Test Questions.” Invited presentation, National Organization for Competency Assurance (NOCA), Chicago, IL, October, 2003.

“How Much Validity Evidence is Required for Locally Developed Tests?” Invited presentation, MHPE Mini-Conference at the Annual Meeting of the Association of American Medical Colleges, Washington, DC, November, 2003.

“Assessment Issues: Constructing Effective Test Questions.” Invited presentation, Northwestern University, School of Medicine. Chicago, IL, December, 2003.

“Test Construction: Twelve Steps to Effective Test Development.” Invited seminar, University of Illinois at Chicago, College of Education, MESA. Chicago, IL, February, 2004.

“Principles of Effective Item Writing.” Invited workshop, American College of Obstetricians and Gynecologists, Washington, DC, March, 2004.

“Principles of Effective Item Writing for High-Stakes Certification Examinations.” Invited workshop, American Osteopathic Board of Internal Medicine, Chicago, IL, August, 2004.

“Workshops on Assessment in Medical Education.” Invited workshops, Jawaharlal Nehru Medical College, Belgaum, India, October 25-29, 2004.

“Writing Effective Items to Test Higher-Order Knowledge.” Invited workshops, UIC-COM, Department of Pathology, Chicago, IL, February 11 & 22, 2005.

“Flawed Test Items as a Source of Bias in Basic Science Achievement Assessment: Negative Effects on Student Test Scores and Passing Rates.” Invited seminar, UIC-Department of Medical Education, Chicago, IL, March 2, 2005.

“Principles of Effective Item Writing.” Invited workshop, American College of Obstetricians and Gynecologists, Washington, DC, March 7, 2005.

“Testing Higher-Order Cognitive Knowledge: Creating Effective Test Items.” Invited workshop, UIC-College of Medicine Excellence in Teaching Faculty Development Series, March 10, 2005.

“2004 Computer-Based Tests: Uniform CPA Examination – Evaluative Overview. Invited presentation, National Association of State Boards of Accountancy - Examination Review Board, New Orleans, LA, March 17, 2005.

“Examination Review Board: Psychometric Consultant’s Review Role – Uniform CPA Examination, CBT.” Invited presentation, National Association of State Boards of Accountancy Regional Meetings, Baltimore, Maryland and Anchorage, Alaska, June 2005.

“Evaluating the Uniform CPA Examination: Trust But Verify.” Invited presentation at the annual meeting of the National Association of State Board of Accountancy (Examination Review Board), Tucson, AZ, October 2005.

“Testing Higher-Order Knowledge: Using Effective Selected-Response Items.” Invited faculty development workshop, Rush Medical College, Chicago, IL, January 2006.

“Testing Higher-Order Knowledge with Effective Selected-Response Items.” Invited faculty development workshop, University of Illinois at Chicago, College of Medicine, February 2006.

“Validity Issues in Test Development for Classroom Achievement Tests in the Health Sciences.” Invited faculty development seminar, Midwestern University, College of Health Sciences, Downers Grove, IL, February 2006.

“Writing Higher-order In-training and Self-Assessment Items: Evidence-based Principles.” Invited workshop, American College of Obstetricians and Gynecologists, Washington, DC, March 2006.

“Testing Higher-Order Knowledge with Effective Selected-Response Items.” Invited faculty development workshop, University of Illinois at Chicago--Rockford Campus, College of Medicine, April 2006.

“Standard Setting: Establishing Defensible Passing Scores for Performance Examinations.” Invited workshop, Current Concepts in Clinical Assessment Conference, Texas Chiropractic College, Houston, TX, August 2006.

“Threats to Validity of Performance Exams: What Can Go Wrong and How to Fix It.” Invited Plenary Lecture, Current Concepts in Clinical Assessment Conference, Texas Chiropractic College, Houston, TX, August 2006.

“Standard Setting: Establishing Defensible Passing Scores for Performance Examinations,” with R. Yudkowsky and A. Tekian. Invited workshop, Simulation Technology in Medical Education Conference, Northwestern University Feinberg School of Medicine, Chicago, IL, October 13, 2006.

“Assessment with Multiple-Choice Questions in Medical Education: Arguments for Selected-Response Formats.” Invited presentation, Congreso Nacional De Educacion Medica, Puebla, Mexico, January 11, 2007.

“Validity and Reliability in Medical Education Assessment: Current Concepts.” Invited presentation, Congreso Nacional De Educacion Medica, Puebla, Mexico, January 12, 2007.

“Writing Higher-order In-training and Self-Assessment Items: Evidence-based Principles.” Invited workshop, American College of Obstetricians and Gynecologists (ACOG), Washington, DC, March 2, 2007.

“Testing Higher-Order Cognitive Knowledge: Creating Effective Test Items.” Invited workshop, UIC-College of Medicine Excellence in Teaching Faculty Development Series, March 15, 2007.

“Writing Effective Test Items to Measure Achievement.” Invited presentation, American Council on Education, GED Testing Service—Tests of General Educational Development (GED), Washington, DC, May 9, 2007.

“Principles of Effective Item Writing for High-Stakes Certification Examinations.” Invited workshop, American Osteopathic Board of Internal Medicine, Chicago, IL, August, 2007.

“Developing Higher-order Test Items for Achievement Tests in the Health Sciences.” Baptist College of Health Sciences, Memphis, TN, August 29, 2007.

“Reliability and Validity in Assessment of Health Professions Education.” Invited seminar, Research and Innovations in Medical Education, Pritzker School of Medicine, University of Chicago, January 3, 2008.

“Creating Effective Multiple-Choice Items: Assessment of Higher-Order Cognitive Achievement.” Invited workshop, American University of Beirut, Faculty of Medicine, Beirut, Lebanon, February 14, 2008.

“Validity: Establishing Meaning for Assessment Data.” Education Ground Rounds, American University of Beirut, Faculty of Medicine, Beirut, Lebanon, February 15, 2008.

“Using Item Analysis Data to Improve Test Items: Quality Control in Testing.” Invited workshop, American University of Beirut, Faculty of Medicine, Beirut, Lebanon, February 15, 2008.

“Establishing Defensible Passing Scores and Grades.” Invited workshop, American University of Beirut, Faculty of Medicine, Beirut, Lebanon, February 16, 2008. (With Ara Tekian)

“Writing Higher-order In-training and Self-Assessment Items: Evidence-based Principles.” Invited workshop, American College of Obstetricians and Gynecologists (ACOG), Washington, DC, February 28-29, 2008.

“Testing Higher-Order Cognitive Knowledge: Creating Effective Test Items.” Invited workshop, UIC-College of Medicine Excellence in Teaching Faculty Development Series, March 6, 2008.

“2007 Uniform CPA Examination: Annual Psychometric Review.” Invited presentation, NASBA Examination Review Board, New Orleans, LA, March 17, 2008.

“How Many MCQ Options? Are More Options Always Better?” Invited presentation, Department of Medical Education, University of Illinois at Chicago, April 9, 2008.

“Writing Effective Items to Test Higher-Order Knowledge.” Invited workshops, UIC-COM, Department of Pathology, Chicago, IL, July 18 & 22, 2008.

“Validity and Its Threats in High-Stakes Testing.” Invited presentation, Medical College of Canada, Ottawa, Ontario, Canada, February 5-6, 2009.

“Testing Higher-Order Cognitive Knowledge: Creating Effective Test Items.” Invited workshop, UIC-College of Medicine, Excellence in Teaching Faculty Development Series, February 19, 2009.

“Developing Written Tests for Classroom Achievement.” Invited workshop, DME MHPE Summer Conference, July 31, 2009.

“A Trip from Intention to Results: Objectives, Outcomes and Assessment.” (Harris, I., Kamin, C., & Downing, S.) Invited plenary session, UIC-Academy for Excellence in Teaching, December 7, 2009.

“Workshop: A Trip from Intention to Results: Objectives, Outcomes and Assessment.” (Kamin, C., & Downing, S.) Invited workshop, UIC-Academy for Excellence in Teaching, December 7, 2009.

“Testing Higher-Order Cognitive Knowledge: Creating Effective Test Items.” Invited workshop, UIC-College of Medicine, Excellence in Teaching Faculty Development Series, February 19, 2010.

“Developing Higher-Order Test Items for Classroom Achievement Tests in the Health Sciences.” Invited workshop, UIC-College of Pharmacy, April 7, 2010.

“Creating Effective Achievement Tests: Using Item Analysis Data to Improve Items and Tests.” Invited workshop, Midwestern University, Downers Grove, IL, May, 2010.