Tracy Morrison Sweet

CONTACT
INFORMATION

University of Maryland
Department of Human Development and Quantitative Methodology
3304 Benjamin Building, College Park, MD 20742
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Email: tsweet@umd.edu

EDUCATION

Ph.D. Statistics, Carnegie Mellon University, July 2012

M.S. Statistics, Carnegie Mellon University, May 2008

M.A. Mathematics, Morgan State University, December 2007

B.S. Biology, Bucknell University, May 2000

PROFESSIONAL
EXPERIENCE

Associate Professor   2019 – present
University of Maryland
Department of Human Development and and Quantitative Methodology

Assistant Professor   2013 – 2019
University of Maryland
Department of Human Development and and Quantitative Methodology

Postdoctoral Fellow   2012 – 2013
Carnegie Mellon University
Department of Statistics

METHODS
ARTICLES

Adhikari, S. & Sweet, T. (in press). Analysis of longitudinal advice-seeking network following implementation of high stake testing. *Journal of the Royal Statistical Society.*

Dabbs, B., Adhikari, S. & Sweet, T. (2020). Conditionally independent dyads (CID) network models: A latent variable approach to statistical social network analysis. *Social Networks, 63*, 122-133.

Sweet, T.M & Adhikari, S. (2020). A latent space network model for social influence. *Psychometrika, 85*(2), 251-274.

Sweet, T.M., Flynt, G., & Choi, D. (2019). Clustering ensembles of social networks. *Network Science, 7*(2), 141-159.

Sweet, T.M., (2019). Modeling social networks as mediators: A mixed membership stochastic blockmodel for mediation. *Journal of Educational and Behavioral Statistics, 44*(2), 210-240.

Sweet, T.M. and Zheng, Q. (2018). Incorporating network-level covariates into hierarchical mixed membership stochastic blockmodels. *Social Networks, 52*(1), 100-114.

Sweet, T.M. and Zheng, Q. (2017). A model-based measure for subgroup integration in social networks. *Social Networks, 48*(1), 169-180.

Sweet, T.M. (2016). Social network methods for the educational and psychological sciences. *Educational Psychologist, 51*(3), 381-394.

Sweet, T.M. and Junker, B.W. (2016). Power to detect intervention effects on ensembles of social networks. *Journal of Educational and Behavioral Statistics, 41*(2), 180-204.

Sweet, T.M. (2015). Incorporating covariates into stochastic blockmodels. *Journal of Educational and Behavioral Statistics 40*(6), 635-664.

Sweet, T.M., Thomas, A.C., & Junker, B.W. (2013). Hierarchical network models for education research: hierarchical latent space models. *Journal of Educational and Behavioral Statistics, 38*(3), 295-318.

| APPLIED ARTICLES | King, K. & Sweet, T. (2021). Using Social Network Analysis to Measure Transactive Memory Systems. *Team Performance Management, 27* (1/2), 80-98. |

King, K. & Sweet, T. (2021). Using Social Network Analysis to Measure Transactive Memory Systems. *Team Performance Management, 27* (1/2), 80-98.

Brown, E.L., Valenti, M., Sweet, T., Mahatmya, D., Celedonia, K. & Bethea, C. (2020). How social and emotional competencies inform special educators' social networks. *Education and Treatment of Children, 43*(3), 295-311.

Spillane, J., Hopkins, M. & Sweet, T.M. (2018). Teachers' instructional beliefs and teachers' interactions about mathematics instruction: school system educational infrastructure and change at scale. *American Education Research Journal, 55*(3), 532-571.

Spillane, J., Shirrell, M. & Sweet, T.M. (2017). Social geography and work-related intra-organizational ties: Exploring physical proximity and social interactions in the schoolhouse. *Sociology of Education, 90*(2), 149-171.

Hopkins, M., Ozimek, D., & Sweet, T.M. (2017). Mathematics coaching and instructional reform: Individual and collective change. *Journal of Mathematical Behavior, 46*, 215-230.

Hopkins, M., Lowenhaupt, R. & Sweet, T.M. (2015). Organizing instruction in new immigrant destinations: District infrastructure and subject-specific school practice. *American Educational Research Journal, 52*(3), 408-439.

Spillane, J. Hopkins, M. & Sweet, T.M. (2015). Intra- and inter- school interaction about instruction: Exploring the conditions for social capital development. *American Journal of Education, 122*(1), 71-110.

Korsah, G.A. , Mostow, J., Dias, B.M., Sweet, T.M., Belousov, S.M., Dias, M.F., & Gong, H. (2010). Improving Child Literacy in Africa: Experiments with an Automated Reading Tutor. *Information Technologies & International Development, 6*(2), 1-19.

CHAPTERS   Sweet, T.M. (2019). Social network models. In G. R. Hancock, R.O. Mueller & L. M. Stapleton (Eds.). *The reviewer's guide to quantitative methods in the social sciences.*

2nd *Edition* New York: Routledge.[1]

Sweet, T.M. (2017). Modeling collaboration with social network models. In A. Von Davier, P.C. Kyllonen, & M. Zhu (Eds.), *Innovative Assessment of Collaboration.* New York, NY: Springer. [1]

Spillane, J.P., Hopkins, M., Sweet, T.M., & Shirrell, M. (2017) The social side of capability: Supporting classroom instruction and enabling its improvement. In (Eds.), *Teaching in Context: The Social Side of Education Reform.* Cambridge, MA: Harvard Education Press.

Sweet, T.M. and Zheng, Q. (2015). Multilevel social network models: incorporating network-level covariates into hierarchical latent space models. In J. Harring, L. Stapleton, & S. Beretvas (Eds.), *Advances in Multilevel Modeling for Educational Research: Addressing Practical Issues Found in Real-World Applications.* Charlotte, NC: Information Age Publishing.[1]

Sweet, T. M., Thomas, A. C., & Junker, B. W. (2014). Hierarchical mixed membership stochastic blockmodels for multiple networks and experimental interventions. In E. Airoldi, D. Blei, E. Erosheva, & S. Fienberg (Eds.), *Handbook on Mixed Membership Models and Their Applications.* Boca Raton, FL: Chapman & Hall/CRC.[1]

BOOK REVIEWS   Sweet, T.M. (2017). A review of statistical rethinking: A Bayesian course with examples in R and Stan. *Journal of Educational and Behavioral Statistics, 42(1),* 107-110.

R PACKAGES   Dabbs, B., Junker, B. W., Sweet, T. M., and Thomas, A. C. (2018). CIDnetworks: Generative models for complex networks with conditionally independent dyadic structure. Carnegie Mellon University. R package version 3.5.0.

Adhikari, S., Junker, B. W., Sweet, T. M., and Thomas, A. C. (2018). HLSM: Hierarchical latent space network model. Carnegie Mellon University. R package version 3.5.0.

GRANTS AND CONTRACTS AWARDED   *Maryland Longitudinal Data System Center.* State of Maryland (via subcontract with University of Maryland Baltimore). Co-I. July 2020 - June 2023. $ 248,594.

Quantitative Research Methods for STEM Education Scholars Program NSF. Co-I. August 2019 - July 2022. $ 996,074

An Intervention to Promote Positive Peer Relationships and Reduce Prejudice and Bias in Childhood. NIH. Co-I. Sept 2019 - Aug 2023. $2,065,274.

Maryland Longitudinal Data System Center. State of Maryland (via subcontract with University of Maryland Baltimore). Co-I. July 2018 - June 2020. $ 259,572.

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[1] Invited

Hierarchical Network Models: Mediation and Influence. IES Award #R305D150045. PI. July 2015 - June 2019. $ 828,211.

Hierarchical Network Models for Education Research: Social Networks as Mediating Variables. University of Maryland Pre-tenure Award: Support Program for Advancing Research and Collaboration. PI. Summer 2014. $15,000.

Hierarchical Network Models for Education Research. IES Award #R305D12004. Collaborator with PI Brian W. Junker and Co-PI Andrew C. Thomas, Carnegie Mellon University. July 2012- June 2015. $480,986.

PROFESSIONAL WORKSHOPS

Social Network Analysis. University of Maryland, May 2019.

Social Network Models. American Educational Research Association, April 2019.
Workshop on Latent Space Models. Michigan State University (an advanced course of social network models), February 2019.

Workshop on Latent Space Models. Michigan State University (a course of social network models), November 2016.

Social Network Models in Education Research. American Educational Research Association, April 2015.

Social Networks in Education Research. 79$^{\text{th}}$ Annual Meeting of Psychometric Society, July 2014.

Social Networks in Education Research. University of Virginia, June 2014.

Intervention Effects on Social Networks in Education Research. Society for Research on Educational Effectiveness, Washington DC, March 2014.

INVITED TALKS AND SYMPOSIA

Sweet, T.M. (2021, January). *Modeling interventions on networks.* Virtual presentation to the Department of Statistics, Northwestern University.

Sweet, T.M. (2020, January). *Modeling social networks as mediators.* Invited presentation at the International Conference on Health Policy Statistics, San Diego, CA.

Sweet, T.M. (2019, April). *Modeling social networks as mediators.* Invited Distinguished Visiting Professor presentation at Bucknell University, Lewisburg, PA.

Sweet, T.M. (2017, August). *Power to detect intervention effects on ensembles of social networks.* Invited presentation by the Journal of Educational and Behavioral Statistics at Joint Statistical Meetings, Baltimore, MD.

Sweet, T.M. (2016, August). *Social networks as the unit of observation: interventions, causal mediation, and clustering.* Invited symposium by the Social Statistics Section at Joint Statistical Meetings, Chicago, IL.

Hopkins, M., Ozimek, D., & Sweet, T. M. (2016, June). *Mathematics coaching and instructional reform: Individual- and system-level change.* Invited paper presented at the Virginia Mathematics Specialist Initiative conference, Richmond, VA.

Sweet, T.M. (2016, April). *Recent advances in social network analysis.* Invited symposium at the annual meeting of the National Council on Measurement in Education, Washington, DC.

Sweet, T.M. (2015, June). *Incorporating social network models into evaluation research.* Invited presentation at American Institutes for Research, Washington, DC.

Sweet, T.M. (2015, June). *Modeling networks as mediators.* Invited presentation for the Statistics Education Research Group, Department of Statistics, Carnegie Mellon University, Pittsburgh PA.

Sweet, T.M. (2015, June). Invited panelist for CMART conversations: A workshop on postdoctoral training, Pittsburgh, PA.

Sweet, T.M. (2015, January). *Hierarchical social network models with applications in the social sciences.* Invited presentation for the Mathematics Department Student Talk Series, Bucknell University, Lewisburg, PA.

Sweet, T.M. (2014, October). *Hierarchical models for social networks.* Invited presentation and panelist for Innovative Assessment of Collaboration Working Meeting, Educational Testing Service, Arlington, VA.

Sweet, T.M. (2014, September). *Hierarchical network models for modeling ensembles of social networks.* Invited presentation for the Social Cognition, Technology and Assessment Seminar Series, Educational Testing Service, Princeton, NJ.

Sweet, T.M. (2012, August). *Hierarchical network models for education research: hierarchical latent space models.* Invited presentation at Joint Statistical Meetings. San Diego, CA.

Sweet, T.M. (2011, June). *Latent space social network models for interventions in education.* Invited student presentation for the 2011 Classification Society Meeting, Carnegie Mellon University, Pittsburgh, PA.

REFEREED PRESENTATIONS

Brown, E. L., Valenti, M. W., Celedonia, K., Mahatmya, D., Sweet, T. & Bethea, C. (2020, April). *Teachers' Social Networks and Social and Emotional Competence Inform Positive Outcomes for Students With Emotional and Behavioral Disorder.* Round table for the annual meeting of the American Educational Research Association, San Francisco, CA . (Conference Canceled).

Johnson, T. & Sweet, T. (2020, April). *Incorporating Ensembles of Social Networks in Structural Equation Models: A Finite Mixture Approach.* Round table for the annual meeting of the American Educational Research Association, San Francisco, CA . (Conference Canceled).

Henneberger, A.K., Feng, Y., Johnson, T., Zheng, Y., Rose, B., Stapleton, L.M., Sweet, T., & Woolley, M. (2019, April). *Prevalence of multiple membership in a statewide*

longitudinal data system. In B. Bell (Chair), Studies addressing issues related to the modeling of multiple membership data. Paper presented at the annual meeting of the American Educational Research Association, Toronto.

Johnson, T.L. & Sweet, T.M. (2019, April). *Modeling student mobility using social networks.* Multilevel Conference at Utrecht University, Utrect, NL.

Henneberger, A.K., Feng, Y., Johnson, T., Zheng, Y., Rose, B., Stapleton, L.M, Sweet, T., & Woolley, M. (2019, March). *Estimating attrition in school-based evaluation studies: Guidance from state longitudinal data in Maryland.* Poster presented at the annual meeting of the Society for Research on Educational Effectiveness, Washington, DC.

Sweet, T.M. & Spillane, J. (2018, August). *A distributed perspective on organizational leadership and management.* The 78th Annual Meeting of the Academy of Management, Chicago, IL.

Sweet, T.M. (2018, July). *A latent space model for network influence.* International Meeting of the Psychometric Society, New York, NY.

Zheng, Y., Zheng, Q., & Sweet, T.M. (2018, July). *Model fit for conditionally independent dyad (CID) network models.* International Meeting of the Psychometric Society, New York, NY.

Sweet, T.M. (2018, March). *Modeling social networks as mediators.* Paper presented at the spring meeting of the Society for Research on Educational Effectiveness, Washington, DC.

Shirrell, M., Spillane, J.P., & Sweet, T.M. (2018, March). *Understanding the building blocks of on-the- job teacher education: The role of physical proximity in work-related social ties among school staff.* Paper presented at the spring meeting of the Society for Research on Educational Effectiveness, Washington, DC.

Sweet, T.M. (2017). *Modeling Network-level Effects on Subgroup Insularity.* The 1st North American Social Networks Conference, Washington, DC.

Sweet, T.M., Choi, D., & Flynt, A. (2016). *Using Feature Vectors to Cluster Social Networks.* Joint Statistical Meetings, Chicago, IL.

Sales, A., Sweet, T.M. & Adhikari, S. (2016). *Causal Mediation Analysis of Social Networks.* Joint Statistical Meetings, Chicago, IL.

Sweet, T.M. (2016). *Modeling Networks as Mediators.* XXXVI Sunbelt Conference of the International Networks for Social Network Analysis, Newport Beach, CA.

Zheng, Z. & Sweet, T.M. (2016). *Hierarchical Mixed Membership Stochastic Blockmodel with Network-level Covariates.* Annual Meeting of the National Council on Measurement in Education.

Sweet, T.M. (2016). *A Hierarchical Latent Space Model for Influence.* Annual Meeting

of the Society for Research on Educational Effectiveness.

Sweet, T.M. (2015). *Incorporating Covariates into Hierarchical Mixed Membership Stochastic Blockmodels.* Joint Statistical Meetings, Seattle, WA, August, 2015.

Sweet, T.M. (2015). *Hierarchical Network Models for Interventions on Social Networks.* American Educational Research Association, Chicago, IL, April 2015.

Sweet, T.M. (2014). *Hierarchical Mixed Membership Stochastic Blockmodels with Network-level Covariates.* Advances in Multilevel Modeling for Educational Research: Addressing Practice Issues Found in Real-World Applications, University of Maryland, College Park.

Sweet, T.M. (2014). *Power to Detect Intervention Effects on Ensembles of Social Networks.* Joint Statistical Meetings, Boston, MA.

Zheng, Q. & Sweet, T.M. (2014). *Hierarchical Mixed Membership Stochastic Blockmodels with Network-level Covariates.* 79th Annual Meeting of Psychometric Society, Madison, WI.

Sweet, T.M. (2014). *Power to Detect Intervention Effects on Ensembles of Social Networks.* 79th Annual Meeting of Psychometric Society, Madison, WI.

Sweet, T.M. (2014). *Hierarchical Network Models.* Frontiers of Hierarchical Modeling in Observational Studies, Complex Surveys and Big Data: A Conference Honoring Professor Malay Ghosh, College Park, MD.

Sweet, T.M. (2014) *Hierarchical Network Models.* Sunbelt XXXIV Conference, St. Petersburg, FL.

Sweet, T.M. (2013) *Hierarchical Mixed Membership Stochastic Blockmodels for Education Research.* National Council on Research in Education, San Francisco CA.

Sweet, T.M. & Junker, B.W. (2013) *Sample Size Calculations for Interventions on Social Networks.* Society for Research on Educational Effectiveness, Washington, DC.

Sweet, T.M. (2012) *Modeling Intervention Effects on Subgroup Structure Across Social Networks.* Society for Research on Educational Effectiveness, Washington, D.C.

Sweet, T.M. (2012) *Hierarchical Network Models for Education Research: Hierarchical Latent Space Models.* Joint Statistical Meetings, San Diego, CA.
Sweet, T.M. & Junker, B.W. (2011). Social network models for educational interventions. Paper presented at the 2011 International Meeting of the Psychometric Society, Hong Kong.

PROFESSIONAL SERVICE

Secretary/Treasurer for Educational Statisticians SIG AERA (2020-present)
Associate Editor for Journal of Educational and Behavioral Statistics (2018-present)
Software Editor for Journal of Educational and Behavioral Statistics (2014-2018)
Editorial board for Contemporary Educational Psychology (2014-2015)

Ad-hoc Reviewer

2013 – 2014	Journal of Educational and Behavior Statistics Language Learning
2014	language Learning
2014 – present	Social Networks
2015	Evaluation Review
2015	American Journal of Education
2016 – present	Social Networks
2016	Biometrika
2016 – present	Pyschometrika
2017	Design Science
2017	Multivariate Behavioral Research
2017	PLOS One
2017 – present	Journal of the Royal Statistical Society
2017 – present	A Journal of Experimental Education
2018 – present	Annal of Applied Statistics

Agency Reviewer

2018	IES Early Intervention and Early Childhood Education Panel Reviewer
2017, 2019	National Science Foundation: Ad Hoc Reviewer for the Methodology, Measurement, and Statistics

Conference Reviewer

2021	American Educational Research Association Ed Stat SIG
2014 – 2016	American Educational Research Association Division D
2014	American Educational Research Association Multilevel SIG
2015 – present	Society for Research on Educational Effectiveness

Memberships: *American Statistical Association, American Educational Research Association, Society for Research on Educational Effectiveness*

UNIVERSITY
SERVICE

Department Service

2019 – present	HDQM Executive Committee
2019 – 2020	HDQM Faculty Search Committee
2019 – 2020	EDMS Lunch and Learn Coordinator
2018 – 2019	HDQM Open Rank Faculty Search Committee Co-Chair
2017 – present	HDQM Undergraduate Committee
2016 – 2019	EDMS Exams Committee
2015 – 2017, 2018 – 2019	EDMS Seminar Series Coordinator
2016 – 2017	HDQM Faculty Search Committee
2013 - 2015	HDQM Awards Committee
2013 - 2016, 2019 – present	EDMS Admissions Committee

College Service

2021 –	College of Education COREJ Committee
2018 – 2019	College of Education Undergraduate Committ
2014 – 2016	HDQM Department Chair Search Committee
2014 – 2016, 2019 – present	College of Education Senate
2013 - 2014	College of Education Awards Committee

Courses Taught

1. EDMS 645 – Quantitative Research Methods 1 (2013, 2014, 2015, 2017, approx. 25 students/class)

2. EDMS 646 – General Linear Models I (2016, approx. 35 students/class)

3. EDMS 787/769B– Bayesian Inference (2015, 2016, 2020, approx. 18 students/class)

4. EDMS 769M – Social Network Models (2017, approx. 15 students/class)

5. EDMS 655 – Advanced Data Analysis and Statistical Consulting (2018, 8 students/class)

6. EDMS 665 – Multilevel Models (2018, 24 students/class)

7. EDMS 647 – Causal Inference (2019, 22 students/class)

8. As a post-doctoral fellow at Carnegie Mellon, I co-taught the course, 36-303 Survey Sampling, to approximately 30 undergraduate students

Teaching Innovations

- EDMS 787: Bayesian Inference

- EDMS 769M: Social Network Models

- EDMS 655: Data Analysis and Statistical Consulting

Doctoral Students

Committee Chair or CoChair

Kylie King	2017	EDMS, UMD	Assistant Professor, Champlain College
Austin Fossey	2017	EDMS, UMD	Director of Assessment Research, Assessment, Education & Research Experts
Qiwen Zheng	2019	EDMS, UMD	Data Scientist, C.H. Robinson
Brennan Register	Exp 2023		

Committee Member

Daniel McNeish	2015	EDMS, UMD	Assistant Professor, Arizona State University
Beau Dabbs	2015	Statistics, CMU	Data Scientist, Survata
Melissa Kochanowski	2015	TLPL, UMD	Coordinator, AACPS
Kathy Stepien	2016	EDMS, UMD	Verizon
Sam Adhikari	2016	Statistics, CMU	Assistant Professor, New York University
Rosalyn Bryant	2017	EDMS, UMD	District of Columbia Public Schools
Jamie Welch	2019	CHSE, UMD	
Tiago Calico	2019	EDMS, UMD	
Daniel Lee	2019	EDMS, UMD	
Yuruo Li	2020	EPIB, UMD	
Jinwang Zou	Exp 2021	EDMS, UMD	
Yating Zheng	Exp 2021	EDMS, UMD	
Casey Archer	Exp 2021	TLPL, UMD	
Courtney Lennartz	Exp 2020	TLPL, UMD	
Sophie Jablansky	Exp 2020	HD, UMD	
Jason Struck	Exp 2021	SLA, UMD	
Victoria Ledford	Exp 2021	UMD	
Laura Jimenez Parra	Exp 2021	HD, UMD	
Ari Houser	Exp 2021	EDMS, UMD	
Kelsey Garcia	Exp 2021	HD, UMD	

Masters Students

Nicholas Luzio	Expected 2022
Erin Murphy	Expected 2021
Danielle Dicello	2020
Kathleen Robens	2020
Bernadette Jerome	2019
Valerie Karuzis	2019
Frances Turner	2019
Weimeng Wang	2018
Joshua Kazman	2018
Sophie Jablansky	2018
Jenessa Malin	2015

Doug Reed and Bipartite Networks 2019 - present
Georgetown University

Statistical consulting for analyses of bipartite network data

School of Social Work   2018 – present
University of Maryland
Ad-hoc consulting services for faculty and students

Elizabeth Hassrick and Autism Interventions   2018 - present
Drexel University, AJ Drexel Autism Institute
Statistical consultant for modeling shared autism practices

Megan Hopkins and English Language Learner Connections   2018 - present
University of California San Diego, Dept of Education Studies
Statistical consultant for modeling ELL ties in social networks

Social and Emotional Learning Outcomes   2017
George Mason University
Statistical consultant for design, collection, and analysis of survey data

Racial Disparities in Surgical Outcomes   2017
University of Maryland Baltimore Medical School
Statistical consultant for modeling racial differences in cardiac surgery outcomes

Jim Spillane and Researcher-Practitioner Partnership Project 2012 - present
Northwestern University, School of Education and Social Policy
Statistical consultant for social network analyses

Ruth Neild and Successful Transitions to Algebra   2009–2010
Johns Hopkins University, Center for Social Organization of Schools
Analysis of curricular intervention: student outcomes, student and teacher surveys, and teacher observations

Lindsay Matsumura and Content Focused Coaching   2008
University of Pittsburgh, School of Education
Analysis of teacher surveys and observational data

Jack Mostow and Project Listen   2008
Carnegie Mellon University, Department of Robotics
Analysis of online reading tutor experimental data

AWARDS   **University of Maryland College of Education Pre-tenure Scholarship Award**
                2016

                Joint Statistical Meetings Student Paper Award   2012
                Social Statistics, Government Statistics, and Survey Research Methods Sections

                Institute of Education Sciences Graduate Fellowship   2008–2012
                Carnegie Mellon University Program for Interdisciplinary Education Research (PIER; pre-doctoral training program), tuition, stipend and travel funds.

National Science Foundation Fellowship   2007–2008

Carnegie Mellon University Vertical InteGration of Research and Education (VIGRE), tuition and stipend.

Tuition Award   2005–2007

Morgan State University Student Award, tuition.

Wheeler Award   2006

Towson High School Teaching Award

Phi Beta Kappa   2000

Presidential Fellowship   1996–2000

Bucknell University Student Award, tuition and work study opportunities.

Undergraduate Research Fellowship   1998, 1999

Bucknell University Summer Research Award, summer stipend.