

Curriculum Vitae

NIA M. DOWELL

School of Information and Digital Innovation Greenhouse
University of Michigan
4432 North Quad
Ann Arbor, MI 48109
ndowell@umich.edu

EDUCATION & EXPERIENCE

2017 – present	Postdoctoral Research Fellow School of Information and Digital Innovation Greenhouse University of Michigan
2011 – 2017	Ph.D. in Cognitive Psychology with Cognitive Science Certificate The University of Memphis & Institute for Intelligent Systems Advised by Prof. Arthur Graesser
2004 – 2008	B.A. in Psychology The University of Memphis Honors in Psychology

HONORS/AWARDS

2016	Experimental Program Director's Award
2014 – 2015	National Science Foundation Travel Award
2014	Invited Studentship: Oxford University, Center for Educational Assessment
2014	Winner of the Hermann Textual Analysis Award
2012 – 2017	University of Memphis Graduate Fellowship Recipient
2011	National Science Foundation Travel Award
2011 – 2016	Institute for Intelligent Systems Travel Award
2011 – 2015	Institute for Intelligent Systems Graduate Assistantship

PROFESSIONAL HISTORY

October 2014 – November 2014	Invited Studentship University of Oxford Center for Educational Assessment (OUCEA) PI: Jo-Anne Baird
August 2014 – 2017	Graduate Research Assistant Grant: Political Crisis and Language: A Computational Assessment of Social Disequilibrium and Security Threats. PI: Leah Windsor & Art Graesser Institute for Intelligent Systems The University of Memphis
June 2013 – 2016	Discourse Processing and Text Analytics Consultant for Coh-Metrix FedEx Institute for Technology The University of Memphis
January 2010 – June 2014	Graduate Research Assistant Grant: Modeling Discourse and Social Disequilibrium in Authoritarian Regimes. PI: Art Graesser Institute for Intelligent Systems The University of Memphis
January 2010 – August 2011	Graduate Research Assistant Grant: Inducing, Tracking, and Regulating Confusion and Cognitive Disequilibrium During Complex Learning. PI: Art Graesser Institute for Intelligent Systems The University of Memphis
July 2006 – January 2011	Undergraduate Research Assistant Psychotherapy Research Lab PI: Jeffrey Berman The University of Memphis

TEXT ANALYSIS CONSULTING

2015 – 2016	Learning Innovation and Networked Knowledge Research Lab
2015	FedEx
2015- 2017	Texas Teacher Quality
2014	Columbia University

JOURNAL PUBLICATIONS

- Windsor, L. C., **Dowell, N. M.**, Windsor, A., Kaltner, J., & Graesser, A. C. (in press). Leader language and survival strategies in the Arab Spring. *International Interactions*.
- Dowell, N. M.**, Graesser, A. C., & Cai, Z. (2017). Language and discourse analysis with Coh-Metrix: Applications from educational material to learning environments at scale. *Journal of Learning Analytics*, 3(3), 72 – 95. doi: 10.18608/jla.2016.33.5
- Rubin, D. C., Deffler, S. A., Ogle, C. M., **Dowell, N. M.**, & Graesser, A. C. (2016). Participant, rater, and computer measures of coherence in posttraumatic stress disorder. *Journal of Abnormal Psychology*, 125(1), 11-25.
- Dowell, N. M.**, & Graesser, A. C. (2015). Modeling learners' cognitive, affective, and social processes through language and discourse. *Journal of Learning Analytics*, 1(3), 183-186.
- Dowell, N. M.**, Windsor, L., & Graesser, A. (2015). Computational linguistics analysis of leaders during crises in authoritarian regimes. *Dynamics of Asymmetrical Conflict*, 8(3), 1-12. doi: 10.1080/17467586.2015.1038286
- Windsor, L., **Dowell, N. M.**, & Graesser, A. (2014) The language of autocrats: Leaders' language in natural crises. *Risk, Hazards & Crisis in Public Policy*, 5(4), 446-467. doi: 10.1002/rhc3.12068
- D'Mello, S. K., **Dowell, N. M.**, & Graesser, A. C. (2013). Unimodal and multimodal human perception of naturalistic non-basic affective states during human-computer interactions. *IEEE Transactions on Affective Computing*, 4(4), 452-465. doi:10.1109/T-AFFC.2013.19
- Dowell, N. M.**, & Berman, J. (2013). Therapist nonverbal behavior and perceptions of empathy, therapeutic alliance, and treatment credibility. *Journal of Psychotherapy Integration* 23(2), 158-165. doi: 10.1037/a0031421
- D'Mello, S. K., **Dowell, N. M.**, & Graesser, A. C. (2011). Does it really matter whether students' contributions are spoken versus typed in an intelligent tutoring system with natural language? *Journal of Experimental Psychology: Applied*, 17(1), 1-17. doi:10.1037/a0022674
- Graesser, A. C., **Dowell, N.**, & Moldovan, C. (2011). A computer's understanding of literature. *Scientific Studies of Literature*, 1(1), 24-33. doi:10.1075/ssol.1.1.03gra
-

BOOK CHAPTERS

- Graesser, A. C., **Dowell, N. M.**, Hampton, A., Lippert, A., Li, H., & Shaffer, D. W. (in press). Building intelligent conversational tutors and mentors for team collaborative problem solving: Lessons from the 2015 program for international student assessment. In J. Johnston, R. Sottolare, A. Sinatra, & S. Burke (Eds.), *Building intelligent tutoring systems for teams: What matters*. England, U.K.: Emerald.
- Graesser, A. C., **Dowell, N. M.**, & Clewley, D. (2017). Assessing collaborative problem solving through conversational agents. In A. Von Davier, M. Zhu, & P. C. Kyllonen (Eds.), *Innovative assessment of collaboration* (pp. 65–80). Springer. Princeton, NJ.
-

PUBLISHED CONFERENCE PROCEEDINGS (REVIEWED)

- Cai, Z., Eagen, B., **Dowell, N. M.**, Pennebaker, J. W., & Graesser, A. C. (in press). Epistemic network analysis and topic modeling for chat data from collaborative learning environment. In xx xx (Ed.), *Proceeding of the 10th International Conference on Educational Data Mining* (pp. xx–xx). Wuhan, China: International Educational Data Mining Society.
- Dowell, N. M.**, Brooks, C., Kovanović, V., Joksimović, S., & Gašević, D. (2017). The changing patterns of MOOC discourse. In C. Urrea, J. Reich, & C. Thille (Eds.), *Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale* (pp. 283–286). Cambridge, M.A.: ACM
- Poquet, O., Dawson, S., & **Dowell, N. M.** (2017). How effective is your facilitation? Group level analytics of MOOC forums. In xx (Ed.), *Proceedings of the 7th International Conference on Learning Analytics and Knowledge* (pp. 238–248). Vancouver: ACM.
- Nixon, T., & **Dowell, N. M.** (2016). Coh-Metrix in the cloud: lessons from implementing a web-scale text analytics platform. In R. Ferguson, M. Sharkey, & N. Mirriahi (Eds.), *Practitioner Track Proceedings of the 6th International Learning Analytics & Knowledge Conference (LAK16)* (pp. 45–46). University of Edinburgh, Edinburgh, UK: SoLAR.
- Dowell, N. M.**, Skrypnik, O., Joksimović, S., Graesser, A. C., Dawson, S., Gašević, S., Hennis, T., de Vries, P., & Kovanović, V. (2015). Modeling learners' social centrality and performance through language and discourse. In C. Romero & M. Pechenizkiy (Eds.), *Proceedings of the 8th International Conference on Educational Data Mining* (pp. 250–257). International Educational Data Mining Society.
- Joksimović, S., **Dowell, N. M.**, Oleksandra, S., Kovanović, V., Gašević, D., Dawson, S., & Graesser, A. C. (2015). How do you connect? Analysis of social capital accumulation in connectivist MOOCs. In J. Baron, & G. Lynch (Eds.), *Proceedings of the 5th International Conference on Learning Analytics and Knowledge* (pp. 64–68). New York: ACM.
- Cade, W. L., **Dowell, N. M.**, Tausczik, Y. R., Pennebaker, J. W., & Graesser, A. C. (2014). Modeling students socioaffective responses to group interactions in a collaborative online chat environment. In J. Stamper, Z. Pardos, M. Mavrikis, B. M. McLaren (Eds.), *Proceedings of the 7th International Conference on Educational Data Mining* (pp. 399–400). Worcester, MA: International Educational Data Mining Society.
- Dowell, N. M.**, Cade, W. L., Tausczik, Y. R., Pennebaker, J. W., & Graesser, A. C. (2014). What works: Creating adaptive and intelligent systems for collaborative learning support. In S. Trausan-Matu, K. E. Boyer, M. Crosby, & K. Panourgia (Eds.), *Proceedings of the 12th International Conference on Intelligent Tutoring Systems* (pp. 124 - 133). Berlin: Springer.
- Duan, Y., **Dowell, N. M.**, Graesser, A. C., & Li, H. (2014). Linguistic style and social historical context: An automated linguistic analysis of Mao Zedong's speeches. In W. Eberle & C. Boonthum-Denecke (Eds.) *Proceedings of 27th Florida Artificial Intelligence Research Society Conference* (pp. 43-46). Menlo Park, CA: AAAI Press.
- Dowell, N. M.**, D'Mello, S. K., Mills, C., & Graesser, A. C. (2011). Does topic matter? Topic influences on linguistic and rubric-based evaluation of writing. In G. Biswas, S. Bull, J. Kay, & A. Mitrovic (Eds.), *Proceedings of 15th International Conference on Artificial Intelligence in Education* (pp. 450–452). Berlin, Germany: Springer-Verlag.
- D'Mello, S. K., **Dowell, N. M.**, & Graesser, A. C. (2009). Cohesion relationships in tutorial dialogue as predictors of affective states. In V. Dimitrova, R. Mizoguchi, B. Du Boulay, & A. C. Graesser (Eds.), *Artificial Intelligence in Education: Building Learning Systems that Care: From Knowledge Representation to Affective Modeling* (pp. 9-16).
-

UNDER REVIEW & IN PREPARATION PUBLICATIONS

- Dowell, N. M.**, Brooks, C., Joksimović, S., Kovanović, V., Waters, Z., & Gašević, D. (under review). The future of educational discourse: Sociotechnical shifts and their impact for educational researchers.
- Dowell, N. M.**, Windsor, L., Germany, M., Iacobelli, F., & Graesser, A. C. (under review). The partisan divide: A computational linguistic analysis of bias in the senate.
- Joksimović, S., **Dowell, N. M.**, Poquet, O., Kovanović, V., Gašević, D., Dawson, S., & Graesser, A. C. (under review). Exploring the accumulation of social capital in cMOOCs through language and discourse.
- Joksimović, S., Oleksandra, S., Kovanović, V., **Dowell, N. M.**, Mills, C., Gašević, D., Dawson, S., Graesser, A. C., & Brooks, C. (under review). How do we model learning at scale? A systematic review of the literature.
- Dowell, N. M.**, Nixon, T., Cai, Z., & Graesser, A. C. (in preparation). Group communication analysis: A computational-linguistic framework for exploring conversational roles in online multi-party communication.
- Joksimović, S., **Dowell, N. M.**, Gašević, D., Mirriahi, N., Dawson, S., & Graesser, A. C. (in preparation). Linguistic characteristics of reflective states in video annotations under different instructional conditions.
-

INVITED PRESENTATIONS

- Poquet, O., & **Dowell, N. M.** (2017, June). *Statistical analysis of interdependent observations in learning environments: Exponential random graph modelling (ERGM)*. Invited Tutorial presented at Learning Analytics Summer Institutes (LASI 2014), Ann Arbor, MI.
- Dowell, N. M.** (2016, October). *Group communication analysis: A computational-linguistic framework for exploring conversational roles in online multi-party communication*. Invited talk presented at the University of Michigan, Ann Arbor, MI.
- Dowell, N. M.**, (2016, March). *Modeling discourse and social dynamics of successful collaborative interactions*. Invited talk presented at the University of Southern Australia, Adelaide, Australia.
- Dowell, N. M.** (2016, April). *Computational discourse science: Applications for emerging learning environments*. Invited talk presented at the University of Michigan, Ann Arbor, MI.
- Dowell, N. M.** (2015, July). *Computational discourse science with Coh-Matrix*. Invited workshop presented at the Learning Innovation and Networked Knowledge Research Lab, Arlington, Texas.
- Dowell, N. M.**, Cai, Z., & Graesser, A. C. (2014, July). *Analyzing language and discourse with Coh-Matrix*. Invited Workshop presented at 2nd Learning Analytics Summer Institutes (LASI 2014), Cambridge, MA.
- Dowell, N. M.** (2014, October). *What language reveals about you: Modeling learners' cognitive and social dynamics using Coh-Matrix*. Invited talk presented at the University of Oxford, Oxford, England.

- Dowell, N. M.** (2014, October). *Modeling discourse and social dynamics in authoritarian regimes*. Invited talk presented for University of Lancaster, Lancaster, England.
- Dowell, N. M.** (2011, May). *Language and political crisis*. Invited talk presented for Federal Bureau of Investigation, Memphis, TN.
- Dowell, N. M.** (2010, June). *Language and discourse in education*. Invited talk presented for Pearson Education, Memphis, TN.
-

CONFERENCE PRESENTATIONS

- Dowell, N. M.,** Nixon, T., Cai, Z., & Graesser, A. C. (2016, November). *Group communication analysis: A computational-linguistic framework for exploring conversational roles in online multi-party communication*. Paper presented at the 46th annual meeting of the Society for Computers in Psychology, Boston, MA.
- Dowell, N. M.,** & Graesser, A. C. (2015, April). *50 years of text complexity: A Coh-Metrix assessment of changes in first-grade texts over time*. Paper presented at the American Educational Research Association Conference. Chicago, Illinois.
- Dowell, N. M.,** Windsor, L., Germany, M., Iacobelli, F., & Graesser, A. C. (2015, July). *The partisan divide: A computational linguistic analysis of bias in the senate*. Paper presented at the Society for Text and Discourse, Minneapolis, MN.
- Cai, Z., **Dowell, N. M.,** Li, H., & Graesser, A. C. (2015, November). *Age of acquisition: How do you remember what words you learned at age one?* Paper presented at the 45th annual meeting of the Society for Computers in Psychology, Chicago, IL.
- Windsor, L., **Dowell, N. M.,** & Graesser, A. C. (2015, April) *Leaders' language in the Arab Spring: Using text analysis to explain variation in political outcomes*. Arab Spring in Global Context, Iowa City, Iowa.
- Windsor, L., **Dowell, N. M.,** & Graesser, A. C. (2014, November) *Socio-Political and linguistic cohesion*. Midwest International Studies Association, St. Louis, MO. **[Winner of the Hermann Textual Analysis Award]**
- Dowell, N. M.,** Windsor, L., Wang, J., Mintz, L., Myers, J. Beaver, D., Hu, X., & Graesser, A. C. (2013, May). *The evolution of revolution: Temporal dynamics of social cohesion and casualties during the Syrian Revolution*. Poster presented at Institute for Intelligent Systems Student Research Fair, Memphis, TN.
- Duan, Y., **Dowell, N. M.,** Myers, J., Li, H., & Graesser, A. C. (2013, May). *Leadership is influenced by social context: Relationships between the cohesion of Mao Zedong's speeches and the social-historical context of China*. Poster presented at Institute for Intelligent Systems Student Research Fair, Memphis, TN.
- Myers, J., **Dowell, N. M.,** Mintz, L., & Graesser, A. C. (2013, May). *Analysis of linguistic features of U.S. political discourse: Presidential corpus*. Poster presented at Institute for Intelligent Systems Student Research Fair, Memphis, TN
- Windsor, L., **Dowell, N. M.,** Li, H., Myers, J., & Graesser, A. C. (2013, April). *The language of autocrats: Leadership through natural disasters*. Paper presented at the 71st Annual Midwest Political Science Association Conference, Chicago, IL.
- Dowell, N. M.,** Germany, M., Myers, J., & Graesser, A. C. (2012, June). *Enduring leaders and their persuasive strategies*. Paper presented at the Society for Text and Discourse, Old Montréal, Canada.
- Deffler, S. A., Ogle, C. M., **Dowell, N. M.,** Graesser, A. C., & Rubin, D. C. (2012, July). *Life narratives of adults with and without PTSD: Preliminary findings*. Paper presented at the Emory Cognition Project Symposium on Mental Time Travel, Atlanta, GA.

- Deffler, S. A., Ogle, C. M., **Dowell, N. M.**, Graesser, A. C., & Rubin, D. C. (2011, July). *Measures of coherence in life narratives of adults with and without PTSD*. Paper presented at the Emory Cognition Project Symposium on Mental Time Travel, Atlanta, GA.
- Dowell, N. M.**, Duan, Y., Cai, Z., Hu, X., Louwerse, M., & Graesser, A. C. (2011, July). *A linguistic analysis of Fidel Castro's speeches before and after crisis*. Paper presented at the Society for Text and Discourse, Poitiers, France.
- Dowell, N. M.**, D'Mello, S. K., Mills, C. S., & Graesser, A. C. (2011, July). *Topic effects on linguistic and rubric-based writing evaluation*. Paper presented at the Society for Text and Discourse, Poitiers, France.
- Hancock, J., Beaver, D., Pennebaker, J., Graesser, A. C., **Dowell, N. M.**, Keshtar, F., & Liu, X. (2011, September). *Discourse and social dynamics in the Arab Spring*. Paper presented at the Second Annual Minerva Conference, Washington, DC.
- Dowell, N. M.**, Liu, H., Cai, Z., Hu, X., Louwerse, M., & Graesser, A. C. (2010, July). *Linguistic and discourse variation in Chairman Mao Zedong's speeches*. Paper presented at the Society for Text and Discourse, Chicago, IL.
- Graesser, A. C., Cai, Z., & **Dowell, N. M.** (2010, January). *The computational foundations of language arts*. Paper presented at the 23rd International Society for the Empirical Study of Literature, Utrecht, Netherlands.
- Dowell, N. M.**, & Berman, J. (2009, July). *The effect of therapist nonverbal behaviors on client perceptions*. Poster presented at the National Conference for Undergraduate Research, Lacrosse, WI.

TECHNICAL REPORTS AND OTHER PUBLICATIONS

- Dowell, N. M.** (2015). Texas teacher quality project: modeling teachers' cognitive and affective processes through language and discourse. *Report for Texas Teacher Quality Program*.
- Graesser, A. C., **Dowell, N. M.**, Li, H., & Cai, Z. (2014). Review of automated measures of language and discourse. *Report for private organization*.
- Dowell, N. M.**, Myers, J., & Graesser, A. (2012, November). Smart language is not smart politics: A computational analysis of the 2012 presidential and vice presidential debates [Web log post]. <http://wordwatchers.wordpress.com/2012/11/01/smart-language-is-not-smart-politics-a-computational-analysis-of-the-2012-presidential-and-vice-presidential-debates/>

QUANTITATIVE EXPERIENCE

METHODS	PROFICIENCY
Multilevel modeling (e.g., growth curve and hierarchical linear modeling)	Expert Level
Structural equation modeling (SEM)	Medium Level
Data mining (e.g., cluster analysis, classification, sequential pattern mining)	Medium Level

Social Network Analysis (SNA)	Medium Level
-------------------------------	--------------

STATISTICAL PACKAGE

R	Expert Level
SPSS	Expert Level
Weka	Medium Level
MATLAB	Medium Level

PROFESSIONAL ORGANIZATIONS

2014 – present	American Educational Research Association
2014 – present	Society for Learning Analytics Research
2013 – present	Association for Psychological Science (APS)
2012 – present	International Artificial Intelligence in Education Society (AIED)
2012 – present	International Educational Data Mining Society (EDM)
2012 – present	The American Psychological Association (APA)
2012 – present	The American Psychological Association for Graduate Students (APAGS)
2012 – present	Federation of Associations in Behavioral & Brain Sciences (FABBS)
2010 – present	Institute for Intelligent Systems Student Organization
2010 – present	Society for Text and Discourse
2006 – present	Psi Chi National Honors Society

PROFESSIONAL SERVICE & TRAINING

2017	Guest Editor, <i>International Journal of Artificial Intelligence in Education</i>
2017	Reviewer: <i>Journal of Educational Data Mining</i>
2016	Research Consultant, School of Information, University of Michigan
2016	Poster and Demonstrations Co-Chair, International Conference on Learning Analytics and Knowledge
2015	BBC Educational Discourse Workshop: University of Texas at

	Arlington
2015	BBC Educational Discourse Workshop: University of Michigan, Ann Arbor
2015	Text Analysis: Conflict Records Research Center (CRRC)
2015	Data Expert at BBC Deep Multimodal Data Jam
2014	Reviewer: SAGE
2014 – 2015	Reviewer: <i>Journal of Learning Analytics</i>
2014	Program Committee Co-Chair: ITS 2014; 12 th <i>International Conference on Intelligent Tutoring Systems</i>
2013	Reviewer: Scientific Study of Literature
2013	Advanced Training Institute Workshop on Nonlinear & Dynamic Systems Modeling in Psychological Science
2013	SWAG Committee Chair: <i>International Conference in Artificial Intelligence in Education</i>
2013	SWAG Committee Chair: <i>International Conference in Artificial Intelligence in Education</i>

REFERENCES

Arthur Graesser, Ph.D., Full Professor	Department of Psychology, University of Memphis Memphis, TN 38152. Phone: (901) 678-4857; email: a-graesser@memphis.edu
Dragan Gašević, Ph.D., Full Professor & Chair	Department of Learning Analytics and Informatics, University of Edinburgh Edinburgh, Scotland, United Kingdom. Phone: +44 131 651 6243; email: dragan.gasevic@ed.ac.uk
Leah Windsor, Ph.D., Assistant Professor	Department of Political Science, University of Memphis Memphis, TN 38152. Phone: (901) 355-7791; email: lcwells@memphis.edu
