

Poster “Metacognitive and Collaborative Arguing through Computers by University Students” in TEEM 2018

Nancy MacCann-Alfaro

Department of Social Work / Faculty of Social and Legal Sciences

Copayapu 485, Copiapó|

University of Atacama, Chile

nancy.maccann@uda.cl

Abstract

The TEEM 2018 Conference was held in Salamanca (Spain) from October 24 to October 26, 2018. The Doctoral Consortium track was organized as a poster session. This is the poster corresponding to the paper “Metacognitive and Collaborative Arguing through Computers by University Students”.

The main objective of the research is to promote the development of argumentative skills in university students from the Social Work degree programme, through the promotion of metacognitive skills and collaborative work in a digital context. The research has characteristics of a mixed study with a quasi-experimental design with a control group since the experimentation occurs in natural groups in a real context. Using a quantitative methodology, pre and post measurement instruments will be applied, and statistical analysis will be carried out. Through the qualitative methodology, the development process of the aforementioned skills will be analysed from each student’s individual self-records and the argumentative discussions of the student teams. The population includes all new students who study the subject, The Social and Political History of Chile from the Social Work degree program, in a public University located in Chile. The Halpern Critical Thinking Assessment using Everyday Situations (HCTAES) was used to measure the students’ argumentative skills. The metacognitive skills were measured by the Motivated Strategies for Learning Questionnaire (MSLQ). Both instruments are translated and validated for the Latin-American population. The main result is contribution to the development of a systemic educational innovation model that integrates two great higher order thinking skills such as Metacognition and Argumentation through the use of ICT and collaborative work.

Keywords

Computer-based learning environment; computer-supported argumentation; argumentation; metacognition; Argumentation-Based Computer Supported Collaborative Learning (ABCSCCL); Higher Education

Link to the poster

<https://goo.gl/m3sqDr>

Acknowledgments

This research work is made within University of Salamanca PhD Programme on Education in the Knowledge Society scope as well as the Department of Social Work at the University of Atacama with special thanks to the teacher of the subject, Mr. Francisco Berrios Drolett for making this research project possible..

References

- [1] Selma Leitão. 2000. The Potential of Argument in Knowledge Building. *Human Development*, 43, 6 (2000), 332–360. DOI: <https://doi.org/10.1159/000022695>
- [2] Diana Landazábal, Dignora Páez and Eliécer Pineda. 2013. Diseño de una innovación pedagógica para la formación en investigación apoyada en ambientes digitales. *Revista Virtual Universidad Católica del Norte* 3, 40 (septiembre-diciembre 2013), Retrieved from: <http://www.redalyc.org/articulo.oa?id=194229200002>
- [3] Inés Guacanem, Paola Lucumi & Sonia Suárez. 2015. Discusión colaborativa de casos incorporando el ambiente de aprendizaje digalo. Retrieved from: <http://repositorial.cuaed.unam.mx:8080/jspui/bitstream/123456789/3899/1/VE13.492.pdf>
- [4] UNESCO (1998) Conferencia Mundial sobre la Educación Superior La educación superior en el siglo XXI Visión y acción. París 5–9 de octubre de 1998. Retrieved from: <http://www.unesco.org/education/educprog/wche/principal/staff-s.html>
- [5] Lucia Mason & Marina Santi. 1994. Argumentation Structure and Metacognition in Constructing Shared Knowledge at School. Paper to be presented at the Annual Meeting of the American Educational Research Association New Orleans, LA, April, 1994. Retrieved from <https://files.eric.ed.gov/fulltext/ED371041.pdf>
- [6] Christopher Dwyer, Michael Hogan & Ian Stewart. 2012. An evaluation of argument mapping as a method of enhancing critical thinking

- performance in e-learning environments. *Metacognition and Learning*, 7, 3 (December 2012), 219-244. DOI: <https://doi.org/10.1007/s11409-012-9092-1>
- [7] Jairo Sánchez-Castaño, Olga Castaño-Mejía & Oscar Tamayo-Alzate. 2015. La argumentación metacognitiva en el aula de ciencias/Metacognitive argumentation in the science classroom. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud* 13, 2 (2015), 1153-1168. DOI:10.11600/1692715x.13242110214 Retrieved from: <http://www.redalyc.org/articulo.oa?id=77340728042>
- [8] Marc Lafuente & Ibis Álvarez. 2016. Promoting Student Metacognition through the Analysis of Their Own Debates.: Is it Better with Text or with Graphics? *Journal of Educational Technology & Society* 19, 4 (2016), 167-177. Retrieved from <http://www.jstor.org/stable/jeductechsoci.19.4.167>
- [9] Dionne Cross, Gita Taasoobshirazi, Sean Hendricks & Daniel Hickey. 2008. Argumentation: A strategy for improving achievement and revealing scientific identities. *International Journal of Science Education* 30, 6 (2008), 837-861. DOI: <https://doi.org/10.1080/09500690701411567>
- [10] Mónica Pérez & Olly Vega. 2001. Técnicas argumentativas (2nd.ed.) Ediciones Universidad Católica de Chile, Santiago, Chile.
- [11] María Monsalve. 2015. Estado del arte de la investigación sobre argumentación y escritura multimodal desde una perspectiva didáctica. *Revista Lasallista de Investigación* 12, 2 (2015), 215-224. Retrieved from: <http://www.redalyc.org/articulo.oa?id=69542291022>
- [12] Deanna Kuhn, Wendy Goh, Kalypso Iordanou & David Shaenfield. 2008. Arguing on the Computer: A Microgenetic Study of Developing Argument Skills in a Computer-Supported Environment. *Child Development*, 79, 5 (September-October, 2008), 1310-1328. DOI:10.1111/j.1467-8624.2008.01190.x
- [13] John Flavell. 1979. Metacognition and Cognitive Monitoring. A New Area of Cognitive Developmental Inquiry. *American Psychologist* 34, 10 (October, 1979), 906-911. DOI:<http://dx.doi.org/10.1037/0003-066X.34.10.906>
- [14] Deanna Kuhn, Eric Amsel, Michael O'Loughlin, Leona Schauble, Bonnie Leadbeater & Williams Yotive. 1988. The development of scientific thinking skills. San Diego, CA: Academic Press.
- [15] Deanna Kuhn. 1991. The skills of argument. Cambridge, UK: Cambridge University Press. Cambridge University Press, 26 jul. 1991.
- [16] Omid Noroozi, Armin Weinberger, Harm Biemans, Martin Mulder & Mohammad Chizari. 2012. Argumentation-based computer supported collaborative learning (ABCSCCL): A synthesis of 15 years of research. *Educational Research Review* 7, 2 (June, 2012), 79-106. DOI: <https://doi.org/10.1016/j.edurev.2011.11.006>
- [17] Nathalie Mirza, Valérie Tartas, Anne-Nelly Perret-Clermont, & Jean-François de Pietro. 2007. Using graphical tools in a phased activity for enhancing dialogical skills: An example with Digalo. *International Journal of Computer-Supported Collaborative Learning* 2, 2-3 (September, 2007), 247-272. DOI: 10.1007/s11412-007-9021-5
- [18] R Burke Johnson & Anthony Onwuegbuzie. 2004. Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher* 33, 7 (October, 2004), 14-26. Retrieved from <http://www.jstor.org/stable/3700093>
- [19] John Creswell & Vicki Plano Clark. 2017. Designing and conducting mixed methods research (2a. ed.). Los Angeles: Sage Publications.
- [20] María del Carmen Ramírez. 2016. Modelo causal de los factores asociados al aprendizaje autorregulado como mediador del rendimiento académico en estudiantes universitarios. Tesis Doctoral. Universidad Complutense de Madrid. Retrieved from <http://eprints.ucm.es/40522/1/T38161.pdf>
- [21] Stephen Toulmin. 1958. Los Usos de la Argumentación. Barcelona: Ediciones península.
- [22] F. J. García-Peñalvo. 2014. Formación en la sociedad del conocimiento, un programa de doctorado con una perspectiva interdisciplinar. *Education in the Knowledge Society* 15, 1, 4-9.
- [23] F. J. García-Peñalvo, M. S. Ramírez-Montoya, and A. García-Holgado. 2017. TEEM 2017 Doctoral Consortium Track. In Fifth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'17) (Cádiz, Spain, October 18-20, 2017) J.M. Dodero, M.S. Ibarra Sáiz and I. Ruiz Rube Eds. ACM, New York, NY, USA, Article 93. DOI:10.1145/3144826.3145440.
- [24] F. J. García-Peñalvo. 2017. Education in the Knowledge Society PhD Programme. 2017 Kick-off Meeting. In Proceedings of the Seminarios del Programa
- [25] F. J. García-Peñalvo, A. García-Holgado, and M. S. Ramírez-Montoya. 2018. The PhD Corner: TEEM 2018 Doctoral Consortium. In *TEEM'18 Proceedings of the Sixth International Conference on Technological Ecosystems for Enhancing Multiculturality (Salamanca, Spain, October 24th-26th, 2018)*, F.J. García-Peñalvo Ed. ACM, New York, NY, USA, 979-983. DOI:10.1145/3284179.3284343.
- [26] F. J. García-Peñalvo. 2018. Edición 2018-2019 del Kick-off del Programa de Doctorado "Formación en la Sociedad del Conocimiento". In *Proceedings of the Seminarios del Programa de Doctorado en Formación en la Sociedad del Conocimiento (23 de octubre de 2018)* (Salamanca, España 2018). Instituto Universitario de Ciencias de la Educación.
- [27] F. J. García-Peñalvo (Ed.). 2018. TEEM'18 Proceedings of the Sixth International Conference on Technological Ecosystems for Enhancing Multiculturality (Salamanca, Spain, October 24th-26th, 2018). ACM, New York, USA.
- [28] N. Maccann-Alfaro, E. M. Morales-Morgado, and A. García-Valcárcel Muñoz-Repiso. 2018. Metacognitive and Collaborative Arguing through Computers by University Students. In *Sixth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM 2018)* ACM, Salamanca, Spain.