

Tugce Aldemir

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Education

- Ph.D. in Learning, Design, and Technology, The Pennsylvania State University 2021
Dissertation: Shared meaning making around charged topics: Developing and operationalizing a theory for multicultural collaborative competence
Committee: Dr. Marcela Borge, Dr. Jose Soto, Dr. Gabriella Richard, Dr. Kathryn Jablow
- M.S. in Computer Education, and Instructional Technology, Middle East Technical University 2015
Thesis: A proposal of an instructional design model for gamified learning environments: GELD model
- B.S. in Computer Education, and Instructional Technology, Middle East Technical University 2011
- Certificate Program, Information Design, FH JOANNEUM - University of Applied Sciences 2010

Professional Appointments

- Assistant Professor, Texas A&M University August 2023 – Present
Department of Teaching, Learning, Culture
School of Education and Human Development
- Postdoctoral Research Fellow, University of Pennsylvania August 2022 – July 2023
Teaching, Learning, and Leadership Division
Graduate School of Education
- Postdoctoral Research Associate, University of Connecticut October 2021 – August 2022
Department of Educational Psychology
Neag School of Education
- Research Associate, The Pennsylvania State University August 2017 – October 2021
The Collective Cognition and Design Group
- Graduate Research Assistant, The Pennsylvania State University August 2018 – October 2021
Teaching and Learning with Technology (TLT)
- Graduate Research Assistant, The Pennsylvania State University August 2015 – June 2018
World Campus
- Graduate Administrative Assistant, Middle East Technical University December 2012 – July 2015
Instructional Technology Support Office

Grants

Funded Grants

Grant Title	Agency	Role	Amount	Date
CAREER: 3AforCT: AI-Guided, Authentic, Ag-STEM Inquiry for Cultivating Computational Thinking in Rural Middle Schools.	National Science Foundation CAREER	PI	\$1,616,223	Aug 2026 - July 2031
AI-Driven Professional Learning to Strengthen Pre-Service Teachers' Content Knowledge, Pedagogical Content Knowledge, and Mathematical Creativity	National Science Foundation	Co-PI	\$1,989,289	Oct 2026-Sept 2031
AI-Enhanced Computational Thinking and Agricultural Science in Rural Schools.	Catapult Grant, College of Education, Texas A&M University	PI	\$30,000	2024 - 2026
Collaborative Human-AI STEM Learning Ecologies Lab (CoHALE Lab).	Vice Provost for Faculty Affairs & Department of Teaching, Learning, and Culture, College of Education, Texas A&M University	PI	\$15,000	2025 - 2027
Artificial Intelligence Mentorship for Rural Education (AIM4Rural).	Emerge Grant, College of Education, Texas A&M University	PI	\$49,436	2024 - 2026
Computing and Learning Interdisciplinary Collaboration (CLIC): CLIC Research Group.	Catalyst Grant, College of Education, Texas A&M University	Co-PI	\$10,000	2026 - 2027
Developing and Operationalizing an Analytical Framework for Multicultural Collaborative Competence	The American Educational Research Association (AERA) Division D	PI	\$5,000	2022 - 2023

Grants Under Review

Grant Title	Agency	Role	Amount	Date
CyberAI Innovation: Vigilant Horizon - Augmented Reality with Embodied AI Mentorship for Advancing Cybersecurity Competency and Trustworthy Cyberspace Workforce Development	National Science Foundation	Co-PI	\$500,000	Pending

Grant Title	Agency	Role	Amount	Date
XR-MathLeader: Immersive AI-Enabled Mathematics Instructional Rehearsal for Teachers with School-Leader Support.	U.S. Department of Education	Co-PI	\$2,971,772	Pending

Non-Funded Grants

Grant Title	Agency	Role	Amount	Date
Investigating the Persona Effects and Risks of Generative AI Chatbots on STEM Learners Equitable Benefits	National Science Foundation	Co-PI	\$566,269	NA
Collaborative Research: HCC: Small: Developing an Emotionally Intelligent Generative AI Chatbot (EIGA) to Empower STEM Learners	National Science Foundation	Co-PI	\$400,000	NA
Creative STEM Summer Camp	Texas Workforce Commission	Co-PI	\$83,000	NA
Co-Design for Pre-Service Teachers' Professional Development in Integrated STEM	School of Education & Human Development Texas A&M University	PI	\$30,000	NA
Design for Belonging: Broadening Latinx Youth Participation in Computing through Student-Led Design in OctoStudio	Google	PI	\$60,000	NA
Arduino-Integrated AI-Powered Digital Science Labs	Digital Promise and the Carnegie Corporation of New York (CCNY)	PI	\$20,000	NA
COMPRESSE: Competency-gap Management to Prepare Rising and Emerging Professionals for Sustainable Energy	National Academies	Co-PI	649,628	NA
CyberThreat: Enhancing Knowledge and Interest in Cybersecurity Through an Introductory Grounding Game-Based Curriculum	National Science Foundation	Co-PI	\$2,896,457	NA

Publications

Peer-Reviewed Journal Articles

**Indicates work with a mentoring postdoctoral researcher. **Indicates work with a mentoring graduate student.*

20. **Aldemir, T.**, Bicer, A., Kilinc, S.*, Moon, J., & Kwok, M. (in press). Challenges, solutions, and PD needs for integrating AI: Insights from a two-week AI literacy module with preservice teachers. *Cogent Education*.
19. Bicer, A., **Aldemir, T.**, Lee, U., Moon, J., Rambo Hernandez, K., & Sanders, M. (2026). How generative AI guided-professional development supports teachers' engagement with mathematical creativity, content knowledge, and pedagogical content knowledge. *ZDM – Mathematics Education*. <https://doi.org/10.1007/s11858-026-01816-1> (Impact factor: 3.8)
18. Bicer, A., **Aldemir, T.**, Gooden, M., & Colak, M. A. (2026). Examining middle school students' experiences with opportunities for mathematical creativity. *Mathematics Education Research Journal*. <https://doi.org/10.1007/s13394-026-00594-z> (Impact factor: 2).
17. **Aldemir, T.**, Yoon, S., Shim, J., & Miller, K. (2026). Unpacking relational trust mechanisms in teacher-researcher co-design partnerships: Insights from a case study. *AERA Open*, 12. <https://doi.org/10.1177/23328584261448146>. (Impact factor: 2.8)
16. Bicer, A., Quiroz, F., & **Aldemir, T.** (2025). Revealing student processes in a mathematics classroom: An in-depth instrumental case study. *Learning, Culture and Social Interaction*, 52, 1-19. <https://doi.org/10.1016/j.lcsi.2025.100905>. (Impact factor: 2.1)
15. **Aldemir, T.**, Kilinc, S.*, Bicer, A., Grant, P**, Davis, T., & Sweany, N. W. (2025). Intelligent-TPACK in practice: design and evidence from a three-week teacher preparation module. *Computers and Education Open*, 100306. <https://doi.org/10.1016/j.caeo.2025.100306>. (Impact factor: 5.7)
14. **Aldemir, T.**, Bicer, A., Kilinc, S*, Moon, J., & Kwok, M. (2025). Exploring emergent AI-TPACK competencies in a two-week AI literacy module for preservice teachers. *Teaching and Teacher Education*, 168, 105231. <https://doi.org/10.1016/j.tate.2025.105231>. (Impact factor: 3.9)
13. **Aldemir, T.**, Moon, J., Bicer, A., Byun, G., Perez, C. M**, Sabanwar, V**, (2025). How non-CS preservice teachers conceptualize and engage with computational thinking through 3D game design: Insights from an XR-enhanced maker experience. *Computers & Education: X Reality*, 6, 100099. <https://doi.org/10.1016/j.cexr.2025.100099>. (Impact factor: 5.9)
12. Bicer, A., **Aldemir, T.**, Davis, T. J., & Young, J. (2025). Exploring the transferability of STEM PBL instructional principles from higher education to K-12 classrooms. *Education Sciences*, 5(1), 39. <https://doi.org/10.3390/educsci15010039>. (Impact factor: 3.5)
11. Borge, M., Smith, B., & **Aldemir, T.** (2024). Using generative AI as a simulation to support higher-order thinking. *International Journal of Computer-Supported Collaborative Learning*, 19, 479-532. <https://doi.org/10.1007/s11412-024-09437-0>. (Impact factor: 6.8)
10. Bicer, A., **Aldemir, T.**, Krall, G., Quiroz, F., Chamberlin, S., Nelson, J. L., Lee, Y., & Kwon, H. (2024). Exploring creativity in mathematics assessment: An analysis of standardized tests. *Thinking Skills and Creativity*, 101652. <https://doi.org/10.1016/j.tsc.2024.101652>. (Impact factor: 5.3)
9. **Aldemir, T.**, Davidesco, I., Kelly, S., Glaser, N., Kyle, A. M., Montrosse-Moorhead, B., & Lane, K. (2022). Investigating students' learning experiences in a neural engineering integrated STEM high school curriculum. *Education Sciences*, 12(10), 705. <https://doi.org/10.3390/educsci12100705>. (Impact factor: 3.5)
8. **Aldemir, T.**, Borge, M., & Soto, J. (2022). Shared meaning-making in online intergroup discussions around sensitive topics. *International Journal of Computer-Supported Collaborative Learning*, 17(3), 1-36. <https://doi.org/10.1007/s11412-022-09375-9>. (Impact factor: 6.8)

7. Borge, M., **Aldemir, T.**, & Xia, Y. (2022). How teams learn to regulate collaborative processes with technological support. *Educational Technology Research and Development*, 70, 661–690. <https://doi.org/10.1007/s11423-022-10103-1>. (Impact factor: 5.6)
6. Borge, M., Soto, J., **Aldemir, T.**, & Mena, J. (2022). Building multicultural competence by fostering collaborative skills. *Teaching of Psychology*, 49(1), 85–92. <https://doi.org/10.1177/0098628320977421>. (Impact factor: 1.7)
5. Russell, S., Ramsay, C., Lonsinger, Z., Davis, S., & **Aldemir, T.** (2020). The Moral Moments Project: Where technology and compassion meet. *EDUCAUSEREVIEW*. <https://er.educause.edu/articles/2020/6/the-moral-moments-project-where-technology-and-compassion-meet>.
4. Shearer, R., **Aldemir, T.**, Hitchcock, J., Resig, J., Driver, J., & Kohler, M. (2020). What students want: A vision of a future online learning experience grounded in Distance Education Theory. *American Journal of Distance Education*, 34(1), 36–52. <https://doi.org/10.1080/08923647.2019.1706019>. (Impact factor: 1.3)
3. **Aldemir, T.**, Celik, B., & Kaplan, G. (2018). A qualitative investigation of student perceptions of game elements in a gamified course. *Computers in Human Behavior*, 78, 235–254. <https://doi.org/10.1016/j.chb.2017.10.001>. (Impact factor: 12.2)
 → **Best Qualitative Article Award (2nd place),**
 Division of Distance Learning, Association for Educational Communications and Technology
2. Gregg, A., Reid, R., **Aldemir, T.**, Garbrick, A., Frederick, M., & Gray, J. (2018). Improving on-line course design with think-aloud observations: A “how-to” guide for instructional designers for conducting UX testing. *Journal of Applied Instructional Design (JAID)*, 7 (2), 17–26.
1. Romero-Hall, E., **Aldemir, T.**, Colorado-Resa, J., Dickson-Deane, C., Watson, G., & Sadaf, A. (2018). Undisclosed stories of instructional design female scholars in academia. *Women's Studies International Forum*, 71, 19–28. <https://doi.org/10.1016/j.wsif.2018.09.004>. (Impact factor: 2.0)

Peer-Reviewed Conference Proceedings

*Indicates work with a mentoring postdoctoral researcher. **Indicates work with a mentoring graduate student.

17. **Aldemir, T.**, Kilinc, S.*, Sabanwar, V.**, Bicer, A., & Song, D. (2026). Disciplinary computational thinking in AI-mediated problem framing: A rural Ag-STEM context. In B. K. Litts, D. DeLiema, C. Lee, S. Krist, A. Mawasi, L. Martin, & K. Kumpulainen (Eds.), *Proceedings of the 20th International Conference of the Learning Sciences - ICLS 2026* (pp. 2985–2988). International Society of the Learning Sciences.
16. **Aldemir, T.**, Kaliisa, R., Israel-Fishelson, R., Koren, N., Oswald, E., Blikstein, P., Hochgreb, T., Fuhrmann, T., Fernandez, C., Yip, J., Druin, A., Bederson, A., Espino, D. P., Lee, S. B., & Hamilton, E. R. (2026). Bridging gaps: Participatory design as a tool for social justice in education. In B. K. Litts, D. DeLiema, C. Lee, S. Krist, A. Mawasi, L. Martin, & K. Kumpulainen (Eds.), *Proceedings of the 20th International Conference of the Learning Sciences - ICLS 2026* (pp. 2365–2374). International Society of the Learning Sciences.
15. Sabanwar, V.**, **Aldemir, T.**, Kilinc, S.*, Bicer, A., & Song, D. (2026). How middle school students engage in computational literacies in an agricultural class. In B. K. Litts, D. DeLiema, C. Lee, S. Krist, A. Mawasi, L. Martin, & K. Kumpulainen (Eds.), *Proceedings of the 20th International Conference of the Learning Sciences - ICLS 2026* (pp. 1657–1661). International Society of the Learning Sciences.

14. Kilinc, S*, **Aldemir, T.**, Sabanwar, V.**, Bicer, A., & Song, D. (2026). Planners and tinkers: A comparative case study of K-12 students' engagement with data practices in an Ag-STEM. In B. K. Litts, D. DeLiema, C. Lee, S. Krist, A. Mawasi, L. Martin, & K. Kumpulainen (Eds.), *Proceedings of the 20th International Conference of the Learning Sciences - ICLS 2026* (pp. 726–736). International Society of the Learning Sciences.
13. Kilinc, S.*, **Aldemir, T.**, Sabanwar, V.**, Bicer, A., & Song, D. (2025). AI chatbot coaching for elevating student research. In *Proceedings of the 2025 ACM conference on international computing education research V. 2* (pp. 1-2).
12. **Aldemir, T.** (2024). Navigating charged topics: Analyzing social-emotional talk in diverse online teams. In *Proceedings of the 17th International Conference of Learning Sciences - ICLS 2024*. Buffalo, USA: International Society of the Learning Sciences.
11. **Aldemir, T.**, Shim, J., & Yoon, S. (2024). Teachers as co-thinkers and facilitators: Unpacking teacher-student dynamics in co-design partnerships. In *Proceedings of the 17th International Conference of Learning Sciences - ICLS 2024*. Buffalo, USA: International Society of the Learning Sciences.
10. **Aldemir, T.**, Yoon, S, & Shim, J. (2024). Empowering voices: Promoting equitable participation in student-inclusive co-design research-practice partnerships. In *Proceedings of the 17th International Conference of Learning Sciences - ICLS 2024*. Buffalo, USA: International Society of the Learning Sciences.
9. **Aldemir, T.**, Yoon, S, Miller, K., & Shim, J. (2023). Teachers as co-designers: Forming equitable participation through the lens of relational trust. In *Proceedings of the 16th International Conference of Learning Sciences - ICLS 2023*. Montréal, Canada: International Society of the Learning Sciences.
8. **Aldemir, T.**, Borge, M., & Soto, J. (2023). How students talk about race and identity: Unpacking social-emotional talk. In *Proceedings of the 16th International Conference on Computer-Supported Collaborative Learning - CSCL 2023*. Montréal, Canada: International Society of the Learning Sciences.
7. **Aldemir, T.**, Borge, M., & Soto, J. (2022). Perspective-taking as a tool to examine engaging in differences during shared meaning-making. In A. Weinberger, W. Chen, D. Hernández-Leo, & B. Chen (Eds.). *Proceedings of the 15th International Conference on Computer-Supported Collaborative Learning - CSCL 2022* (pp. 463-466). Hiroshima, Japan (Online Event): International Society of the Learning Sciences.
6. Borge, S., **Aldemir, T.**, & Soto, J. (2022). Towards a framework for multicultural collaborative competence. In S. Strauß, J. Eberle, & C. Rosé (Chairs), Learning to build bridges: Promoting skills for complex collaboration across professional and cultural boundaries [Symposium]. *Proceedings of the 15th International Conference on Computer-Supported Collaborative Learning - CSCL 2022* (pp. 521-523). Hiroshima, Japan (Online Event): International Society of the Learning Sciences.
5. **Aldemir, T.**, Borge, M., & Xia, Y. (2021). Exploration of facilitation strategies for intergroup dialogues in a CSCL context. In C. E. Hmelo-Silver, B. De Wever. & J. Oshima (Eds.). *Proceedings of the 14th International Conference on Computer-Supported Collaborative Learning - CSCL 2021* (pp. 131-138). Bochum, Germany (Online Event): International Society of the Learning Sciences.
4. **Aldemir, T.** & Borge, M. (2020). Unpacking collaborative sense-making: The role of reflective accuracy in collaborative process quality. In M. Gresalfi and I.S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020*, Volume 3 (pp. 1709-1712). Nashville, TN: International Society of the Learning Sciences. <https://repository.isls.org/handle/1/6405>

3. Borge, M., **Aldemir, T.**, & Xia, Y. (2019). Unpacking socio-metacognitive sense-making patterns to support collaborative discourse. In Lund, K., Niccolai, G. P., Lavoué, E., Hmelo-Silver, C., Gweon, G., & Baker, M. (Eds.), *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019*, Volume 1 (pp. 320-327). Lyon, France: International Society of the Learning Sciences. <https://repository.isls.org/handle/1/1584>
2. **Aldemir, T.**, Celik, B., & Akilli, G. K. (2016). An evaluation study of a classroom management system: usability and teacher experiences and evaluations. In *Proceedings from the Society for Information Technology & Teacher Education International Conference 2016* (pp. 1754-1759). Association for the Advancement of Computing in Education (AACE). <https://www.learntechlib.org/primary/p/171928/>
1. **Aldemir, T.**, & Kaplan, G. (2015). Students' opinions and perceptions about a gamified online course: A qualitative study. In *Proceedings from the Association for Educational Communications and Technology Conference 2015* (pp. 1-11). Indianapolis, USA.

Book Chapters

4. Atas, A. H., Celik, B., & **Aldemir, T.** (2024). Enhancing educational assessment through GenAI: Leveraging revised Bloom's taxonomy for question generation with ChatGPT. In S. G. Turan & H. Tinmaz (Ed.), *Generative artificial intelligence applications: Holistic reflections from the educational landscape*.
3. Celik, B., Atas, A.-H., & **Aldemir, T.** (2022). Sesli düşünme tekniği [Turkish] [Think aloud technique]. In S. Toraman-Turk (Ed.), *Sosyal bilimlerde nitel araştırmalar ve eylem araştırmaları: Yaklaşımlar, yeni arayışlar ve uygulamalar* [Qualitative research and action research in social sciences: Approaches, new trends, and applications] (chapter 4, pp. 81-119).
2. Gregg, A., Reid, R., **Aldemir, T.**, Gray, J., Frederick, M., & Garbrick, A. (2020). Think-aloud observations to improve online course design: A case example and "how-to" guide. In M. Schmidt, A. A. Tawfik, I. Jahnke, & Y. Earnshaw (Ed.), *Learner and user experience research: An introduction for the field of learning design & technology* (chapter 15). https://edtechbooks.org/ux/15_think_aloud_obser
1. **Aldemir, T.**, Atas, A. H., & Celik, B. (2019). A systematic design model for gamified learning environments: GELD model. In W. Tan (Ed.), *Design, motivation, and frameworks in game-based learning* (pp. 30-56). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-5225-6026-5.ch002>

Invited Articles

1. Anderle, J. S., **Aldemir, T.**, Resig, J., McArthur, A., Sacak, B., & DuBoff, B. (2018). Expectations and experiences of the AECT leadership internship program. *TechTrends*, 1-3. <https://doi.org/10.1007/s11528-018-0277-6>

Journal Column Articles

2. Turcotte, N., Giri, S., Vasconcelos, L., Essmiller, K., & **Aldemir, T.** (2018). The graduate student assembly: Pathways to leadership. *TechTrends*, 62(5), 427-428. <https://doi.org/10.1007/s11528-018-0322-5>
1. **Aldemir, T.**, & Park, E. (2017). Student visa approved; beam me up, Scotty! Being a legal alien in American graduate school. *TechTrends*, 61(3), 210. <https://doi.org/10.1007/s11528-017-0180-6>

Research in Progress

*Indicates work with a mentoring postdoctoral researcher. **Indicates work with a mentoring graduate student.

Manuscripts Under-Review

6. Kilinc, S.*, **Aldemir, T.**, Sabanwar, V.**, Bicer, A., Misiejuk, K., Kaliisa, R., & Song, D. (revise and resubmit). A mixed-methods analysis of AI scaffolding patterns and student inquiry profiles in a middle-school agriculture-STEM classroom *Computer & Education: Artificial Intelligence*.
5. Awoyemi, D.**, Moon, J., **Aldemir, T.**, Ghoooreian, A.**, & Sabanwar, V.** (under review). A systematic review of empirical research on AI in K-12 STEM education (2020-2025) through a sociotechnical Lens. *Educational Technology Research and Development*.
4. Moon, J., **Aldemir, T.**, & Byun, G. (under review). Design affordance diagnostic framework for computational thinking assessment in interactive virtual makerspaces: An exploratory study. *Interactive Learning Environments*.
3. Albrecht, H.**, Bicer, A., & **Aldemir, T.** (under review). Rural mathematics teachers' experiences of agency, authenticity, and reflection in generative AI-mediated professional development. *Mathematics Education Research Journal*.
2. Bicer, A., **Aldemir, T.**, Colak, M.-A., & Albrecht, H. (under review). Fostering mathematical creativity, content knowledge, and pedagogical content knowledge through generative AI-driven creativity-directed professional development. In J. Cai (Ed.), *AI in mathematics education*. Springer. (Invited)
1. Bicer, A., **Aldemir, T.**, Sanders, M., Kopparla, M., Erdogan, N., & Lee, Y. (under review). Fostering divergent and convergent thinking through mathematics-emphasized STEM project-based learning. *Thinking Skills and Creativity*.

Articles in Preparation (Selected)

3. **Aldemir, T.**, Ordonez, L.**, Zhu, Y**, Hou, Y**, Atas, A.H., Bicer, A., & Song, D. (in preparation). From individual AI interactions to shared question-hypothesis revision in middle school agricultural STEM inquiry.
2. **Aldemir, T.**, Borge, M., & Pérez-Edgar, K. (in preparation). The impact of instructional support on socio-metacognitive expertise and collaborative competence in a CSCL context.
1. Borge, M., **Aldemir, T.**, & McCrudden, M. (in preparation). Supporting collective sense-making skills in CSCL for large undergraduate classrooms.

Presentations

Presentations published as proceedings are not included in this section. Those are listed in the 'Peer-Reviewed Published Conference Proceedings' section above.

*Indicates work with a mentoring postdoctoral researcher. **Indicates work with a mentoring graduate student.

Peer-Reviewed Presentations

Kilinc, S.*, **Aldemir, T.**, Sabanwar, V**, Bicer, A., & Song, D. (2026). Computational thinking and participation in rural Ag-STEM: A comparative case study of two middle school teams [Paper presentation]. American Educational Research Association Annual Meeting, Los Angeles, CA, United States.

Kilinc, S.*, **Aldemir, T.**, Sabanwar, V.**, Bicer, A., & Song, D. (2026). The AI as cognitive mentor: Scaffolding student scientific inquiry through dialogue [Paper presentation]. American Educational Research Association Annual Meeting, Los Angeles, CA, United States.

Bicer, A., Quiroz, F. S., Bicer, A., **Aldemir, T.**, Gooden, M., & Melek, Z. (2026). Mathematical creativity as a unifying lens: A case study of instructional shifts in elementary classrooms through sustained professional development [Paper presentation]. American Educational Research Association Annual Meeting, Los Angeles, CA, United States.

Sabanwar, V.**, **Aldemir, T.**, Kilinc, S.*, Bicer, A., & Song, D. (2026). Teacher conceptualization of student challenges and solutions for CT in a non-CS classroom [Poster presentation]. American Educational Research Association Annual Meeting, Los Angeles, CA, United States.

Bicer, A., **Aldemir, T.**, Gooden, M., Bicer, A., & Quiroz, F. S. (2026). Fostering mathematical creativity, content knowledge, and pedagogical content knowledge through generative AI-driven creativity-directed professional development [Poster presentation]. American Educational Research Association Annual Meeting, Los Angeles, CA, United States.

Sabanwar, V.**, **Aldemir, T.**, Kilinc, S.*, Bicer, A., & Song, D. (2025). Exploring Computational Thinking (CT) skills in the era of GenAI in K–12 education. Paper presented at the 2025 AECT International Convention, Las Vegas, NV, United States.

Kilinc, S.*, **Aldemir, T.**, Sabanwar, V.**, Bicer, A., & Song, D. (2025). Enhancing Research Questions and Hypothesis Development Through AI Chatbot Assistance in Rural Agricultural Education. Paper presented at the 2025 AECT International Convention, Las Vegas, NV, United States.

Bicer, A., **Aldemir, T.** (2025). Fostering Mathematical Creativity Through AI-Driven Professional Development. Paper presented at the 2025 School Science and Mathematics Association Convention, Fort Worth, TX.

Bicer, A., **Aldemir, T.**, Krall, G., Quiroz, F., Chamberlin, S., Nelson, J., Lee, Y., & Kwon, H. (2025). Creativity in mathematics assessment. 9th ICMI-East Asia Regional Conference on Mathematics Education, Jung-gu, Seoul, Korea.

Bicer, A., Bicer, A., **Aldemir, T.**, Gooden, M., Sanders, M., Lee, Y., Perihan, C., & Quiroz, F. (2025). Enhancing PSTs' mathematical creativity via STEM PBL: A mixed-methods study. Paper presented at the annual meeting of the American Educational Research Association (AERA), Denver, CO.

Bicer, A., **Aldemir, T.**, Gooden, M., Erdogan, N., Sanders, M., & Quiroz, F. (2025). STEM PBL in the context of mathematical creativity. Paper presented at the annual meeting of the American Educational Research Association (AERA), Denver, CO.

Bicer, A., Gooden, M., Sanders, M., **Aldemir, T.**, Kopparla, M., Lee, Y., & Calabrese, J. (2025). Problem-posing as a means for developing pre-service teachers' mathematical creativity. Paper presented at the annual meeting of the American Educational Research Association (AERA), Denver, CO.

Aldemir, T., Shim, J., & Yoon, S. (2024). Tokenistic or genuine: Engaging students as co-designers of a curriculum unit. Roundtable session presented at the American Educational Research Association (AERA) Convention, Philadelphia, USA.

Glaser, N., Center, M., Jensen, L., Davidson, A., **Aldemir, T.** (2023). Monsters: Redefining monstrosity: Compassion and duty in 'Spiritfarer'. Presented at the MultiPlay Network Video Game Monster Conference. Virtual Convention.

Aldemir, T., & Borge, M. (2023, April 13-16). Conceptualizing quality of intergroup dialogue in CSCL: Analysis of social and emotional talk. Full paper session presented at the American Educational Research Association (AERA) Convention, Chicago, USA.

Aldemir, T., & Borge, M. (2022, October 24-28). Leveraging a theoretically informed technological intervention to support multicultural collaborative competence. Concurrent session presented at the Association of Educational Communications & Technology (AECT). Las Vegas, NV.

→ **McJulien Scholar Best Paper Award**

Aldemir, T., Glaser, N., & Davidesco, I. (2022, October 24-28). Exploring how user-centered approaches and empathy informed the co-design of a neural engineering curriculum. Concurrent session presented at the Association of Educational Communications & Technology (AECT). Las Vegas, NV.

Glaser, N., Herman, K., & **Aldemir, T.** (2022, October 24-28). Artificial intelligence and computer vision: Opportunities and challenges for instructional design and evaluation. Roundtable session presented at the Association of Educational Communications & Technology (AECT). Las Vegas, NV.

Aldemir, T., Borge, M., & Soto, J. (2021, April 8-12). Sense-making patterns in online intergroup dialogues around politically charged topics. Poster session presented at the American Educational Research Association (AERA) Convention. Virtual Convention.

Aldemir, T., & Borge, M. (2020, November 2-7). Learning to monitor and regulate socio-emotional interactions when discussing politically charged topics. Concurrent session presented at the Association of Educational Communications & Technology (AECT). Virtual Convention.

Rogers, S. E., Dickson-Deane, C., Liu, J. C., Asino, T., Subramony, D. P., Heggart, K., & **Aldemir, T.** (2020, November 2-7). What is our responsibility to those prevented from learning by governmental policy decisions? Presidential Panel presented at the Association of Educational Communications & Technology (AECT). Virtual Convention.

Aldemir, T., & Borge, M. (2019, April 5-9). Socio-metacognitive processes in computer-supported collaborative learning. Full paper session presented at the American Educational Research Association (AERA) Convention, Toronto, Canada.

Aldemir, T. (2018, October 23-27). Re-considering triangulation: A critical realist approach to the mixed methods research praxis in social science. Concurrent session presented at the Association of Educational Communications & Technology (AECT) Convention, Kansas City, MO, USA.

Resig, J., DuBoff, B., **Aldemir, T., & Anderle, J.** (2018, October 23-27). AECT 2017 leadership intern class project: Facilitating organizational advancement through membership data analysis. Concurrent session presented at the Association of Educational Communications & Technology (AECT) Convention, Kansas City, MO, USA.

Aldemir, T., Atas, A. H., & Celik, B. (2018, October 23-27). Proposal of an instructional design model for gamified learning environments: GELD model. Concurrent session presented at the Association of Educational Communications & Technology (AECT) Convention, Kansas City, MO, USA.

Shearer, R., **Aldemir, T., & Bourland, J.** (2017, November 7-11). Future learning experience for distance education. Concurrent session presented at the Association of Educational Communications & Technology (AECT) Convention, Jacksonville, FL, USA.

Zhongrui, Y., Neumann, K., **Aldemir, T., Arrington, L., & Bae, H.** (2017, November 7-11). Student organizations: Experiences and reflections from student leaders. Panel discussion presented at the Association of Educational Communications & Technology (AECT) Convention, Jacksonville, FL, USA.

Romero, E. J., Colorado, Z., Watson, G., Sadaf, A., **Aldemir, T.**, & Dickson-Deane, C. (2017, November 7-11). Instructional design research women's caucus. Panel discussion presented at the Annual Conference of the Association for Educational Communications and Technology (AECT) Convention, Jacksonville, FL, USA.

Gregg, A., Gray, J., & **Aldemir, T.** (2017, July). Leveraging User Experience (UX) research to improve canvas course design. The Pennsylvania State University Learning Design Summer Camp, State College, PA, USA.

Shearer, R., Gregg, A., & **Aldemir, T.** (2016, October 17-21). Theory, practice, and future learning experience. Concurrent session presented at the Association of Educational Communications & Technology (AECT) Convention, Las Vegas, NV, USA.

Celik, B., & **Aldemir, T.** (2016, October 17-21). Student perceptions of usability, enjoyment, and vocabulary learning: A case of Vocabulary.com, Concurrent session presented at the Association of Educational Communications & Technology (AECT), Las Vegas, NV, USA.

Aldemir, T., Celik, B., & Kaplan, G. (2016, March 21-25). An evaluation study of a classroom management system: Usability and teacher experiences and evaluations. Concurrent session presented at the 27th Annual Conference of the Society for Information Technology and Teacher Education (SITE), Savannah, Georgia, GA, USA.

Aldemir, T., & Kaplan, G. (2015, November 3-7). Students' opinions and perceptions about a gamified online course: A qualitative study. Concurrent session presented at the Association of Educational Communications & Technology (AECT) Convention, Indianapolis, Indiana, IN, USA.

Aldemir, T., Gurel-Koybasi, N., Teker, M., & Cagiltay, K. (2015, February 4-5). Migration to a new learning management system: ODTUClass experience (in Turkish). Concurrent session presented at the Akademik Bilisim Conference, Eskisehir, Turkey.

Aldemir, T., & Kaplan, G. (2014, September 27-28). A new approach to improve students' motivation and achievement in ESL writing: Project-based digital storytelling. Concurrent session presented at the 8th International Computer and Instructional Technologies Symposium, Edirne, Turkey.

Atas, A., **Aldemir, T.**, & Delialioglu, O. (2014, September 27-28). Acceptance of a mobile question-answer system: APPLICATION of the UTAUT model. Concurrent session presented at the 8th International Computer and Instructional Technologies Symposium, Edirne, Turkey.

Invited Lectures and Presentations

Aldemir, T. (2023, November 21). Fostering diverse cultural identities in the classroom. [Audio podcast episode]. In Podcast for the Center for Engaged Learning. Elon University. <https://www.centerforengagedlearning.org/fostering-diverse-cultural-identities/>

Glaser, N., Earnshaw, Y., **Aldemir, T.**, & Zoubi, D. (2022, June). Navigating the Job Market: Insight from the inside: How to land your dream job in academia or industry. Panel discussion presented at the 8th International Conference of the Immersive Learning Research Network, Online Event.

Aldemir, T. (2022, March). Wise integration of technology into teaching and learning Environments. Neag School of Education, EPSY 5530: Theories of Learning, Cognition and Instruction Course Guest Lecture, University of Connecticut, Storrs, CT.

Gregg, A., Reid, R., **Aldemir, T.**, Garbrick, A., & Gray, J. (2022, April). Think-Aloud Methods for LXD: Just-in-Time & Systematic Methods to Improve Course Designs. Webinar presented at the AECT, Design, and Development Division LXD Webinar Series.

Aldemir, T., Cadieux-Boulden, D., Gyabak, K., Mao, Z., & Sacak, B. (2018, April). The future of design & technology. Panel discussion presented at the AERA Convention, Design and Technology SIG Business Meeting, New York, NY, USA. (Speakers in alphabetical order)

Aldemir, T., & Kaplan, G. (May, 2015). Effective presentation techniques and Web 2.0 presentation tools [Series of seminars]. Turkiye Merkez Bankasi (Turkey Central Bank), Ankara, Turkey.

Teaching, Course Design, & Curriculum Development

Teaching Certificates

Online Teaching Certificate, The Pennsylvania State University, World Campus June 2018

Teaching Experience

Texas A&M University

Instructor

LDTC 649: Teaching and Learning with AI (Graduate, Face-to-Face) Spring 2026
5 students, Course evaluation: 4.75/5

LDTC 649: Teaching and Learning with AI (Graduate, Online) Fall 2025
13 students, Course evaluation: 4.80/5

EDCI 365 Technology in Classrooms (Undergraduate, Face-to-Face) Spring 2025
30 students, Course evaluation: 4.50/5

EDCI 365 Technology in Classrooms (Undergraduate, Face-to-Face) Fall 2024
29 students, Course evaluation: 4.18/5

EDCI 365 Technology in Classrooms (Undergraduate, Face-to-Face) (2 sections) Fall 2023
Section 1: 28 students, Course evaluation: 4.00/5
Section 2: 29 students, Course evaluation: 4.86/5

Course & Curriculum Design and Development

New Course Development: LDTC 649: Teaching and Learning with AI Fall 2025,
(Graduate; Online, Face-to-Face) Spring 2026

Redesign of Existing Course: EDCI 365 Technology in Classrooms Spring 2025,
(Undergraduate, Face-to-Face) Fall 2024, Fall 2023

Curriculum Development: Sustainable Agriculture Curriculum Unit (Middle School, Agriculture STEM) 2024–2026

University of Pennsylvania

Instructor

EDUC 6139 Design of Learning Environments (Graduate, Face-to-Face) Spring 2023
7 students, Course evaluation: 3.86/4

The Pennsylvania State University

Teaching Assistant

LDT 100 World Technologies and Learning (Online) Program: Learning, Design, and Technology; 30 students	Fall 2020
PSYCH 432 Multicultural Psychology (Face-to-Face) Program: Psychology; 30 students	Fall 2020
PSYCH 432 Multicultural Psychology (Face-to-Face) Program: Psychology; 30 students	Fall 2019
PSYCH 432 Multicultural Psychology (Face-to-Face) Program: Psychology; 30 students	Fall 2017
LDT 100 World Technologies and Learning (Face-to-Face) Program: Learning, Design, and Technology; 30 students	Spring 2017

Centre County Correctional Facility, Bellefonte, PA

Teaching Assistant

Entrepreneurship (Face-to-Face) Program: Restorative Justice Initiative Project; 12 students	Spring 2019
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Middle East Technical University, Ankara, Turkey

Co-Instructor

CEIT 323 Instructional Technology and Material Development (Undergraduate, Blended) Department: Computer Education and Instructional Technology; 33 students	Spring 2015
CEIT 323 Instructional Technology and Material Development (Undergraduate, Blended) Department: Computer Education and Instructional Technology; 35 students	Fall 2014
Professional Development Training for Faculty and Personnel on Instructional Technologies (Face-to-Face) School-wide; 100+ students	Fall 2013–Spring 2015

Course & Curriculum Design and Development (Co-Designed)

<i>Course:</i> CEIT 323 Instructional Technology and Material Development (Undergraduate, Blended)	Fall 2014, Spring 2015
<i>Professional Development:</i> Training for Faculty and Personnel on Instructional Technologies (Face-to-Face, periodically)	Fall 2013–Spring 2015

Bilim Ozel Okullari [Bilim Private Primary School], Ankara, Turkey

Intern Teacher

Computer Science (Face-to-Face) 4th grade; 28 students	Spring 2011
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Ari Ozel Okullari [Ari Private Primary School], Ankara, Turkey

Intern Teacher

Computer Science (Face-to-Face) 4th grade; 30 students	Fall 2010
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Advisees & Mentees

Graduate Student(s)

Name	Year	Level/Department	Role	Status
Lauren Ordonez	2025-Present	PhD, Teaching, Learning and Culture	Chair	Pre-Candidacy
Carlos Manrique Perez	2024-Present	PhD, Teaching, Learning and Culture	Chair	Pre-Candidacy
Weiqi Liu	2025-Present	PhD, Educational Psychology	Member	Pre-Candidacy
Patricia Grant	2024-Present	PhD, Educational Psychology	Member	Pre-Candidacy
Nkemdi Anyiam	2025-Present	PhD, Computer Science & Engineering	Member	Pre-Candidacy
Seneca Hart	2024-Present	EdD, Teaching, Learning, and Culture	Member	Candidate
Sami El Ahmadi	2023-Present	PhD, Educational Human Resource Development	Member	Candidate
Brittney Hawkins	2022-Graduated	EdD, Teaching, Learning, and Culture	Co-Chair	Graduated
Shweta Kailani	2023-Graduated	PhD, Educational Psychology	Co-Chair	Graduated
Jayant Surendra Palkar	2023-Graduated	PhD, Educational Psychology	Member	Graduated

Professional Service

Editorial Service

Guest Editor, *European Journal of STEM Education* September 2025 – June 2026
 Special Issue: *AI and STEM: Exploring the Impact of Artificial Intelligence on Science, Technology, Engineering, and Mathematics Education*

Grant Reviewing

Improving Undergraduate STEM Education: Directorate for STEM Education (IUSE: EDU) 2026
 National Science Foundation

Tri-Agency Interdisciplinary - Insight Grant and Discovery Horizons 2026
 Canadian Institutes of Health Research

Innovative Technology Experiences for Students and Teachers (ITEST) 2024
 National Science Foundation

Computer Science for All (CSforAll) 2024
 National Science Foundation

Center for Online Innovation in Learning (COIL) Seed Grants 2016 – 2017
 The Pennsylvania State University

Book Reviewing

Sensemaking in the Age of AI: Preserving Scientific Thinking in an Era of Instant Answers 2026
 Cambridge University Press & Assessment

Journal Reviewing (Selected)

<i>British Journal of Educational Technology</i>	2026 – Present
<i>Computer Science Education</i>	2026 – Present
<i>Instructional Science</i>	2026 – Present
<i>Interactive Learning Environments</i>	2026 – Present
<i>Educational Technology Research and Development</i>	2026 – Present
<i>International Journal of Computer-Supported Collaborative Learning</i>	2024 – Present
<i>Journal of the Learning Sciences</i> → Reviewer of the Year Award, 2025	2024 – Present
<i>Computers in Human Behavior</i>	2018 – Present

Conference Reviewing

International Conference of the Learning Sciences (ICLS)	2017 – Present
International Conference on Computer-Supported Collaborative Learning (CSCL)	2017 – Present
American Educational Research Association (AERA) Annual Meeting	2016 – Present
Association for Educational Communications and Technology (AECT) Annual Meeting	2016 – Present

*Professional Organization Leadership & Committee Service***International Society of the Learning Sciences (ISLS)**

Co-Chair, Membership Committee	2024 – Present
Member, Annual Conference Planning Committee	2022 – 2024
Member Outreach Officer, Learning Sciences Students Association	2021 – 2023
Communication Officer, Learning Sciences Students Association	2019 – 2021
Co-Founder, Learning Sciences Students Association	2019

American Educational Research Association (AERA)

Newsletter Content Editor (Bi-Monthly), Online Teaching and Learning SIG (OTL)	2017 – 2019
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Association for Educational Communications and Technology (AECT)

VP of Awards, Division of Culture, Learning, and Technology (CLT)	2021 – 2024
VP of Finance & Development, Division of Culture, Learning, and Technology (CLT)	2019 – 2021
Communication Officer, Division of Distance Learning (DDL)	2019 – 2020
GSA Board Representative, Graduate Student Assembly (GSA)	2018 – 2019
Member, Social Media Task Force	2018
Member, Leadership Committee	2017 – 2019
President, Graduate Student Assembly (GSA)	2017 – 2018
Division of Design and Development Representative, Graduate Student Assembly (GSA)	2016 – 2017

*Conference & Event Organizing and Session Chairing***International Society of the Learning Sciences (ISLS)**

Co-Organizer, "Chats and Coffee with Professors" Mentorship Series	2021 – Present
Co-Planner & Co-Moderator, ILSSA Sessions, ISLS Annual Meeting	2020 – 2022
Co-Planner & Co-Moderator, First-Timers Sessions, ISLS Annual Meeting	2020 – 2022

American Educational Research Association (AERA)

Session Chair, Annual Meeting (Division C: Learning & Instruction; Learning Sciences SIG)	2017 – Present
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Association for Educational Communications and Technology (AECT)

Session Chair, Annual Meeting (Divisions of CLT, DDL)	2017 – Present
Planner & Co-Moderator, Graduate Student Assembly (GSA) Sessions, Annual Meeting	2018
Co-Moderator & Co-Coordinator, Design & Development Reads Program, Division of Design and Development	2017

*University & Departmental Service***Texas A&M University**

Chair, Undergraduate Scholarship Committee, College of Education and Human Development	2023 – Present
Member, Faculty Working Group, Department of Teaching, Learning, and Culture	2024 – 2025
Organizer, Guest Speaker Academic Talk, College of Education and Human Development	2023

The Pennsylvania State University

Chair, Graduate Student Committee, Learning, Design, and Technology Program	2017
Co-Planner & Co-Moderator, First Friday Speaker Series, Learning, Design, and Technology Program	2017

Honors and Awards

Reviewer of the Year Journal of the Learning Sciences	2026
ISLS Early Career Symposium, \$4,000 International Society of the Learning Sciences (ISLS)	June 2024
NSF ECR Funding PI Meeting – Prospective PI (Invited), \$2,000 NSF ECR Hub	May 2024
Simon Initiative LearnLab Summer School Award, \$250 Carnegie Mellon University, LearnLab	July 2021
Annual Meeting Registration Award, \$125 International Society of the Learning Sciences (ISLS)	June 2021

Innovative Practices CSCL in a Time of Crisis, “Learning Together Online”, \$800 November 2020
International Society of the Learning Sciences (ISLS) & Network of Academic Programs in the Learning Sciences (NAPLeS)

Outstanding Service Award: DDL Communication Officer (one-year term) October 2020
Division of Distance Learning (DDL), Association for Educational Communications and Technology (AECT)

Early Career Symposium October 2020
Division of Research, Theory and Development, Association for Educational Communications and Technology (AECT)

McJulien Graduate Student Award, \$500 October 2018
Association for Educational Communications and Technology (AECT) Culture, Learning, and Technology Division

Annual Meeting Registration Award, \$165 October 2018
Association for Educational Communications and Technology (AECT) Division of Organizational Training and Performance

Outstanding Service Award: OTL SIG Newsletter Content Editor April 2018
Online Teaching and Learning SIG (OTL), American Educational Research Association (AERA)

Lee W. Cochran Internship, \$1,500 October 2017
Association for Educational Communications and Technology (AECT) Leadership Development Internship Program

Conference Internship, \$1,000 February 2016
Pennsylvania Educational Technology Expo and Conference (PETE&C)

Scholarships and Fellowships

Miriam E. Gray Scholarship, \$2,400 per year 2016 – 2020
The Pennsylvania State University, College of Education

Graduate Fellowship, \$38,000 per year 2015 – 2018
The Pennsylvania State University, World Campus

“Pervasive Networks and Service Infrastructures” Programme, €2,500 July 15 – 26, 2013
Technological Educational Institute of Crete, funded by the State Scholarships Foundation of the Greek Ministry of Education, Lifelong Learning and Religious Affairs, under the Lifelong Learning framework of ERASMUS. Crete, Greece

Erasmus Student Exchange Program Fellowship, €2,000 Spring 2010
European Union, Erasmus Exchange Program

Professional Development

Faculty Success Program (FSP) September 2024 – January 2025
National Center for Faculty Development & Diversity (NCFDD)

EMG Data Collection and Analysis Workshop February 25 – March 5, 2022
University of Connecticut, Cognitive Sciences Shared Electrophysiology Resource Laboratory

Simon Initiative Summer School (Computational Models of Learning) Carnegie Mellon University, LearnLab	July 18 – 22, 2021
Machine Learning with LightSIDE Workshop Elijah Mayfield and Carolyn P. Rosé, Carnegie Mellon University	September 2019
Graduate Mentoring Program Design and Technology SIG, American Educational Research Association (AERA)	April 2018

Professional Affiliations

Association for Computing Machinery (ACM) Advancing Computing as a Science & Profession	2024 – Present
International Society of the Learning Sciences (ISLS)	2017 – Present
American Educational Research Association (AERA)	2016 – Present
Association for Educational Communications and Technology (AECT)	2015 – Present

Languages

TURKISH, Native professional, conversational, reading, and writing fluency.

ENGLISH, Professional, conversational, reading, and writing fluency.

Last updated: August 19, 2026