RONALD W. RINEHART University of Northern Iowa (319) 273-2027 Department of Educational Psychology, Foundations & Leadership ron.rinehart@uni.edu Schindler Education Center 525, Cedar Falls, IA 50614 Office: Schindler 511 **ACADEMIC DEGREES** Rutgers University, Graduate School of Education 2017 Ph.D. in Education, Advisors: Dr. Clark A. Chinn & Dr. Ravit Golan Duncan Dissertation: Promoting Students' Epistemic Cognition and Conceptual Learning through the Design of Science Learning Environments Rutgers University, Graduate School of Education 2014 M.A. in Education, Advisor: Dr. Clark A. Chinn Oregon State University, Geosciences Department 2008 M.S. in Geography (GIS), Advisor: Dr. Ron Doel Oregon State University, College of Forestry 2004 B.S. in Natural Resources specializing in GIS POSITIONS HELD University of Northern Iowa, Dept. of Educational Psychology, Foundations, & Leadership Studies Department Head 2023–Present **Associate Professor** 2023-Present Assistant Professor* 2017-2023 2016-2017 Instructor *University Outstanding Teaching Award 2021 Rutgers University, Graduate School of Education Instructor, 5-Year Teacher Preparation Program 2013-2016 Graduate Research Assistant, NSF-funded classroom based research 2011-2013 Promoting Reasoning and Conceptual Change in Science Project Teaching Assistant, Educational Psychology 2010-2011 Educational Psychologist (a Taylor and Francis journal) **Editorial Assistant** 2012–2015 Don Estridge High Tech Middle School, School District of Palm Beach County, FL 7th and 8th grade science teacher and gifted student specialist* 2006-2010 *Rotary Club Teacher of the Year 2007 & 2010 Oregon State University, NASA Oregon Space Grant Consortium Research Fellow, High-Altitude Balloon Launch Project 2004-2006 Oregon State University, Department of Geosciences **Teaching Assistant** 2004-2006

PEER-REVIEWED PUBLICATIONS

- **Rinehart, R. W.** & Kuhn, M. (2023). Building better questions: Three dialogic strategies to promote students' scientific thinking. *Science and Children*, 60(3), 68-70.
- **Rinehart, R. W.,** Olsen, B., Freese, L., & Kuhn, M. (2021). Mission cognition: Fifth-grade students undertake a mission to Mars. *Science & Children*, *58*(3), 43-49.
- **Rinehart, R. W.,** Kuhn, M., & Milford, T. (2020). The relationship of epistemic cognition and dialogic feedback in elementary and middle school science classrooms. *Research in Science & Technological Education*, 1-18. DOI: 10.1080/02635143.2020.1799779
- **Rinehart, R. W.** (2020). They really used to think that? Evaluating current and historical claims in geology using adapted primary scientific literature. *The Science Teacher*, 88(1), 37-45.
- Chinn, C. A., Duncan, R. G., & **Rinehart, R. W.** (2018). Epistemic design: Design to promote transferable epistemic growth in the PRACCIS project. In E. Manalo, Y. Uesaka, & C. A. Chinn (Eds.), *Promoting spontaneous use of learning and reasoning strategies: Theory, research, and practice for effective transfer* (pp. 242-259). New York: Routledge.
- **Rinehart, R. W.**, Duncan, R. G., Chinn, C. A., Atkins, T. A., & DiBenedetti, J. (2016). Critical design decisions for successful model-based inquiry in science classrooms. *International Journal of Designs for Learning*, 7(2), 17-40.
- **Rinehart, R. W.**, Duncan, R. G., & Chinn, C. A. (2014). A scaffolding suite to support evidence-based modeling and argumentation. *Science Scope*, *38*(4), 70-77.
- Lundblad, E., Wright, D. J., Miller, J., Larkin, E. M., **Rinehart, R.**, Battista, T. ... & Donahue, B. T. (2006). A benthic terrain classification scheme for American Samoa. *Marine Geodesy*, 29(2), 89-111.

EDITOR-REVIEWED JOURNAL ARTICLES

Chinn, C. A., & **Rinehart, R. W.** (2016). Commentary: Advances in research on sourcing—source credibility and reliable processes for producing knowledge claims. *Reading and Writing*, 29(8), 1701-1717.

EDITOR-REVIEWED BOOK CHAPTERS

- Chinn, C. A., & **Rinehart, R. W.** (2016). Epistemic cognition and philosophy: Developing a new framework for epistemic cognition. In W. A. Sandoval, J. A. Greene, & I. Braten (Eds.), *Handbook of epistemic cognition* (pp. 460-478). New York: Routledge.
- Chinn, C. A., **Rinehart, R. W.**, & Buckland, L. A. (2014). Epistemic cognition and evaluating information: Applying the AIR model of epistemic cognition. In D. N. Rapp & J. L. G. Braasch (Eds.), *Processing inaccurate information* (pp. 425-453). Cambridge, MA: MIT Press.

Chinn, C. A., Duncan, R. G., Dianovsky, M., & **Rinehart, R.** (2013). Promoting conceptual change through inquiry. In S. Vosniadou (Ed.), *International handbook of research on conceptual change* (pp. 539-559). New York: Routledge.

GRANTS AND AWARDS

- Forsyth, B., **Rinehart.**, **R.** W., Freedman, S., Gabriele, T., Joram, E. (2020). Deepening capacity for cultivating intellectual and moral virtues in pre-service teachers at the University of Northern Iowa. *Kern Family Foundation*. \$150,000.
- **PI Rinehart, R. W.** (2020). Promoting Reasoning About Scientific Evidence. *University of Northern Iowa's College of Education*. \$4,000.
- **PI Rinehart, R. W.** (2019-2020). Preservice Educator Training at the Space Exploration Educators Conference. *NASA Iowa Space Grant Consortium.* \$5,000.
- **PI Rinehart, R. W.** (2019-2020). Mission to Mars. *University of Northern Iowa's Office of the Provost.* \$1,500.
- **PI Rinehart, R. W.** (2018-2020). Fostering Argumentation and Scientific Reasoning. *University of Northern Iowa's Office of Research and Sponsored Programs.* \$4,996. Peer-Reviewed: Award rate: 37.5% of applications were successful.
- **PI Rinehart, R. W.** (2018-2019). Preservice Educator Training at the Space Exploration Educators Conference. *NASA Iowa Space Grant Consortium.* \$5,000.

WORKS IN PROGRESS

- Rinehart, R. W. (In preparation). Simulations and science education: A curious tale of epistemic substitutes.
- Joram, E., Rinehart, R. W., & Gabriele, A. J. (In preparation). How teachers' valuing of student success guides their use of published research: The role of epistemic cognition in teachers' research engagement.
- Rinehart, R. W. (In preparation). Making use of adapted primary literature to learn about colony collapse disorder.

PEER-REVIEWED SYMPOSIUM ORGANIZER

Hendriks, F., & **Rinehart, R. W.** (2017, September). *Dealing with health information:*Evaluation of scientific evidence and expert sources. Symposium for the 17th Biennial International Meeting of the European Association for Research on Learning and Instruction, Tampere, Finland.

WORKSHOP ORGANIZER

Chinn, C. A., Duncan, R. G., Barzilai, S., & **Rinehart, R. W.** (2018, June). *Analysing epistemic growth: Applying the AIR model to promote and analyse epistemic cognition*. Workshop for the 13th Biennial Meeting of the International Conference of the Learning Sciences, London, United Kingdom.

CONFERENCE PRESENTATIONS

- **Rinehart, R. W.** (2023, January). *Simulations and Science Education: A Curious Tale of Epistemic Substitutes*. Paper presented to the annual meeting of the Association for Science Teacher Education, Salt Lake City, Utah.
- **Rinehart, R. W.,** Olsen, B., & Freese, L. (2022, October). *Mission Cognition: Students undertake a mission to Mars*. Two-hour workshop presented at the annual meeting of the Iowa Talented And Gifted Association, Des Moines, Iowa.
- **Rinehart, R. W.,** Kuhn, M., & Milford, T. M. (2022, January). *The Role of Responsibilist Intellectual Virtues in Science Learning*. Paper presented at the annual meeting of the National Association of Research in Science Teaching, Vancouver, BC, Canada.
- Kuhn, M., **Rinehart, R. W.,** & Milford, T. M. (2022, January). A Storyline Unit Anchored in Phenomenon for Elementary Preservice Teachers and an Evaluation of their Pre / Post Pedagogical Views. Paper presented at the annual meeting of the Association for Science Teacher Education, Greenville, S.C.
- **Rinehart, R. W.,** Olsen, B., & Freese, L. (2021, October). *Mission Cognition: Students undertake a mission to Mars*. Presented at the annual meeting of the Iowa Talented And Gifted Association, Des Moines, Iowa.
- Kuhn, M. & **Rinehart, R. W.** (2021, October). *Introducing the Revised ASSIST Approach*. Iowa Science Teachers Section Iowa Council of Teachers of Mathematics (ISTS-ICTM) Fall Conference, West Des Moines, Iowa.
- **Rinehart, R. W.,** Olsen, B., Freese, L., & Kuhn, M. (2021, February). *Mission Cognition:* Students undertake a mission to Mars. Iowa Talented and Gifted Association. (Recorded talk for virtual conference, in-person cancelled due to COVID).
- Kuhn, M., **Rinehart, R.,** Pepanyan, M., Milford, T. M., & McDermott, M. (2020, Accepted). *Elementary Students' Approaches to Uncertainty Resolution in Classrooms with Contrasting Methods for Managing Uncertainty*. American Educational Research Association (AERA). San Francisco, CA. (Conference cancelled due to COVID-19).
- Kuhn, M. & Rinehart, R. (2019, October). *Improving Students' Science and Engineering Practices (SEP) by focusing on Executive Function Skill Development.* Iowa Science Teachers Section Iowa Council of Teachers of Mathematics (ISTS-ICTM) Fall Conference, West Des Moines, Iowa.

- Kuhn, M., **Rinehart, R. W.**, & Milford, T. M. (2019, April). *The role of dialogic feedback and epistemic cognition in promoting evidence-based argumentation in science*. Presented at the 2019 annual meeting of the American Educational Research Association, Toronto, Canada.
- **Rinehart, R. W.,** Chinn, C. A., & Duncan, R. G. (2017, September). *The body of evidence: The role of evidence evaluation in science classes*. Presented at the 17th biennial international meeting of the European Association for Research on Learning and Instruction, Tampere, Finland.
- Chinn, C. A., Duncan, R. G., Hung, L. C. C., & **Rinehart, R. W.** (2016, April). *Epistemic criteria and reliable processes as indicators of argument quality in science students' argumentation*. Paper presented at the annual meeting of the American Educational Research Association, Washington D.C.
- **Rinehart, R. W.,** Chinn, C. A., & Duncan, R. G. (2015, August). *Bad evidence makes for good learning: An analysis of science students' argumentation.* Paper presented at the 16th biennial international meeting of the European Association for Research on Learning and Instruction, Limassol, Cyprus.
- Chinn, C. A., **Rinehart, R. W.**, & Duncan, R. G. (2015, August). *Conceptual change through inquiry and argumentation: Successes and challenges.* Paper presented at the 16th biennial international meeting of the European Association for Research on Learning and Instruction, Limassol, Cyprus.
- **Rinehart, R. W.,** Castro-Faix, M., Duncan, R. G., & Chinn, C. A. (2015, April). *Learning inheritance through modeling in middle school life science classes*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Chinn, C. A., Duncan, R. G., **Rinehart, R. W.,** & Dianovsky, M. (2014, November). *Learning to reason through epistemic criteria*. Presented at the Japanese Association of Educational Psychology.
- **Rinehart, R. W.,** Chinn, C. A., Duncan, R. G., & Castro-Faix, M. (2014, August). *Conceptual change through model-based inquiry in genetics for middle school science students*.

 Paper presented at the 9th Annual International Conference on Conceptual Change, sponsored by the European Association for Research on Learning and Instruction, Bologna, Italy.
- Chinn, C. A., Duncan, R. G., & **Rinehart, R. W.** (2014, June). *Epistemic criteria: How far does general knowledge get you?* Paper presented at the 11th International Conference of the Learning Sciences, Boulder, CO.
- **Rinehart, R. W.,** Duncan, R. G., & Chinn, C. A. (2014, April). *Emphasizing evidence evaluation in model-based inquiry*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

- Chinn, C. A. & **Rinehart, R. W.** (2014, April). *Student reasoning about contradictory data*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
- Rinehart, R. W., Castro, M. F., Duncan, R. G., & Chinn, C. A. (2014, January). *Scaffolding student coordination of evidence and models in genetics*. Paper presented at the 7th Annual Subway Summit on Cognition and Education Research, New York, NY.
- **Rinehart, R. W.** & Chinn, C. A. (2013, August). *Student use of anomalous authentic scientific data in the face of competing explanatory frameworks.* Poster presented at the 15th biennial international meeting of the European Association for Research on Learning and Instruction, Munich, Germany.
- **Rinehart, R.,** Duncan, R. G., Chinn, C. A., & Dianovsky, M. (2013, June). *Digital evidence and scaffolds in a model-based inquiry curriculum for middle school science*. Poster presented at the 10th International Conference on Computer Supported Collaborative Learning, Madison, WI.
- Dianovsky, M., Chinn, C. A., Duncan, R. G., & **Rinehart, R.** (2013, May). *Middle school students' reasoning about the relations between models and evidence*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.
- Dianovsky, M., Duncan, R. G., **Rinehart, R.**, & Chinn, C. A. (2013, April). *Using evidence to evaluate multiple competing models*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Puerto Rico.
- Dianovsky, M., Chinn, C. A., Duncan, R. G., Drescher, C., Goff, A., & **Rinehart, R. W.** (2013, April). *Middle-school students' reasoning about the relations between models and evidence*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Dianovsky, M., **Rinehart, R. W.,** Duncan, R. G., & Chinn, C. A. (2013, January). *Promoting scientific reasoning through public epistemic criteria in middle-school science classes.*Paper presented at the 6th Annual Subway Summit on Cognition and Education Research, New York, NY.
- Chinn, C. A., **Rinehart, R.**, Drescher, C., Duncan, R. G., Dianovsky, M., & Buckland, L. A. (2012, April). *Standards for evaluating evidence in arguments: The problem of underdetermination*. Paper presented at the annual meeting of the American Educational Research Association, Vancouver, BC, Canada.
- **Rinehart, R. W.** & Chinn, C. A. (2011, May). *Give me one good reason why: Insights into reasoning about contradictory information in science.* Poster presented at the Rutgers Graduate School of Education Spring Research Symposium, New Brunswick, NJ.

CONFERENCE PROCEEDINGS

- Chinn, C. A., Duncan, R. G., & **Rinehart, R. W.** (2014). Epistemic criteria: How far does general knowledge get you? In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee., & L. D'Amico (Eds.), *Learning and becoming in practice* (pp. 1194-1195). Boulder, CO: International Conference of the Learning Sciences.
- **Rinehart, R.,** Duncan, R. G., Chinn, C. A., & Dianovsky, M. T. (2013). Digital evidence and scaffolds in a model-based inquiry curriculum for middle school science. In N. Rummel, M. Kapur, M. Nathan, & S. Puntambekar (Eds.), *To see the world and a grain of sand:* Learning across levels of space, time and scale (pp. 341-342). Madison, WI.: International Conference of the Learning Sciences.
- **Rinehart, R**., Wright, D., Murphy, J., Cary-Kothera, L., Lundblad, E., & Larkin, E. (2005). 3-D benthic terrain mapping and modeling in American Samoa. *Abstracts of the Association of American Geographers Annual Meeting*. Denver, CO.
- Wright, D. J., Lundblad, E., Larkin, E., **Rinehart, R.**, & Murphy, J. (2005). Benthic terrain modeling algorithms and web distribution. *Abstracts of the Association of American Geographers Annual Meeting*. Denver, CO.
- **Rinehart, R.,** Wright, D. J., Lundblad, E., & Larkin, E. (2004). ArcGIS 8.x benthic terrain modeler: Analysis in American Samoa. *Proceedings of the 24th ESRI International User Conference*. San Diego, CA, Paper 1433.
- **Rinehart, R.**, & Wright, D. J. (2004). Benthic habitat classification and 3-D visualizations, derived from acoustic multibeam data, for Vatia Bay, American Samoa. *Abstracts of the Association of American Geographers Centennial Meeting*. Philadelphia, PA, Session 4406, online program and CD-ROM.

CURRICULA ADOPTED

Mission to Mars

Mission to Mars officially adopted by the 5th and 6th grade TAG program in 2021–2022 the Cedar Falls Community School District

PROFESSIONAL DEVELOPMENT

Space Exploration Educators Conference at NASA's Space Center Houston	2020
Space Exploration Educators Conference at NASA's Space Center Houston	2019
University of Northern Iowa Grant Writing Workshop	2019

UNIVERSITY COURSES TAUGHT

University of Northern Iowa

Department of Educational Psychology, Foundations, and Leadership Studies

- Learning and Motivation in Classroom Contexts
- Measurement and Research: Educational Research

University of Northern Iowa

College of Humanities, Arts, and Sciences: Science Education Masters Program

• Techniques for Science Teachers: We've been doing it wrong! Insiders, Outsiders, and Scientific Reasoning

Rutgers University

Department of Educational Psychology

- Educational Psychology: Principles of Classroom Learning
- Assessment and Measurement for Math
- Assessment and Measurement for Science

Rutgers University

Department of Learning and Teaching

- Demonstrations and Technology in Science Education
- Biology and Society

Oregon State University Teaching Assistant

Geosciences Department

- Geographic Information Systems
- Environmental Conservation
- Geography of the Non-Western World

PROFESSIONAL SERVICE

Ad hoc reviewer for Journal of the Learning Sciences	2023
Ad hoc reviewer for Association for Science Teacher Education	2022
Ad hoc reviewer for Psychology Learning & Teaching	2020
Ad hoc reviewer for Thinking Skills and Creativity	2019
Ad hoc reviewer for Instructional Science	2019
Grant Reviewer for Iowa Space Grant Consortium's 2019 Partner Schools	2018
Reviewer for an edited book Deeper Learning, Communicative Competence,	2018
and Critical Thinking: Innovative, Research-Based Strategies for	
Development in 21st Century Classrooms	
Ad hoc reviewer for Thinking Skills and Creativity	2017
Ad hoc reviewer for International Journal of Designs for Learning	2016
Ad hoc reviewer for National Association for Research in Science Teaching	2014

UNIVERSITY OF NORTHERN IOWA SERVICE

Dept. of Educational Psychology, Foundations, & Leadership Studies, Faculty Chair College of Education, Dean's Advisory Council Dept. of Educational Psychology, Foundations, & Leadership Studies, Representative for the University of Northern Iowa Educator Preparation Program Transformation Professional Sequence Foundations (Group)	2021-2024
Transformation Professional Sequence Focused Working Group University of Northern Iowa, Virtuous Educator Speaker Series Co-organizer Dept. of Educational Psychology, Foundations, & Leadership Studies Standards and Criteria Committee	2020–2021 2020–2021
UNI Office of Research and Sponsored Programs, Capacity Building Grant Reviews College of Education, Summer Fellowship Reviewer College of Education, Mission to Mars Workshop for Pre-Service Teachers Midwest GLOBE for Middle School Science Project Poster Reviewer Department of Curriculum and Instruction, Elementary Education Search Committee	2019 2019 2019
College of Humanities, Arts, and Sciences, Science Education Graduate Faculty College of Education, Educational Psychology Website Re-Design Committee University of Northern Iowa Graduate Faculty Dept. of Educational Psychology, Foundations, & Leadership Studies Learning Team Leader	2018–present 2018–2019 2017–present 2017–present
Dept. of Educational Psychology, Foundations, & Leadership Studies Vice-Chair of the Faculty Educational Psychology & Foundations/Secondary Ed. Sub-committee member College of Education Scholarship Committee	2017–2020 2016–2019
University of Northern Iowa, Teacher Education Secondary Senate Alternate College of Education, Professional Sequence Advisory Committee Learning Team Liaison	2016–present 2017–2018
Graduate School of Education, Student Activities Committee Graduate School of Education, Learning Sciences Brown Bag Coordinator Graduate School of Education, Executive Committee OREGON STATE UNIVERSITY SERVICE	2010–2013 2012–2013 2011–2012
Geosciences Department, Faculty-Student Liaison	2004–2005
MASTERS THESES	
University of Northern Iowa College of Humanities, Arts, and Sciences Casey Giraud – Masters of Science Education Paper – Topic TBD Chair Dr. Ron Rinehart	2022–2026
University of Northern Iowa College of Humanities, Arts, and Sciences Whitney McWilliams Masters of Science Education Paper – Committee Mer "Enhancing scientific literacy through attention to argumentation as a discip literacy practice as a disciplinary literacy practice" Chair Dr. Dawn Del Carlo Reader: Dr. Ron Rinehart	
Reduct. Dt. Ruit Kilichaft	Daga 0 of 11

University of Northern Iowa College of Humanities, Arts, and Sciences

2018-2020

Betsy Lemus Masters of Science Education Paper – Committee Member

"Using Adapted Primary Literature to Enhance Argumentation and Reasoning in Middle School Students"

Chair Dr. Jody Stone Reader: Dr. Ron Rinehart

TEACHING CERTIFICATIONS

Pennsylvania Professional Certificate Level 1 Biology 7-12 | Mid-Level Science 7-9 Environmental Ed. PK-12 | Earth & Space Science 7-12

Florida Professional Educator's Certificate (expired) Biology 6-12 | General Science 5-9 Earth Space Science 6-12 | Gifted Endorsement

PROFESSIONAL DEVELOPMENT LEADERSHIP

Mission to Mars 2019–2022

Created a new curriculum centered on merging the Next Generation Science Standards Science and Engineering Practices with Space Exploration Education to create an engaging and unique experience where elementary students plan and carry out a Mission to Mars. This involves coding robots, using satellite remote sensing imagery, computational thinking in the form of route planning, and planning and carrying out geologic investigations on another planet. This was offered as pre-service and in-service teacher professional development.

University of Northern Iowa - Center for Excellence in Teaching and Learning
Presented an invited professional development talk titled "The Pedagogical Role of Evidence in Changing Students' Minds"

University of Northern Iowa - Integrating Crosscutting Concepts in Iowa Science 2016 Classrooms (ICCISC)

Provided support for teachers integrating inquiry oriented methods into their science classrooms while developing students' competence with major crosscutting concepts, as defined by the Next Generation Science Standards.

Rutgers Institute for Improving Student Achievement (RIISA) 2013 & 2015

Presented an invited professional development talk on model-based inquiry in science for middle school science teachers. Worked with small groups of teachers to develop their own model-based inquiry units in science.

Rutgers PRACCIS Graduate Research Assistant

2011-2013

Designed model-based inquiry science materials for middle school life sciences Assisted with the planning and implementation of training for middle school teachers participating in the research project

Don Estridge Middle School Learning Team Leader for 8th Grade Science 2008–2010 Increased the team's capacity to modify instruction based on assessment data Developed and deployed a technology centered approach to science labs

Don Estridge Middle School Professional Development Team 2007–2010
Increased technology skill capacity in teachers of all subject areas by creating seminars for classroom integration of ExamView, Edline and SMART Board

AWARDS

University of Northern Iowa Outstanding Teaching Award	2021
University of Northern Iowa College of Education Summer Research Fellow	2018
LMU Munich REASON Spring School Travel Award	2015
AERA Division C Graduate Student Seminar	2014
ICLS Doctoral Consortium	2014
Rotary Club Teacher of the Year for Don Estridge Middle School	2009-2010
Rotary Club Teacher of the Year for Don Estridge Middle School	2006–2007
NASA Oregon Space Grant Graduate Research Fellowship	2004-2006
Oregon State University Ronald E. McNair Scholar	2003-2004
Oregon State University Shugart Scholar	2003-2004
Oregon State University Duncan Scholar	2002-2003

MEMBERSHIPS

American Educational Research Association – Division C European Association for Research on Learning and Instruction

EARLI SIG 3 Conceptual Change

EARLI SIG 26 Argumentation

International Society of the Learning Sciences

National Association for Research in Science Teaching