



Using journals to support learning:  
The case of an elementary number theory course.

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**Abstract:** We present results from a study that examined the use of journal writing by undergraduates in an Honor's Number Theory course and how the journals supported students' learning, attitudinal changes, and proof writing.

The 16 undergraduates in this course submitted weekly journals online to their instructor and reflected on their mathematical learning. The instructor provided comments to each of the student's journal submissions that informed him of each student's successes, challenges, issues, and questions. We analyzed the journals, and share our preliminary findings on what the journal writing revealed about students' learning and how their mathematical understanding developed over a semester. We used an embedded case study methodology and include results of the pre-post survey of student attitudes toward mathematics along with interviews of 4 of the students that give additional insight into their experiences in the course.

**Hiroko** is an assistant professor of mathematics at Texas State University specializing in mathematics education. Her research interests include teacher noticing and areas of teaching and learning that foster productive struggle. She received her B. A. in Mathematics from the University of Chicago, her M. S. in Mathematics from Louisiana State University, and her Ph. D. in Mathematics Education from the University of Texas at Austin.

**Max** is a Regents' Professor of Mathematics at Texas State University. He is also founder and director of Texas Mathworks. He teaches Number Theory in the Honor's College and in the Honor's Summer Math Camp which he directs each summer. His research interests are in math education projects related to Mathworks programs, teacher training, and curriculum development. He received his B. A. in Mathematics from the University of Chicago and his Ph. D. in Mathematics from Louisiana State University.

**Christina** is a Ph.D. student in the Mathematics Education program at Texas State University. She received her undergraduate degree in mathematics at Texas State University. She is interested in researching how students learn to write mathematically, specifically mathematical proofs.