A Robot's View of Reality: Children Learning From and Through the Topological Panorama Camera

Gerald Knezek
Department of Technology and Cognition
University of North Texas
United States
gknezek@tenet.edu

Rhonda Christensen
Texas Center for Educational Technology
University of North Texas
United States
rhondac@tenet.edu

Janet Gelphman
The Gelphman Camera Company, Inc.
Dallas, Texas
United States
topocam@aol.com

Theresa Overall
The Lamplighter School
Dallas, Texas
United States
Theresa_Overall@acd.org

Dana Arrowood
Department of Teacher Education and Administration
University of North Texas
United States
dana@unt.edu

Abstract: The Topological Panorama Camera (Topocam) is a new educational technology based upon the 150-year old panorama camera. This digital imaging camera moves along a modular track as it scans a scene through a vertical slit or line. The camera's images make motion visible and easily measurable, allowing learners of all ages to investigate motion in new ways. A Texas Instruments Math/Science Technology Grant awarded by the Dallas (Texas) Women's Foundation enabled 63 first through sixth grade girls to learn by conducting experiments on the Topocam during the summer of 1998. Content mastery as well as attitudes toward science, self-reported creative tendencies, and empathy (a caring concern for the thoughts and feelings of others) improved ($p < .05$) during week-long guided discovery sessions conducted for six groups. Changes in pre-post attitudinal response patterns indicated the Topocam sessions fostered enthusiasm for scientific learning. A complete report is available at http://courseweb.tac.unt.edu/topocam.