

USING POPULAR CULTURE IN THE MATHEMATICS AND MATHEMATICS EDUCATION CLASSROOM

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INTRODUCTION TO SPECIAL SECTION

Educators are extremely interested in using popular culture to enhance the teaching and learning of mathematics. Large audiences attending related talks at national mathematics meetings and colleges across the nation, including some that are standing room-only, provide evidence of that claim. There are many resources that discuss mathematical references in various popular culture media, including movies [11], comics [8], and various television shows (e. g., [4] and [6]). However, there are only a few references designed to help teachers incorporate popular culture into their mathematics classrooms in a meaningful way (e.g., [1], [5], [6], [7], and [10]). As Morrell explains [9],

The arguments for incorporating popular culture into traditional curricula are quite compelling and have generated much excitement, along with much confusion and anxiety. . . . In my experiences as a teacher and teacher educator, I have met countless colleagues who verbally support incorporating popular culture, yet feel unprepared and daunted by the project.

The excitement surrounding the use of popular culture arises as teachers more easily connect to their students ([2] and [3]) and make learning mathematics more enjoyable. Capitalizing on student enjoyment of popular culture can alleviate math anxiety, energize shy and quiet students, and provide a creative introduction to an in-depth study of the related mathematics.

This special section of PRIMUS focuses on using popular culture in the mathematics and mathematics education classroom. The MAA Contributed Paper Session of the same name at the 2002 MathFest summer meeting was the impetus for this endeavor. We would like to thank Brian Winkel for suggesting the idea of a PRIMUS issue based on our MathFest session and for allowing us to act as his co-editors.

We accepted the following presentations into the MAA session (listed in the order presented):

- *Mission: Impossible, Baywatch, Perry Mason, James Bond, and Tool Time in Calculus?* by Sarah L. Mabrouk, Framingham State College
- *Cartoon Characters and Calculus* by Tommy Ratliff, Wheaton College
- *Come on Down... The Prize is Right in Your Classroom* by William T. Butterworth, DePaul University and Paul R. Coe, Dominican University
- *Kevin Bacon and Graph Theory* by Brian Hopkins, Saint Peter's College
- *Motivating Math Concepts in 3, 2, 1...* by Bart D. Stewart, United States Military Academy
- *τ *dr* τ : Engaging Students with Significant Mathematical Content from *The Simpsons** by Sarah J. Greenwald*, Appalachian State University, and Andrew Nestler, Santa Monica College

In the announcement of the session, we asked authors to consider that:

This session invites presentations on how appearances of and references to mathematics in popular culture, including music, movies, television, artwork, and other media, have been used creatively and effectively in mathematics and mathematics education courses. Of particular interest are descriptions of how the materials reduced math anxiety and motivated students to explore significant mathematics. Presentations detailing student reactions, educational benefits and difficulties encountered, and the effect of the pop culture math activities on teaching and learning are especially encouraged.

The presentations were illuminating, and the average attendance of 125 people was excellent for a late afternoon session on a Friday. Presenters were invited to submit papers for this issue, and we are grateful to those who submitted articles. Three papers from the session appear in this issue.

Common themes emerge from using popular culture in the mathematics classroom. Incorporating popular culture can be a powerful technique for engaging diverse audiences, but it is not foolproof. Care must be taken to ensure that popular culture is used in a meaningful and effective manner. This can require substantial time and effort, but, as seen in the papers that follow, the classroom rewards are well worth it. For struggling students, the context of popular culture can make learning mathematics more fun and increase their involvement. This possibility alone is justification enough for teachers to consider using it.

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