Media Portrayals of Mathematics and Mathematicians: An Annotated Bibliography of Journal Article Publications

Sarah O'Connor
'26 Mathematics

ABSTRACT

An annotated bibliography of journal article publications on media portrayals of mathematics and mathematicians is presented. Each of the 29 articles shared is identified for the type of media it explores (e.g., television, film, book) and the common image category it addresses: (1) common images of mathematics, (2) mathematicians as naturally able and genius, (3) mathematicians as maladjusted, and (4) mathematicians as gendered masculine.

INTRODUCTION

Mathematics has a public image problem. Among other things, it is seen as difficult, intimidating, anxiety-provoking, boring, of no practical use, and unavailable to those who do not possess a particular math-gene (Darragh 2018; Ignacio et al., 2006; Sam & Ernest, 2000). Students from preschool to college have been found to hold negative attitudes toward learning the subject (Belbase, 2013; Wen & Dubé, 2022) and often their teachers do too (Gresham, 2018; Itter & Meyers, 2017; Latterell & Wilson, 2016). These negative feelings tend to stick with people long after they finish formal schooling and are often passed on to children by their parents in a continuous cycle of disliking mathematics (Olivares & Ceglie, 2020).

Mathematicians themselves are the embodiment of the negative images of mathematics. Their liking of the subject is an irregularity that brings into question their normality. They are seen as possessing a unique mathematical giftedness that often brings with it social awkwardness and psychological maladjustment (Barba, 2018; Epstein et al., 2010; Pantsar, M. 2016; Wilson & Latterell, 2001). Additionally, mathematicians are commonly thought of as being male (Gjovik et al., 2023; Mendick et al., 2008; Nosek et al., 2002). These images are widely shared in popular culture (Sklar & Sklar, 2012) and constitute the stereotyped image of who a mathematician is.

Media portrayals have the ability to influence the perceptions people hold (Billings & Parrott, 2020; Ross & Lester, 2011). As such, those interested in the portrayals of mathematics and mathematicians have published a number of papers looking at this in a variety of media types (e.g., film, television, magazine, newspaper, book, social media). This annotated bibliography shares this collection of papers covering the time period January 2000 – July 2023.

METHOD

Academic databases (e.g., Academic Search Complete, ERIC, JSTOR, PsychInfo) and Google Scholar were used to find relevant journal article publications to include in the bibliography (time period, January 2000 – July 2023). Additional publications were found within the citations used in the initial papers retrieved. Books, chapters, reports, conference proceedings, unpublished manuscripts and the like were not included.

"Math suks math suks / I'd like to burn this textbook,
I hate this stuff so much. / Math suks math suks"

~ Jimmy Buffett, *Math Suks* song lyrics

RESULTS

In all, 29 papers were identified for inclusion in this bibliography. Following the citation, a brief description of each article was provided (see handout). The type of media being explored in the article was identified (see Table 1) as well as the common image category or categories the article was addressing (see Table 2).

Table 1. Types of Media Explored in the 29 Published Articles with Frequency of Appearance

Type	*f.*	Type	*f.*
Film	12	Newspaper	2
Book	9	Internet News	1
Television	8	Magazine	1
Textbook	8	Song	1
Social Media	5	Video Game	1
Play	3	Website	1
Comic Strip	2		

Note. Multiple media types were often explored in the articles (why the sum of the frequencies is greater than the number of articles reviewed).

Table 2. Common Image Categories Addressed in the 29 Published Articles with Frequency of Appearance and Percentage

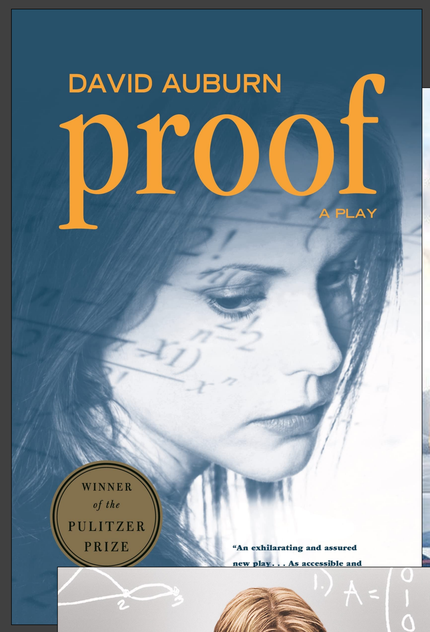
Category 1: Common Images of Mathematics (11 *f.*, 18.33%)
Mathematics is commonly seen as hard, intimidating, boring, and of little usefulness. Additionally, there is a general assumption that mathematics is limited to a certain kind of person who is math literate.

Category 2: Mathematicians as Naturally Able and Genius (15 *f.*, 25.00%)
Since mathematics is considered a difficult pursuit, mathematicians must possess an innate mathematical gift. The mathematician is commonly portrayed as having genius-level capabilities and a superiority to others for the ability to solve mathematical problems. This gift for understanding the secret language of mathematics is shown in the ability to calculate quickly with relatively little thinking required and a precision that is incompatible with making errors.

Category 3: Mathematicians as Maladjusted (13 *f.*, 21.67%)
Mathematicians are regularly presented as being socially awkward and prone to psychological disturbance. Their obsessional work in mathematics makes it hard for them to find affiliation with others and has the potential to drive them to madness. The message from these portrayals is that mathematicians are unable to enjoy a normal life because mathematics is an obstacle to their happiness.

Category 4: Mathematicians as Gendered Masculine (21 *f.*, 35.00%)
Mathematicians are usually portrayed as male with prescribed masculine social roles and character traits. This image is connected to the stereotype that mathematics is a male domain. This category also includes images that challenge this narrative with female portrayals.

Note. Multiple image categories were often explored in the articles (why the sum of the frequencies is greater the number of articles reviewed).



CONCLUDING REMARKS

An obvious solution to combat negative and stereotypical portrayals of mathematics and mathematicians is to increase their visibility in the media environment. Moreau et al., (2010) suggest that the persistent reliance on stereotypes to represent the subject and its practitioners may simply be a result of there not being any alternative ways to imagine them. Recently, mathematicians have been enjoying the spotlight in popular films (e.g., *Hidden Figure*) and television shows (e.g., *Numb3rs*). These portrayals are not entirely absent of stereotypes, but they are a move in the right direction of presenting mathematicians doing mathematics. In addition, their mass appeal to audiences gives indication that mathematicians can hold their own as central characters in popular media (Haynes & Haynes, 2022).

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