



Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

The Journal of Social Studies Research

journal homepage: www.elsevier.com/locate/jssr



Teachers' thoughts on integrating STEM into social studies instruction: Beliefs, attitudes, and behavioral decisions



Brandt W. Pryor^{a,*}, Caroline R Pryor^{b,1}, Rui Kang^{c,2}

^a Educational Research Associates, P.O. Box 11845, St. Louis, MO 63105, USA

^b Southern Illinois University Edwardsville, Box 1122, Edwardsville, IL 62026-1122, USA

^c Georgia College and State University, 231W Hancock St., Milledgeville, GA 31061, USA

ARTICLE INFO

Article history:

Accepted 17 June 2015

Available online 10 July 2015

Keywords:

Instructional innovation

Beliefs

Attitudes

Norms

Teacher decisions

ABSTRACT

This study investigated the beliefs that formed teachers' intentions to integrate STEM content into their social studies instruction. Participants were 60 elementary, middle, and high school in-service teachers who attended a summer history workshop on Abraham Lincoln. Data were collected by qualitative and quantitative instruments. Beliefs about likely outcomes of integrating STEM, and beliefs about persons who would approve, or disapprove, of STEM integration were elicited from teachers, and content analyzed. The resulting outcome and normative beliefs were used as stems for items in the quantitative instrument. Quantitative data were analyzed primarily by correlation and multiple regression. This study found that attitude toward the behavior, integrating STEM, was formed by 15 outcome beliefs, subjective norm was formed by five normative beliefs, and that attitude and norm predicted behavioral intention. The theory we used enabled us to calculate the numerical contribution of each of the beliefs that were important in forming teachers' intentions. The results have implications for theory, research, and practice in social studies education. In the realm of practice, these implications are for the initial preparation of, and the subsequent professional development of social studies teachers, both at the elementary and secondary levels.

Copyright © 2015, The International Society for the Social Studies. Published by Elsevier, Inc.

Introduction

Historically, the social studies have had the educational mission of preparing the nation's next generation to participate in a democratic society. Despite the primacy of this mission, the social studies are often considered less central than English and mathematics, courses required for high school graduation. The increased marginalization of social studies has been well documented, especially at the elementary level (e.g., [Fitchett & Heafner, 2010](#); [Heafner & Fitchett, 2012](#)).

Moreover, there is a growing consensus in the science and science education community that learning through science alone is not adequate to equip future citizens with sufficient skills to tackle complex, ill-structured socio-scientific issues ([Rose & Barton, 2012](#)). Connecting the content and ideas of social studies with those of science, technology, engineering, and

* Corresponding author. Tel.: + 1 314 822 3533.

E-mail addresses: bwpryor@yahoo.com (B.W. Pryor), capryor@siue.edu (C. Pryor), rui.kang@gcsu.edu (R. Kang).

¹ Tel.: +1 618 650 3439.

² Tel.: +1 800 342 0471.

mathematics (STEM) has been proposed intermittently as a response to those who believe that thinking across curricular boundaries fosters a depth of critical thinking about knowledge (Heath, 1990; Hopkins, 1937). This idea of curricular integration has appeal for many scholars, but what will classroom teachers think of it?

Previous work has noted the importance of teachers' beliefs to educational reform. The objective of this study was to investigate the beliefs that form teachers' intentions to integrate STEM into their social studies instruction. We applied Fishbein and Ajzen's (1975, 2010) theory of reasoned action³ which investigates the specific beliefs people hold that form their attitudes and behavioral intentions. A complete application of the theory requires two separate studies. The first investigation is a small, preliminary qualitative study which draws forth the specific beliefs, of the population of interest, concerning the behavior under investigation. The second study is an often-larger, quantitative study which measures the numerical weight of each elicited belief, whether the influence on behavioral intention is large or small, whether positive, negative, or neutral.

There are two advantages to this approach. First, the beliefs studied are those of the population of interest rather than those derived from the literature or intuited by the researcher. Second, the quantitative study provides a numerical weight for each belief in the formation of behavioral intention. These weights suggest the most effective ways of influencing intention in the desired direction.

Literature

Although no one denies the primacy of the mission of social studies, opinions diverge on the actual implementation of the curriculum (Hinde, 2005). The National Council of the Social Studies notes the importance of a connected curriculum to an informed [interdependent] citizenry:

...[the purpose of the social studies is] to promote civic competence ... drawing upon such disciplines as anthropology, archaeology, economics, geography, history, ... as well as appropriate content from the humanities, mathematics, and natural sciences. The primary purpose of social studies is to help young people make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world (2010, p. 218).

Moreover, Bybee (2010) writes that the elements that compose STEM literacy are foundational to students making the socio-scientific connections that underlie a citizen's decision-making process. The national STEM standards, Bybee states, recognizes the role STEM disciplines play in the inquiry about the human endeavor. For example, STEM knowledge serves both to enlighten issues facing "concerned, affective, and constructive citizens," and helps to share "our material, intellectual, and cultural world" (p. 31).

An integrated curricular approach can aid students in making decisions about issues in which STEM can illuminate economic, social, ethical, and political dimensions of a problem or contextualize an event (Rose & Barton, 2012; Wraga, 1993). Therefore, it is imperative to conceptualize the possibilities in which STEM education can enhance the study of the grand challenges of our era (energy, resource use, environmental quality, Bybee, 2010), or investigate more deeply, those of the past (social and geographical expansion, cultural conflict or historical controversy, Pryor, in press).

What is an integrated curriculum?

Although the idea of an integrated curriculum has a long history emanating from the progressive movement of the early 20th century (Hinde, 2005), Czerniak, Weber, Sandmann and Ahern (1999) suggested that there is currently no clear definition of an integrated curriculum. However, Parker (2005) synthesized varying definitions given to an integrated or interdisciplinary curriculum into one which is consistent with Bybee's (2010) explanation in which STEM literacy underpins the development of an educated citizenry and thus is useful in guiding this study:

a curriculum approach that purposefully draws together knowledge, perspectives, and methods of inquiry from more than one discipline to develop a more powerful understanding of a central idea, issue, person, or event (pp. 452–453).

A transition to an integrated, social studies–STEM-linked curriculum is a powerful response to the challenges—testing, marginalization, content relevance, that social studies educators are facing (Pryor & Kang, 2013; Pryor, in press; Davis, 2003).

National standards support content integration

The importance of connecting content area knowledge across disciplines is emerging in current national standards. In their most recent iteration, use of stand-alone content standards was common in the era of the *No Child Left Behind Act* (2001) and continued as the bearer of curricular guidance until divergent pressures on the K-12 testing movement revealed uneven student achievement (e.g., Doe & Jacob, 2011). As these test results then served as a framework for curricular

³ The theory we used was originally referred to as Fishbein's model, and later as the theory of reasoned action. Ajzen (1985, 1987) introduced a third predictor of intention, and labeled this revision a theory of planned behavior. Fishbein and Ajzen (2010) also referred to a reasoned action approach.

Download English Version:

<https://daneshyari.com/en/article/108318>

Download Persian Version:

<https://daneshyari.com/article/108318>

[Daneshyari.com](https://daneshyari.com)