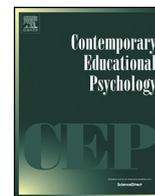




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Fear appeals prior to a high-stakes examination can have a positive or negative impact on engagement depending on how the message is appraised



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ABSTRACT

Previous studies have shown that teachers may use messages that focus on the importance of avoiding failure (fear appeals) prior to high-stakes examinations as a motivational tactic. The aim of this study was to examine whether fear appeals, and their appraisal as challenging or threatening, impacted on student engagement. Data were collected from 1373 students, clustered in 46 classes, and 81 teachers responsible for instruction in those classes, prior to a high-stakes mathematics secondary school exit examination. Data were analyzed in a multilevel structural equation model. The appraisal of fear appeals as challenging leads to greater student engagement and as threatening to lower student engagement. The impact of fear appeals on engagement was mediated by challenge and threat appraisals. The effectiveness of fear appeals as a motivational strategy depends on how they are interpreted by students.

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1. Introduction

This study examines how fear appeals used by teachers prior to a high-stakes mathematics examination, and their appraisal, relates to student engagement. Fear appeals are messages that highlight a negative outcome in order to persuade the recipient to take action to avoid that outcome (e.g., Maloney, Lapinski, & Witte, 2011; Ruiter, Kessels, Peters, & Kok, 2014). In the present study, fear appeals concern failure in the mathematics examination and the consequences of failure. Fear appeals are used by teachers as a motivational tactic, to try and elicit an adaptive fear that will result in students making greater efforts to avoid failure by preparing thoroughly for the forthcoming examination (Putwain & Roberts, 2012; Sprinkle, Hunt, Simonds, & Comadena, 2006). Previous studies have shown that how the message is interpreted, or appraised, by the student is critical in establishing linkages with a variety of salient educational outcomes. For instance, when the fear appeal is appraised as a threat it is related to a variety of negative outcomes including lower examination scores and higher test anxiety (e.g., Putwain & Symes, 2011a, 2011b). Studies have only recently begun to examine how the appraisal of fear appeals as a challenge could be related to positive outcomes, such as subjective task value and academic self-efficacy (Putwain,

Remedios, & Symes, 2015). Furthermore, studies have yet to establish how fear appeals, or their appraisal, may relate to student engagement. In the present study we set out to address this question. Over two waves, we collected data on teacher-reported use of fear appeals in the classroom and student-reported message appraisal, and engagement.

1.1. Messages used by teachers prior to high-stakes examinations

In many educational systems throughout the developed world, the outcomes of high-stakes tests and examinations can have profound consequences for students. These include progression or retention within the program of study (Allensworth, 2005; Carnoy, 2005; Jacob, 2005), entry to the labor market (Bishop & Mane, 2001; Heath, Rothon, & Kilpi, 2008), selection for post-compulsory education (Cumming & Maxwell, 2004; Gregory & Clarke, 2003; Leathwood, 2005), and students' self-worth and motivation (Denscombe, 2000; Harlen, 2005; Jones, 2007; Ryan & Weinstein, 2009). In England, where the present study was conducted, secondary school exit examinations, the General Certificate of Secondary Education (GCSE), are taken at the end of Year (Grade) 11, at the of age of 16 years. A minimum pass grade in English and mathematics is typically required for entry into any form of post-compulsory education or training (academic, vocational, or technical) and for entry into the workforce for anything beyond routine or manual labor (Onion, 2004; Roberts, 2004). The results of GCSEs and particularly those of English and mathematics represent a bona fide high-stakes test.

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Several studies have identified ways in which teachers prepare students for high-stakes tests and examinations. Although there are differences in approaches and emphases at different stages of education (e.g., younger children in primary/ elementary education and older students in secondary education) commonalities include a narrowing of the curriculum to focus on tested material, regular test practice and feedback, teaching test-taking and study-taking skills, and timetabling additional preparation sessions (Au, 2007; Barksdale-Ladd & Thomas, 2000; Boyle & Bragg, 2006, 2008; Gulek, 2003; Johnson & Crisp, 2009; Putwain, 2008; Troman, 2008). It is perhaps, no surprise that teachers and school managers also communicate to students the importance of performing well on high-stakes tests and examinations; how they can influence one's life trajectory, one's sense of self-worth, and helping to fulfill one's educational or occupational aspirations (Putwain, 2009; Putwain & Roberts, 2009). It is these communications that we focus on in the present study. They are theorized as a motivational strategy; a tactic used by teachers to encourage or persuade students to invest time and effort in preparing for forthcoming tests by highlighting the value to the student of success or failure (Putwain & Symes, 2014).

To date, research has focused on messages that highlight the potential negative consequences of failure (e.g., Putwain & Remedios, 2014a). For instance, a teacher could say to a class "If you don't pass GCSE mathematics, you'll find it hard to get a good job and go to college". These 'scare tactics' have been likened to the types of 'fear appeals' commonly found in the health promotion literature (Putwain & Roberts, 2009; Sprinkle et al., 2006). Fear appeals are persuasive messages designed to highlight the negative consequences of a particular course of action and how those negative consequences can be avoided by adopting an alternate course of behavior (Maloney et al., 2011; Peters, Ruiter, & Kok, 2013; Popova, 2012; Witte & Allen, 2000). They are commonly used to promote, for example, smoking cessation, safe sex practices, and self-examination for breast and testicular cancer (Anderson, 2000; Cismaru, Nagpal, & Krishnamurthy, 2009; Umphrey, 2004).

A survey of 234 English school teachers showed that respondents' endorsement of the use of fear appeals, prior to high-stakes examinations, differed according to the severity of the message (Putwain & Roberts, 2012). For example, 81.6% of respondents either agreed or strongly agreed that students should be reminded that they would fail if they did not thoroughly prepare for forthcoming examinations and 76.5% agreed or strongly agreed that students should be made aware that progression to college or university would not be possible following failure. Only 36.3% agreed or strongly agreed that students should be told they would not get a good job if they failed their examinations.

1.2. The appraisal of messages used by teachers prior to high-stakes examinations

The critical question for educational researchers is what effects fear appeals have, if any, on student's effort, persistence, and engagement prior to high-stakes examinations. Putwain and Symes (2014) propose that the answer to this question depends on how fear appeals are appraised. Appraisals refer to the perception and interpretation of environmental events; whether they have personal significance for one's goals, wellbeing and commitments (Folkman, 2008; Lazarus, 2006; Skinner & Brewer, 2002). In the context of our study, appraisals refer to the ongoing and moment-by-moment way in which a fear appeal is perceived and interpreted by the recipient. Such perceptions and interpretations are dynamic and involved in an ongoing cycle of appraisal and reappraisal. Appraisal is a two-part process whereby the fear appeal is judged by its personal relevance and the resources or options available for responding (Putwain & Symes, 2014).

If the fear appeal is judged as relevant and the student believes that they are capable of responding or performing the course(s) of action required to avoid the negative outcome, a challenge appraisal is most likely. In a challenge appraisal, the fear appeal is interpreted as an opportunity for mastery, personal growth and to obtain rewards; with effort the outcome highlighted in the fear appeal (avoiding failure and, de facto, attaining success) can be met. A challenge appraisal is accompanied by positive emotions, such as optimism, and positive behavioral intentions, such as making an effort (e.g., Hijzen, Boekaerts, & Vedder, 2007; McCarthy, 2011; Shiota, Neufeld, Yeung, Moser, & Perea, 2011).

When a fear appeal is judged as relevant but the student does not believe that they can avoid the negative outcome a threat appraisal is most likely. In a threat appraisal, the fear appeal is interpreted as a risk to one's wellbeing, self-identity or self-worth; failure is anticipated. A threat appraisal is accompanied by negative emotions, such as anxiety, and self-worth protection strategies as a strategic withdrawal of effort (e.g., Covington, 2009; Meijen, Jones, McCarthy, Sheffield, & Allen, 2013; Roseman, 2013). If a fear appeal is judged as being of low relevance (i.e., a student has disengaged from their academics, or is alienated from school) then it will be ignored or disregarded; neither a challenge or threat appraisal will occur.

Studies have operationalized personal relevance through attainment and utility value; central concepts in expectancy value theory (Eccles, 2007; Eccles, O'Neill, & Wigfield, 2005; Wigfield, Tonks, & Klauda, 2009). Attainment value refers to the perceived importance of a particular task, or an examination grade in a particular subject, for one's sense of identity and utility value refers to whether a particular task, or an examination grade in a particular subject is instrumental for reaching short or long-term goals (Eccles et al., 2005; Wigfield & Eccles, 2000; Wigfield et al., 2009). Judgments concerning one's resources and options for responding to the demands presented in the fear appeal have been established through academic self-efficacy, the belief that one can learn or perform a particular task (Bandura, 1997; Schunk & Pajares, 2002), and expectancy of success, the belief that one is capable of effecting a successful outcome on a particular task (Eccles et al., 2005; Wigfield & Eccles, 2000; Wigfield et al., 2009). Studies have shown that challenge appraisal follows from high attainment/utility value and high academic self-efficacy/expectancy of success whereas threat appraisal follows from high attainment/utility value with low academic self-efficacy/ expectancy of success (Putwain & Remedios, 2014b; Putwain, Remedios, & Symes, 2014; Putwain & Symes, 2014).

1.3. Fear appeals appraisals and educational outcomes

Studies have shown that when appraised as threatening, fear appeals correlate positively with test anxiety and performance-avoidance goals (to avoid performing worse than one's classmates), and negatively correlate with intrinsic motivation and scores on high-stakes examinations in cross-sectional and longitudinal designs (Putwain & Remedios, 2014a; Putwain & Symes, 2011a, 2011b). Less research has examined the outcomes of a challenge appraisal. One study, however, has shown that when appraised as a challenge, fear appeals predict higher academic self-efficacy and attainment value (and threat, lower academic self-efficacy and attainment value) beyond the variance explained by prior self-efficacy and attainment value (Putwain et al., 2015). From the research conducted to date, the way in which fear appeals are interpreted by students is critical in determining whether they are associated with positive or negative outcomes. Furthermore, studies have yet to examine whether the appraisal of fear appeals is related to student engagement. Since fear appeals are primarily conceptualized as a strategy to encourage and persuade students to engage in purposeful activity to prepare for forthcoming examinations (Putwain & Roberts,

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