Effects of peer and instructor rationales on online students' motivation and achievement

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A B S T R A C T

Providing students with a rationale, or explanation of why learning content may be useful, can enhance motivation, but it remains unclear whether the source of the rationale moderates the effect. Accordingly, this study used a randomized experimental-control design to compare the effects of instructor and peer rationales on 59 undergraduates' motivation and achievement in an online course. Both peer and instructor rationales positively influenced students' interest in and perceived utility value of upcoming course content in the short term, but only peer rationales increased students' applied knowledge and final grades at the end of the semester. Unexpectedly, peer rationales also decreased students' relatedness to instructors. Qualitative results suggest that peer rationales may influence achievement by way of identification processes, while instructor rationales focus students' attention on content.

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1. Introduction

Students' motivation to engage in schoolwork depends, in part, on the extent to which they *value,* or believe a learning activity is useful and important (Wigfield & Eccles, 2000). Students who value what they are taught tend to have higher achievement, deeper engagement in class activities, and higher levels of interest (Brophy, 2008; Hidi & Harackiewicz, 2000), while students who do not tend to lose interest in course material, are easily distracted, and exhibit minimal effort (Legault, Green-Demers, & Pelletier, 2006).

One way that teachers can help students value what is taught is by providing a *rationale,* or explanation of why learning content is useful and personally relevant (e.g., Durik, Shechter, Noh, Rozek, & Harackiewicz, 2015; Reeve, Jang, Hardre, & Omura, 2002). Laboratory and classroom experiments have demonstrated positive effects of rationales on students' perceptions of task importance, self-determined motivation, and engagement (Deci, Eghrari, Patrick, & Leone, 1994; Jang, 2008; Reeve et al., 2002) as well as interest and achievement outcomes (e.g., Canning & Harackiewicz, 2015; Durik et al., 2015; Hulleman & Harackiewicz, 2009). But there is a gap in knowledge about why rationales are effective, what techniques are the most effective, and how these strategies can be scaled up to reach more students.

Using a randomized experimental design, the present study addresses these issues by comparing the effects of instructor- and peer-provided rationales on undergraduates' motivation and achievement in an online course. This contributes to prior

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research in at least three ways. First, research on the effectiveness of communicating rationales to students has developed out of two primary theoretical frameworks, namely expectancy-value theory (Wigfield & Eccles, 2000) and self-determination theory (Ryan & Deci, 2000). Although these theories have adopted similar methodological approaches and designs, they also offer different accounts of why rationales influence students' utility value, motivation, and achievement. As such, the present study provides an integrative investigation of the effectiveness of providing rationales by incorporating complementary theoretical perspectives.

Second, two approaches are commonly used to increase students' appreciation of the value of learning content: (1) having students generate their own explanation of utility (e.g., Hulleman & Harackiewicz, 2009); and (2) telling students directly why the learning content is useful (e.g., Durik et al., 2015). However, it remains unclear whether the effectiveness of directly-communicated rationales differ based on its source. The present study addresses this issue by comparing the effects of instructor and peer rationales.

Third, the present study responds to recent calls for researchers to scale up social-psychological interventions (Yeager & Walton, 2011) by testing whether directly communication utility-value information also increases interest and academic achievement in an online environment. This is important because the online context provides practitioners with a convenient and cost-effective method of delivering this information.

1.1. Expectancy-value and self-determination theories

Expectancy-value theory (Wigfield & Eccles, 2000) and self-determination theory (Ryan & Deci, 2000) have been used to explain the effects of providing students with a rationale. Both theories propose similar benefits of providing rationales, but their explanations of key mechanisms differ.

Expectancy-value theory posits that students' expectancies for success and their perceptions of task value predict subsequent academic choices and achievement (Wigfield & Eccles, 2000). In particular, students' perceptions of utility-value, or degree to which a learning task or content will be useful to ones' life, is thought to promote interest and achievement in compulsory coursework. Consequently, providing students with a rationale for why learning content is useful is thought to increase students' utility value, promote interest, and increase achievement (e.g., Canning & Harackiewicz, 2015; Durik et al., 2015; Hulleman, Godes, Hendricks, & Harackiewicz, 2010; Hulleman & Harackiewicz, 2009).

Offering a different perspective, self-determination theory (Ryan & Deci, 2000) posits that extrinsically motivated actions (e.g., compulsory coursework) become self-determined as individuals internalize and integrate externally prescribed regulation and values into the self. In educational settings, rationales may therefore increase students' identified regulation by providing them with the information they need to self-identify with and internalize the value of compulsory activities (Deci, Vallerand, Pelletier, & Ryan, 1991). Several laboratory experiments support this account and show that providing a rationale enhances students' self-determined motivation (e.g., Deci et al., 1994; Jang, 2008; Reeve et al., 2002). The present study extends this work by examining whether the positive effects of rationales generalize to coursework in an online setting.

1.2. The source of rationales

In addition to investigating the effects of rationales from two theoretical perspectives, the present study also examines the practical issue of who should generate the rationales. This is important because extant research demonstrates that having students create their own rationales for why learning content is useful may be more effective with students with low perceived competence (e.g., Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2015; Hulleman & Harackiewicz, 2009; Hulleman et al., 2010), while telling students directly why learning content is useful may be more effective with students with high perceived competence (Durik et al., 2015).

Why might self-generated and directly-communicated rationales be differentially effective with different students? One explanation is that directly-communicated rationales may be interpreted as threatening by students with low perceived competence (Canning & Harackiewicz, 2015; Durik et al., 2015). In particular, providing students with an incentive for learning by telling them directly why learning can be useful may increase pressure and thwart autonomy. To date, however, research on this issue has conflated directly-cummunicated rationales with instructor-communicated rationales, so it remains unclear whether the effectiveness of the directly-communicated rationales differs based on who is providing it. The present study addresses this issue by testing whether the effects of a directly-communicated rationale differs depending on whether the message comes from instructor or peer.

Prior research offers conflicting predictions about the effects of instructor and peer rationales. For example, some social-psychological research suggests that identical messages are more persuasive when communicated by a highly credible source compared to a less credible source (for a review, see Gilbert, Fiske, & Lindzey, 1998), where credibility is defined as perceived expertise and trustworthiness (Hovland et al., 1953). Furthermore, according to Bandura's (1986) social learning theory, learners are more likely to pay attention to information from individuals who are perceived as competent and higher in status. This suggests that instructor rationales may be more persuasive than peer rationales because students attribute greater expertise and trustworthiness to university professors compared to peers.

Offering an alternative perspective, other social-psychological research suggests that demographic similarity enhances credibility, especially for individuals who lack knowledge about an issue (for a review, see Cialdini, 2009). Bandura's (1986)