An experimental investigation of factors influencing perceived control over a failing IT project

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Abstract

IT project managers may sometimes continue to pour more resources into a failing project, a phenomenon known as 'escalation of commitment'. If project managers believe that the failing project is under their control, they may be more likely to recommend continuation of a failing project. An experiment using a computer simulated task investigated the influence of self-efficacy and project risk characteristics on perceived control over a failing IT project. The study found that participants with higher task-specific self-efficacy were likely to perceive greater control over a failing project even when the project risk factors were less within their control.
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1. Introduction

Academic researchers [10,17] as well as journalists [11,24] have documented several IT projects that were not terminated despite showing signs of failure. Such projects may eventually be abandoned at a much later stage after even more resources are poured into the project. One study reports that 35% of failing IT projects were abandoned only after the implementation stage [13]. Researchers have termed this phenomenon 'escalation of commitment' [8,28]. A survey of IS auditors found that about 30–40% of IT projects showed some degree of project escalation [19]. If a decision to discontinue such projects had been taken earlier, it could have saved considerable resources.

Several theoretical perspectives such as self-justification theory [28], prospect theory [34], agency theory [14] and hypotheses such as the "sunk cost effect" [2] and "project completion effect" [5] have been offered to explain escalation of commitment to failing courses of action. The risk perception perspective [21,23] suggests that if project man-

agers perceive the project risks accurately, they would be more likely to recommend discontinuation of failing projects. The self-efficacy hypothesis [35,36] suggests that decision makers with higher self-efficacy are more likely to persist with failing projects. Self-efficacy may influence the perceived control that project managers may have over the project. If project managers continue to believe that the project is under their control, they may be more likely to recommend continuation of failing projects.

Researchers in IT project management have paid significant attention to identification and classification of various risk factors. However, there is a need to better understand how project managers evaluate the impact of various risk factors and how such evaluation influences their judgment and decision making. This paper reports some of the results of an experimental study conducted to investigate the role of project risk factors and individual self-efficacy on the perceived risk, perceived control, and commitment to a failing IT project. Specifically, this paper focuses on the following research question: How do factors such as project risk characteristics and self-efficacy influence a project manager's perceived control over the failing project?

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2. Background

Researchers in software risk management have classified project risk factors into various categories [4,25,32,33]. Keil and his colleagues have defined project risk characteristics based on the degree of managerial control or the 'sphere of influence' over the risk factor [18,31]. Keil et al. [18] found that the risks that were considered most important by project managers were often not under their direct control. Following Keil et al.'s classification of project risk factors based on the degree of managerial control over the risk factors [18], this study classifies project risks into endogenous and exogenous risk factors. Exogenous risk factors are variables or events linked to external factors that can influence the project outcomes negatively but are not under the direct control of the project manager. For example, factors like change in governmental regulations, change in business environment, change in project scope, or lack of senior management commitment are external to the project environment and are less within the control of a project manager. Endogenous risk factors are variables or events linked to a project's internal factors that can influence the project outcomes negatively but are under the direct control of the manager, such as project team morale, employee productivity, staffing level, employee experience, and so forth. Since some risk factors could materialize during the course of project execution and affect the project outcomes negatively, project managers are likely to be influenced by their perception of control over those risk factors in their assessment of their control over an unfolding project, particularly when the project does not progress as planned. Project managers' self-efficacy, which is their judgment about their own ability to successfully execute a task, can also influence their perception of control over a failing project. Thus, project managers' perception of control over the failing project is likely to be based on their judgment of how much control they have over the risk factor that is possibly the cause of project failure and their self-efficacy or perceived ability to turn around the failing project. Fig. 1 depicts the research model discussed in the following sections.

2.1. Project risk characteristics and perceived control

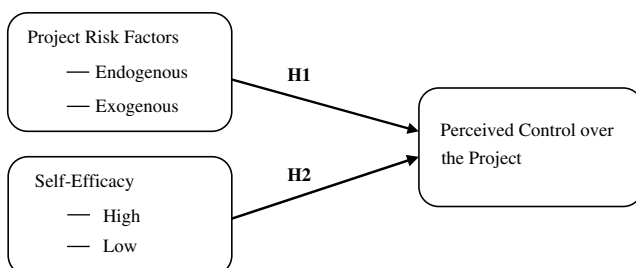While executing a project, a project manager's perceived control over the project would be based on the actions taken in the past and the outcomes achieved for the project. Decision makers may exhibit self-serving bias such that they may attribute success to their own efforts while attributing failure to external factors beyond their control. Based on the type of risk factors that may be present in a failing project, a project manager may evaluate the action–outcome information differently. When a project is dominated by exogenous risk factors, project managers could easily attribute the negative outcomes to the exogenous risk factors not within their control and may not attribute the negative outcomes to be directly related to their own actions. On the other hand, when a project is dominated by endogenous risk factors, project manages may be more likely to attribute the outcomes to their own actions.

> *H1:* Project managers executing a failing project with endogenous risk factors will tend to perceive greater degree of control over the project as compared to project managers executing a failing project with exogenous risk factors.

2.2. Self-efficacy and perceived control

Self-efficacy is another factor that could influence managers' perceived control over the project. Self-efficacy is a personal judgment about how well one can perform in a given task situation or a domain. Past experience greatly influences self-efficacy [3]. Successful past experiences within a task domain can build greater self-efficacy whereas unsuccessful past experiences can erode ones self-efficacy. Self-efficacy may lead to generalization of past actions–outcomes to a new situation even when it may not be applicable directly. Experienced managers may develop a high sense of self-efficacy by their past successes, which may lead them to believe that it will also be applicable to a new situation. As Staw [30] correctly observes "It's tough for managers with good track records to recognize that a certain course is not satisfactory risk – that things are not once again going to turn their way." Similarly, Shapira [27] found that managers tend to believe in their ability to influence and control a risky situation. Due to their successful past track record, managers could sometimes inaccurately estimate their ability to influence the outcomes in a risky situation such as dealing with a failing project. Thus, self-efficacy could lead to a biased assessment of the perceived control over the project.

> *H2:* While executing a failing project, project managers who begin the project with higher (lower) self-efficacy about successful completion of the project will tend to perceive greater (lesser) degree of control over the failing project.

3. Research method

An experiment was conducted using a computer simulated software project serving as an interactive, dynamic

Fig. 1. Influence of project risk factors and self-efficacy on perceived control.