

The Structure and Function of
Primary and Secondary Academic Control

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Primary and Secondary Academic Control

BY

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Abstract

This study examined the factor structure and developmental function of primary and secondary control within an academic context. Three phases of development were considered corresponding with students' age in years: Transition (17-18 years); Decision (19-20 years); and Commitment (21+ years). Results of both exploratory and confirmatory factor analyses suggest a single-factor solution for primary control and a two-factor solution for secondary control. Tests of factorial invariance suggest identical factor structures across the three age groups for both primary and secondary control. The function of primary control and the two types of secondary control as predictors of academic-related emotions and academic achievement (GPA) was examined with structural equation modeling. Findings suggest direct and indirect (emotion-mediated) relationships between primary control and GPA. The two types of secondary control were indirectly related to GPA (emotion-mediated), though in very disparate ways. The conceptual and practical implications of findings are discussed.

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The Structure and Function of Primary and Secondary Academic Control

Introduction

The perception that one can control and influence outcomes either directly or indirectly in one's environment is typically regarded as essential for adaptive functioning (Heckhausen and Schulz, 1995). Although perceived control is commonly conceptualized as the result of direct modification of one's environment, control theorists (e.g., Rothbaum, Weisz, & Snyder, 1982) recognize that individuals also maintain control indirectly, by adjusting to the environment through modified cognitions, expectations, etc. In order to differentiate between these two types of control, the labels *primary control* and *secondary control* have been adapted to reflect active/direct and passive/indirect control respectively (Rothbaum et al., 1982).

The current study examined the structure and function of both primary and secondary control within the specific domain of achievement striving. In particular, the possibility that primary and secondary control may develop as students mature, an idea stemming from the theoretical perspective of Heckhausen and Schulz (1995), was assessed by comparing the factor structure of both primary and secondary academic control across three age-based student groups. In addition, the developmental function of both primary and secondary control was examined across each age-based group in terms of the associations of both types of control with academic-related emotions (positive and negative) and actual academic achievement (GPA). The conceptual and practical implications for the maintenance of perceived academic control via primary and secondary means are examined and discussed.

Perceived Control

Research consistently demonstrates the benefits of perceived control in terms of greater motivation, increased psychological well-being, and improved functioning (Perry, Hall, & Ruthig, 2005). Perceived control also has direct consequences for the reduction of stress (Folkman, 1984), and has been linked to physiological outcomes such as blood pressure level (Hawkey et al., 2005), general physical health status (Chipperfield, Perry, & Menec, 1999), and even mortality among the elderly (Chipperfield, 1993). In addition, research also outlines the devastating effects of *loss of perceived control* in terms of negative emotions (Scheck & Kinicki, 2000), ruminative thought (Lyubomirsky, Tucker, Caldwell, & Berg, 1999), helplessness (Miller & Seligman, 1975), anxiety (Muris, Meesters, Schouten & Hodge, 2004) depression (Abramson, Garber, & Seligman, 1980) and physical health setbacks (Peterson & Seligman, 1987; Wallace, Bergeman, & Maxwell, 2002).

Within the literature loss of perceived control is commonly referred to as 'helplessness' (Abramson et al., 1980; Seligman, 1975). Traditional helplessness paradigms define loss of control in terms of two typical responses: (1) Cognitive responses in the form of attributions implying uncontrollability and, (2) The absence of direct, controlling behavioral responses - typically replaced with inward behavioral responses in the form of passivity, submissiveness, and withdrawal. Until relatively recently, an individual who displayed the above combination of cognition and behavior was invariably assumed to experience helplessness (for a review see Miller & Norman, 1979). In conjunction with the assumption of helplessness, theorists have typically

inferred a lack of *motivation for regaining* control in such situations, again citing the lack of outward responding as evidence. In a pivotal theoretical paper Rothbaum et al. (1982) challenged the assumption of helplessness and argued that "the motivation to feel in control may be expressed not only in behavior that is blatantly controlling, but also subtly, in behavior that is not" (p. 7). As such, Rothbaum et al. proposed a model of perceived control whereby individuals maintain feelings of control through two processes termed primary control and secondary control. Although many definitions of perceived control exist (for a review see Skinner, 1996), for the purposes of the current study perceived control will be viewed from the perspective of Rothbaum et al.'s two-process model of control.

Two-Process Model of Control

The central concept outlined in Rothbaum et al.'s (1982) theory is that individuals are motivated to feel in control in many instances previously thought to invariably produce helplessness. Perceived control can be achieved not only directly by bringing the environment in line with one's desires, but also indirectly by bringing oneself in line with the environment. Thus, these authors view perceived control as attainable through two processes: *Primary control* refers to perceptions of control that are gained through *primary* means (i.e., beliefs, strategies, etc.) which typically involve the direct manipulation of the environment (e.g., persistence, task modification, etc.). *Secondary control* is offered as an alternative to helplessness, and is conceptualized as perceptions of control that are gained through *secondary* means involving an adjustment of the self to the uncontrollable environment (e.g., through modifying one's attributions, expectations,

etc.). Both primary and secondary control processes can involve action and cognition, however it is typically observed that primary control striving targets the external environment, in the form of active behavior (e.g., studying for an exam), while secondary control targets the internal self in the form of cognitions and/or emotions (e.g., downgrading the importance of failure) (Heckhausen & Schulz, 1995).

Rothbaum et al.'s (1982) definition of primary control largely overlaps with the traditional conceptualization of perceived control as the direct manipulation of one's environment. As such, a large body of literature documents the implications of perceived primary control for the psychological functioning and well-being of humans. Greater perceptions of primary control are generally associated with lower levels of depression (Abramson et al., 1980) and stress (Folkman, 1984). In addition, there is evidence to suggest that perceptions of control attained via primary sources are related to actual physiological outcomes (Langer & Rodin, 1976; Rodin & Langer, 1977), health care service usage (Chipperfield & Greenslade, 1999), and even survival rates among the elderly (Bailis, Chipperfield, & Perry, 2005; Chipperfield, 1993; Menec, Chipperfield, & Perry, 1999; Rodin & Langer, 1977).

Relative to primary control, the secondary control research literature is small and still developing. The vast majority of secondary control research studies have been conducted within the contexts of health and aging (e.g., Chipperfield et al., 1999). Empirical findings indicate the benefits of secondary control in terms of outcomes such as parental adjustment to childhood cancer (Grootenhuis, Last, DeGraaf-Nijkerk, & VanDer-Nel, 1996), psychosocial adjustment to Parkinson's disease (McQuillen, Licht, &

Licht, 2003), reducing depressive symptoms in HIV positive individuals (Thompson, Nanni, & Levine, 1994), assisting incarcerated men cope with HIV diagnosis (Thompson, Collins, Newcomb, & Hunt, 1996), and aiding middle-aged adults in adjustment to age-related physical changes (Thompson, Thomas, Rickabaugh et al., 1998). In a pivotal longitudinal study, Affleck, Tennon, Croog, & Levine (1987) provide compelling evidence regarding the value of secondary control in terms of actual physical health outcomes and survival. The authors interviewed men who had recently suffered a heart attack. Eight years later health records revealed that those men who initially reported benefiting in some way from the heart attack (e.g., spending more time with grandchildren) had significantly lower incidence of second heart attacks and a higher survival rate, as compared to men who did not report any benefits associated with the experience of a heart attack.

As outlined above, research confirms that both primary control and secondary control are instrumental in terms of adaptive functioning. There appears to be consistent evidence concerning the importance of primary control in terms of the actual actions that are necessary for actual goal attainment (e.g., studying in order to succeed academically). In addition, secondary control is important to goal attainment in that it appears to fulfill two functions: amelioration of losses in psychological well-being that are likely to result from threats to primary control (Rothbaum et al., 1982) and, preservation of motivation for future primary control striving (Heckhausen & Schulz, 1995). That is, while primary control appears to directly impact objective outcomes (such as academic achievement), secondary control appears to have an *indirect* relationship with success outcomes through

psychological well-being variables (i.e., emotions) and/or motivation.

Debate continues in the literature with regard to the adaptiveness of heavy reliance on secondary control given the possibility (and appropriateness) of primary control responding. Control theorists argue that in such cases there may be costs to the preservation of psychological well-being through secondary control. That is, using *only* secondary control (e.g., in place of primary control) may result in a lack of active behavior aimed at goal attainment. This lack of active engagement in one's environment can have disastrous effects in goal-striving situations (e.g., failure to attain one's goal) (Heckhausen & Schulz, 1995).

Initially Rothbaum et al. (1982) proposed that control (both primary and secondary) is attained via the following four types of control-striving strategies: interpretation, prediction, vicarious association, and illusory connection. Within the context of primary control there has been little research concerning Rothbaum et al.'s specific distinctions. While several identifiable primary control strategies may exist (Heckhausen & Schulz, 1998), primary control appears to be somewhat unidimensional in that most primary control strategies have in common effortful or persistent behavior aimed at goal attainment. Emphasis in the literature has remained on this single dimension of primary control, a perspective which is adopted in the current study of primary control. Rothbaum et al.'s distinction between the four types of control striving has received slightly more attention within the context of secondary control (i.e., relative to primary control). Indeed, research typically suggests that secondary control is multidimensional (Hladkyj, Perry, Pelltier, & Taylor, 2000; Heckhausen & Schulz,

1998). As such, the current study examined the possibility of the existence of Rothbaum et al.'s four factor structure in the data. Below is a summary of Rothbaum et al.'s hypothesized four factors.

The *interpretive* form of secondary control is conceptualized as the cognitive restructuring of a negative, uncontrollable event so as to deduce meaning, knowledge, and/or importance from the event. That is, through reinterpretation people seek to render uncontrollable outcomes more tolerable and acceptable. Consider a student who receives a poor grade on an important assignment, but believes he has learned a valuable lesson from the feedback on the assignment. This student may retain a sense of control over academic outcomes based on his re-interpretation of the situation.

Predictive secondary control involves prediction of the occurrence of negative, uncontrollable events and is typically associated with attributions to severely limited ability. For example, consider a student who has performed poorly on a math exam and concludes that he is not gifted in math (attribution to limited ability). The student lowers his expectations for the next exam and a sense of control may be maintained through the fulfillment of *negative* expectations (moderate grades).

Vicarious secondary control is the association of the self with powerful others and is typified by attributions to external others (i.e., teachers, God, boss, etc.). Vicarious secondary control allows for an individual to align him/herself with others, thereby sharing in a collective control. Consider a student who earns a C+ on an important paper. The student relays her experience to others in the class and discovers several other students received the same grade. A sense of control may be maintained through the

commonalities and union of the larger group.

Illusory secondary control embodies attempts to associate with chance and is generally accompanied by attributions to luck, chance, or fate. Rothbaum et al. (1982) suggest that illusory control may also involve active behavior in chance situations (e.g., a gambler blowing on dice). In an academic setting, a student who attributes poor performance to bad luck may use superstitious strategies such as wearing a lucky shirt or sitting in a particular chair. A sense of control is gained through alignment of the self with the 'force of chance' so that the individual may share in the control exerted by that force.

Since Rothbaum et al.'s (1982) original distinction between primary and secondary control, several theorists, most notably Heckhausen and Schulz (1995; 1998), have further expanded on the two-process model. In their Life-Span Theory of Control, Heckhausen and Schulz (1995) apply primary and secondary control to developmental transitions and goals and in so doing, posit lifespan developmental trajectories for both primary and secondary control. Specifically, these authors suggest that as humans age they become more experienced in dealing with threats to primary control. As such, older and more experienced individuals are more adept with, and gain more benefit from, secondary control. A growing body of research supports this claim with empirical evidence repeatedly demonstrating a connection between age and *secondary control* (e.g., Band & Weisz, 1990; Chipperfield et al., 1999; Heckhausen, 1997).

In order to address this developmental feature of secondary control, age was treated as an independent variable in this study, and the possibility that the factor

structure of secondary control differed across student age groups was examined. In particular, given Heckhausen and Schulz's (1995) suggestion that secondary control develops as individuals gain experience, it was predicted that secondary *academic* control among relatively young students would be largely undeveloped as compared to older students. This would result in a highly disparate secondary control factor structure across students of different age groups.

Primary/Secondary Control in Academic Settings

Objectively, most students accepted to university have the capacity to succeed in academic situations in terms of academic competency, ability, etc. In addition, academic outcomes are typically considered highly contingent upon appropriate academic behaviors such as attending class, taking notes, and studying for exams. As such, primary control is typically considered a highly adaptive strategy for goal attainment in academic settings (for a review see Stipek & Weisz, 1981). Indeed, research repeatedly demonstrates the importance of perceived primary academic control for university students' achievement in terms of motivation and academic performance (e.g., Perry & Dickens, 1984; Perry & Magnusson, 1989), final course grades in introductory psychology (Perry, Hladkyj, Pekrun, & Pelltier, 2001) and actual grade point averages (Perry, Hladkyj, Pekrun, Clifton, & Chipperfield, 2005). The university environment can encompass challenges, however, that can serve to undermine perceptions of primary control through failure, thereby creating a situation in which secondary control may be employed. As such, the current study will examine primary and secondary control within an academic setting, accounting for Heckhausen and Shulz's (1995) emphasis on the

development of control processes by investigating both control processes across three age-based student samples as outlined below.

When young (17-18 years) university students make the transition from high school to university, they can face unanticipated challenges such as unfamiliar academic tasks, heightened academic competition, a new physical environment, new social networks, and financial strain. These new realities may contribute to unexpected academic outcomes, notably in the form of failure, thereby threatening primary control. Perry et al. (2001) refer to this situation as a *paradox of failure* in which seemingly capable students have difficulty adjusting to the university setting. Indeed, roughly 27% of students entering university will not complete the first year (Desruisseaux, 1998; Geraghty, 1996). Further, among the students who successfully complete the first “transition” year of university, fewer than 55% will actually earn an undergraduate degree within an additional five years of study (Desruisseaux, 1998; Geraghty, 1996). For the purposes of the current study this group of students (17 – 18 years) will be labeled the Transition Group.

While students 17 – 18 years face issues related to the transition from high school to university, slightly older students (19-20 years) may encounter issues related less to transition, and more to their academic and career development. Decisions concerning university program, faculty, and major subject area may become more important to older students as they begin to realize the implications of attending university for future career opportunities, employability, etc. These challenging decisions, combined with ever-increasing financial responsibilities and the pressure to excel, can contribute to threats to

primary control in the form of program uncertainty, course attrition, and career indecision. As such, these students (19 – 20 years) will be referred to as the Decision Group.

While younger students may struggle with the transition to university and career indecision issues, more mature students (21+) have slightly different concerns. Mature students can be one of many types of students: some may be adults who are making a career change, others may be students returning to university after dropping out, still others may be students who have completed several years of an undergraduate program and are nearing graduation, etc. Regardless, for these mature students obtaining an education can take on a high level of importance relative to younger students. Generally, mature students are conceptualized as highly committed to their chosen program, having made the challenging decision to return to university. As such, for these students, failure may be less likely and when it does occur, it may be less devastating for these “seasoned” students. For the current study these students (21+ years) will be labeled the Commitment Group.

Following from this general logic, two broad research questions arise: First, does the nature of primary/secondary control differ across the three age-based student samples (Transition, Decision, and Commitment)? That is, it is quite possible that the characteristics of primary and secondary control differ for the three student age-groups because of changing demands inherent in students’ academic development. In statistical terms, this question will be addressed in terms of a test of factorial (measurement) variance of primary and secondary control across the three age groups. A second research