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Assessment of the High Performance Cycle to Understand Work Motivation Among U.S. Workers

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Walden University
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Abstract

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Workers

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Eric J. Evans

MS, Southern New Hampshire University, 2015

MED, Lock Haven University of PA, 2009

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Psychology

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Abstract

The high performance cycle (HPC) is a multi-theoretical model of workplace motivation that is rooted in goal setting theory. While limited studies have empirically tested the HPC since its inception in 1990, early studies were limited in the lack of an instrument designed to assess HPC variables. Using an instrument developed by Borgogni and Dello Russo to empirically test the HPC, this study's aim was to provide further examination of the HPC antecedents of performance with an increased sample size and by drawing from a diverse population of workers. Using a self-report measure of performance, a cross-sectional design was implemented to assess the antecedents of performance in the HPC model. An online survey obtained a sample of 380 working adults in the United States that was representative of the broader population across age, gender, and ethnicity. A positive, significant relationship was found between all antecedent variables and performance. Most of the variables in the HPC model held up during isolated moderation/mediation analyses. Goals and self-efficacy both had a positive, significant relationship with performance. Based on a model revised from the initial HPC, 4 pathways are proposed through which goals may affect performance. The study's findings suggest that the HPC model and questionnaire have the potential to serve as a powerful tool for organizations to evaluate various motivational factors of their employees and develop interventions in order to enhance job performance.

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Dedication

To my wife, for her undying love and support throughout this journey.

Acknowledgments

I am grateful for all of the support and guidance from so many friends, family, and faculty members to reach this point. A special thanks to Drs. Naggiar and Tanguma for sticking with me and helping me to see this through.

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Chapter 1: Introduction to the Study

Background

A great deal of research has been dedicated to the study of motivation in the workplace as it was acknowledged long ago that motivated employees perform at higher levels than less motivated employees (Vroom, 1964). Even though there has been extensive research focused on workplace motivation, there are relatively few tools for measuring workplace motivation (Gagné et al., 2010). Hackman and Oldham (1976) developed the Job Characteristics Model to assess factors that internally motivate employees to perform well in their jobs. In addition, Hackman and Oldhman proposed the use of a motivation potential score (MPS), derived from their questionnaire, to assess the level of motivation of employees. Warr, Cook, and Wall (1979) developed scales to measure various workplace attitudes, including intrinsic job motivation. Amabile, Hill, Hennessey, and Tighe (1994) developed the workplace preference inventory (WPI) to assess differences individuals have between intrinsic and extrinsic motivation. VandeWalle (1997) developed an assessment to determine the tendency of individuals to pursue a goal. The final workplace motivation assessment identified in the literature was developed by Gagné et al. (2010), the motivation at work scale (MWS), which is based on self-deterministic theory.

A majority of the tools that have been developed to assess workplace motivation focus on a singular theoretical approach, such as self-deterministic theory (Gagné et al., 2010). What has been lacking in the literature is a measurement tool that takes a more holistic approach in assessing workplace motivation. As Kanfer, Chen, and Pritchard

(2012) point out, while motivation is critically important in raising individual

performance, other organizational factors are also critical to improving individual and

organizational performance. The high performance cycle (HPC) provides such a holistic,

multitheoretical model through which workplace motivation can be assessed to improve

job performance, job satisfaction, and organizational commitment (Latham, 2012).

The HPC model is rooted in goal setting theory which has found broad support in

a wide range of disciplines since the theory was formally established by Locke and

Latham (1990b). Some of those disciplines include the health care industry, such as

surgery training (e.g., Gardner, Diesne, Hogg, & Huerta, 2016) and patient behavior

changes (e.g., Miller & Bauman, 2014), academia (e.g., Morisano, 2013), sports

performance (e.g., Williams, 2013) and leadership (e.g., Piccolo & Buengeler, 2013).

According to the HPC proposed by Locke and Latham (1990b), high goals lead to higher

performance. However, there are also a number of mediators and moderators that

influence this relationship. Moderators in the HPC include goal commitment, feedback,

self-efficacy, ability, task complexity, and organizational constraints. Mediators in the

HPC include effort, persistence, direction, and task-specific strategies. High performance

leads to contingent and noncontingent rewards. Attaining these rewards, then, leads to

job satisfaction and job satisfaction leads to organizational commitment. The HPC is a

recursive model where organizational commitment, in turn, leads to the setting of higher

goals (Latham, 2012).

Despite the potential with measuring motivation based on the HPC, to date only a

few studies have empirically tested the HPC model and only one assessment tool has

been developed. The first known study that empirically tested the HPC model was

conducted by Selden and Brewer (2010). Selden and Brewer utilized data from federal

employee surveys and translated items from this questionnaire to correspond with

variables in the HPC model. Pellegrino (2015) also tested the HPC model utilizing data

from a different federal employee survey. Both studies supported the relationships in the

HPC model. Borgogni and Dello Russo (2012) developed the first known questionnaire

to directly measure the variables in the HPC. In a two-part study, Borgogni and Dello

Russo validated their HPC instrument and then conducted a cross-sectional study to

assess the relationships in the HPC using their newly developed scale. Based on their

results, Borgogni and Dello Russo proposed a revised HPC model.

As a result of the Borgogni and Dello Russo (2012) study being cross-sectional,

the researchers noted their inability to validate the consequences of job performance as

predicted by the model (i.e., rewards, job satisfaction and organizational commitment).

Additionally, they identified their small sample size ($n = 101$) as a limitation in the

second study. The researchers further indicated a need to replicate their revised HPC

model in different settings to assess the generalizability of the HPC.

<div align="center">**Problem Statement**</div>

Work motivation may be one of the most researched topics in organizational

psychology due to the fact that, over time. work motivation has proven to be a powerful

predictor of performance in the workplace (Miner, 2003). In addition, workplace

motivation has been shown to have relationships with productivity and the economic

well-being of individuals, organizations, and nations (Pinder, 2008). Schmidt, Beck, and

Gillespie (2013) stated that "motivation plays a central role in nearly all aspects of behavior in the workplace" (p. 311). Kanfer, Chen, and Pritchard (2012) also acknowledged the longstanding findings that work motivation is important in meeting personal and organizational goals. However, Kanfer et al. point out that the connection between employee motivation and organizational success is most direct with labor-intensive jobs while other factors are also critical to the success of an organization such as organizational strategies and management practices.

The high performance cycle (HPC) model of workplace motivation may be one of the most supported models on the subject as demonstrated by an enumerative review conducted by Latham, Locke, and Fassina (2002) in which 105 analyses were identified over a 10-year period (1990-2000) that support component parts of the HPC model. Despite the extensive research available around the topic of work motivation, the HPC has only been empirically tested in its entirety in three known studies (Selden & Brewer, 2000; Borgogni & Dello Russo, 2012; Pellegrino, 2015). Of those three studies, the Borgogni and Dello Russo (2012) study is the only one to have developed and validated scales for the sole purpose of measuring all constructs in the HPC model with a singular questionnaire.

The HPC is a practical, metatheoretical model of workplace motivation developed by Locke and Latham (1990b) that is rooted in goal setting theory (see Figure 1) (Latham & Locke, 2007). Goal setting theory proposes that the setting of high and specific goals leads to higher performance when individuals are committed to their goals and when they have a participatory role in the process (Locke & Latham, 1990b). The HPC model

expands upon goal setting theory by incorporating various motivational theories in a manner that provides a practical model for motivation in the workplace (Latham, 2012).

While the theoretical basis of the HPC model and the relationships between its individual components has been extensively supported in the literature (Latham, Locke, & Fassina, 2002), few studies have empirically tested the model in its entirety. At the time of the Latham et al. (2002) enumerative analysis of the HPC, a study by Selden and Brewer (2000) was the only one to have empirically tested the HPC (Latham & Locke, 2007) in its entirety. Since that time, Pellegrino (2015) also conducted a study that supported the HPC using data from Federal employee surveys just as the Selden and Brewer (2000) study had done. Still, a questionnaire for directly measuring variables in the HPC model was nonexistent until recently. Borgogni and Dello Russo (2012) developed and validated the first scale to measure work motivation based on constructs in the HPC model and provided a revised HPC model based on their empirical findings.

While the Borgogni and Dello Russo (2012) study substantially moved forward research with the HPC, there were limitations to this study. The researchers identified three limitations in their study- a small sample size ($N = 101$), the need for the HPC to be tested in different contexts to assess the generalizability of the HPC model, and the inability to assess the outcomes of performance due to the cross-sectional design of the study. Therefore, a gap in the research identified here is a need to empirically expand upon the Borgogni and Dello Russo study by assessing the hypothetical HPC predictors of performance with a different job categories and geographical locations of workers than used by these researchers (telecommunications workers in Italy) and to obtain a larger

sample size. The study presented here will examine the generalizability of the HPC

model by sampling individuals within various job categories and geographical locations

in the United States.
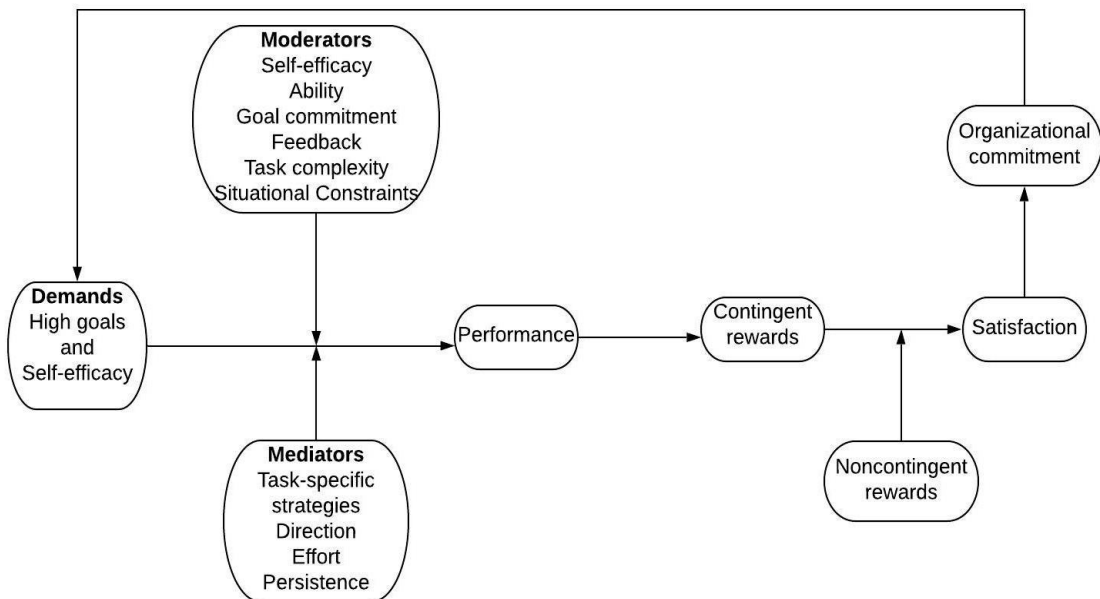
Figure 1. Locke and Latham's High Performance Cycle

Purpose of the Study

The purpose of this study is to further expand upon research of the HPC model of

work motivation by utilizing a newly developed HPC questionnaire to assess the HPC

model.

Research Questions

RQ1: Is there a significant relationship between goals assessed by the HPC

questionnaire and self-assessed employee performance?

$H_0$1: There is not a statistically significant relationship between goals and

performance.

H_A1: There is a statistically significant relationship between goals and performance.

RQ2: Does ability/self-efficacy assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

H_02: Ability/self-efficacy does not moderate the relationship between goals and performance.

H_A2: Ability/self-efficacy moderates the relationship between goals and performance.

RQ3: Does goal commitment assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

H_03: Goal commitment does not moderate the relationship between goals and performance.

H_A3: Goal commitment moderates the relationship between goals and performance.

RQ4: Does feedback assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

H_04: Feedback does not moderate the relationship between goals and performance.

H_A4: Feedback moderates the relationship between goals and performance.

RQ5: Do situational constraints assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$5: Situational constraints do not moderate the relationship between goals and performance.

H_A5: Situational constraints moderate the relationship between goals and performance.

RQ6: Does task complexity assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$6: Task complexity does not moderate the relationship between goals and performance.

H_A6: Task complexity moderates the relationship between goals and performance.

RQ7: Does direction assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

H_{07}: Direction does not mediate the relationship between goals and performance.

H_A7: Direction mediates the relationship between goals and performance.

RQ8: Does effort assessed by the HPC questionnaire mediate the relationship between goals and self-assessed employee performance?

$H_0$8: Effort does not mediate the relationship between goals and performance.

H_A8: Effort mediates the relationship between goals and performance.

RQ9: Does persistence assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$9: Persistence does not mediate the relationship between goals and performance.

H_A9: Persistence mediates the relationship between goals and performance.

RQ10: Do task-specific strategies assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$10: Task-specific strategies do not mediate the relationship between goals and performance.

H_A10: Task-specific strategies mediate the relationship between goals and performance.

RQ11: Do data from the HPC questionnaire and self-assessed employee performance support the HPC model?

$H_0$11: The empirically-derived HPC model differs from the hypothetical model proposed by the literature.

H_A11: The empirically-derived HPC model is equivalent to the hypothetical model proposed by the literature.

Theoretical Foundation

This study aims to empirically assess the HPC model of workplace motivation. The HPC is a metatheoretical model of workplace motivation, integrating goal setting theory, social cognitive theory (specifically, self-efficacy) and expectancy theory (Locke & Latham, 1990b). The HPC model predicts that ability, self-efficacy, goal commitment, feedback, task complexity, and organizational constraints moderate the relationship between goals and performance. Additionally, the HPC model predicts that the demands-performance relationship is mediated by direction, effort, persistence, and task-specific

strategies. According to the HPC model, the more challenging goals are, the higher their

performance will be. High performance, then, leads to rewards, job satisfaction and

organizational performance (Locke & Latham, 1990b).

Nature of the Study

A quantitative, cross-sectional design will be used for the proposed research. The

HPC model can be considered in two parts: the motivational factors that lead to

performance and the outcome variables that arise from increased performance. The

driving variable (demands) in the HPC model is demands (set goals). The demands-

performance relationship is moderated by five variables: self-efficacy, ability,

commitment, feedback, task complexity, and situational constraints. Additionally, the

demands-performance relationship is mediated by four variables: direction, effort,

persistence, and task-specific strategies. Outcome variables that result from increased

performance include contingent rewards, noncontingent rewards, job satisfaction, and

organizational commitment. The HPC questionnaire will measure all of the constructs in

the model (goals, ability/self-efficacy, goal commitment, feedback, task complexity,

situational constraints, direction, effort, persistence, and task-specific strategies).

Performance will be assessed with a self-report assessment of job performance

(Goodman & Svyanek, 1999; Onwezen, van Veldhoven, & Biron, 2014). HPC

constructs will then be correlated with performance data to determine if the theoretical

HPC model (Latham & Locke, 2007) fits the data collected in this study. A bivariate

correlational analysis will be performed to assess the relationships between variables in

the first half of the model- performance and its antecedents. All variables will be

assessed from the HPC and job performance questionnaire. As this is a cross-sectional design, only the first part of the model will be tested (i.e., the antecedents of performance) because it would not be appropriate to draw inferences about causal relationships (i.e., between performance and the outcome variables) with such a design (Latham & Locke, 2007).

The author of the proposed research will utilize the web-based research platform Prolific (www.prolific.co) to access participants with a broad background with respect to geographical location, job titles, and types of organizations, thereby meeting some of the limitations stated from the Borgogni and Dello Russo (2012) study. Finally, the use of structural equation modeling (SEM) will help to assess whether or not empirical data from this study support the hypothetical HPC model. If the model does not fit the data, a revised HPC model will be proposed.

Definition of Terms

Demands: Refers goals in the HPC model and is operationalized as an individual's perception of a goal difficulty (Lee and Bobko, 1992)

Self-efficacy: The belief an individual has it in their ability to complete a task; operationalized by a self-efficacy scale developed by Chen, Gully, and Eden (2001)

Goal commitment: The commitment an individual has to the pursuance of a challenging goal; operationalized with Hollenbeck, Klein, O'Leary, and Wright's (1989) scale for goal commitment.

Feedback: Feedback employees receive from supervisors as it relates to their performance relative to their goals; operationalized with items developed for feedback by Locke and Latham (1990a).

Task complexity: Refers to the knowledge and skills necessary to complete a task (Wood, 1986); operationalized with a scale developed by Borgogni and Dello Russo (2012).

Organizational support/Situational constraints: The HPC model refers to organizational constraints as factors necessary for goal setting including sufficient resources, organizational and cultural support, and a lack of conflicting goals (Latham and Locke (2006). Borgogni and Dello Russo (2012) operationalized this variable as organizational support and supervisory support, combining two scales, with items from a previous questionnaire (Locke and Latham, 1990a).

Direction: Refers to a choice that individuals make to pursue and achieve a specific goal (Hinsz & Ployhart, 1998); operationalized with a scale developed by Borgogni and Dello Russo (2012).

Effort: The amount of effort expended towards achieving a goal; operationalized by a scale developed by Earley, Wojnaroski, and Prest (1987).

Persistence: The persistence to pursue a goal; operationalized by items developed by Borgogni and Dello Russo (2012).

Task-specific strategies: Refers to strategies individuals search for and have available to them in pursuit of their goals (Latham, 2012); operationalized with a scale developed by Borgogni and Dello Russo (2012).

Contingent rewards: Rewards associated with goal achievement (e.g., pay raise); operationalized by items developed by Borgogni and Dello Russo (2012).

Noncontingent rewards: Rewards not associated with goal achievement (e.g., work flexibility); operationalized with an item developed by Borgogni and Dello Russo (2012).

Job satisfaction: The overall satisfaction and employee has with their job; operationalized with items adapted from Judge, Locke, Durham, and Kluger (1998).

Affective commitment: Refers to the emotional attachment an employee has with an organization; operationalized with items developed by Allen and Meyer (1990).

Assumptions

In this study, it was assumed that all participants would answer survey questions honestly. Some participants may not be comfortable providing honest answers about their place of employment or their own performance. If participants do not answer honestly, the results could be skewed to be more positive than they truly are.

Scope and Delimitations

The primary aim of this study was to obtain empirical data to assess the hypothetical HPC model. While the HPC has been considered one of the most robust models of workplace motivation (Latham et al., 2002), only one instrument has been developed to directly measure the HPC model. That instrument was only tested and validated on one sample of telecommunication workers in Italy (Borgogni & Dello Russo, 2012). Therefore, while this study will contribute empirical data for assessment of the HPC model, results from this study will also provide additional data regarding the

generalizability of the Borgogni and Dello Russo (2012) HPC questionnaire by testing

the instrument on workers with varying demographics.

Limitations

The cross-sectional research design employed in this study has limitations,

particularly related to the predictive ability of such a design. All the HPC factors were

measured at one time, including outcome variables that arise from high-performing

employees. In other words, the HPC model is basically a two-part model. The first part

considers independent variables that predict performance. The second part considers the

outcomes of performance (i.e., rewards, job satisfaction and organizational commitment).

With the survey only given once, the antecedents and consequences of performance (per

the HPC model) are all assessed at the same point in time. To address this limitation, a

follow-up study could be conducted in the future. For example, goals could be given

followed by administering the survey. After some time, performance would be assessed

following employees receiving their rewards. After performance appraisals and

deliverance of rewards for performance, the HPC questionnaire should be administered

again to assess the consequences of performance to provide empirical data to assess the

theoretical outcomes of the HPC model.

Significance of the Study

A practical area of interest in the field of industrial and organizational psychology

is how to improve employee performance to maximize positive individual and

organizational outcomes. Understanding how to motivate employees will enhance our

understanding of how to enhance employee performance. Despite the importance of

motivation as it relates to individual and organizational performance, few tools are available to assess work motivation (Gagné et al., 2010). Borgogni and Dello Russo (2012) developed the first known instrument to measure workplace motivation based on the HPC that was developed by Locke and Latham (1990b). Findings from this study will add to the empirical data available on the HPC model, which has been minimal to date. In addition, findings from this study will help to show whether the HPC questionnaire is valid and reliable for use among employees from different demographics and work settings in the United States. Having such a valid and reliable scale for measuring employee motivation based on the HPC could have a profound impact on improving employee performance, satisfaction, and organizational commitment for workers in the United States.

Summary

An introduction to this study has been presented, beginning with a review of background information related to the assessment of workplace motivation. Previous work motivation assessments were reviewed and limitations of those assessments were discussed. Most of the workplace motivation assessments previously developed were centered on a singular theoretical framework (e.g., self-deterministic theory) limiting the scope of constructs that are assessed to evaluate motivation. The background concluded with a review of previous studies on the HPC, gaps in those studies that this study will attempt to address and the HPC questionnaire that will be used in this study (Borgogni & Dello Dello Russo, 2012) to assess motivation. Of previous studies involving the HPC, only the Borgogni and Dello Russo study utilized a survey that was developed to directly

measure all constructs in the HPC model. This study will expand upon that study by utilizing the HPC questionnaire by sampling a new population and obtaining a larger sample size than in the Borgogni and Dello Russo study. This study will also assess the validity and reliability of a self-report measure for job performance.

In addition to the background information reviewed in the introduction, the theoretical framework was reviewed in this section. The primary guiding framework for this study is the HPC, which is a metatheoretical model of work motivation. Key theoretical foundations in the HPC that were reviewed are goal setting theory, expectancy theory, and social cognitive theory. The HPC model is primarily rooted in goal setting where high goals lead to high performing employees. Expectancy theory and social cognitive theory help establish the various mediators and moderators that regulate the goal-performance relationship in goal setting theory.

The primary aim of this study is to further research in the field of work motivation. More specifically, this study should prove valuable in contributing towards the generalizability of the HPC questionnaire as a valid and practical instrument for measuring work motivation with varying populations. This will be accomplished by assessing the validity and reliability of the HPC questionnaire on population that has not been assessed yet. The social impact of having such an instrument for organizational use could be significant. The HPC questionnaire can be used to assess the motivation level of employees, using the initial assessment as a benchmark. Motivational factors with low assessment scores can be focused on and addressed for intervention. Follow up assessments can gauge whether or not scores have improved through the interventions.

Ultimately, the HPC model indicates that higher motivational constructs will lead to increased individual performance, job satisfaction, and organizational commitment.

Chapter 2: Literature Review

Overview

The field of I/O psychology has been working towards understanding the role of

motivation in the workplace for decades, if not centuries, and there is a vast amount of

research on the topic. However, while many studies explore work motivation, few

studies have attempted to develop a tool for measuring work motivation (Gagné et al.,

2010). The literature review section presented here will provide a background on

research in the field of work motivation and then will follow up with a review of the

literature as it is relevant to this study. The review will begin with an exploration of

studies that led up to the development of the theoretical model that this study is built

upon: the HPC. In order to understand the HPC, it is necessary to take a deeper look at

the HPC's theoretical components including goal setting theory, expectancy theory, and

social cognitive theory. This will be followed by a deeper look at the relationships

between the various constructs of the HPC model including goals and the 10 factors that

regulate the relationship between goals and performance. The consequences of

performance in the HPC model, rewards, job satisfaction and organizational commitment,

will then be reviewed. Finally, a review of the literature will cover previous work

motivation assessments and previous HPC studies.

The overarching goal of this study is to move forward the research and

development of a practical tool for measuring and assessing motivation in the workplace.

Such a tool will allow employers to assess the motivation levels of their employees so

that areas of improvement can be identified to enhance individual performance.

According to the HPC model of workplace motivation, consequences of high performing employees include job satisfaction, organizational commitment, and the setting of higher future goals (Locke & Latham, 1990b).

Motivation is a psychological process, and as such, the assessment of motivation must be inferred from either observation or self-report measures of behaviors that are considered contributory to motivation in the workplace. Defining constructs is crucially important when attempting to measure psychological processes. Without specifying exactly what it is the a study attempts to measure, the validity of such measurements become clouded in ambiguity. Motivation is something that many people may be able to acknowledge, but not necessarily be able to define. Defining *motivation* may be more approachable if we were to focus on particular realms of motivation. Regarding motivation in the workplace, Pinder (2008) stepped forward to provide this definition: "a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behavior and to determine its form, direction, intensity, and duration" (p. 11).

A primary reason for such interest in improving employee motivation is because of the widely supported research that shows motivated employees lead to increases in individual and organizational performance and productivity (e.g., Kanfer, Chen, & Pritchard, 2012; Miner, 2003; Schmidt, Beck, Gillespie, 2013). As early as the 1930s, researchers were linking motivation with performance, duration, effort, ability, and satisfaction. L.L. Thurstone (1937) hypothesized that ability is independent of motivation given there is enough time to complete the task. *Effort* was also implied in

this hypothesis posed by Thurstone, where negative motivation implied no inclination to perform a task. Thurstone even went on to link motivation with satisfaction, with the former being defined as a derivative of satisfaction. Therefore, Pinder's (2008) definition of work motivation ties together behavioral characteristics that have been formally associated with motivation for at least a century.

Many theories on motivation have been proposed over the years, and often a singular theoretical approach is taken to explain and assess work motivation through one of these theories. What has been lacking until relatively recently is a multitheoretical framework in which many overlapping motivational themes and factors are intertwined into a comprehensive model of workplace motivation that could be used for practical purposes. Today, perhaps the most robust model of workplace motivation is the HPC (Latham, Locke, & Fassina, 2002), which is rooted in goal setting theory. Although goal setting was not formally introduced as a comprehensive theory until 1990 (Locke & Latham, 1990b), Edwin Locke began his ground-breaking work on goal setting back in the 1960s (Locke, & Latham, 2015). A review of the literature will cover developments in goal setting theory and how other motivational theories are incorporated into the HPC model followed by a detailed review of how the variables in the HPC model interact.

Literature Search Strategy

The primary search tool used was Google Scholar linked to Walden University's Library to find relevant literature. This method allowed me to simultaneously search all databases offered by Walden. In addition, if a relevant article was not available through these databases, but was retrieved by Google Scholar, articles were requested through

Walden Library's Document Delivery System. A number of books were also purchased

by prominent researchers in the field of motivation psychology. For a historical

perspective, literature searches were not limited by time frames and early work on

motivation was sought. Reference lists of current literature was also utilized to follow

backwards the development of motivational theories. The goal of this search strategy and

review was to provide (a) achieve an historical perspective on the relevant topics on work

motivation, (b) review the body of knowledge that gave rise to the HPC of work

motivation, and (c) review recent research on the relevant topics. Key words used for

literature searches included: *motivation, work motivation, work motivation*

scales/surveys/questionnaires, high performance cycle, job performance, goal setting,

social cognitive theory, self-efficacy, expectancy, goals, ability, feedback, task

complexity, situational constraints, direction, effort, persistence, task-specific strategies,

rewards, job satisfaction, and *organizational commitment.*

Theoretical Foundation

The High Performance Cycle

The HPC is rooted in goal setting theory and was developed as a practical model

for organizations to use to increase employee performance (Latham, 2012). Goal setting

was formally presented as a theory at the same time that the HPC model for workplace

motivation was presented (Locke & Latham, 1990b). However, little research has been

conducted to empirically support the HPC model in practice. The theories and processes

that encompass the HPC will be considered here. As previously stated, high and specific

goals drive increased performance. According to the HPC model, increased job

performance leads to increased job satisfaction (via rewards) (Locke & Latham, 1990b), rather than vice versa as some might expect. Indeed, the notion that job satisfaction causes job performance may be the longest held view of the satisfaction-performance relationship (Judge, Thoresen, Bono, & Patton, 2001). However, there has been significant debate regarding this relationship with many mixed and inconclusive results. In fact, Judge et al. (2001) identified seven models in the literature that support different representations of the job performance-job satisfaction relationship. Some of those models included job performance causing job satisfaction, job satisfaction causing job performance, a reciprocal relationship or even a model where no causative relationship exists between the two constructs.

There are currently five moderators and four mediators in the HPC that affect the relationship between goals and performance. Enhanced performance then leads to rewards which lead to job satisfaction and ultimately organizational commitment, which recursively flows back to the self-setting of high goals (Locke & Latham, 1990b). In the literature review that follows, the theoretical underpinnings of the HPC will be reviewed. The HPC may be viewed as a two-part model with the first part comprising the antecedents of performance and the second part comprising the consequences of performance. The integrated HPC theories that contribute to performance include goalsetting theory, social cognitive theory, and expectancy theory. Theories integrating HPC outcomes include attribution theory, equity theory, and job characteristics theory (Locke & Latham, 1990b). A review of these theories will be conducted as they relate to the HPC model, followed by a review of the relationships between the component parts

that contribute to performance in the HPC as well as the consequences of performance in the HPC.

Goal Setting Theory

According to Pinder (2008), goal setting theory is "the most powerful and useful model of motivated work behavior" (p. 389) that is available today. Locke's (1968) early work with goal setting resulted in three facets regarding the relationship between goals and performance: 1.) high and specific goals lead to higher performance than when vague goals or no goals are given; 2.) when individuals are committed to their goals, the higher the goals are, the higher the resulting performance; and 3.) performance is only affected by other variables when those variables align with the setting of specific high goals and commitment to those goals. While behaviorism dominated psychological thought at this time, Locke's findings and conclusions were profound in that they implied human intentions- people could evaluate goals and make a cognitive decision on whether or not to attain those goals (Locke & Latham, 2015). That is, goals directed people's behavior in the workplace and then people could choose which goals to pursue and how much effort to put in, rather than individuals being entirely controlled by external stimuli as behaviorism would suggest. Terborg (1976) found similar results that goals regulate behavior and have a role in understanding motivation. Many studies soon followed supporting the significance of goals in directing behavior. By 1996 Austin and Vancouver (1996) already concluded that the concept of *goals* permeated nearly every segment of psychological study.

As goal setting has only grown in support, the theory is regularly being introduced into to new arenas as a framework to improve performance and achievement. *Gamification* is one area that has been growing in popularity in industry to meet the demands of more technologically advanced work environments. Deterding, Dixon, Khaled, and Nacke (2011) define gamification as "the use of game-design elements in non-game contexts" (p. 9). Gamification is being introduced into various contexts in an effort to enhance performance (e.g., Mekler, Brühlmann, Tuch, & Opwis, 2017; Cardador, Northcraft, & Whicker, 2017; Armstrong, Landers, & Collmus, 2016). Leaderboards in the workplace are one way in which industry is using gamification. The use of leaderboards highlights various employee goals with points assigned to those goals. Employees are then given the choice of which goals to pursue. In one study, Landers, Bauer, and Callan (2017) found that leaderboards served as difficult goals and motivated participants to achieve higher performance levels. In addition, the researchers also found (as goal setting theory predicts) that goal commitment moderated the relationship between leaderboards (difficult goals) and performance.

Locke and Latham (2013b) discussed 17 potential pitfalls of using goal setting. Some of the pitfalls of goal setting theory that closely relate to this study include ability, self-efficacy, skills, and tying monetary incentives to goals. In order for individuals to attain a high and specific goal, it is necessary that they have the ability to reach that goal. Self-efficacy is the belief individuals have it in their ability to reach their goals. Individuals often base the beliefs in their abilities on past accomplishments, therefore self-efficacy may over- or under- estimate and individual's actual ability (Locke &

Latham, 2013b). For example, this discrepancy may exist if an individual based their

past accomplishments on luck rather than their skill level, leading them to believe that

they cannot attain such a goal in the future. One way to increase self-efficacy is through

training. In addition, self-efficacy can be enhanced by establishing high learning goals

rather than performance goals (Seijts & Latham, 2005). Latham, Seitjs, and Crim (2008)

found that the higher learning goals are associated with higher performance goals. Locke

and Latham (2013b) state that challenging performance goals should only be established

once an individual has the ability to attain those goals.

Goal setting theory does not stipulate how goals should be tied to monetary

rewards; the theory only stipulates that monetary rewards only enhance performance

when receipt of the rewards is tied to a performance goal (Latham, 2012). However,

there are many ways that rewards can be tied to performance, which all have different

consequences. For instance, if employees receive a reward for a goal that does not

require hard work, they are rewarded for not working hard. On the other end of the

spectrum is the "all-or-nothing" approach to bonuses- the goal is too challenging to

achieve and rewards are only given with goal attainment. Therefore, even if the

employee is working very hard, if they do not achieve their goal, they still will not

receive a reward for their hard work. Locke (2004) provided additional techniques to

avoid the "too-easy-goal" or "all-or-nothing" pitfalls. When performance metrics are

easy to obtain, multiple goal levels or a piece-rate system can be used. With multiple

goals, employees receive higher rewards for reaching higher goals. One drawback with

this system is that employees may settle for mediocre rewards through mediocre

performance. In the piece-rate system, a reward continuum is given as employee

performance progresses (e.g., starting very low- 1%, 2%, 3%....20%). However, these

systems may not work as well for management positions where performance metrics are

not as clear as productivity numbers that might be obtained in a factory setting. A

thorough review of each organization's system should be considered when tying

monetary rewards with performance.

Expectancy Theory

Vroom (1964) was the first person to integrate expectancies into I/O psychology

(Locke & Latham, 1990b). There are three main components of expectancy theory-

valence, expectancy, and instrumentality. Valence refers to the affinity an individual has

for an outcome that is based on how much satisfaction they perceive receiving for

achieving a particular outcome. Expectancies refer to the degree to which individuals

both prefer the outcome between alternative choices and believe the probability in that

outcome occurring. Vroom (1964) defined expectancy as "a momentary belief

concerning the likelihood that a particular act will be followed by a particular outcome"

(p. 20). Instrumentality is the belief individuals have that their efforts will lead to

rewards (Vroom, 1964).

Lawler and Porter (1967) expanded upon Vroom's (1964) expectancy theory by

providing a model for how the variables in expectancy theory interact. In essence, when

an individual perceives rewards to be of value (high valence), the individual will put in

more effort to achieve those rewards if reward attainment depends upon effort. If the

individual believes that the amount of effort they put in to a given task has no bearing on

whether or not they receive that reward, then the individual will not put in a great deal of effort. Similarly, if the individual does not perceive the rewards to be of great value, they will also not put forth much effort. It may be apparent that effort is a central feature in Lawler and Porter's (1967) model. High employee performance will only be achieved through effort which is dependent upon whether or not effort is tied to rewards and if rewards are perceived as valuable. Effort appears in the HPC model as a mediator between goals and performance and will be discussed further below.

Expectancy theory is often used as a model to predict motivation and outcomes in the workplace. However, expectancy theory has been used to predict behavior in a wide variety of contexts, straying from more direct approaches than previously (Schmidt, Beck, & Gillespie, 2013). For example, Johnson (2010) examined whether expectancy theory could predict arrests made by police officers based on organizational rewards. Johnson found that officers who responded to domestic disputes would make more arrests when they perceived their organization to acknowledge and reward such arrests. Those officers who did not perceive their organization to reward arrests for domestic dispute incidents made fewer arrests.

Sun, Wang, Yin, and Che (2012) used expectancy theory as a model to predict effort people put in to crowdsourcing projects. Crowdsourcing is a relatively new phenomenon that organizations use by seeking input from the general public to resolve problems and drive innovation. Sun et al. (2012) found that reward valence and trust were positively related to the effort individuals put in to a project. The researchers also found that task complexity moderated the relationship between self-efficacy and effort.

For complex tasks, there was a convex relationship between self-efficacy and effort.

However, with low task complexity the relationship between self-efficacy and effort was

concave. In other words, self-efficacy only affected effort when both task complexity

and self-efficacy were high or when both task complexity and self-efficacy were low.

Sun et al. (2012) argue that their results go against the supported notion of a linear

relationship between self-efficacy and effort. However, the researchers neither measure

ability or distinguish between ability and self-efficacy. As has been previously discussed,

ability and self-efficacy are in fact distinct constructs and ability moderates the

relationship between goals and performance. Indeed, ability is a key construct in the

Porter-Lawler Model of expectancy (Pinder, 2008).

There are a number of criticisms of expectancy theory and the revised Porter-

Lawler Model. First, Porter and Lawler (1968) primarily focused on the role of pay as an

employee motivator. Therefore, many other motivational factors were not considered

such as benefits, time off, etc. Additionally, most of Porter and Lawler's work based

predictions on cross-sectional studies. As Latham and Locke (2007) point out, cross-

sectional studies are typically not acceptable for making model predictions; rather,

longitudinal studies should be conducted to assess outcomes. Another critique of the

Porter-Lawler Model (1968) is that while this model predicts that ability moderates the

relationship between effort and performance, their own studies did not explore this factor

in great depth.

Social Cognitive Theory

Social cognitive theory is a model that explains behavior by integrating cognitive, individual, and environmental factors to explain human behavior rather than a "one-or-the-other" approach as has been common in the field of psychology (Bandura, 1986). Central to the ability of people to determine and control their behavior is the concept of self-efficacy. Self-efficacy is a person's belief in their capacity to effect outcomes (Bandura, 1989), such as meeting performance goals. Self-efficacy is a significant driving force in the HPC. Self-efficacy also relates to effort as an individual will put in more effort if they believe they have the ability to achieve a particular level of performance.

While expectancy and self-efficacy may appear very similar, there is a critical difference. As previously described, according to expectancy theory individuals are motivated to achieve a performance goal if they believe their effort will pay off and if they find value in the rewards of meeting that performance goal. Social cognitive theory actually expands upon motivation based on expectancy through self-efficacy. That is, if individuals do not believe they have the ability to achieve a particular goal they will forgo any decision-making on whether or not to pursue a goal based on the reward values because they do not believe they have the ability to reach the goal regardless of how valuable the rewards are perceived to be (Bandura & Locke, 2003). Therefore, the HPC model incorporates expectancy theory to account for effort in the pursuit of rewards while also accounting for the limitations posed by self-efficacy and ability through the incorporation of social cognitive theory.

The construct of self-efficacy has reached across a wide variety of contexts beyond the workplace and work motivation, including athletics (e.g., Moritz, Feltz, Fahbrach, & Mack, 2000) and academia (e.g., Multon, Brown, & Lent, 1991). A relatively recent focus in health care is on self-management of chronic disease programs that are based on self-efficacy. Lorig, Sobel, Ritter, Laurent, D., and Hobbs (2001) developed such a program and assessed the outcomes later. The participants were peer-taught with a focus on helping the patients to develop skills and knowledge to better manage their illness. Individuals with various chronic diseases were included in the study. After one year, those in the self-efficacy-based intervention group had statistically significant improvements in numerous healthy behaviors (e.g., exercise and communication with their physician), self-efficacy, health status and visits to the emergency room.

Social cognitive theory has even given rise to a subfield known as social cognitive career theory (SCCT). SCCT explores the relationships between individuals, careers, cognitive and interpersonal factors as well as environmental factors with career development behavior (Lent, Brown, & Hackett, 2001). Within SCCT is the concept of career decision self-efficacy (CDSE). CDSE posits that a wide variety of factors (both self-directed and environmental) contribute to the learning experiences of an individual that lead to the development of self-efficacy and expectations for particular outcomes. Career goals and interests, then, arise from self-efficacy and outcome expectations (Choi, Park, Yang, Lee, Lee, & Lee, 2012.) Choi et al. conducted a meta-analysis to examine the relationships of CDSE with nine other variables (gender, age, race, self-esteem,

vocational identity, career barriers, peer support, vocational outcome expectation, and career indecision). CDSE had a significant relationship with all variables except gender, race, and career barriers. However, none of the demographic variables had a significant effect size. From a practical standpoint, the researchers suggest the strong correlation between CDSE and career indecision indicates the positive potential for career counselors to focus on developing individuals' CDSE.

While self-efficacy has been extensively studied and has permeated many psychological fields, the concept has not gone without criticism. One area that has received considerable attention is whether or not self-efficacy actually has a positive effect on performance or if this effect is only temporary, based on previous performance. The argument goes that an individual's performance is actually based on an individual's perception of how they did on a previous task which informs their current self-efficacy towards future tasks (Schmidt, Beck, & Gillespie, 2013). Several studies have suggested that self-efficacy may actually not be a beneficial intervention to enhance performance (e.g., Vancouver, Thompson, & Williams, 2001). Going one step further, Vancouver and Kendall (2006) found evidence that self-efficacy can negatively affect motivation. The negative effects of self-efficacy on motivation has been supported in longitudinal studies (Vancouver et al., 2001) in the lab (e.g., Heggestad & Kanfer, 2005) and in the field (e.g., Wandberg, Zhu, & Van Hooft, 2010). However, Wandberg et al. (2010) note that their findings may be a result of how they operationalized self-efficacy, which was based on an outcome rather than a task-related behavior.

Antecedents of Performance in the HPC

Demands

  Goals. While Pinder (2008) stated that today goal setting theory is the most

powerful model of workplace motivation, Schmidt, Beck, and Gillespie (2013) identify

goals as the most researched construct in work motivation. Goals are "internal

representations of desired states, where states are broadly construed as outcomes, events,

or processes" (Austin & Vancouver, 1996, p. 338). As mentioned previously, at the time

goal setting was being discovered, behaviorism was the dominant movement in

psychology. The technique of goal setting departed from behaviorism in that this

technique suggested individuals could choose which goals to pursue (Locke & Latham,

2015).

  In multiple experiments, Locke (1965; 1966a; 1966b; 1967) found that

participants who were given challenging goals overwhelming outperformed participants

who were given easy goals. Individuals with the most challenging goals performed at a

level 250% greater than those individuals with the easiest goals (as cited in Lock &

Latham, 2013a). Also, Locke (1968) established that there was a linear relationship

between goals and performance which was based on 12 individual investigations. The

only time a linear relationship did not exist between goals and performance was when the

goal level exceeded the participants' abilities. With ability moderating the goal-

performance relationship, there is a curvilinear relationship between goals and

performance as the limit of an individual's performance is approached (Locke, Frederick,

Lee, & Bobko, 1984). Further studies followed-up, showing that specific and challenging

goals resulted. For example, Wood, Mento and Locke (1987) conducted a meta-analysis of studies from 1966-1985 to assess performance outcomes for different goal scenarios including difficult versus easy goals and difficult and specific goals versus do-your-best goals or no goals. Wood et al. found significant relationships between both difficult and specific goals and performance while goals had the greatest effect on performance with easy tasks as task complexity was found to have a moderating effect on the goal-performance relationship. The moderating effect of task complexity will be discussed further below.

As goal setting departed from the mainstream views of behaviorism, goal choice by the individual connoted conscious decision making. Indeed, one early criticism of goal setting was that subconscious influences were not taken in to consideration (Locke & Latham, 2015). However, a growing body of research in the field (e.g., Latham & Piccolo, 2012; Shantz & Latham, 2011) and laboratory (Chen & Latham, 2014) suggests that achieving higher goals according to goal setting theory may not require conscious awareness of the goals (Locke & Latham, 2015). In a recent experimental study conducted by Latham, Brcic and Steinhauer (2017) the researchers found that high goals, whether conscious or subconscious, both had the same effect of achieving higher performance as predicted by goal setting theory. The researchers also found that by priming the subconscious with a more difficult task, participants consciously chose to perform the more difficult task. Latham et al. (2017) suggest that priming subconscious goals may have practical implications for employees because it frees up cognitive resources from consciousness.

HPC Moderators

  Self-efficacy. As previously mentioned, self-efficacy (along with goals) is a key

driving force (or demand) in the HPC model (Locke & Latham, 1990b). The HPC posits

that high and specific goals lead to higher performance when individuals believe they can

accomplish those goals. Therefore, both goals and self-efficacy are primary drivers of

job performance and satisfaction. However, self-efficacy also serves as a moderator in

the goal-performance relationship because the higher an individual's self-efficacy, the

higher goals they set for themselves, achieving a higher performance level (Latham,

2012). It should be noted that Bandura (1997) explained that individuals with high self-

efficacy set higher goals based on confidence in their perceived abilities rather than their

actual abilities. Earley and Lituchy (1991) found that personal goals have a mediating

role between self-efficacy and performance. Additionally, it has been shown that people

with low self-efficacy do not perform well (Hinsz & Matz, 1997). Locke, Frederick, Lee,

and Bobko (1984) found that self-efficacy had a significant, positive affect on

performance.

  Confusion may first arise when considering that Locke and Latham (1990b)

describe self-efficacy as both a demand (along with goals) and a moderator in the HPC

model. However, the authors make a distinction between assigned goals and self-set

goals. Individuals who are assigned high goals and have high self-efficacy will achieve a

higher performance level. However, self-efficacy also serves as a moderator because the

higher an individual's self-efficacy, the higher goals they will set for themselves (in

addition to those assigned to them), leading to yet higher performance (Locke & Latham, 1990b).

Ability. Ability is also treated as a moderator in the HPC because it serves as a limiting factor in the goal-performance relationship. That is, an individual's level of goal attainment is limited by their ability, which results in a curvilinear goal-performance relationship with performance plateauing as maximum ability is approached (Latham, 2012; Locke, Chan, Harrison, & Lustgarten, 1989; Locke, Mento, & Katcher, 1978;). Cognitive ability has also been shown to correlate with performance. Logan, Lundberg, Roth, and Walsh (2017) found a positive relationship between general mental abilities and academic performance in distance education. However, there was an interaction effect between motivation and general mental abilities where each factor alone did not lead to an increase in performance. This interaction effect is reflected in the HPC as ability interacts with various motivational factors to enhance performance. In the workplace, role breadth occurs when individuals take on a broader variety of tasks. Morgeson, Delaney-Klinger, and Hemingway (2005) found that role breadth mediates the relationship between cognitive ability and performance. That is, individuals with high cognitive ability are more likely to broaden the roles and tasks they perform in the workplace and, therefore, perform at a higher level.

An early criticism of goal setting theory was that it was only useful for simple, hands-on tasks where productivity could be directly assessed to ascertain performance. Goal setting soon took into account learning goals instead of outcome goals to help individuals develop the necessary skills and ability to achieve high outcome goals.

Studies relating cognitive ability to performance broaden the scope of the HPC model for the types of work contexts that this model applies to. The Borgogni and Dello Russo (2012) HPC questionnaire used in this study combines self-efficacy and ability on the same scale because for high goals to result in higher performance, individuals must have both the ability and belief that they can achieve their goals.

     Feedback. Feedback on performance in the pursuit of goals increases performance more than when feedback is not given (Cellar, Degrendel, Sidle, and Lavine, 1996). Additionally, negative feedback has been shown to decrease an individual's commitment to goals and the setting of lower personal goals (Vance & Colella, 1990). However, for individuals with high self-efficacy, feedback related to not meeting expectations leads to increased performance (Tabernero & Wood, 1999). Ilies and Judge (2005) conducted two experiments to examine how goals are regulated over time and found that participants set lower goals for themselves after receiving negative feedback while setting higher goals following positive feedback. The researchers also found that affect mediated the goal-performance relationship, where feedback influenced the setting of future goals. That is, following positive feedback, individuals feel better about their performance and therefore set higher goals for themselves, and vice versa.

     Feedback may come from multiple sources. For example, supervisors and peers may provide feedback to employees. Feedback can also be received in the form of employees knowing what level they are performing at such as seeing productivity results. Latham and Seijts (1999) found that when combined with specific goals, proximal (short-term) goals result in greater performance than distal (long-term) goals. The researchers

suggest that such short-term goals may provide feedback on performance that individuals do not receive with only distal goals.

Goal commitment. Klein, Cooper, and Monahan (2013) define goal commitment as "the pledging of oneself to a goal" (p. 67). Wofford, Goodwin, and Premark (1992) found that without commitment to a goal, it is highly unlikely that goals will be met. Klein et al. (2013) reaffirmed the role of goal commitment in goals setting theory, stating that without commitment, goals will not function as expected. Commitment to a goal is enhanced when individuals view their goals as pertinent to their job and is also enhanced by a strong leader-employee relationship (Klein & Kim, 1998). Additionally, Brown and Latham (2006) found a positive correlation between goal level and goal commitment. When tasks are complex, learning goals are suggested to ensure individuals have the knowledge and abilities to complete their tasks (Latham, 2012). Seijts and Latham (2011) found a positive relationship between learning goals and performance. Commitment was also found to moderate the learning goal-performance relationship.

Goal commitment has been used in a broad range of contexts. For instance, Kaminer, Ohannessian, McKay, Burke, and Flannery (2018) found that adolescents who reported no alcohol use scored higher on a scale measuring commitment to abstinence from alcohol than those who reported the use of alcohol. The commitment to abstinence scale also predicted the number of drinking days following treatment. Moon and Yun (2014) found that both goals and goal commitment predicted performance of physical exercise in adults. However, unlike the predicted interaction between goals and goal

commitment in the HPC model, Moon and Yun found no interaction, leaving the researchers to conclude that these two factors functioned independently. In fact, this finding is in contrast to many studies that identify goal commitment as a moderator in the goal-performance relationship (e.g., Wofford et al., 1992; Klein et al., 2013). Addressing this disparity, Moon and Yun (2014) highlighted a meta-analysis by Donovan and Radosevich (1998) in which goal commitment accounted for less than 3% of the variation in the goal difficulty-task performance relationship. Latham (2012) suggests that this result "…is due to restriction of range, because…. most people readily accept assigned goals" (p. 93). Additionally, DeShon and Landis (1997) suggest that the moderating role of goal commitment in meta-analyses is underestimated due to extensive variation in how goal commitment has been operationalized across studies, lacking a clear definition of the construct.

Situational constraints. Peters, Chassie, Lindholm, O'Connor, and Kline (1982) described situational constraints as factors that prevent individuals from utilizing their abilities to meet performance goals. Some of these constraining factors include resources such as time, information and supplies. Peters et al. (1982) found that the goal difficulty-performance relationship depended on a lack of situational constraints. Additionally, Klein and Kim (1998) found that situational constraints inhibit motivation and have a negative relationship with motivation. While goals and self-efficacy have been shown to have a significant relationship with performance, Brown, Jones, and Leigh (2005) demonstrated that these relationships become nonsignificant when individuals have high role overload. However, Brown et al. also found that when role overload is low, this

moderating effect dissipates and the goals/self-efficacy- performance relationship remains significant.

Kuyumcu and Dahling (2014) took a unique approach and predicted that certain personality types thrive under organizational constraints. Specifically, the researchers predict that Machiavellian employees (those who seek self-interest, control over others and lack empathy) will not be negatively affected by organizational constraints that typically hinder the performance of others. Kuyumcu and Dahling found a significant, positive relationship between Machiavellians and task perform when faced with situational constraints. Additionally, when situational constraints were removed, this relationship was no longer significant. It should be noted that Latham (2012) maintains that the effect on goals on performance is so strong that it masks the effects of individual personality on the goal-performance relationship.

Task complexity. Goal attainment for complex tasks is limited by a person's ability (Locke, 1982) and requires the individual to develop task-specific strategies to reach their goals (Locke & Latham, 2002). The use of proximal and distal goals together is effective at increasing performance for complex tasks (Latham & Seijts, 1999). Proximal goals help the individual learn the skills they need to achieve a distal goal, helps the individual to develop strategies to overcome obstacles and serve as feedback on performance (Latham, 2012). In a study aimed at distinguishing between outcome and learning goals, Winter and Latham (1996) found that for complex tasks, learning goals led to higher performance than outcome goals. The researchers also found that the participants utilized more strategies when learning goals were targeted. This study

provides evidence against prior work (e.g., Earley, 1989; Kanfer & Ackerman, 1989) that

suggested challenging goals can lead to decreased performance. Winter and Latham

(1996) argue that it is the *type* of goal (i.e., outcome or learning) that is set that can

negatively affect performance, not necessarily goals in general. In other words,

challenging goals will not decrease performance if the appropriate goals are set (i.e.,

learning goals for complex tasks); rather, the setting of appropriate, challenging goals

will increase performance regardless task complexity.

HPC Mediators

　　Direction, effort, and persistence. Goals serve as a mechanism through which

an individual's efforts are focused and directed. Direction is a choice that individuals

make to pursue and achieve a specific goal (Hinsz & Ployhart, 1998) and is a process that

derives from the interaction between situational cues, feedback, and how an individual

prioritizes their goals (Kanfer, Ackerman, Murtha, Dugdale, & Nelson, 1994). Direction

leads to an effort to attain those goals and higher goals lead to greater effort (Locke &

Latham, 2013a). LaPorte and Nath (1976) found that, given enough time, individuals

will increase the duration (persistence) of the effort they put into a task. Additionally,

Weingart and Weldon (1991) found that persistence is a mediator in the goal-

performance relationship. In a physiological laboratory experiment, Theodorakis,

Laparidis, Kioumourtzoglou, and Goudas (1998) found that when high and specific goals

were set, bicyclists exerted both more effort and persistence to reach a higher

performance level whereas the control group exhibited less effort and persistence.

Task-specific strategies. It is necessary to have the appropriate knowledge to perform a given task. People who have the required knowledge will employ strategies to meet their goals (Latham, 2012). Chesney and Locke (1991) found that task-specific strategies have a greater effect on performance than do performance goals when the task is complex. As previously mentioned, learning goals (as opposed to outcome goals) increase performance on complex tasks as it causes individuals to develop strategies that help them increase their performance (Seijts & Latham, 2001).

Consequences of Performance in the HPC

Rewards, Job Satisfaction, and Organizational Commitment.

Employees generally expect that high job performance and the attainment of goals will result in contingent rewards. Contingent rewards include pay increases, promotions, opportunities and recognition and leads to increased job satisfaction (Latham, 2012). A meta-analysis by Judge, Piccolo, Podsakoff, Shaw, and Rich (2010) found only a weak correlation between pay level and job satisfaction, suggesting that job satisfaction results from many factors in addition to financial rewards. High goals have been shown to increase intrinsic motivation for challenging goals while easy goals can decrease intrinsic motivation when the rewards given are not based on performance (Anshel, Weingberg, and Jackson, 1992). Mento, Locke, and Klein (1992) found that individuals striving for difficult goals had a greater perception of accomplishment and also believed that striving for more difficult goals would result in better job and life benefits. In the HPC model, rewards that are not contingent on performance (e.g., work flexibility, benefits, and vacation time) also contribute to job satisfaction. Several studies have found a positive

relationship between flexible work arrangements and job satisfaction (Allen, 2001;

Masuda et al., 2012; McNall, Masuda, & Nicklin, 2010). Artz (2010) found that fringe

benefits are a positive predictor of job satisfaction. Cedfeldt et al. (2010) found that

personal time off was significantly related to perceptions of well-being.

According to the HPC, high performance leads to rewards which leads to job

satisfaction (Locke & Latham, 2013a). A consequence of job satisfaction, then, is

organizational commitment. Individuals committed to an organization are more likely to

remain with the organization and continually pursue high goals (Meyer & Herscovitch,

2001). There is also a positive correlation between organizational commitment and job

performance (Cooper-Hakim & Viswesvaran, 2005).   Perceived organizational support is

the perception that employees have about the commitment the organization has to them;

feelings of fairness within the organization and fairness in policies leads to organizational

commitment (Latham, 2012).

Previous Work Motivation Assessments

Other than the Borgogni and Dello Russo (2012) HPC scale that this study

utilized, only several other workplace motivation scales have been discovered after an

extensive literature review. Shouksmith and Hesketh (1986) developed a Work

Motivation Scale (WMS) that is based off of Alderfer's ERG theory. ERG theory breaks

down human needs into three dimensions- existence, relatedness, and growth

(Schneider& Alderfer, 1973). The first part of Shouksmith and Hesketh's scale was

designed to assess the degree to which employees perceived their ERG needs were being

met. Additionally, the scale contained items that assessed the presence, or lack thereof,

of various job characteristics. Shouksmith (1989) validated the motivation construct of

the WMS as a measurement tool of workplace motivation based on ERG needs. It is

important to note that *motivation* was defined in terms of satisfaction with how

workplace needs were met. This theoretical framework does not address the relationship

between needs satisfaction and job performance or whether or not a distinction is made

between satisfaction and performance.

Amabile, Hill, Hennessey, and Tighe (1994) developed a Work Preference

Inventory (WPI) to assess the internal and external factors that motivate individuals in the

workplace. The goal of this study was for individuals to self-assess the degree to which

they were either intrinsically or extrinsically motivated. As the title implies, the WPI was

aimed more at taking an inventory of motivation preferences than assessing the degree to

with individuals were motivated to perform their jobs at a higher level. VandeWalle

(1997) developed a scale to measure goal orientation of adults in the workplace. Goal

orientation has been described as the disposition individuals have for achieving goals

(Dweck, 1986). VandeWalle's scale breaks goal orientation down into three component

parts- learning, avoid, and prove. The underlying theory of goal orientation theory posits

that individuals have varying traits that predispose them in their willingness to pursue a

goal. The trait of goal orientation affects the way individuals perceive feedback.

According to Wood (1999), individuals who exhibit *learning* goal orientation will

process negative feedback in order to achieve a performance goal better than individuals

with *performance* goal orientation. However, proponents of goal setting theory have long

held that the influence of specific and high goals is so effective that it masks the effects from personal traits (e.g., Latham, 2012; Seijts, Latham, Tasa & Latham, 2004).

Gagné et al. (2010) recognized a gap in work motivation research- while work motivation has been studied extensively, there have been very few surveys developed to assess workplace motivation. The Motivation at Work Scale (MAWS) by Gagné et al. (2010) was developed based on the theoretical framework of self-determination which breaks down work motivation into four categories: intrinsic motivation, identified regulation, introjected regulation, and external regulation. Their findings showed that each category was correlated with work behavior constructs. The work behavior constructs that were correlated with the four types of motivation included: autonomy, competence, relatedness, job satisfaction, perceived organizational support, organizational commitment (affective, normative, and continuance), well-being, psychological distress, and self-reported physical health.

Gagné et al. (2010) was the first study identified in the literature that analyzed the predictive nature of motivational factors on workplace behavior. The researchers correctly pointed out that there is certainly a lack of work motivation scales available, despite the vast amount of resources researchers and organizations put into understanding how motivation can be increased. However, Gagné et al. approach to developing their scale was to base it on the theoretical framework of self-determination theory (SDT). SDT breaks down motivation into two categories- intrinsic and extrinsic. Intrinsic motivation refers to performing some task simply for the sake of doing (e.g., the individual may find the task personally enjoyable). Extrinsic motivation refers to

performing some task in response to environmental factors (e.g., rewards or fear of punishment). Extrinsic motivation is regulated internally in a way that aligns with personal beliefs and values. Therefore, extrinsic motivation can be further broken down into how individuals internalize and regulate job tasks and expectations. Gagné et al. (2010) used these motivational categories to develop the items for their motivation at work scale (MAWS).

Gagné et al. (2010) did not discuss alternative theoretical frameworks of workplace motivation and how other theories could either complement or contrast with their approach and findings. Additionally, while a work motivation scale on the face of it appears to be intended for practical applications, use for practitioners was not discussed. Understanding the motivational forces of employees clearly has implications for modifying behavior to improve well-being and performance. However, Gagné et al. (2010) do not attempt to correlate their scale with performance or even suggest further studies to perform such analyses. Additionally, the authors do not discuss other motivational theories or why self-deterministic theory was deemed the best framework to develop a scale for measuring workplace motivation. Therefore, a gap in the literature continues to exist as there has been little empirical research conducted towards a more holistic approach to understanding workplace motivation and performance.

Empirical HPC Studies

In two of three known studies that empirically tested the HPC model (Pellegrino, 2015; Selden & Brewer, 2000), both studies utilized data from the U.S. Office of Personnel Management's (OPM) Federal Employee Viewpoint Survey (FEVS) (2014 and

1991 data, respectively) and attempted to replicate the hypothetical HPC model with structural equation modeling. While both of these studies supported the general relationships in the HPC model, the methods employed had limitations that opened the door for future work. Since the OPM survey was not designed to directly measure constructs in the HPC, the researchers had to select items on the survey that approximated the HPC constructs. In addition, both of these studies had to rely on self-report measures of performance. In an effort to more accurately operationalize constructs in the HPC model, Borgogni and Dello Russo (2012) conducted a two-part study. First, they developed a survey primarily with items from previously validated scales to directly measure constructs in the HPC model. In the second part of their study, the survey was used to assess the antecedents of performance in the HPC model while obtaining actual employee performance data from supervisors. Although Pellegrino (2015) and Selden and Brewer (2000) assessed outcomes of the HPC model, Borgogni and Dello Russo (2012) avoided assessing the outcomes of performance in the model due to the cross-sectional design of their study. As Latham and Locke (2007) suggested, causal relationships in the HPC should not be inferred from a cross-sectional study, but rather from a longitudinal study.

The Borgogni and Dello Russo (2012) HPC questionnaire contains 14 scales, for each of the constructs in the HPC model, with 49 items. After validating their scale, they provided the scale to 101 managers in a telecommunications company in Italy two months after being assigned goals. End-of-the-year employee performance appraisals were received by the HR department. The researchers identified a latent factor that

explained the four mediators in the theoretical HPC model. However, self-efficacy and

goal commitment exhibited a direct effect on the mediators rather than a moderating

effect as predicted by the theoretical HPC model. In addition, task complexity was found

to be nonsignificant whereas this variable is treated as a moderator in the theoretical HPC

model. Therefore, Borgogni and Dello Russo (2012) provided a revised HPC model that

best fit their data (Figure 2).

$X^2 = (548; N = 101), p = 0.0$
CFI = .87; RMSEA = .07;
SRMR = .1
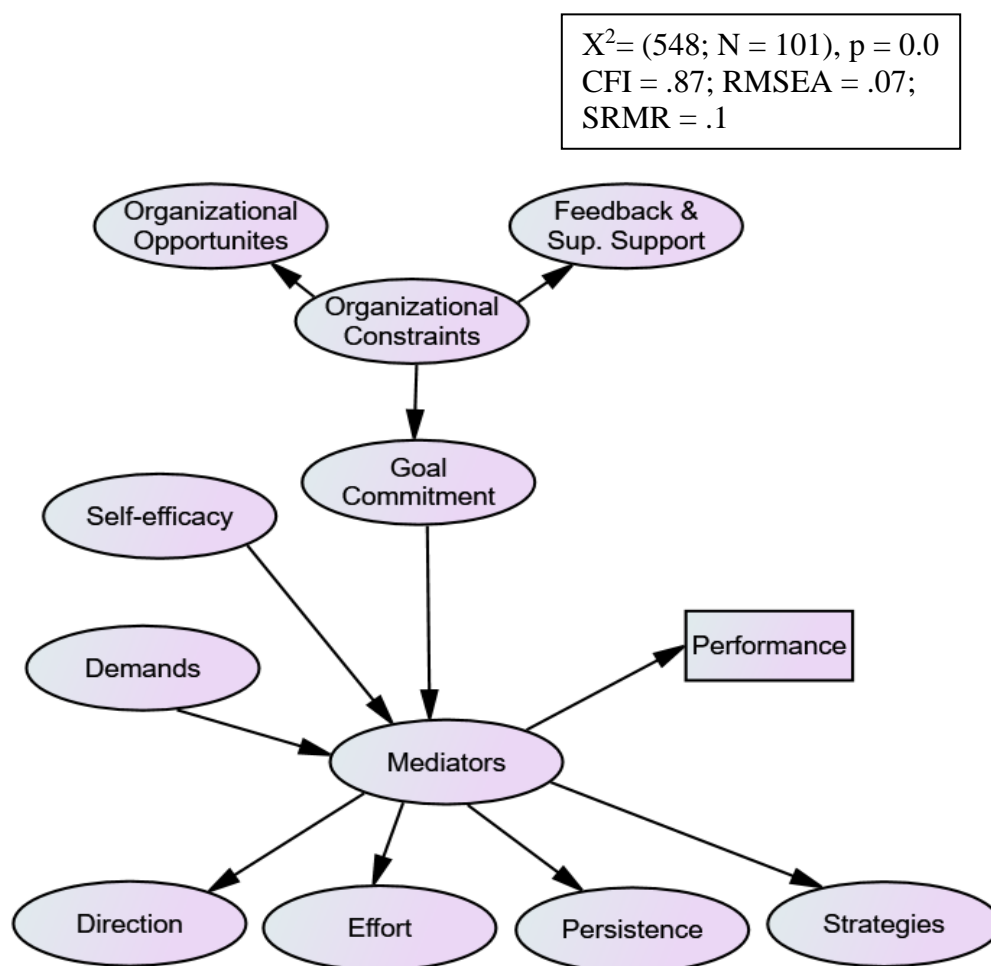
Figure 2. Borgogni and Dello Russo's Empirical HPC Model

Summary

The importance of work motivation to the field of I/O psychology has been well documented (e.g., Kanfer, Chen, & Pritchard, 2012; Miner, 2003; Pinder, 2008); Schmidt, Beck, Gillespie, 2013). Despite the extensive research on motivation, very few tools have been developed to assess work motivation (Gagné et al., 2010). Moreover, of the few tools that have been developed, most only utilize a singular theory of motivation. For example, Shouksmith and Hesketh (1986) developed a Work Motivation Scale (WMS) based on needs and defined work motivation in terms of how well those needs were met. Amabile, Hill, Hennessey, and Tighe (1994) and Gagné et al. (2010) developed scales based on self-determination theory. While any one theory may provide valuable insight to motivational processes, it is the opinion of the author that a more holistic approach may provide a deeper understanding of such complex psychological processes.

The HPC grew out of goal setting as new research findings on motivation developed. Currently, the HPC integrates three theories of motivation- goal setting, social cognitive, and expectancy- to explain performance. Therefore, the HPC is a dynamic model that has developed over time with new understandings of the underlying processes involved. As perhaps one of the most well-supported models on work motivation (Latham, Locke & Fassina, 2002) it may be surprising that an HPC scale had not been developed until relatively recently. Currently, that instrument has only been utilized in one known study (Borgogni & Dello Russo, 2012). This study aims to provide

more empirical data to test the hypothetical HPC model and to assess that practicality of

the HPC assessment among workers in in the United States.

Chapter 3: Research Method

Introduction

The purpose of this study is to further expand upon research of the HPC model of work motivation by utilizing a newly developed HPC questionnaire to further explore the HPC model in its entirety. The HPC questionnaire will be used to measure the constructs that predict performance in the HPC model (goals, ability/self-efficacy, goal commitment, feedback, task complexity, situational constraints, direction, effort, persistence, and task-specific strategies). Performance will be assessed by a self-report scale for job performance. HPC constructs will then be correlated with performance data and an empirical HPC model will be generated to reflect the data obtained in this study.

The methodology section will cover the research design of this study and the rationale for this design. The target population will then be identified and defined. Next, the sampling technique and procedures will be reviewed. A review of the *a priori* power analysis utilized will then be provided to detail how a target sample size was determined based on and expected power level. This will be followed by a brief description of the recruitment, participation, and data collection procedures. Next, a thorough review will be provided regarding the HPC instrument used in this study as well as how the HPC constructs were operationalized, which will be followed by a review of the HPC questionnaire's reported validity and reliability. Last, threats to validity and ethical procedures will be discussed.

Research Design and Rationale

The independent variables of interest in this study include demands (goals), moderators (ability/self-efficacy, goal commitment, feedback, task complexity, and situational constraints), and mediators (direction, effort, persistence, and task-specific strategies). The dependent variable is performance. A non-experimental, cross-sectional design will be employed as a survey will be given to the participants to assess motivational factors at a given point in time.

Borgogni and Dello Russo (2012) are the only researchers to have used the HPC questionnaire being used in this study to empirically assess the HPC model. That study also used a cross-sectional design. Therefore, a cross-sectional design was an adequate approach for this study. However, due to the nature of cross-sectional designs, it would not be appropriate to assess the predictive nature of performance in the HPC model; a longitudinal study would be more appropriate for assessing the outcomes of the HPC model (Latham & Locke, 2007). This is due to the fact that a cross-sectional design assesses attitudes at a single moment in time. With respect to the HPC model, performance results in rewards which lead to job satisfaction and organizational commitment. In this study, the survey will be given without respect to established employee goals or knowledge of any rewards given for performance. Therefore, survey results on attitudes towards rewards would not be reflective of the rewards due as a result of the most recent employee performance data.

Despite the inability to assess outcomes of the HPC model, the research design employed here will still advance knowledge in this area of research; a cross-sectional

design is adequate for assessing relationships between variables in a model (Frankfort-Nachmias, & Nachmias, 2015). The antecedents of performance will be evaluated and a correlation matrix will be generated to assess all of the relationships between the independent variables (goals, self-efficacy/ability, feedback, task complexity, situational constraints, direction, effort, persistence, and task-specific strategies) and the dependent variable (performance). Structural equation modeling will then be utilized to generate an empirical model of the antecedents of performance in the hypothetical HPC model. In addition, this study will set up the possibility of a future study to assess outcomes of the HPC model by following up with the cooperating organization after rewards for performance have been given.

Population

The target population in this study is a population currently employed workers in the United States. Participants must be fluent in English, over 18 years of age and currently employed. The population is comprised of individuals currently employed in a wide range of professions, organizations, geographical locations and with varying levels of education.

Sampling and Sampling Procedures

The sample will be drawn from the web-based research platform Prolific (www.prolific.co). Prolific identifies participants that meet the needs of particular studies. The company offers the ability to obtain representative samples in the United States across age, gender, and ethnicity. A representative sample was used for this study. Nonprobability sampling was used in this study with the target population being U.S.

workers that are enrolled through Prolific to participate in completing surveys.
Nonprobability sampling includes convenience samples, snowball samples, purposive
samples, and quota samples (Frankfort-Nachmias & Nachmias, 2015). Specifically,
convenience sampling was utilized in this study- a group of individuals selected from this
pool based on the inclusion criteria, willingness and availability to participate in the
study.

Power Analysis

A power analysis was conducted *a priori* to predict the necessary sample size for
a particular level of power. Statistical power is the probability that a test will find an
effect if one exists (Field, 2013). A Type II error (β) is the likelihood of missing an effect
when one does indeed exist. Power of a test is expressed as $1 - \beta$. The generally
accepted Type II probability is .2 (20% likelihood of missing an existing effect).
Therefore, power of a test can be calculated as $1 - .2 = .8$, or an 80% chance of detecting
an effect if it exists. Larger sample sizes tend to have lower sampling errors and are
likely to have a higher power. Sample size can be calculated by using the desired level of
significance and power using software such as G*Power (Buchner, Faul, & Erdfelder,
n.d.).

For this study, G*Power was used to determine the necessary sample size to reach
a power level of .95 in regression analysis, which is the basis for path analysis as used in
SEM. Using G*Power, *F tests* was selected for *Test Family*. For *Linear multiple
regression: Fixed model, R^2 increase* was selected. To know the sample size needed
prior to the study, for *Type of power analysis*, *A priori…* was selected. Default settings

are set for Effect size = .15, α = .05, Power = .95. The number of tested predictors was set to three and the total number of predictors was set to 10. The number of tested predictors was set to three because when interaction effects are tested there will be three predictors- the primary predictor, the mediator/moderator and the primary*mediator/moderator variable. These settings resulted in a sample size of 119 for α = .05, power = .95 and a medium effect size of .3 for a two-tailed test.

For SEM, a power analysis was conducted using a web-based calculator at "Analytics Calculators" (https://www.analyticscalculators.com/calculator.aspx?id=89). Data entered into the calculator included: effect size = .3, latent variables = 10, observed variables = 58, α = .05, power = .95. The output was a minimal sample size to detect an effect = 270 and a minimal sample size for model structure = 172.

Recruitment, Participation, and Data Collection

The survey for this study will be created using SurveyMonkey and then the survey will be linked to the Prolific website for individuals to participate if they meet the sampling requirements. Upon competition of the survey, the researcher will receive results from each completed survey through SurveyMonkey. Once the minimum number of participants has been reached, the raw data will be transferred to a password-protected computer and left unaltered. A copy of the raw data will be transferred to other files for analysis. The original raw data will be kept intact as a reference for any concerns of errors during the processes transfer or analysis.

Instrumentation and Operationalization of Constructs

HPC Questionnaire

In the first part of a two-part study, Borgogni and Dello Russo (2012) developed the first known questionnaire to measure all variables in the HPC model in its entirety with a single survey. In the second part of their study, the researchers conducted a cross-sectional study to empirically assess the HPC model. The researchers' studies were conducted with a telecommunications company in Italy. The survey was developed using 322 middle managers. In the second study, 101 middle managers were sampled from the first group of 322 managers. Similar to that study, this study will also be cross-sectional to assess the antecedents of performance in the HPC model as the survey will be assessing workplace motivational factors and performance at a single given point in time. However, the study presented here is accessing a population of individuals with a wider range of professions, organizations and geographical locations and will have a larger sample size. This author received written permission from both Borgogni and Dello Russo to adapt their scale for this study (see Appendix A).

Validity and reliability. Borgogni and Dello Russo's (2012) HPC scale originally contained 53 items. After exploratory analysis, two items for self-efficacy and two items for noncontingent rewards were removed as a result of either weak loading (< .30) on the expected factor or from cross-loading on more than one factor. Except for feedback and supervisory support, each HPC construct loaded on a separate factor, lending validity to constructs in the HPC model. As a result, items for feedback and supervisory support were combined on the same subscale. Confirmatory factor analysis

(CFA) was used to show their model's fit to the data ($\chi2 = 2586.66$, $df = 1037$, $p < .01$, N = 491; CFI = .90; RMSEA = .05 *(CI = .05-.06)*. Additionally, all factor loadings were over .45 with Cronbach's alpha ranging from .65 to .93.

Job Performance Questionnaire

Goodman and Svyantek (1999) developed a 9-item questionnaire for supervisors to assess the task performance of their employees. Onwezen, van Veldhoven and Biron (2014) modified this questionnaire to be used as a self-report measure of job performance. Onwezen et al. modified the items to be a same-day assessment of the employees' performance. For example, the first item on the Goodman and Svyantek questionnaire is "Achieves the objectives of the job." Onwezen et al. modified this item to "Today, I achieved the objectives of my job," so that employees could assess their own performance. In addition, where Goodman and Svyantek used a 7-point Likert scale for their assessment, Onwezen et al. utilized a 5-point Likert scale, where (1) is "totally not applicable" to (5) "totally applicable." The baseline Chronbach's coefficient alpha was .82, followed by 3 additional days with coefficients of .85, .90, and .88. The Onwezen et al. scale for the self-assessment of job performance will be used in this study to obtain performance data for analysis of the HPC model.

Demographic Survey

In addition to the HPC and job performance questionnaires, a 7-item demographic survey will be given to all participants. The items on the demographic scale include gender (Male or Female), age (18-24, 25-34, 35-44, 45-54, 55-64, and 65+), asking if

participants are currently employed, highest degree completed, tenure in years (0-2, 3-5, 6-10, 11-15, 16-20, 20+), and occupational category (22 categories).

Operationalization of HPC Constructs

Demands

Borgogni and Dello Russo (2012) primarily utilized previously validated measures to develop their HPC questionnaire. For example, demands (i.e., goals) was measured using three of five items from Lee and Bobko's (1992) goal difficulty scale. An example of an item on that scale is "The goals I am given are such that I often have to push myself to capacity to attain them."

Moderators

To measure self-efficacy, Borgogni and Dello Russo (2012) utilized Chen, Gully, and Eden's (2001) eight-item scale. An example of an item on that scale includes "I will be able to achieve most of the goals that I have set for myself." Three items were used from Hollenbeck, Klein, O'Leary, and Wright's (1989) scale for goal commitment. An item from that scale includes "I am strongly committed to pursuing this goal." Feedback was operationalized in terms of the goal-related feedback participants received from their supervisors. Borgogni and Dello Russo (2012) adapted four items from a questionnaire utilized by Locke and Latham (1990a). Borgogni and Dello Russo developed three items to operationalize task complexity that are based on Wood's (1986) definition of the construct. Wood states that task complexity refers to the level of knowledge and skills required to perform a given task. One item on this scale is "In my job I complete a wide variety of tasks."

The final moderator in Locke and Latham's (1990b) HPC model is organizational

constraints. Borgogni and Dello Russo (2012) identified this construct as situational

constraints which they operationalized as "the lack of constraints and the presence of

opportunities in the organizational context that facilitate the goal setting process" (p.

275). The researchers adapted items from Locke and Latham's (1990a) questionnaire to

assess situational constraints (three items) in terms of perceived supervisory support in

the pursuit of goals (e.g., "My boss gives me all the information necessary to perform

well on my job) and three items for organizational support (e.g., This organization

provides sufficient resources (e.g., time, money, equipment, co-workers) to make goal

setting work"). As a result of CFA, Borgogni and Dello Russo combined items from

perceived supervisory support with the items on the feedback scale. Therefore, the

moderator subscales include self-efficacy, goal commitment, feedback and supervisory

support, task complexity, and organizational support.

Mediators

To operationalize the HPC mediators, Borgogni and Dello Russo (2012) used four

subscales and 12 items. To measure effort, three items were adapted from Earley,

Wojnaroski, and Prest's (1987) scale. One item on that scale is "I put forth a lot of effort

into my work to attain the goal." For the three remaining mediator scales, Borgogni and

(2012) developed their own items to specifically measure direction, persistence, and task-

specific strategies in the HPC model. To operationalize direction, three items were

developed to measure how goals direct attention and action. One item on that scale

includes "My goals indicate to me what I should spend my time on." The persistence to

pursue a goal was measured with three items, including: "In my job I keep trying even when things are not going well." Task-specific strategies was operationalized in terms of the strategies individuals search for and have available to them in pursuit of their goals. An example of an item on that scale is "I have a strategy for attaining my goals."

HPC Consequences

Borgogni and Dello Russo (2012) adapted three items from Locke and Latham's (1990a) questionnaire to measure tangible (e.g., financial incentives) and intangible (e.g., supervisor recognition) rewards. One item on this scale includes "My supervisor shows me appreciation when I perform well." The Borgogni and Dello Russo (2012) HPC questionnaire contains one item to assess noncontingent rewards (i.e., rewards that do not depend on goal achievement)- "I have good working conditions." Job satisfaction is operationalized through the adaptation of a scale by Judge, Locke, Durham, and Kluger (1998). An example of an item from that scale is "Most days I am enthusiastic about my work." Organizational commitment was operationalized through 5 items from an affective commitment scale that Borgogni and Dello Russo (2012) adapted from a scaled developed by Allen and Meyer (1990). One item on that scale is "I feel a strong sense of belonging to my organization." Three items on the HPC questionnaire- 4,5, and 48- are reverse scored.

Data Analysis Plan

Research Questions

RQ1: Is there a significant relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$1: There is not a statistically significant relationship between goals and
performance.

H_A1: There is a statistically significant relationship between goals and performance.

RQ2: Does ability/self-efficacy assessed by the HPC questionnaire moderate the
relationship between goals assessed by the HPC questionnaire and self-assessed
employee performance?

$H_0$2: Ability/self-efficacy does not moderate the relationship between goals and
performance.

H_A2: Ability/self-efficacy moderates the relationship between goals and performance.

RQ3: Does goal commitment assessed by the HPC questionnaire moderate the
relationship between goals assessed by the HPC questionnaire and self-assessed
employee performance?

$H_0$3: Goal commitment does not moderate the relationship between goals and
performance.

H_A3: Goal commitment moderates the relationship between goals and performance.

RQ4: Does feedback assessed by the HPC questionnaire moderate the relationship
between goals assessed by the HPC questionnaire and self-assessed employee
performance?

$H_0$4: Feedback does not moderate the relationship between goals and performance.

H_A4: Feedback moderates the relationship between goals and performance.

RQ5: Do situational constraints assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$5: Situational constraints do not moderate the relationship between goals and performance.

H_A5: Situational constraints moderate the relationship between goals and performance.

RQ6: Does task complexity assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$6: Task complexity does not moderate the relationship between goals and performance.

H_A6: Task complexity moderates the relationship between goals and performance.

RQ7: Does direction assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

H_{07}: Direction does not mediate the relationship between goals and performance.

H_A7: Direction mediates the relationship between goals and performance.

RQ8: Does effort assessed by the HPC questionnaire mediate the relationship between goals and self-assessed employee performance?

$H_0$8: Effort does not mediate the relationship between goals and performance.

H_A8: Effort mediates the relationship between goals and performance.

RQ9: Does persistence assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$9: Persistence does not mediate the relationship between goals and performance.

H_A9: Persistence mediates the relationship between goals and performance.

RQ10: Do task-specific strategies assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance?

$H_0$10: Task-specific strategies do not mediate the relationship between goals and performance.

H_A10: Task-specific strategies mediate the relationship between goals and performance.

RQ11: Do data from the HPC questionnaire and self-assessed employee performance support the HPC model?

$H_0$11: The empirically-derived HPC model differs from the hypothetical model proposed by the literature.

H_A11: The empirically-derived HPC model is equivalent to the hypothetical model proposed by the literature.

Data Analysis

An online version of the 49-item, 7-point Likert HPC and 9-item Likert Job Performance surveys will be created using SurveyMonkey and participants will be recruited from the online research platform Prolific. Once a minimum participation level has been achieved, survey data will be transferred to SPSS for analysis. Likert scores for

each factor will be summated. For example, Demands contain three items on a 7-point

scale for a total possible 21 points.

Descriptive statistics will be analyzed to assess general information about the

data. For example, Chronbach's alpha will be performed for all items in the survey to

assess the survey's reliability.   A bivariate correlational analysis will then be performed

between the HPC antecedents of performance (continuous variables) obtained from the

HPC questionnaire and performance values obtained from the job performance scale to

assess the relationships between the independent performance-antecedent variables and

the dependent variable performance. Pearson correlation coefficients will be calculated.

A correlation matrix will be created and used as the input data for SEM analysis in

AMOS. This analysis will also be used to answer research question two- "Is there a

significant relationship between goals assessed by the HPC questionnaire and

performance data based on employee productivity?" In addition, the bivariate correlation

analysis will show whether or not there is a significant relationship between the

motivational factors and performance. Construct validity of the HPC survey will be

assessed through confirmatory factor analysis with IBM SPSS AMOS. The model that

will be entered into AMOS is shown in Figure 5.

Once the descriptive, correlational, reliability and validity analyses are conducted

for the entire HPC survey, the first part of the hypothetical HPC model (antecedents of

performance) will be assessed against the empirical data obtained from this study using

AMOS. A model will be built in AMOS based on the hypothetical HPC model (Figure

1) (Latham & Locke, 2007). Multiple fit indices (e.g., χ^2, CFI, RMSEA, and SRMR) will

be computed by AMOS and used to determine if the hypothesized model fit the data. If the hypothesized model does not fit the data, a revised, empirically-based model of the hypothetical HPC model will be proposed. The overall fit of the model will address research question 11. The remaining research questions will be addressed through the assessment of moderating and mediating variables using SPSS Process Macro.

Threats to Validity

The correlational analysis utilized in this study to assess relationships between variables is generally considered a weak design because the participants are often not selected randomly and then designated to either a control or experimental group. With such a design, most threats to internal and external validity cannot be controlled (Frankfort-Nachmias & Nachmias, 2015). However, since the study here is a non-experimental, cross-sectional design, all participants will be treated the same at a single point in time and therefore no threats to internal or external validity are expected. Correlational designs do not have the ability to show causation, but they are able to show whether a particular hypothesis is supported. However, the strength of the correlation reflects the strength of the hypothesis (Campbell & Stanley, 1963). In the study presented here, a high positive correlation between the independent motivational factors and performance (dependent variable) would show strong support for the model. In contrast, a weak or negative correlation would suggest the model may need to be reconsidered.

Statistical conclusion validity occurs when researchers make inaccurate conclusions from their data due to insufficient statistical power or breaching of statistical

assumptions (Creswell, 2014). Of primary concern in this study is the ability to receive

completed surveys from participants to achieve adequate statistical power. Structural

equation modeling is based on multiple regression and will be limited by the assumptions

of that statistical technique. Any violations of assumptions for multiple regression will

be diagnosed.

Ethical Procedures

The first page of the survey will contain the informed consent form. This form

contains information about the purpose of the study, how the data is collected and what

the data will be used for. Participant names will not be collected, nor will any other

information that would permit the identification of participants. Participants will be

informed that there may be minimal stress involved to some individuals that may be

uncomfortable answering questions about their place of employment or their performance

at work. Participants will be informed that they can discontinue the survey at any point

for any reason.

The survey in this study is anonymous. All data collected and analyzed in this

study will be stored on password-protected devices and all data will be stored for a

minimum of five years. If and when necessary, data will be permanently destroyed by

deleting from all devices that contain any data from this study.

Summary of Design and Methodology

This study will use a non-experimental, cross-sectional design to assess

workplace motivation among employees with a wide range of professions from varying

geographical locations from around the world. All items on the HPC-Job Performance

questionnaire will be assessed for validity and reliability. While all items for all factors in the HPC model will be assessed for validity and reliability, the primary focus of this study is on the antecedents of performance in the HPC model. Therefore, only empirical data obtained from the HPC questionnaire for the antecedents (demands, mediators and moderator) along with performance data obtained from the Job Performance survey will be utilized to test the first half of the hypothetical HPC model. Following SEM, it will be determined whether or not the hypothesized model fits the data. If the hypothesized model does not fit the data, a revised model will be proposed that fits the empirical data.

Chapter 4: Results

Introduction

The results section is aimed at answering the research questions to test the validity of Latham and Locke's (2007) high performance cycle model for work motivation from a sample representative of workers in the United States. This chapter will present the statistical analyses that were performed to assess the validity of the HPC model by answering the 11 research questions that have been proposed. First, confirmatory factor analysis was performed to assess the adequacy of the questionnaire used in this study. Factors in this model were assessed by an HPC questionnaire developed by Borogni and Dello Russo (2012). In addition, job performance was assessed using a self-report questionnaire developed by Onwezen, van Veldhoven and Biron (2014). Confirmatory factor analysis (CFA) was performed to assess the reliability of the items in these questionnaires to assess factors in the HPC model and to assess the factor loadings of the items.

Descriptive statistics for the sample tested will be presented. Results from the correlational analyses will then be presented to assess if there is a significant relationship between the motivational factors in the HPC model and performance. Tests will be performed to assess moderation and mediation. Finally, structural equation modeling will be performed to determine if Latham and Locke's (2007) hypothesized model fits the data collected in this study.

Data Collection

Permission was given from Walden University's IRB to collect data on working

individuals in the United States using an online survey. In addition, at the beginning of

the survey, a consent form was provided to potential participants who had to agree to

participating in the study prior to beginning the survey. The survey was developed using

SurveyMonkey and participants were recruited through the online research platform

Prolific (https://www.prolific.co/). Prolific screened potential participants for a

representative sample of people in the United States across age, gender, and ethnicity. In

addition, the survey asked participants if they were currently employed. Only

submissions from currently employed individuals were accepted. The target sample size

was 400 participants and the actual sample was 380. The data was collected over 5 days.

Results

In this section, descriptive statistics of the sample will be provided, followed by a

review of the statistical assumptions for the analyses used in this section. A detailed

statistical analysis will then be presented in coordination with the research questions that

have been proposed in this study.

Sample Demographics

The sample contained a nearly equivalent number of males (50.3%) and females

(49.7%). Education level ranged from high school diploma (20.8%) to a doctoral degree

(3.9%) with the majority of participants holding a bachelor degree (41.8%). Ages varied

with the largest portion 25-34 (27.9 %) and 52.1% of participants between the ages of 35

and 64. Regarding tenure, 73% of participants were at their current place of employment

for 0-10 years, with the rest of the participants spanning tenures from 11-20+ years. The

occupational categories spanned multiple areas from which the participants were

provided 20 categories to select. The three most common categories were "sales and

related occupations" (10.8%), "office and administration support" (10.0%), and

"education, training, and library occupations" (10%). Demographic frequencies are

shown in Table 2. Due to the large number of job categories, a table containing

occupational frequencies is in Appendix B.

Table 1

Sample Demographics

	Demographic variables	Frequency	Percent
	HS Diploma	79	20.8
	Associate	65	17.1
Highest Degree Completed	Bachelor	159	41.8
	Master	57	15.0
	Doctoral	15	3.9
	N/A	2	0.5
Gender	Male	191	50.3
	Female	189	49.7
	18-24	46	12.1
	25-34	106	27.9
	35-44	74	19.5
Age	45-54	51	13.4
	55-64	73	19.2
	65+	29	7.6
	0-2	104	27.4
	3-5	102	26.8
	6-10	72	18.9
Tenure	11-15	33	8.7
	16-20	18	4.7
	20+	49	12.9

Statistical Assumptions

Structural equation modeling is based on regression and, therefore, the analyses in this study will be limited by the statistical assumptions of regression analysis. The primary assumptions of regression include Normality, linearity, homoscedasticity, and predictor variables lacking multicollinearity.

Normality refers to the assumption that there is a normal distribution of residuals (error terms) and was assessed with Probability-Probability (P-P) plots (Figure 3). The P-P plot shows the residuals to be normally distributed and thus passes the normality assumption. Homoscedasticity refers to the equivalent distribution of residuals for each level of a given predictor variable. Homoscedasticity was evaluated by plotting the residual variances of the predictors versus the dependent variable (Figure 4). Linearity refers to the assumption that independent variables are linearly related to outcome variables. Linearity was also assessed by reviewing the residual plot. The residuals appear to be rather equally distributed and do not appear to have any significant curves, therefore meeting the assumptions of linearity and homoscedacity.
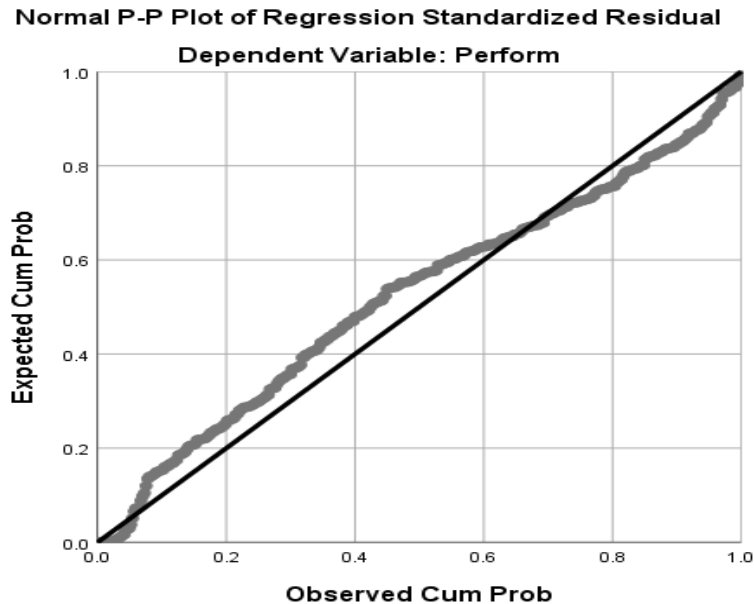
Figure 3. Plot of residual distribution
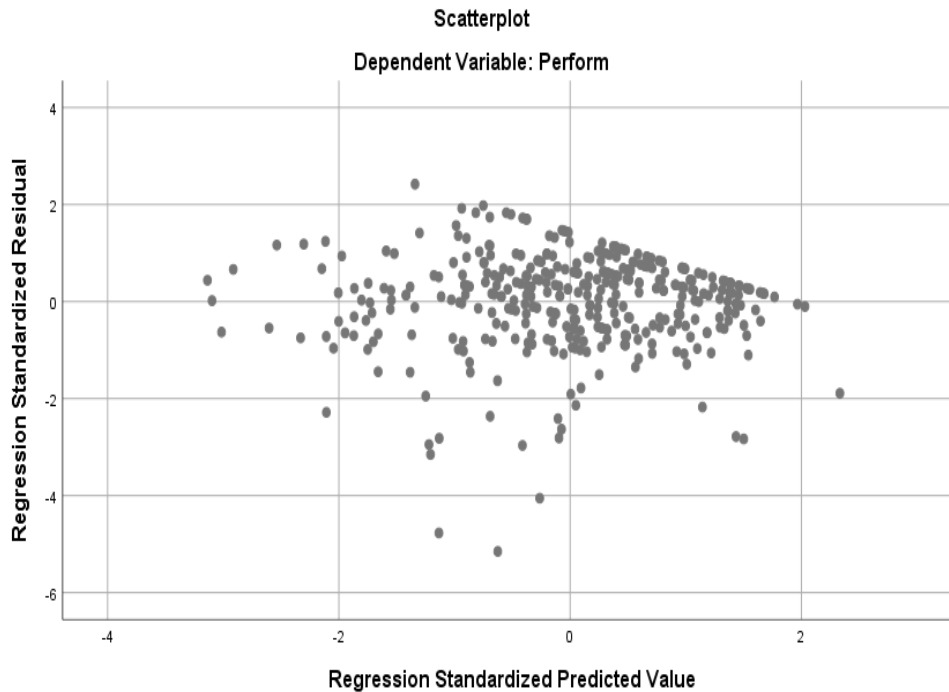
Figure 4. Predictors Versus Dependent Variables for Homoscedasticity

Multicollinearity occurs when there is a very high correlation between predictor variables. Multicollinearity inhibits individual variables to adequately predict unique variances. This was assessed with a correlation matrix of the variables in the model. A correlation coefficient $r > .80$ is generally considered high and exhibiting multicollinearity (Field, 2012). The correlation matrix (Table 4) shows that the greatest correlation coefficient was between persistence and effort ($r = .80$). The remaining coefficients were quite smaller ($r < .65$). Therefore, the data collected in this study meets the assumptions of normality, linearity, homoscedacity, and a lack of multicollinearity for regression analysis.

Item Analysis

The next step in the analysis was to determine whether the items in the survey reliably measured their intended factor. SPSS was used to perform a scale reliability analysis for all of the factors for the various scales in the survey. Chronbach's alpha is typically used as a measure of the internal consistency of items on a given scale, showing the intercorrelation between items that are intended to measure the same factor. Therefore, a higher Chronbach's alpha generally means the items are reliably measuring the same factor. In general, an alpha value $>.70$ is considered acceptable with .80-.90 considered ideal (DeVellis, 2012).

As mentioned previously, because this is a cross-sectional study, only the first half of the HPC model will be analyzed (the antecedents of performance and performance itself). However, internal consistency was analyzed for all factors in the model to assess the reliability of the survey in its entirety for benefit of further development and use of this survey in the future. Three items in the HPC questionnaire are reverse scored- items 4, 5 (goal commitment) and 48 (organizational commitment). One factor on the scale, noncontingent rewards, only had one item on its scale. Therefore, it had a Chronbach's alpha of 1.0. The Chronbach's alpha for the remaining 14 factors ranged from .781-.922. Therefore, the HPC and Performance scales were all considered to have acceptable internal consistency (Table 3) to proceed with analysis.

Table 2

Chronbach's Alpha for Factors in the HPC and Job Performance Questionnaire

Factor Scale	Items	Chronbach's Alpha
Demands	1,2,3	0.812
Goal commitment	4r,5r,6	0.798
Feedback	7,8,9,10,11, 12,13	0.899
Self-efficacy/ability	14,15,16,17, 18,19	0.91
Task Complexity	20,21,22	0.853
Organizational Support	23,24,25	0.828
Direction	26,27,28	0.878
Effort	29,30,31	0.882
Persistence	32,33,34	0.781
Task-specific strategy	35,36,27	0.844
Contingent rewards	38,39,40	0.828
Noncontingent rewards	41	1
Job satisfaction	42,43,44	0.922
Organizational commitment	45,46,47,48r,49	0.909
Performance	50,51,52,53,54, 55,56,57,58	0.909

Bivariate Correlation Analyses

A bivariate correlation analysis, using Pearson's correlation coefficient, was

conducted to determine if there are significant correlations between 11 factors in the first

part of the HPC model (demands, goal commitment, feedback, self-efficacy, task

complexity, organizational support, direction, effort, persistence, task-specific strategy,

and performance). As shown in Table 4, there was a significant correlation between all

antecedent factors in the HPC model. All correlations had a $p < 0.01$ except the

demands-goal commitment correlation ($p < 0.05$). All correlations with goal

commitment have negative coefficients, which likely reflects the fact that two of the three

items on the goal commitment scale are negative statements.

Table 3

Bivariate Correlations of Factors in the HPC Model

Factor Name	1	2	3	4	5	6	7	8	9	10	11
Demands	1										
Goal Commitment	-.12*	1									
Feedback	.36**	-.16**	1								
Self-efficacy	.29**	-.22**	.44**	1							
Task Complexity	.53**	-.13**	.32**	.41**	1						
Organizational Support	.23**	-.23**	.63**	.40**	.23**	1					
Direct	.42**	-.21**	.53**	.50**	.42**	.52**	1				
Effort	.51**	-.31**	.43**	.58**	.50**	.36**	.63**	1			
Persistence	.44**	-.28**	.39**	.61**	.44**	.36**	.52**	.80**	1		
Task-specific strategy	.39**	-.20**	.41**	.59**	.47**	.31**	.60**	.65**	.58**	1	
Performance	.19**	-.17**	.22**	.48**	.28**	.26**	.38**	.53**	.54**	.45**	1

Note. * $p < 0.05$ level (2-tailed), ** $p < 0.01$ level (2-tailed).

While it was expected that most of the factors in the HPC model would have a mediating or moderating role in the model, it is expected that demands have a primary direct effect on performance. The first research question aimed to assess whether there was a linear relationship between demands and performance and what the strength of that relationship is, which can be answered with a correlational analysis. The strength of the relationship between two variables, the correlation coefficient, is designated with an "r" (Field, 2012). Squaring r (R^2) gives the coefficient of determination, which is the shared variability between two variables. The correlation matrix was used to answer the first research question:

Research question 1 asked whether there is there a significant relationship between goals assessed by the HPC questionnaire and self-assessed employee performance. There was a positive correlation between demands and performance, $r = .19$, $p < .01$. While the relationship is significant, the strength of the relationship is one of the weakest of all of the bivariate correlations. Squaring r gives $R^2 = .036$, expressing a shared variability between demands and performance of 3.6%. In other words, approximately 96% of variability is due to other factors.

Confirmatory Factory Analysis

Confirmatory Factory Analysis (CFA) is a process by which all the items in a scale are analyzed to minimize the number of items that are used to measure a particular factor (Keith, 2015), removing items that do not reliably and validly measure the factor of interest. This was, in part, started with item analysis in which the items were reviewed by their correlation coefficient (Table 3) for each scale. The next step was to assess the

factor loadings of each item. This was done by placing the hypothetical HPC model (Latham & Locke, 2007), Figure 5, into Amos. In addition, also note that one pathway was drawn from each latent variable to an item that was arbitrarily set to a regression weight of "1," which transfers the scale of the indicator to the latent factor and allows the model to be identified for analysis (Blunch, 2013). The correlation matrix (Table 4) was entered into AMOS for analysis.

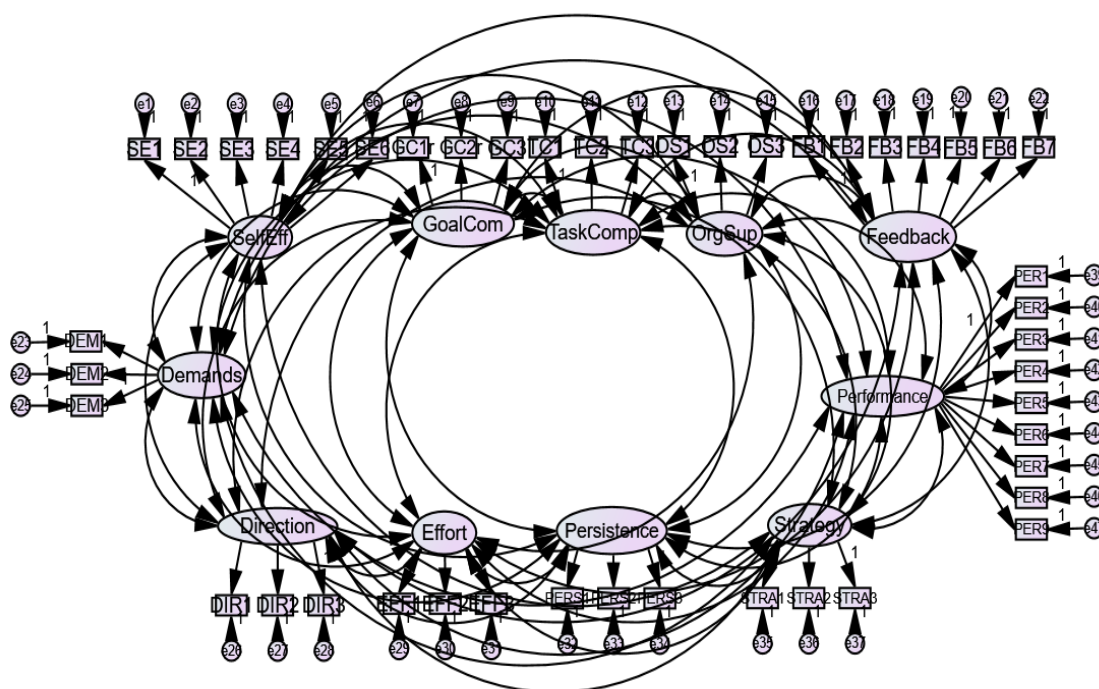
Figure 5. Theoretical HPC Model for CFA

After the initial CFA run of the hypothetical model in AMOS, the model fit indices were reviewed. The indices reviewed included Chi-Square (χ^2) = 2549.563 (df = 934, *p* = .00), RMSEA = .068, SRMR = .061, CFI = .87. The χ^2 test is an overall measure of fit. It is important to note that in SEM, hypothesis testing is "reversed." That is, the

null hypothesis is the statement the researcher is looking to be true- the proposed model fits the data. Therefore, a nonsignificant result ($p \geq .05$) is sought. Rejecting the null hypothesis means that the model does not fit the data. However, χ^2 has many drawbacks because it is dependent on sample size. With small samples, it is more likely that a good-fit model will be rejected whereas a poorly-fit model is more likely to be accepted with much larger samples (Blunch, 2013). Therefore, numerous fit indices have been developed to overcome shortcomings over sample size-dependent fit indices. Kline (2016) recommends reporting χ^2, RMSEA, CFI, and SRMR.

Another shortcoming of χ^2 is that it assumes a model is either 100% right or 100% wrong, referred to as an accept-support test (Kline, 2016). In reality, there are varying degrees of fit. RMSEA (root mean square of approximation) is an absolute fit index and more degrees of freedom benefit from a better fitness estimate. RMSEA addresses this by approximating the fit of a model and takes into consideration degrees of freedom. In this way, RMSEA is an improvement over χ^2 as it is not an all-or-nothing fit index. As Keith (2015) states, RMSEA can be interpreted as "the degree of misfit per degree of freedom (p. 297)." Keith (2015) provides 3 criteria for fit based on RMSEA: good fit ($\leq$ .05), adequate fit ($\leq$ .08), and poor fit ($\geq$ .10).

RMR and SRMR (standardized root mean-square residual) are also considered absolute fit indices because they are stand-alone measures, not compared with other models. The RMR measures the mean covariance residual, but is unstandardized and as such, the values are dependent upon the metrics of the variables. This is overcame with SRMR that standardizes the variables (Kline, 2016). An SRMR $\leq$ .08 is typically

considered a good fit. The comparative fit index, CFI, is an incremental fit index and provides a standard across which to compare the data-driven model from the null model. The CFI is a modified version of other relative fit indices (e.g., GFI, NFI) that would tend to underestimate small samples (Blunch, 2013). In general, a CFI ≥ .95 is considered a good fit and a CFI ≥ .90 is considered an adequate fit (Keith, 2015).

Based on the criteria provided, the hypothetical model (Latham & Locke, 2007) appears to have a relatively good fit during CFA. The model estimates were then reviewed in the AMOS output. There was a significant relationship between all of the variables in the model. Most of the variables had high factor loadings, or standardized regression weights (> .6). The lowest factor loadings (.395-.578) were with *demands*; however, all three items had relatively equivalent loadings. The high and relatively equivalent factor loadings lend to construct validity- the items measured what they were intended to. Confirmatory factor analysis established that the scales used appear to be both reliable and valid and the theoretical model has a relatively good fit with the data in this study.

Moderation Analysis

Research questions 2 through 6 asked whether moderator variables in the hypothetical model (Latham & Locke, 2007)- self-efficacy, feedback, goal commitment, organizational support, and task complexity- moderate the relationship between demands (goals) and performance. To perform this analysis, Likert scores for each scale on the survey were summated. These summated scores were then converted to Z scores with SPSS . An interaction variable was then created between each moderator and the

independent variable (demands) by multiplying the two Z scores. A model was then built

for each moderator, independent variable and dependent variable (performance) (see

Figure 6). Moderation analysis was performed using SPSS Process Macro model 1.

Results are summarized in Table 5.
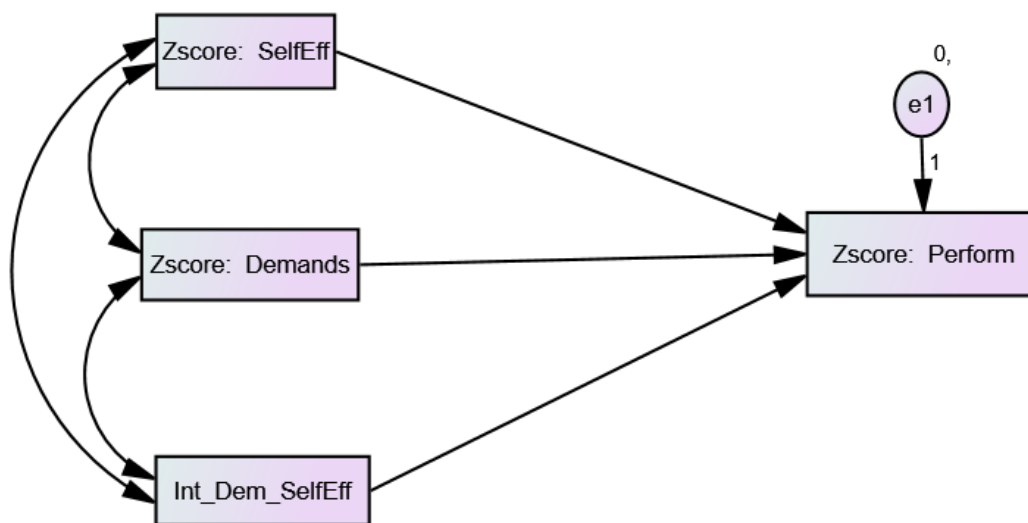
Figure 6. AMOS Model for Moderation Analysis of Self-efficacy

Research Question 2 asked whether ability/self-efficacy assessed by the HPC

questionnaire moderate the relationship between goals assessed by the HPC questionnaire

and self-assessed employee performance. Self-efficacy did not significantly moderate the

relationship between demands and performance, $b = 0.0378$, 95% CI [-0.039, 0.115], $t =$

.966, $p > .05$. Research Question 3 asked if goal commitment assessed by the HPC

questionnaire moderate the relationship between goals assessed by the HPC questionnaire

and self-assessed employee performance. Goal commitment significantly moderated the

relationship between demands and performance, $b = 0.1224$, 95% CI [0.033, 0.211], $t = 2.70$, $p < .01$. Research Question 4 asked if feedback assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance. Feedback did not significantly moderate the relationship between demands and performance, $b = 0.0287$, 95% CI [-0.059, 0.116], $t = .646$, $p > .05$. Research Question 5 asked whether organizational support assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance. Organizational support did not significantly moderate the relationship between demands and performance, $b = 0.0299$, 95% CI [-0.055, 0.115], $t = .695$, $p > .05$.

Research Question 6 asked if task complexity assessed by the HPC questionnaire moderate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance. Task complexity did not significantly moderate the relationship between demands and performance, $b = 0.0813$, 95% CI [-0.001, 0.164], $t = 1.94$, $p > .05$. However, when task complexity was high, task complexity did have a significant positive relationship between demands and performance, $b = 0.161$, 95% CI [0.010, 0.311], $t = 2.09$, $p < .05$.

Table 4

Moderators in the Demands-Performance Relationship

	b	*SE* B	*t*	*p*	95% CI	
Constant	-0.012	0.046	-0.262	*p* > .05	-0.104	0.079
Self-efficacy	0.467	0.048	9.810	*p* > .05	0.374	0.561
Demands	0.467	0.047	1.367	*p* < .001	-0.028	0.158
Self-efficacy x Demands	0.038	0.039	0.966	*p* > .05	-0.039	0.115
R^2	0.235					
Constant	0.016	0.050	0.311	*p* > .05	-0.083	0.114
Goal commitment	-0.166	0.051	-3.281	*p* < .01	-0.266	-0.067
Demands	0.145	0.052	2.805	*p* < .01	0.043	0.246
Goal commitment x Demands	0.122	0.045	2.702	*p* < .01	0.033	0.211
R^2	0.077					
Constant	-0.012	0.052	-0.221	*p* > .05	-0.114	0.091
Feedback	0.176	0.054	3.296	*p* < .01	0.071	0.282
Demands	0.143	0.056	2.552	*p* < .05	0.033	0.253
Feedback x Demands	0.029	0.044	0.646	*p* > .05	-0.059	0.116
R^2	0.066					
Constant	-0.008	0.050	-0.153	*p* > .05	-0.161	0.911
Organizational support	0.227	0.051	4.475	*p* < .001	0.127	0.327
Demands	0.151	0.053	2.862	*p* < .01	0.047	0.255
Organizational support x Demands	0.030	0.043	0.695	*p* > .05	-0.055	0.115
R^2	0.089					
Constant	-0.044	0.054	-0.821	*p* > .05	-0.150	0.062
Task complexity	0.281	0.060	4.649	*p* < .001	0.162	0.400
Demands	0.078	0.059	1.324	*p* > .05	-0.038	0.193
Task complexity x Demands	0.081	0.042	1.941	*p* > .05	-0.001	0.164
R^2	0.091					

Mediation Analysis

Research questions 7 through 10 asked whether mediator variables in the hypothetical model (Latham & Locke, 2007)- direction, effort, persistence, and task-specific strategies- mediate the relationship between demands (goals) and performance. To perform this analysis, Likert scores for each scale on the survey were summated. These summated scores were then converted to Z scores with SPSS. An interaction variable was then created between each mediator and the independent variable (demands) by multiplying the two Z scores and mediation analysis was performed using SPSS Process Macro model 4.

Research Question 7 asked whether direction assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance. There was a significant indirect effect of demands on performance through direction, $b = 0.1502$, BCa CI [0.094, 0.215]. Research Question 8 asked if effort assessed by the HPC questionnaire mediate the relationship between goals and self-assessed employee performance. There was a significant indirect effect of demands on performance through effort, $b = 0.2928$, BCa CI [0.211, 0.3899]. Research Question 9 asked whether persistence assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed employee performance. There was a significant indirect effect of demands on performance through persistence, $b = 0.2445$, BCa CI [0.176, 0.320]. Research Question 10 asked if task-specific strategies assessed by the HPC questionnaire mediate the relationship between goals assessed by the HPC questionnaire and self-assessed

employee performance. There was a significant indirect effect of demands on

performance through task-specific strategies, b = 0.1704, BCa CI [0.110, 0.244].

Table 5

Mediators in the Demands-Performance Relationship

	R^2	*B*	*SE* B	BCa CI	
Direction	0.142	0.150	0.030	0.094	0.215
Effort	0.535	0.293	0.045	0.211	0.390
Persistence	0.538	0.245	0.037	0.176	0.320
Task-specific strategy	0.455	0.170	0.035	0.110	0.244

Model Fit

The 11th and final research question explores whether or not the hypothetical HPC

model (Latham & Locke, 2007) fits the data collected in this study. During CFA, all of

the latent variables were connected with covariances. To test the actual pathways of the

model, paths were entered into AMOS based on the proposed theory behind the HPC

model- from demands to the various mediators and moderators to performance. The

hypothetical model in Figure 7 was used for initial assessment. Analysis of the

hypothetical model yielded the following indices of fit:

χ^2 = 3111.986 (df = 970, p = .00), RMSEA = .076, SRMR = .082, CFI = .828. The

RMSEA meets the criterion of ≤ .08 for an adequate fit while the

SRMR is close to the requirement for a good fit (≤ .08).   The CFI falls short of the ≥ .90

cutoff. While the fit indices appear to show a reasonable degree of fit of the model, an

evaluation of the estimates shows four of the pathways are nonsignificant (see Table 7)-

demands-performance, feedback-performance, goal commitment-performance, task

complexity-performance, and direction-performance. In addition, there is a negative

correlation between demands and performance, which is the opposite of what is predicted

by goal setting theory. Therefore, the model does not appear to be a good fit with the

data collected in this study and the null hypothesis is rejected.

Table 6

Model 1: Standardized Regression Coefficients of the Hypothetical HPC Model

Path	b	SE	C.R.
Demands-Self-efficacy*	0.573	0.068	8.416
Demands-Goal commitment*	0.922	0.112	8.247
Demands-Task Complexity*	0.896	0.108	8.309
Demands-Feedback*	0.801	0.103	7.758
Demands-Direction*	0.871	0.09	9.633
Demands-Persistence*	0.978	0.103	9.538
Demands-Effort*	0.905	0.088	10.281
Demands-Org. Support*	0.698	0.099	7.018
Demands-Task Strategy*	0.913	0.093	9.855
Self-efficacy-Performance**	0.256	0.087	2.952
Demands-Performance***	-2.116	0.859	-2.464
Feedback-Performance****	-0.047	0.041	-1.153
Org. Support-Performance**	0.122	0.041	2.978
Goal commitment-Performance****	0.173	0.112	1.547
Task complexity-Performance****	0.048	0.045	1.049
Direction-Performance****	0.104	0.074	1.404
Effort-Performance**	0.934	0.359	2.601
Persistence-Performance**	0.934	0.334	2.794
Task strategy-Performance**	0.283	0.097	2.925

Note. * $p \leq .001$; ** $p \leq .01$; *** $p \leq .05$; ****$p \geq .05$
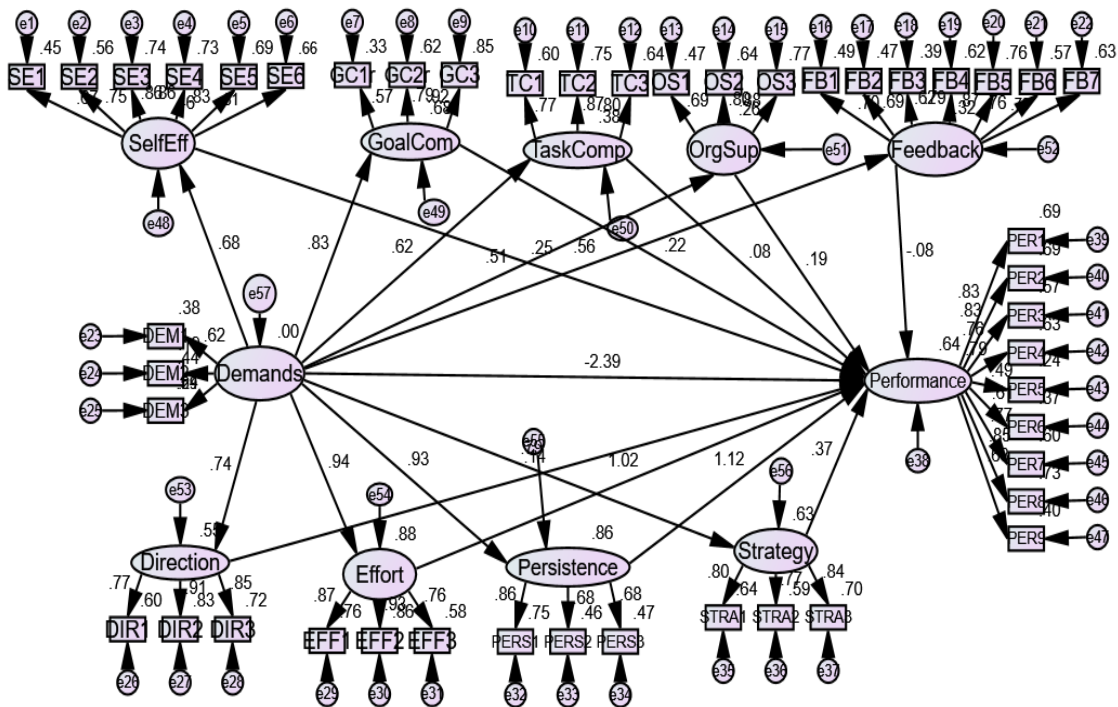
Figure 7. Hypothetical Model with Standardized Regression Coefficients in AMOS

Model Modification

Since the hypothetical HPC model did not fit the data as 4 of the pathways were nonsignificant, modifications were made in a step-wise fashion in order to determine if an acceptable fit could be acquired that is supported by theory. In a stepwise fashion, nonsignificant pathways from the motivational factors to performance were removed from the model and the output was assessed. After the nonsignificant pathways-feedback, goal commitment, task complexity and direction- were removed, the fit indices were as such: $\chi^2 = 3118.27$ ($df = 974$, $p = .00$), RMSEA = .076, SRMR = .083, CFI = .827. See Model 2 in Figure 8.
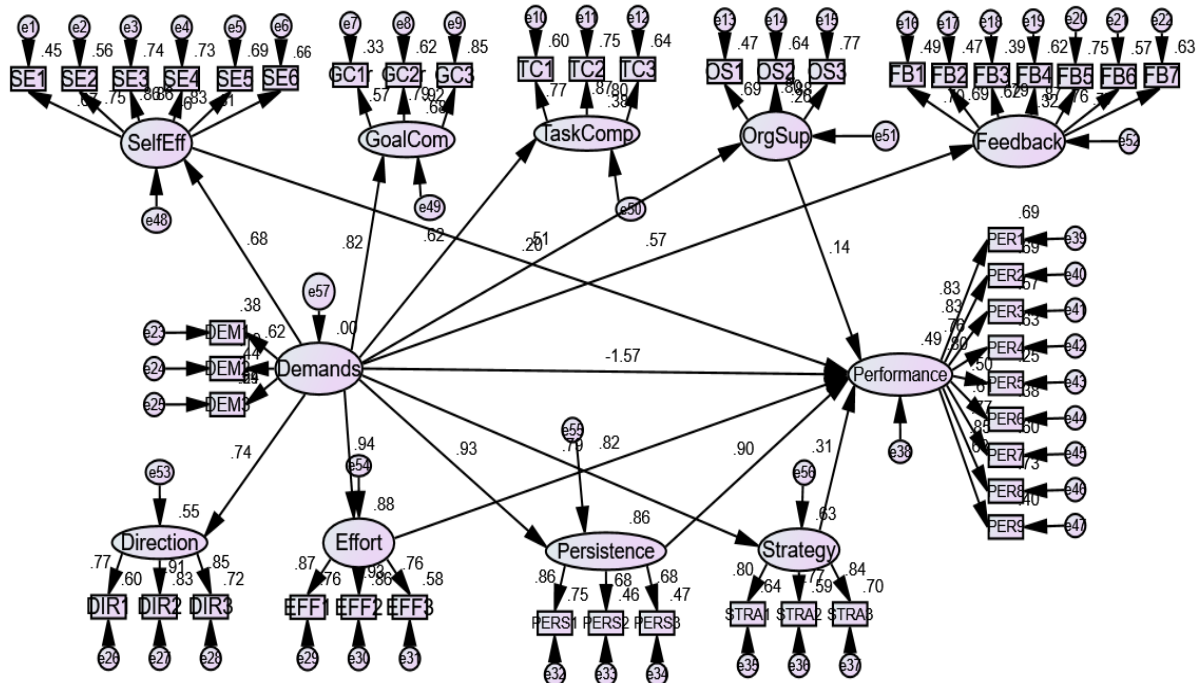
Figure 8. AMOS Model after Nonsignificant Paths Removed from Model 1

While Model 2 (Figure 8) contains all significant pathways (see Table 8), there are still issues with the model. Most striking is that the negative regression coefficient between demands and performance (*b* = -1.57) still exists as in model 1 (*b* = -2.39), albeit not as strong, which again, is entirely the opposite of what is expected from goal setting theory. In addition, Model 2 does not account for how several variables interact with demands and performance (i.e., goal commitment, task complexity, feedback, and direction). For this reason, a third model was tested that shows significant pathways between all variables in the model and an inter-relationship the variables have with demands and performance.

Table 7

*Model 2: Standardized Regression Coefficients after Nonsignificant
Paths Removed from Model 1*

Path	b	SE	C.R.
Demands-Self-efficacy*	0.676	0.068	8.431
Demands-Persistence*	0.926	0.099	7.031
Demands-Effort*	0.938	0.107	8.335
Demands-Org. support*	0.507	0.087	10.304
Demands-Task strategy*	0.793	0.102	9.554
Demands-Strategy*	0.823	0.092	9.879
Demands-Goal commitment*	0.619	0.111	8.263
Demands-Task complexity*	0.568	0.09	9.648
Self-efficacy-Performance*	0.203	0.103	7.796
Demands-Performance***	-1.574	0.44	-3.156
Org. support-Performance***	0.136	0.074	2.869
Effort-Performance***	0.817	0.038	2.296
Persistence-Performance***	0.897	0.241	3.117
Task Strategy-Performance***	0.309	0.246	3.057
Demands-Direction***	0.74	0.246	3.057

Note. * $p \le .001$; ** $p \le .01$; *** $p \le .05$; ****$p \ge .05$

Model 3 was derived by trimming the model through analysis of modification

indices (M.I.) and aligning relationships between variables with theory. For example,

there was a very high M.I. (108.414) between the residuals for organizational support and

feedback. In addition, Borgoni and Dello Russo (2012) also found a significant

relationship between organizational support and feedback. For these reasons, a pathway

was drawn from organizational support to feedback. This will be discussed further in

Chapter 5. In addition to adding a pathway from organizational support to feedback,

nonsignificant pathways were also removed and new ones added until significant

pathways were identified, the fit improved and the relationships were in alignment with

previous findings in the literature. The model after the final iteration is shown in Figure

9. Performance in the final model 3 has an $R^2 = .34$, showing that this model accounts

for 34% of the variability in performance.
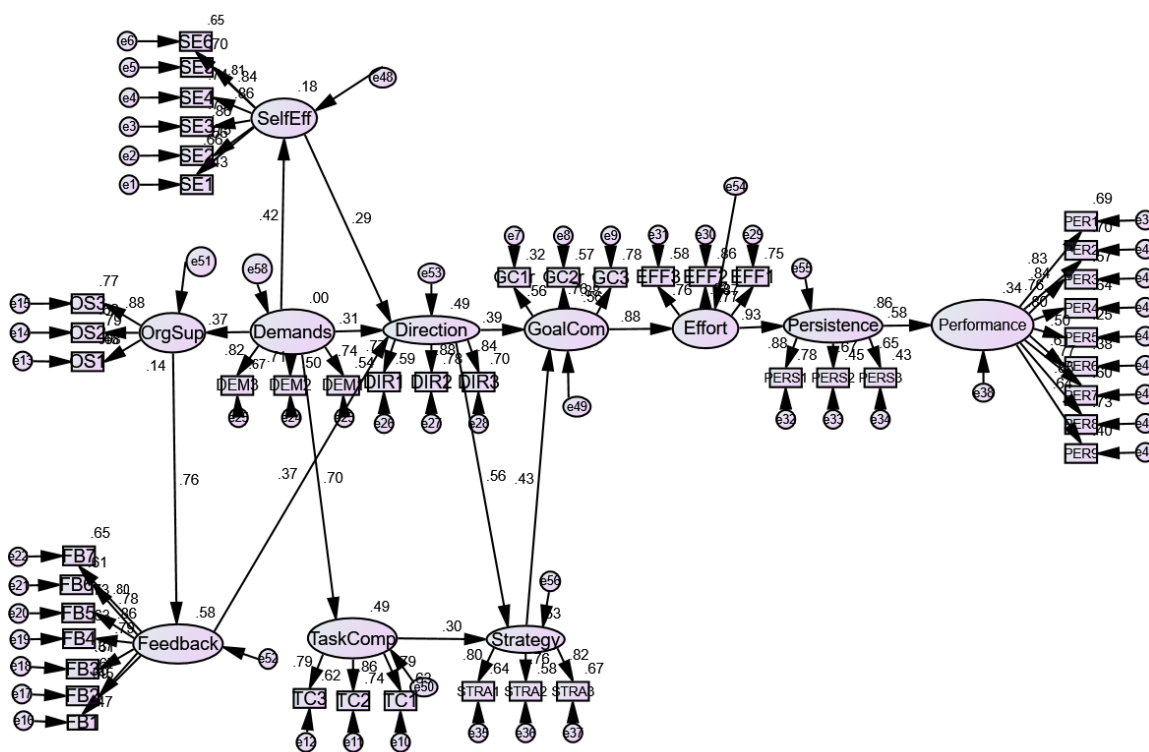
Figure 9. Final Empirical Model with Standardized Regression Coefficients

Table 8

Model 3: Final Empirical Model with Standardized Regression Coefficients

Path	b	SE	C.R.
Demands-Org. support*	0.372	0.057	5.942
OrgSupport-Feedback*	0.76	0.075	10.289
Demands-Self-efficacy*	0.424	0.034	6.797
Feedback-Direction*	0.37	0.041	7.184
Self-efficacy-Direction*	0.306	0.071	5.749
Demands-Direction*	0.322	0.042	5.689
Demands-Task complexity*	0.701	0.062	11.105
Direction-Goal commitment*	0.655	0.072	9.03
Task complexity-Strategy*	0.283	0.038	5.419
Direction-Strategy*	0.599	0.056	10.451
Goal commitment-Effort*	0.609	0.057	9.099
Strategy-Effort*	0.411	0.041	8.627
Effort-Persistence*	0.934	0.08	12.197
Persistence-Performance*	0.575	0.056	9.186

Note. * $p \leq .001$

The third and final model tested yielded the following indices: χ^2 = 2898.045 (df = 975, p = .000), RMSEA = .072, SRMR = .1228, CFI = .849. The RMSEA meets the criterion for an adequate fit ($\leq .08$); the SRMR exceeds the cutoff at $\leq .08$ for a good fit; the CFI falls short of the criteria for an adequate fit ($\geq .90$). In addition to the fit indices, all of the pathways in the proposed empirical model (Figure 10) are significant (Table 9). A comparison of the fit indices for the three models tested is shown in Table 10.

Table 9

Comparison Between Models Tested

Model		$\chi 2$	df	RMSEA	SRMR	CFI	R^2 Performance
1	Hypothetical Model*	3111.99	970	.076	.0823	.828	.64
2	Nonsig Paths Removed	3118.27	974	.076	.0825	.827	.49
3	Final Model	2898.045	975	.071	.1228	.849	.34

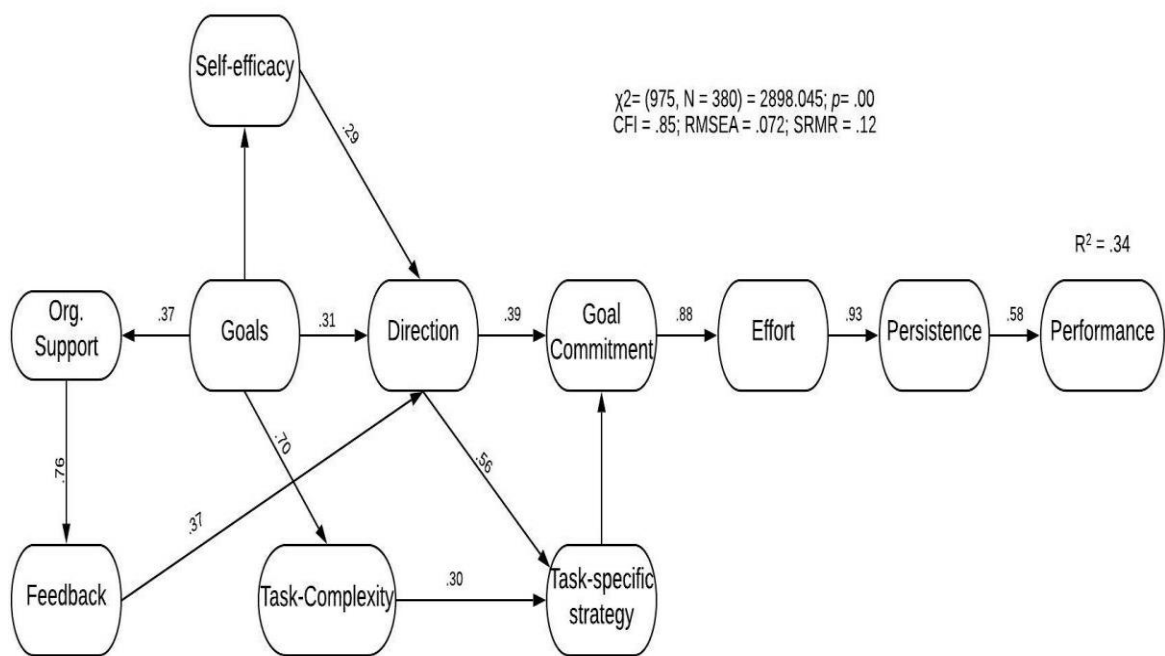Note: * Contains nonsignificant pathways

Figure 10. Empirical HPC Model with Standardized Coefficients

Summary of Results

The goal of this study was to assess the antecedents of performance, and the overall validity, of the hypothetical HPC model as proposed by Latham & Locke (2007). The first step in the data analysis was to assess the sample data to determine if the assumptions of regression analysis were met. It was then necessary to evaluate the questionnaire for reliability and validity. Following assessment of the questionnaire, confirmatory factor analysis was performed to determine the validity of the questionnaire in its ability to adequately measure the intended factors in the HPC model. Finally, analyses were performed to answer the proposed research questions.

Structural equation modeling is based on regression. Therefore, the assumptions of regression were evaluated to assess the adequacy of the data collected for analysis. To meet requirements for regression analysis, the sample data must exhibit normality, homoscedacity, linearity between independent and dependent variables, and lack multicollinearity between predictor variables (Field, 2012). P-P plots, a plot of residual variances and a bivariate correlational analysis were used to determine that the data met the assumptions for regression analysis.

Item analysis was performed to assess the internal consistency (reliability) of the questionnaire used in this study. Chronbach's alpha of >.70 is considered acceptable for item reliability, with >.80 considered ideal (DeVellis, 2012). The 58 items on 14 subscales had a Chronbach's alpha from .781-.922. Therefore, the survey was deemed to exhibit good internal consistency.

A bivariate correlational analysis was then performed to assess the relationships between the factors in the model. There was a significant relationship between all factors in the model. Additionally, the correlation matrix was used to answer research question one which questioned whether there was a significant relationship between demands and performance. There was a positive, significant relationship between demands and performance. The null hypothesis was rejected.

Confirmatory factor analysis was performed to determine the factor loadings of questionnaire items on each factor. Correlations were drawn between all latent variables in the model. The output did not indicate any cross-loadings and all items correlated with their intending factors which lent to the validity of the questionnaire. Additionally, the fit indices showed a good fit of the model to the data during CFA.

Research Questions 2 through 6 asked whether or not moderators in the HPC model moderated the relationship between demands and goals. Moderators in the HPC model include self-efficacy, goal commitment, feedback, organizational support and task complexity. Moderation analysis was performed using SPSS Process Macro. Goal commitment was found to significantly moderate the relationship between demands and goals. The null hypothesis was rejected. Self-efficacy, organizational commitment, feedback, and task complexity did not significantly moderate the relationship between demands and performance. These null hypotheses were accepted.

Research Questions 7 through 10 asked whether or not mediators in the HPC model mediated the relationship between demands and performance. Mediators in the HPC model include direction, effort, persistence, and task-specific strategy. Mediation

analysis was performed using SPSS Process Macro. There was a significant indirect effect of demands on performance through all mediators. The null hypotheses for research questions 7 through 10 were all rejected.

The final research question asked whether or not the hypothetical HPC model fit the data from this study. The hypothetical model was assessed by inputting the correlation matrix of all survey items into SPSS AMOS. The hypothetical model fell short of all fit indices. In addition, there were numerous nonsignificant pathways. Iterations were made to the hypothetical model in an effort to improve fit and identify significant pathways. Nonsignificant pathways were removed in a step-wise fashion and the model was evaluated at each stage. The modification indices (M.I.) were evaluated as well as the correlations between the latent variables. The proposed empirical model met fit index criteria of RMSEA, while falling just short of the CFI and SRMR criteria for a good fit. Additionally, with this adjustment, all pathways in the model were significant. The proposed model, model 3, was the model that best fit the data.

Summary

Chapter 5 will synthesize the results with theory from the literature and there will be an interpretation and discussion of the results. Limitations of the study, recommendations for future studies and practical implications of this study will also be discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The overall aim of this study was to utilize a new instrument (Borgogni & Dello Russo, 2012) for measuring variables in the HPC of work motivation (Latham & Locke, 2007) and to use the data collected from that instrument to assess the first half of the hypothetical HPC model. In addition, it was the purpose of this study to extend the work done by Borgogni and Dello Russo (2012) by using their HPC instrument on a new population and with a larger sample. This is the first known study of the HPC that used the HPC questionnaire in conjunction with a self-report measure for performance. To meet these goals, the validity and reliability of the scales used were assessed, mediation and moderation analyses were performed on the factors identified as such in the hypothetical HPC model, and SEM was used to determine if the hypothetical HPC model fit the data collected in this study.

All scales on the HPC questionnaire and job performance measure were found to be both reliable and valid. After CFA, all items had a Chronbach's alpha > .78 and all of the subscale items loaded on separate factors. Through a bivariate correlational analysis, a significant relationship was identified between all of the antecedent factors in the model. The hypothetical HPC model predicts five moderators: self-efficacy, goal commitment, feedback, organizational support, and task complexity. However, in this study, goal commitment was the only factor that significantly moderated the relationship between demands and performance after analysis with SPSS Process Macro. The model also predicts five mediators: direction, effort, persistence, and task-specific strategies.

All four variables had a significant indirect effect of demands on performance through these variables. SPSS AMOS was then used to assess the model's fit. During CFA, significant pathways were found between all variables in the model. However, when specific pathways were drawn, the hypothetical HPC model did not fit the data as only 6 of 10 antecedent variables had a significant relationship with performance: self-efficacy, demands, organizational support, effort, persistence, and task-specific strategies. For this reason, the model was trimmed to find significant pathways and improved fit. A revised HPC model was proposed (see Figure 10 in Chapter 4) that best fit the data with all pathways statistically significant.

Interpretation of Findings

Goals and Self-efficacy

Demands are the primary driving force of the HPC model. *Demands* in Latham and Locke's (2007) HPC model are goals and self-efficacy, where high goals and high self-efficacy lead to high performance levels. However, self-efficacy also serves as a moderator in the HPC model (Latham, 2012). In this study, demands were operationalized as goals while self-efficacy was put in the model as a moderator. In the correlational analysis, goals had the weakest relationship with performance of all the variables. However, in proposed Model 3, goals (demands) was the primary variable through which all other variables significantly related to performance.

As predicted by Latham and Locke (2007), both goals and self-efficacy had a direct positive and significant effect on performance. However, during moderation analysis, self-efficacy did not exhibit a moderating effect. Finally, despite not showing a

moderating effect after analysis with SPSS Process Macro, self-efficacy did appear to work as a moderator in the revised model as shown by the path from demands to self-efficacy and self-efficacy to performance; the path from self-efficacy to performance was significant and improved the fit of the model over not having the self-efficacy-performance pathway. Regardless, the basic tenet of the HPC was upheld with goals and self-efficacy having a direct and significant positive relationship with performance. When high, challenging goals are set and individuals believe they have the ability to achieve those goals, they achieve higher performance levels.

Moderation Analysis

As previously mentioned, goal commitment was the only factor that significantly moderated the relationship between demands and performance. Goal commitment has such a strong effect on performance that several studies have found that without goal commitment, goals will not even be met or performance will not be as expected (e.g., Wofford et al., 1992; Klein et al., 2013). In other words, regardless of how challenging a goal is or how high an individual's self-efficacy, if the individual does not commit to achieving a performance goal, they likely will not show significant performance improvement. Despite showing a moderating effect after analysis with SPSS Process Macro, goal commitment did not have a significant pathway from goal commitment to performance when all other factors in the model were taken into consideration.

Self-efficacy, along with goals, is a primary driver of job performance in the HPC model. Self-efficacy can also serve as a moderator because the higher one's self-efficacy, the higher goals they set for themselves (Latham, 2012). However, self-efficacy

did not show up as a significant moderator in this study after analysis with SPSS Process

Macros. Despite this, self-efficacy does appear as a moderator in the revised model

because the pathways from demands to self-efficacy and self-efficacy to performance are

significant. Ability is a moderator in the HPC model (Latham & Locke, 2007), but was

not directly measured in this study. Borgogni and Dello Russo (2012) seemed to

consider ability and self-efficacy to be similar enough to add them to the same scale.

Locke and Latham (1990b) consider self-efficacy to have both a direct effect and serve as

a moderator because they draw a distinction between assigned goals and self-set goals.

As mentioned above, when individuals have high self-efficacy, they are more likely to set

higher goals for themselves (Latham, 2012). Bandura (1997) points out a clear

distinction between ability and self-efficacy, finding that it is not one's actual ability that

limits performance but rather the confidence one has in their ability to perform at a

certain level. This distinction between ability and self-efficacy, as well as assigned goals

and self-set goals, may explain the lack of a moderating effect self-efficacy had in this

study during isolated analysis.

Achieving goals that are highly complex is limited by the individual's ability

(Locke, 1982). That is, regardless of other factors, if an individual does not have the

ability to perform complicated tasks, they will not be able to achieve the associated

performance goals. Task complexity did not exhibit an overall moderating effect on

performance through demands. However, when task complexity was high, task

complexity did have a significant moderating effect, $b = 0.161$, 95% CI [0.010, 0.311], t

$= 2.09$, $p < .05$. It may be inferred that individuals who perform more complicated tasks

have an increased ability and self-efficacy and take on more challenging goals, ultimately achieving higher performance levels. Therefore, the findings here regarding task complexity are in line with the literature; due to the limiting nature of ability, there is a curvilinear relationship between challenging goals and performance because performance will begin to plateau as an individual's maximum ability is approached (Locke et al., 1984).

Neither feedback nor organizational support had a significant moderating effect in this study. Feedback on performance, in the pursuit of goals, increases performance more than when feedback is not given (Cellar, Degrendel, Sidle, and Lavine, 1996). Ilies and Judge (2005) conducted two experiments to examine how goals are regulated over time and found that participants set lower goals for themselves after receiving negative feedback while setting higher goals following positive feedback. The HPC model references situational constraints as a moderator, which Peters et al. (1982) describe as factors that prevent individuals from utilizing their abilities to meet performance goals. However, Borgogni and Dello Russo (2012) operationalized situational constraints as organizational support, utilizing a scale that was developed by Locke and Latham (1990a). Klein and Kim (1998) found that situational constraints inhibit motivation and have a negative relationship with motivation.

While feedback and organizational support did not show moderating effects, the two variables' residuals had a high M.I. (111.953), indicating that the scales may share some variance other than situational constraints. For this reason, a pathway was drawn from organizational support to feedback. This greatly improved the model's fit and is in

line with the revised HPC model proposed by Borgogni and Dello Russo (2012). This

holds up in theory as well. When organizational support is high, it is more likely that part

of this is in the form of supervisory feedback, thus increasing feedback scores.

Mediation Analysis

As predicted by the hypothetical HPC model (Latham & Locke, 2007), all four

mediators- direction, effort, persistence, and task-specific strategies- all had an indirect

effect on performance through demands when analyzed with SPSS Process Macro.

These results are consistent with other findings in the literature. Kanfer et al. (1994)

describe direction as a process that arises from the interaction between feedback,

situational cues and goal prioritization and leads to an effort to achieve higher goals

through increased effort (Locke & Latham, 2013a). Given enough time, persistence will

increase effort to achieve higher goals (LaPorte & Nath, 1976). Additionally, other

studies have shown persistence to have an indirect effect on performance through goals

(e.g., Weingart & Weldon, 1991; Theodorakis, Laparidis et al., 1998). Regarding task-

specific strategies, Chesney and Locke (1991) found that when tasks were complex, the

development of strategies had a greater effect on performance than goals.

Model Analysis

Multiple versions of the HPC model (e.g., Latham & Locke, 2007, Latham, Locke

& Fassina, 2002; Locke & Latham, 1990b) depict a sequence of pathways that lead from

demands (goals and self-efficacy) to job performance. However, the models do not break

down a sequence of pathways for individual mediator and moderator variables that show

how these variables are inter-related in leading up to performance. For example, the

models show demands leading to performance with a group of moderators influencing the

demands-performance relationship (see Figure 1). However, when all of the individual

variables were put into AMOS for SEM analysis, nonsignificant pathways existed.

Therefore, it was necessary to trim the model to identify significant pathways from the

dataset obtained in this study. In doing so, a sequence of pathways was identified that

imply a causative sequence that leads from demands to performance. However, it is

noted here that causation cannot be determined from this study as it is cross-sectional.

Follow-up studies would have to be performed to replicate this model to further support

the causative nature of the variables. With that said, the significant relationships in this

model can be aligned with previous findings in the literature to further infer the potential

causative nature of this proposed model.

　　　　Most versions of the HPC model (e.g., Latham, Locke & Fassina, 2002; Latham

& Locke, 2007 version) define demands as both high, challenging goals and self-efficacy.

However, it should be noted again that demands in this study was operationalized as

goals and self-efficacy was measured separately. In the models displayed here and the

data analyses, demands refer to goals to stay aligned with the terminology used for the

scales in the HPC questionnaire. In the overall empirical model that has been devised,

there are three main pathways from demands to performance that will be reviewed.
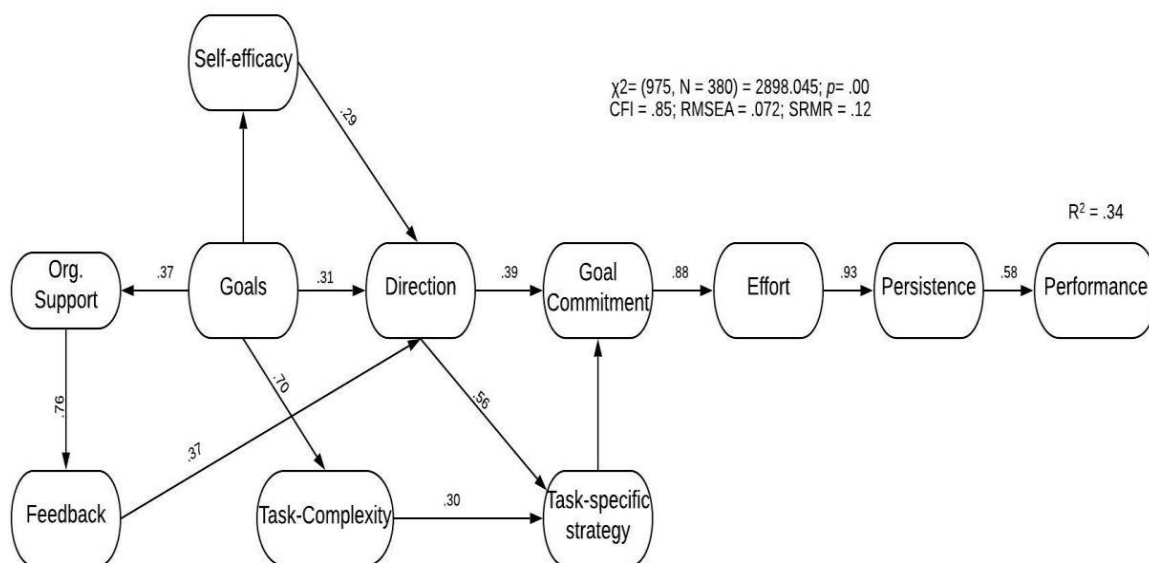
Figure 11. Proposed Empirical Model

Path 1. The model proposed here shows that direction is the primary hub through which goals and self-efficacy influence performance. This primary path supports the basic premise of the HPC that high and challenging goals along with high self-efficacy lead to higher performance (see Figure 12). A number of studies have shown that direction is the result of individuals making the decision to pursue a goal (e.g., Bagozzi & Warshaw, 1990; Hinsz & Ployhart, 1998). As Meyer, Thomas, and Vandenberghe (2004) point out, the goals individuals choose to accept and pursue help set the direction of their behavior for goal attainment and is influenced by their perceived ability (self-efficacy) to those goals. Additionally, a key feature of goal setting theory is that the goals must not only be challenging, but also specific (Locke & Latham, 1990b). Specific goals help set the direction and the degree of effort and persistence necessary for goal attainment. Therefore, the proposed model is in alignment with extant research that goals

and self-efficacy lead to direction, which is followed by effort and persistence. The

model then shows direction leading to goal commitment. It is well-documented that goal

commitment is critical in the goal-performance relationship. Wofford, Goodwin, and

Premark (1992) found that without commitment to a goal, it is highly unlikely that goals

will be met. Klein et al. (2013) reaffirmed the role of goal commitment in goal setting

theory, stating that without commitment, goals will not function as expected. Tubbs

(1993) found that goal commitment only moderated the goal-performance relationship

when individual's showed goal intention; that is, after a choice was made to pursue a

goal. Wallace and Etkin (2018) found that increased goal progress led to further

increases in goal pursuit through persistence. Therefore, the acceptance of a specific,

challenging goal provides direction. Direction is followed by commitment to that goal

and helps establish the effort and persistence necessary for goal achievement.
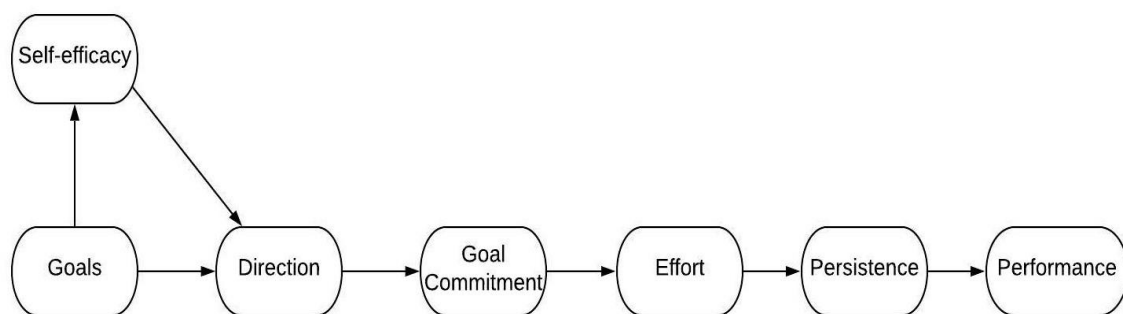
Figure 11. Path 1: Demands to Performance

Path 2. The second pathway (Figure 13) in the proposed model (Figure 11) leads

from demands (goals) to task complexity then task-specific strategies and then to goal

commitment. In addition, demands and self-efficacy are related to direction which leads

to task-specific strategies. Complex tasks require an individual to develop task-specific

strategies for goal attainment (Locke & Latham, 2002), and goal attainment for such

tasks is limited by an individual's ability (self-efficacy). Winter and Latham (1996) also

found that more strategies were developed for more complex, learning goals. Wofford et

al. (1992) found that task complexity was an antecedent of goal commitment. In this

model, goals are related to task-complexity which results in the development of task-

specific strategies. Additionally, goals provide direction which helps in the development

of task-specific strategies which leads to goal commitment. Figure 13 does not include

effort, persistence, and performance following goal commitment for simplicity.
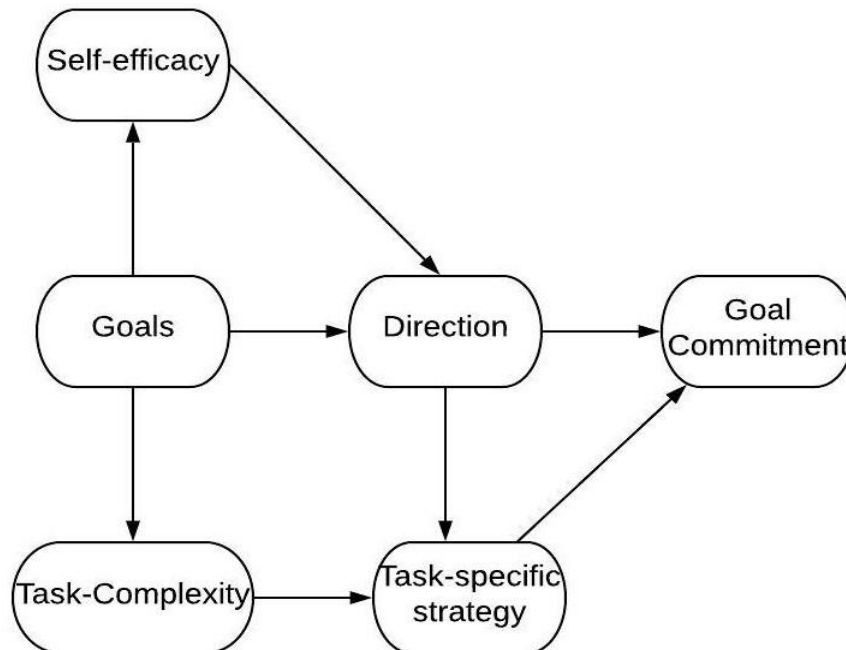
Figure 13. Path 2: Demands and task complexity

Path 3. The hypothetical HPC model (Locke & Latham, 1990) (Figure 1) incorporates situational constraints as a moderator between goals and performance. Situational constraints pertain to obstacles in the workplace that inhibit performance (Latham, 2012). In this study, situational constraints was operationalized as organizational support. The model proposed in this study (Figure 11) suggests that goal setting leads to organizational support then to feedback which leads to direction (Figure 14). Hutchison and Garstka (1996) found a positive relationship between goal setting, perceived organizational support, and feedback. Feedback on performance in the pursuit of goals increases performance more than when feedback is not given (Cellar, Degrendel, Sidle, and Lavine, 1996). In the model proposed in this study, goal setting leads to the perception of organizational support which leads to a positive view on organizational feedback. Feedback provides further direction towards goal attainment, while self-efficacy also influences direction. Figure 14 does not include effort, persistence, and performance following goal commitment for simplicity.
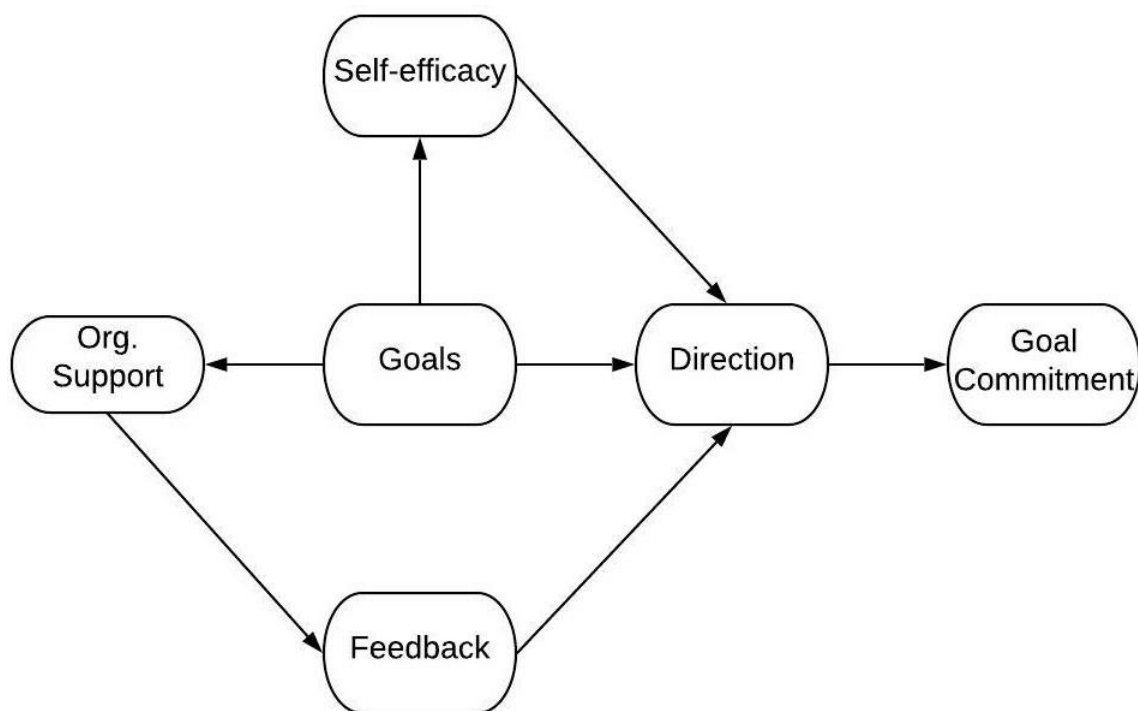
*Figure 14.* Path 3: Goals through organizational support and feedback

Limitations of the Study

There are several notable limitations with this study. First, several limitations are imposed due to the cross-sectional nature of the study. As such, the second part of the whole HPC model- outcomes of performance- could not be assessed because the outcomes are based on the receipt of rewards following goal attainment (performance). Second, while SEM shows causality through the direction of arrows from one variable to another, causality cannot be determined from data collected at one point in time. Causality between significant pathways can only be inferred from such a study based on prior research. Another limitation of this study is the high correlation between situational constraints and feedback. Finally, the theoretical HPC model distinguishes between self-

efficacy and performance. However, this study operationalized the variables as one and the same. But this is not unusual, as Phillips and Gully (1997) found that ability generally is not assessed when self-efficacy is used as an independent variable.

Recommendations

With the survey only given once the antecedents and consequences of performance (per the HPC model) are all assessed at the same point in time. To address this limitation, a follow-up study could be conducted in the future. For example, goals could be given followed by administering the survey. After some time, performance would be assessed following employees receiving their rewards. After performance appraisals and deliverance of rewards for performance, the HPC questionnaire could be administered again to assess the consequences of performance to provide empirical data to assess the theoretical outcomes of the HPC model. Another cross-sectional study could also be performed on a different population to determine whether or not the model proposed here can be replicated. While self-efficacy and ability are often not measured separately in the same studies, the HPC model does make this distinction and the questionnaire could be modified to reflect this distinction to closer align with the HPC model.

Implications

The HPC model serves as a practical model that can be implemented in the workplace to enhance employee performance, job satisfaction and organizational commitment. Only three other known studies have provided empirical support for the hypothetical model. This study adds to the growing data that supports the basic

relationships in the model. In addition, this study provides a sequence of pathways to better understand the inter-related nature of the HPC variables. Further, this is only the second-known study to evaluate the reliability and validity of the HPC questionnaire. The findings here provide additional support for the questionnaire by finding the questionnaire to be both reliable and valid for the population sampled.

The most practical benefit may be to use the HPC questionnaire in the workplace to assess scores for each of the motivational factors. An initial assessment of the scores could serve as a baseline to determine areas that may need to be addressed for improvement. For example, a workforce as a whole may score very low on *feedback*. An intervention could be implemented to help ensure employees are getting adequate feedback on their performance to help them better reach their goals. A follow-up survey could be given some time after implementation of interventions to assess whether or not feedback and performance was enhanced following intervention. On a larger scale, this could help to promote a work environment that is higher-producing with employees who are more satisfied with their work and have an increased commitment to the organization.

Conclusion

This study adds to the few studies that have empirically tested the HPC model. All antecedents of performance were found to have a positive, significant relationship. The hypothetical model was trimmed to identify significant relationships between all of the variables and identify possible pathways through which challenging goals and self-efficacy may lead to enhanced performance. Further studies will need to be done to help assess the causative relationships of the pathways proposed here. Additionally, the HPC

questionnaire was found to be a valid and reliable tool for measuring the HPC variables

on this population. Additional studies utilizing the HPC questionnaire will help to

establish the instruments generalizability. While further work should be continued to

build upon the findings in this study, the HPC model should serve as a useful, practical

tool in the workplace for assessing motivational factors. An assessment of the

motivational factors can provide a useful benchmark to make decisions about

interventions to enhance performance, job satisfaction and organizational commitment.

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Appendix A: Author Permissions to Adapt HPC Questionnaire

Laura Borgogni <laura.borgogni@uniroma1.it>
Wed 3/30/2016, 10:59 AM
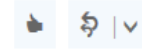
Hi Eric, I am pleased if you use and adapt the HPC scale we created. I am looking forward to knowing some results of your research, best regards, Laura Borgogni

2016-03-30 16:05 GMT+02:00 Silvia Dello Russo <silvia.dellorusso@iscte.pt>:

Hello Eric,
personally I have no objection at all against you using and adapting the scale we have used to measure the HPC. In fact, it is great to hear it can stimulate and assist for further studies.
Good luck with your research!

Best wishes,
Silvia

Silvia Dello Russo, PhD
Research Fellow and Invited Assistant Professor
Business Research Unit
ISCTE Business School
Perfil Ciência-IUL

Appendix B: Occupational Demographics

Occupational Demographics		
Demographic variables	Frequency	Percent
Sales	41	10.8
Education, Training, and Library	38	10.0
Office and Administrative Support	38	10.0
Computer and Mathematical	34	8.9
Business and Financial	30	7.9
Other	28	7.4
Food Preparation and Serving	25	6.6
Management	23	6.1
Arts, Design, Entertainment, Sports, and Media	23	6.1
Healthcare Practitioners and Technical	16	4.2
Community and Social Service	11	2.9
Personal Care and Service	10	2.6
Production	10	2.6
Life, Physical, and Social Science	8	2.1
Healthcare Support	8	2.1
Legal	7	1.8
Construction and Extraction	7	1.8
Installation, Maintenance, and Repair	7	1.8

Transportation	7	1.8
Protective Service	4	1.1
Architecture and Engineering	3	0.8
Building and Grounds Cleaning and Maintenance	1	0.3
Farming, Fishing, and Forestry	1	0.3

Appendix C: Regression Weights of Theoretical HPC Model for CFA

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
SelfEff	<---	Demands	.587	.075	7.783	***	
OrgSup	<---	Demands	.731	.108	6.755	***	
TaskComp	<---	Demands	.932	.120	7.757	***	
Performance	<---	SelfEff	.176	.070	2.503	.012	
Performance	<---	Demands	.405	.072	5.616	***	
Effort	<---	Demands	1.122	.112	10.032	***	
Persistence	<---	Demands	1.079	.120	8.960	***	
Strategy	<---	Demands	.981	.107	9.170	***	
Feedback	<---	OrgSup	.736	.076	9.680	***	
GoalCom	<---	Demands	.884	.121	7.313	***	
Direction	<---	Demands	.946	.107	8.882	***	
SE1	<---	SelfEff	1.000				
SE2	<---	SelfEff	1.273	.094	13.566	***	
SE3	<---	SelfEff	1.555	.112	13.905	***	
SE4	<---	SelfEff	1.466	.107	13.764	***	
FB1	<---	Feedback	1.000				
FB2	<---	Feedback	.962	.069	13.910	***	
FB3	<---	Feedback	.849	.064	13.212	***	
FB4	<---	Feedback	1.215	.094	12.903	***	
FB5	<---	Feedback	1.242	.096	12.917	***	
FB6	<---	Feedback	1.177	.099	11.924	***	
GC2r	<---	GoalCom	1.181	.101	11.659	***	
GC3	<---	GoalCom	1.343	.128	10.523	***	
TC1	<---	TaskComp	1.000				
TC2	<---	TaskComp	1.147	.070	16.273	***	
TC3	<---	TaskComp	.954	.061	15.508	***	
OS1	<---	OrgSup	1.000				
OS2	<---	OrgSup	1.230	.093	13.268	***	
OS3	<---	OrgSup	1.417	.100	14.109	***	
PER1	<---	Performance	1.000				
PER2	<---	Performance	1.036	.042	24.930	***	
PER3	<---	Performance	.986	.061	16.136	***	
PER4	<---	Performance	1.056	.066	16.052	***	
PER5	<---	Performance	.784	.082	9.516	***	

			Estimate	S.E.	C.R.	P	Label
PER6	<---	Performance	1.002	.081	12.321	***	
PER7	<---	Performance	.985	.059	16.673	***	
PER8	<---	Performance	1.039	.057	18.272	***	
PER9	<---	Performance	.975	.075	13.038	***	
SE5	<---	SelfEff	1.212	.090	13.477	***	
GC1r	<---	GoalCom	1.000				
DEM3	<---	Demands	1.000				
DEM2	<---	Demands	.833	.088	9.480	***	
DEM1	<---	Demands	1.016	.121	8.428	***	
DIR3	<---	Direction	1.000				
DIR2	<---	Direction	1.071	.058	18.389	***	
DIR1	<---	Direction	.892	.062	14.416	***	
EFF3	<---	Effort	1.000				
EFF2	<---	Effort	1.181	.061	19.503	***	
EFF1	<---	Effort	1.143	.065	17.630	***	
PERS3	<---	Persistence	1.000				
PERS2	<---	Persistence	.804	.070	11.528	***	
PERS1	<---	Persistence	1.021	.070	14.569	***	
STRA3	<---	Strategy	1.000				
STRA2	<---	Strategy	.991	.062	16.106	***	
STRA1	<---	Strategy	1.011	.060	16.866	***	
SE6	<---	SelfEff	1.307	.099	13.237	***	
FB7	<---	Feedback	1.164	.095	12.193	***	

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
SelfEff	<---	Demands	.671
OrgSup	<---	Demands	.499
TaskComp	<---	Demands	.598
Performance	<---	SelfEff	.171
Performance	<---	Demands	.451
Effort	<---	Demands	1.031
Persistence	<---	Demands	.963
Strategy	<---	Demands	.790
Feedback	<---	OrgSup	.772
GoalCom	<---	Demands	.799
Direction	<---	Demands	.731

			Estimate
SE1	<---	SelfEff	.640
SE2	<---	SelfEff	.674
SE3	<---	SelfEff	.835
SE4	<---	SelfEff	.873
FB1	<---	Feedback	.639
FB2	<---	Feedback	.618
FB3	<---	Feedback	.538
FB4	<---	Feedback	.815
FB5	<---	Feedback	.853
FB6	<---	Feedback	.769
GC2r	<---	GoalCom	.759
GC3	<---	GoalCom	.955
TC1	<---	TaskComp	.770
TC2	<---	TaskComp	.869
TC3	<---	TaskComp	.804
OS1	<---	OrgSup	.676
OS2	<---	OrgSup	.791
OS3	<---	OrgSup	.877
PER1	<---	Performance	.774
PER2	<---	Performance	.780
PER3	<---	Performance	.767
PER4	<---	Performance	.783
PER5	<---	Performance	.492
PER6	<---	Performance	.622
PER7	<---	Performance	.808
PER8	<---	Performance	.874
PER9	<---	Performance	.654
SE5	<---	SelfEff	.845
GC1r	<---	GoalCom	.525
DEM3	<---	Demands	.499
DEM2	<---	Demands	.395
DEM1	<---	Demands	.578
DIR3	<---	Direction	.867
DIR2	<---	Direction	.896
DIR1	<---	Direction	.744
EFF3	<---	Effort	.797
EFF2	<---	Effort	.851
EFF1	<---	Effort	.791

			Estimate
PERS3	<---	Persistence	.671
PERS2	<---	Persistence	.666
PERS1	<---	Persistence	.871
STRA3	<---	Strategy	.836
STRA2	<---	Strategy	.770
STRA1	<---	Strategy	.801
SE6	<---	SelfEff	.824
FB7	<---	Feedback	.791