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The Relationship Between Self-Efficacy and Employee Commitment Among Perfusionists

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COLLEGE OF EDUCATION

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Abstract

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MEd, American Intercontinental University, 2009

BS, Washington Adventist University, 1992

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Certified clinical perfusionists (CCPs) operate a variety of complex, invasive devices to provide heart-lung support. Job-related stress has been identified as having unfavorable influences on self-efficacy and commitment of employees in many domains, but this relationship has not been examined among CCPs. Guided by self-efficacy theory and organizational commitment model, the purpose of this study was to investigate whether a relationship exists between self-efficacy and commitment among CCPs and the extent to which age, gender, workload, experience, or education impacted CCPs' commitment. Data were collected from 264 respondents via 2 established survey instruments: the organizational commitment questionnaire and the work self-efficacy inventory. Data were analyzed using simple linear regression and multiple regression to estimate the relationships between the predictor variables and commitment levels among CCPs. Descriptive analyses were used to summarize patterns emerging from the data in a meaningful way. The results indicated a statistically significant direct relationship between self-efficacy levels and commitment levels among CCPs. There was no statistical relationship between CCPs' age, gender, workload, experience, or education, and commitment. The resulting project consisted of a policy recommendation in the form of formative evaluations to guide self-efficacy training for CCPs. Implications for positive social change included educating CCPs, perfusion leaders, and perfusion community leaders regarding strategies that can be used to promote self-efficacy for all CCPs.

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Dedication

This study is dedicated to my parents Maria and Francisco Garcia for dreaming big in the face of adversity. To my mother for valuing education, and to my father for showing me work ethic and citizenship.

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Section 1: The Problem

Introduction

Historically, the self-efficacy and commitment of certified clinical perfusionists (CCPs) in local perfusion settings across the United States have neither been discussed nor measured. According to the American Board of Cardiovascular Perfusion (ABCP; 2014), CCPs have been entrusted with the important job of providing cardiopulmonary support for a variety of patients. Their role is essential for creating the conditions that allow cardiothoracic surgeons to operate (ABCP). Perfusionists operate a variety of complex devices that provide heart-lung support for adult, neonatal, and pediatric patients undergoing cardiopulmonary bypass surgeries (ABCP).

Because of the complex nature of their job, CCPs are likely to experience work pressures that affect their ability to perform prescribed tasks, interact with team members, and cope with workplace stressors, all of which can impact employees' self-efficacy and commitment (Bandura, 1997; Bui, Hodge, Shackelford, & Acsell, 2011; Kaptanoglu & Demir, 2013; Meyer & Allen, 1991). Of the several studies concerning this topic, none has focused on individual factors (e.g., age, gender, workload, experience, education) and the impact they may have on the commitment of CCPs. The purpose of this quantitative correlational study is to measure the extent to which age, gender, workload, experience, education, and self-efficacy impact the commitment of CCPs in the United States. The theoretical frameworks for this study include Bandura's self-efficacy theory and Meyer and Herscovitch's (2001) organizational commitment model.

Self-efficacy refers to an individual's beliefs about his or her ability to successfully accomplish a specific task (Bandura, 1977). Bandura contends that beliefs about personal efficacy affect individuals' personal choices, including the quality of their performance, their resilience, and their level of motivation (Bandura, 1997). Meyer and Herscovitch's (2001) organizational commitment model explores the concept of an employee's organizational commitment. According to Meyer and Allen (1991), employees stay with an organization for three reasons: their emotional attachment to the organization (*affective commitment*), their effort to avoid the costs associated with leaving the organization (*continuance commitment*), and their sense of obligation to continue working for the organization (*normative commitment*).

To maximize CCPs' work performance, it is imperative that perfusion leaders both identify and understand the factors that affect their self-efficacy and commitment. This correlational quantitative study is an effort to explore levels of self-efficacy and commitment among CCPs in the United States. Data were collected using two pre-established survey instruments to measure CCPs' self-efficacy and commitment. Both the organizational commitment questionnaire (OCQ) established by Mowday, Porter, and Steers (1979) and the work self-efficacy inventory (WS-Ei) established by Raelin (2010) were administered. Data to measure the predictor variables of age, gender, workload, experience, and education were collected using a basic demographic questionnaire and were analyzed using both parametric (multiple regression analysis) and nonparametric (mean, median, standard deviation, range, and frequency) measures. The outcomes of this study could help perfusion leaders implement self-efficacy training for CCPs.

Definition of the Problem

Because of the complex nature of their job, CCPs are likely to experience work pressures that affect their confidence with respect to performing prescribed tasks, interacting with team members, and coping with workplace politics, all which lead to high turnover rates (Bui et al., 2011; Kaptanoglu & Demir, 2013). Local perfusion practices across the United States have reported high turnover rates among CCPs, a problem that was central to this study. High turnover rates impact perfusion practices because of the cost associated with hiring and training new employees. Understaffing results in increased workload, thus increasing job-related stresses in CCPs (Bui et al., 2011). In the acute surgical setting, perfusion errors are more likely to occur when a CCP's ability to perform his or her job is compromised because of understaffing (Ames et al., 2004; Bui et al., 2011; Wahr et al., 2013).

Many factors contribute to differences in levels of self-efficacy and employee commitment. These factors include changes in economic climate, increased workload, alternating shifts, and long, consecutive hours. Such factors have led to job-related stress, fatigue, burnout, and high turnover rates among CCP professionals (Ames et al., 2004; Bandura, 1997; Flin, O'Connor, & Crichton, 2008; Locke, 2009; Trew, Searles, Smith, & Darling, 2011; Wahr et al., 2013).

There is no empirical evidence showing the impact of self-efficacy on CCPs' commitment in local perfusion settings in the United States. A large body of theoretical research conducted in both corporate and educational settings has indicated that higher levels of self-efficacy improve overall work performance and commitment (Bandura,

1997; Locke, 2009; Meyer & Allen, 1991; Meyer & Herscovitch, 2001; Meyer & Maltin, 2010; Meyer, Allen, & Smith, 1993). Despite generous compensation and benefits, the problem of low levels of job commitment among CCPs continues (during the last 3 years, some perfusion setting have experienced turnover rates of up to 75%; community research partner, personal communication, November 18, 2014), indicating an urgent need for evidence-based measures to effectively address the problem.

To predict job commitment, researchers have considered the relationship between the individual and the organization and the extent to which the individual and the organization share common values and goals. Meyer and Allen (1991) note that although the relationship between personal characteristics (e.g., age, gender, experience, or education) and commitment has been established, the association is neither strong nor consistent (p. 69). Empirical researchers have shown that the organization, supervisors, role clarity, and feelings of personal importance play pivotal roles in employees' behaviors toward their job and organization (Bandura, 1997; Meyer & Allen, 1991, 1997; Meyer & Herscovitch, 2001; Meyer & Maltin, 2010).

In recent studies, age has been determined to be a predictor of an employee's self-efficacy and commitment (Salami, 2008). Compared to women, men exhibit higher levels of both general and activity-specific self-efficacy (Dickerson & Taylor, 2000). Workload is associated with high work pressure and lack of clarity, which may have a direct influence on work-related accidents (Ayers et al., 2007; Clarke, 2006; Locke, 2009; Yang, Edwards, & Love, 2004). Recent findings in the healthcare domain have demonstrated that employees with more experience in the workforce experience higher

levels of involvement at work (Thompson, 2006). In healthcare, higher levels of education are associated with both a 5% decrease in the risk of patient death and better patient outcomes (Weinberg, Cooney-Miner, & Perloff, 2012).

The purpose of this quantitative correlational study is to measure the extent to which age, gender, workload, experience, education, and self-efficacy impact the commitment of CCPs in a perfusion organization located in the southern United States. With this understanding, researchers can better isolate variables concerning patterns and behaviors among CCPs. Perfusion leaders, policymakers, and organizations can design evidence-based interventions to increase levels of both self-efficacy and CCP commitment.

Rationale

Evidence of the Problem at the Local Level

The justification for addressing the local setting in the United States underscores both data from survey reports and information from personal communication that show that the job demands placed on CCPs are cause for concern. High turnover rates lead to increased CCP workload, as demonstrated by local survey data in the United States ($n = 445$) concerning CCPs' perceptions of the stress caused by their job demands. The survey data indicate that 76% of CCPs are concerned about the effects of job-related stress on job performance (Trew et al., 2011). In the current economic climate, CCPs experience increased workloads, alternating shifts and long consecutive hours. Survey data show that 69% of CCPs have worked 23 consecutive hours and 18% have worked 36-hour shifts. In addition, 50% of surveyed CCPs admit to experiencing microsleep while monitoring

patients on cardiopulmonary support devices (Trew et al., 2011). The factors leading to CCPs' poor job performance cannot be overstated, because perfusion errors can lead to patient harm. The same survey reports that 66% of CCPs in the United States believe that fatigue led to minor errors during cardiopulmonary bypass and that 7% believe that fatigue was the root cause of serious perfusion accidents (Trew et al., 2011). Turnover in the healthcare industry is a nationwide problem (Hayes, Bonner, & Pryor, 2010).

In six states, the annual turnover rate in acute surgical areas is approximately 55% (Duffield, Roche, Blay, & Stasa, 2011; Hayes et al., 2010). One perfusion organization president (community research partner, personal communication, November 18, 2014) indicated that turnover rates in some perfusion accounts under his administration are as high as 75%. He also stated that knowing how to keep employees motivated and committed is important because the cost of replacing and training a new CCP exceeds a CCP's annual salary. The cost of hiring a locum tenet (i.e., temporary) CCP averaged $1,000 per day (community research partner, personal communication, June 28, 2014).

The community research partner (personal communication, July 8, 2014) also stated that issues that affect employees emotionally are rarely measured by their perfusion organizations. He added that employers might not be aware of evidence-based tools that can be used to identify and address the sources of interpersonal conflicts and commitments among CCPs in the workplace. Employees often complain about work-related stress, workload, and the lack of managerial involvement in addressing employees' overall concerns (community research partner, personal communication, July

8, 2014). These survey data and personal communications demonstrate that more research is needed to investigate the role of self-efficacy in commitment among CCPs.

Evidence of the Problem from the Professional Literature

From the perspective of practicing CCPs, perfusionists are likely to experience lower levels of self-efficacy, which affects their ability to perform prescribed tasks. The stress of their work, increased workload, long working hours, and general economic concerns and issues are only some of the sources of lower levels of self-efficacy that can lead to uncommitted CCPs (Bandura, 1997; Trew et al., 2011). Bandura (1994) asserts that cognitive, behavioral, and personal factors (e.g., stress) interact to determine both motivation and behavior. Trew et al. (2011) argue that job-related stress can affect CCPs' performances, reducing CCPs' self-efficacy and rendering them less able to perform the holistic demands of their work. Self-efficacy may also affect CCPs' desire not only to interact with team members but also to cope with the politics and philosophy of the workplace, which may affect their commitment to both the job and the organization (Ames et al., 2004; Bandura, 1994; Trew et al., 2011). Such working conditions have led to job-related stress, fatigue, burnout, and high turnover rates in perfusion settings (Ames et al., 2004; Trew et al., 2011).

Many researchers in the healthcare domain have demonstrated that the working environment plays a pivotal role in employee satisfaction (Duffield et al., 2011; Kenward & Kenward, 2011; Wilson, Diedrich, Phelps, & Choi, 2011). High turnover rates can impose a financial burden on the organization. (Duffield et al., 2011; Wilson et al., 2011).

Researchers in acute clinical settings have indicated that overall employee performance depends not only on how employees behave in the work setting but also on employees' varying levels of commitment to their job and organization. Employers must identify both the individual and the environmental factors that promote employees' commitment to their job and organization (ElBardissi & Sundt, 2012; Leach, Myrtle, Weaver, & Dasu, 2009; Listyowardojo, Nap, & Johnson, 2011; Manser, 2009; Mazzocco et al., 2009; Wadhera et al., 2010; Weaver et al., 2010; Wiegmann, Henrickson, Wadhera, & Sundt, 2008).

Bandura (1994) asserts that cognitive, behavioral, personal, and environmental factors interact to determine motivation and behavior. For individuals, one of the most influential factors is belief in self-efficacy (Bandura, 1994). Meyer and Allen (1991) examine how individual factors (e.g., age, gender, experience, education) affect commitment. Personal characteristics warrant further exploration because, according to the Accreditation Committee-Perfusion Education (AC-PE; 2014), the perfusion community contains individuals with varied characteristics. Operationalizing personal characteristics relies not only on the role that these variables may play in CCP commitment but also on the interaction between the individual and the work environment.

Examining the broad spectrum of CCP welfare, the results of the Maslach Burnout Inventory (MBI) test administered to CCPs in the United States ($n = 283$) link burnout to antecedent job-related stress. The results indicate that 38% of CCPs in the United States were in the high burnout group (Ames et al., 2004). This study is consistent

with a survey (*n* = 336) by Bui et al. (2011) showing that 18% of CCPs experienced

medium to high levels of job-related stress. CCPs who worked more than 70 hours per

week and handled more than 150 cases per year were more likely to experience emotional

exhaustion, leading to high turnover rates (Ames et al., 2004). The survey data

demonstrate that job-related stress, which leads to lower levels of job performance and

motivation among CCPs, is a concern on a broader scale; this merits investigation

because job-related stress may impact CCP job performance in the surgical setting. The

survey data suggest that more research is necessary to demonstrate what role, if any, age,

gender, workload, experience, education, and self-efficacy may play in the level of

commitment among CCPs.

Definitions

Age: Stages in life, including early adulthood (17-45), middle adulthood (40-65),

and late adulthood (over 60; Lewis & Ryan, 2014).

Commitment: The extent to which an employee commits to a given organization

(Meyer & Herscovitch, 2001).

Experience: The number of years that an employee has spent within an

organization (Teclaw, Osatuke, Fishman, Moore, & Dyrenforth, 2014).

Fatigue: A state of tiredness as an adverse effect of long work hours or rotating

shifts without sufficient sleep (Flin et al., 2008).

Gender: A construct that describes the characteristics, behaviors, and roles

deemed appropriate and expected of men and women by a given society (Courtenay,

2000).

Human factors: Interactions among the job, the individual, and the organization and the manner in which these interactions affect employees' behavior, safety, and well-being (Flin et al., 2008).

Job satisfaction: The overall pleasurable feeling that results from performing one's job (Locke, 2009).

Job-related stressors: The causes of stress, such as job demands, lack of control, lack of clarity, and relationships among individuals and with the organization (Flin et al., 2008; Moos, 2008).

Self-efficacy: An individual's beliefs about whether he or she can successfully accomplish a specific task (Bandura 1977).

Workload: A continuous variable that represents the amount of work expected to be performed by someone within a period of time (Flin et al., 2008).

Significance

CCPs operate complex life-saving devices to support patients' physiological needs during invasive procedures involving the heart and lungs. The job-related stressors caused by the demands on CCPs have led to growing concern among practitioners because of the role that may be played by these stressors in overall CCP self-efficacy and commitment (Trew et al., 2011). Leaders in the perfusion community lack the necessary scientific evidence to understand the factors that can contribute to low levels of self-efficacy and commitment in the workplace (community research partner, personal communication, June 28, 2014; Trew et al., 2011). It is expected that stakeholders in the

studied perfusion context will identify the elements in the individual that impact CCPs' levels of self-efficacy and commitment.

This understanding could help employers in any clinical setting craft evidence-based training to improve staff CCPs' self-efficacy and commitment. The study's results can help employers create tools to retain and hire new employees who have the necessary values, attitudes, and behaviors. A tentative direction for a project would be to develop an online self-efficacy tool to collect data to assess current employees' self-efficacy in the workplace and prospective employees' self-efficacy as part of the interview process.

The entire perfusion practice could be positively affected by the outcomes of the inquiry through the implementation of systematic policies and guidelines to improve self-efficacy and commitment. CCPs with high levels of self-efficacy and commitment could be more satisfied with their job and organization, which may increase employee engagement, work performance, and patient safety. This quantitative study may be replicated in other areas of the surgical setting to determine levels of self-efficacy and commitment among other surgical team members, Moreover, the outcome of this study could be the impetus for researchers to further investigate whether age, gender, workload, experience, or education impact CCP commitment.

Researchers studying the impact of demographic characteristics on self-efficacy and commitment have indicated contradictory findings that warrant further research on the subject (Baker, 2000; Dickerson & Taylor, 2000; Indartono & Chen, 2011; Khalili & Asmawi, 2012; Meyer & Allen, 1991; Newman, 2014; Salami; 2008; Yang et al., 2004). The rationale for the selection of the predictor variables listed above relates to the

aforementioned studies, their current relevance, and their potential impact. However, the primary rationale for the selection of these predictor variables is that they are essential to the basis of the theories of self-efficacy and organizational commitment that ground this study. The development of the statistical tools used in this study continuously demonstrates the relevance of the predictor variables.

The implications for positive social change include a better understanding of how CCPs' self-efficacy and commitment impact individuals, communities, organizations, and job performance. In current perfusion practices, this phenomenon has largely been overlooked by employers. A research-based understanding of the antecedents that lead to poor job performance and commitment could lead to positive social change, resulting in the improvement of human and social conditions in both the workplace and the community. The outcomes of this inquiry could facilitate the development of new ideas in the form of better leadership strategies such as transformational leadership to improve retention, the implementation of actions such as regulated working hours, and the development of evidence-based data collection tools to assess CCPs' self-efficacy and educate the perfusion community. The outcome may also provide perfusion supervisors and administrators with the knowledge to understand how CCPs' self-efficacy and commitment impact job performance in acute surgical settings. This knowledge could also impact the institutions in which CCPs work and the patient communities that CCPs serve, because satisfied individuals may provide better patient care, which may in turn save many lives.

Research Questions and Hypotheses

Employees' self-efficacy and commitment benefit organizations. Happy employees are more likely to perform better and stay longer with an organization (Bandura 1997; Gist & Mitchell, 1992; Locke, 2009; Meyer & Allen, 1991). When an individual's job becomes unmanageable, he or she begins to exhibit symptoms of fatigue and burnout, which can lead to both high turnover rates and unsafe situations in the workplace (Flin et al., 2008; Flin, Winter, & Cakil Sarac, 2009; Locke, 2009). Survey data on perfusion practice have demonstrated that job-related stressors continue to be a concern among perfusionists because these stressors can lead to high turnover rates and their associated costs (community research partner, personal communication, June 28, 2014; Trew et al., 2011). I collected quantitative data to show whether self-efficacy, as measured by the WS-Ei, is a statistically significant predictor of the level of commitment among CCPs, as measured by the OCQ. I also examined other predictor variables, including age, gender, workload, experience, and education, to measure whether they are statistically significant predictors of the level of commitment among CCPs.

I collected the CCPs' levels of self-efficacy and commitment from a national sample of CCPs using the two aforementioned, preestablished data-collection instruments. Data for the predictor variables—i.e., age, gender, workload, experience, and education—were collected with a demographic questionnaire. For this study, I posed the following questions and hypotheses:

RQ1: Does self-efficacy predict level of commitment among CCPs in the United States?

$H_0 1$: Self-efficacy does not predict level of commitment among CCPs in the United States.

$H_1 1$: Self-efficacy predicts level of commitment among CCPs in the United States.

RQ2: To what extent do age, gender, workload, years of experience, or education predict variations in the level of commitment among CCPs in the United States?

$H_0 2$: Age, gender, workload, years of experience, or education does not predict variations in the level of commitment among CCPs.

$H_1 2$: Age, gender, workload years of experience, or education predicts variations in the level of commitment among CCPs.

Review of the Literature

Self-efficacy and organizational commitment were explored within the broader framework of empirical literature regarding age, gender, workload, experience, and education. The literature review involved the Sage, EBSCO, and Thoreau databases, in addition to the Google Scholar search engine. Keywords were used either separately or in combination and included *self-efficacy, sources, collective efficacy, social, theory, organization, organizational commitment, affective, continuance, normative, employee satisfaction, motivation, psychological well-human factors, behavior, attitude, communication, turnover, burnout, fatigue, stress, stressors, work environment, work climate, job-related stress, health care, perfusionists, age, gender, experience, workload, education, leadership, management, work performance, empowerment, autonomy, hierarchy, teamwork, performance appraisal, management style, transformational*

leadership, situation awareness, nontechnical skills, *coworker cohesion, supervisor*

support, task orientation, work pressure, job clarity, managerial control, innovation, and

support.

Theoretical Framework

The theoretical framework that I used in this quantitative correlational study is

Bandura's (1977) self-efficacy theory and the organizational commitment model

established by Meyer and Herscovitch (2001). According to Bandura (1986), self-

efficacy refers to an individual's assessment of his/her capabilities to organize and

execute the actions required to achieve successful levels of performance, whereas Meyer

and Herscovitch (2001) maintain that commitment is "a force that binds an individual to a

course of action of relevance to one or more targets" (p. 301). Ashford and LeCroy

(2010) define commitment as the psychological and the resultant loyalty of an employee

to a given institution. For many years, both constructs have been used extensively across

various domains to predict motivation, involvement, loyalty, and engagement to an

organization. Based on the extant literature, I assume that the predictor variables of age,

gender, workload, experience, education, and self-efficacy are associated with the

criterion variable of commitment.

There is a link between employees' self-efficacy and organizational commitment

and their demographics characteristics. Mensah and Lebbaeus (2013) note the following

predictor variables as directly influencing employee commitment and self-efficacy: age,

gender, workload, and experience and education levels. An unprecedented shift of focus

to human resource management has intensified the debate on the effects of demographic

characteristics (Gist & Mitchell, 1992; Meyer & Maltin, 2010; Mensah & Lebbaeus, 2013) on employees' self-efficacy and their organizational commitment.

Self-Efficacy and Commitment Research Overview

Self-efficacy is widely recognized in the literature as a critical framework within Bandura's (1986) social learning theory (Raelin, 2010). Within this construct, individuals evaluate their abilities to perform a given pattern of behavior. Self-efficacy has the power to significantly explain behaviors such as self-regulation, achievement striving, academic persistence and success, coping, choice of career opportunities, and career competency (Bandura, 1997). One of the most significant contributions of self-efficacy (Gist & Mitchell, 1992; Stajkovic & Luthans, 1998) is its empirical relationship with subsequent performance.

Bandura can be seen as the father of framework development on self-efficacy and therefore should be considered for his past work. Understanding self-efficacy means examining how it operates separately from the concept of ability, although both skills and beliefs are required to attain functional competency in terms of any behavior. Self-efficacy has a direct effect on how anxiety and depression manifest because of a belief or disbelief in one's own capabilities (Hicks & McFrazier, 2014). This effect suggests that either self-efficacy or the lack of self-efficacy not only will determine capability but also will influence how self-evaluation may affect overall health and well-being. In the perfusion setting, stressors that affect CCPs' well-being and self-efficacy may derive from extrinsic mediators such as job demands.

The determination of self-efficacy has long been understood as a component of academic success. For example, individuals who believe that they are good in math are likely to do well in that subject; however, if they believe that they are not good in writing, then they are likely to do poorly (Caprara, Vecchione, Alessadri, Gerbino, & Barbaranelli, 2010). The primary cognitive determining factor of whether an individual will attempt a given behavior lies in self-efficacy expectancy, which translates into an individual's level of motivation to achieve a given task.

Bandura (1977) underpins the pertinent role of an individual's self-beliefs in both the development of human behavior and intrinsic and extrinsic motivation (Ashford & LeCroy, 2010). With reference to social cognitive theory, Ashford and LeCroy assert that self-beliefs effectively anchor the foundation of human motivation, wellness, and individual achievements. With respect to behavior and activity, individuals are predominantly inclined to participate in activities to the extent that they consider themselves proficiently skilled in undertaking those activities. Judge et al. (2007) note that education best exemplifies this inclination because learners are primarily driven to excel in tasks that best suit their self-efficacy. Similarly, self-efficacy theory explores the behavioral and environmental antecedents that are likely to spur self-efficacy in an organization's employees.

Self-efficacy has transcended the academic setting to include the workplace. This transition is not surprising because similar to students in the education setting, employees enter the workforce with various levels of self-efficacy, which are significantly influenced by prior experience, personal qualities, and social support (Bandura, 1997).

This paradigm may be valuable in the perfusion setting because perfusionists (both experienced perfusionists and new graduates) enter the workforce with varying levels of work and life experience and personal characteristics that can influence job performance in the work setting. Modifications of behavior patterns are typically required to align with the skills required to positively affect the work climate in a new work setting. This change, however, may require collective support, effective coaching, and continued positive feedback from supervisors and team members. Bandura finds that the receipt of continued appraisal and support related to goals and performance has a positive influence on individuals' self-efficacy for future training and performance, regardless of domain.

Previous researchers of the predictive nature of self-efficacy have shown that self-efficacy can effectively predict outcomes in many domains. Schunk (1995) cites the work of Bandura (1986), Maddux (1993), and Schunk (1989) in noting that self-efficacy has predicted outcomes such as cognitive skill acquisition, smoking cessation, pain tolerance, athletic performance, career choices, assertiveness, coping with feared events, recovery from heart attack, and sales performance. Regardless of domain, causal models identify a wide scope of domains in which self-efficacy can engender motivation and performance. However, although researchers have underscored the significant role that self-efficacy plays in overall performance and behavior, future research in the perfusion domain may be necessary to test the application of self-efficacy to both training and cognitive skill acquisition, in addition to its implications for theory and research. Given the predictive nature of self-efficacy, self-efficacy can be assumed to play a predictive role in CCPs' commitment.

For many years, Meyer's organizational commitment model has explored the concept of an employee's commitment to a given organization. Meyer and Allen (1997) identify three elements of organizational commitment: affective, continuance, and normative. Based on Meyer and Allen's findings, the three forms of employee commitment indicate variant forms of organizational commitment development among employees, along with the role of individual behavior in the process. *Affective commitment* describes an individual's emotional attachment to the organization; *continuance commitment* explores the costs associated with leaving the organization; and *normative commitment* pertains to one's sense of obligation to continue working for the organization. To maximize CCPs' work performance, it is imperative that healthcare managers who work with CCPs both identify and understand the factors that affect employees' self-efficacy and organizational commitment. However, a review of the literature concerning the impact of demographic characteristics on self-efficacy and commitment reveals contradictory findings (Meyer & Allen, 1991), warranting further research on the subject.

Petrides and Furham (2006) assert that numerous findings by researchers have indicated that employee commitment determines organizational success or failure. Consequently, the extent of organizational commitment directly impacts the institution's effectiveness and performance. In recent years, human resources researchers and scholars of employee commitment have used employees' age, gender, workload, work experience, educational level, and self-efficacy as predictor variables. Baker (2000) further indicates a correlation between organizational commitment and employee empowerment.

Baker (2000) notes that the existence of a given organization's structural and psychological empowerment framework facilitates behavioral dynamics that positively impact the three forms of organizational commitment (affective, continuance, and normative). A critical assessment of employee commitment should examine the role of and relationship between the predictor demographic variables and an employee's attachment to a given institution.

Chi, Yeh, and Choum (2013) identify self-efficacy as one of the primary constructs of organizational commitment. Chi et al. (2013) demonstrate that personality traits have significant and positive influences on self-efficacy, involvement, and commitment. As reported, self-efficacy refers to employees' beliefs in their own capabilities. Bandura (1997) explores self-efficacy as the force that drives employees to organize and further execute the appropriate set actions required to achieve prospective organizational goals. As a social cognitive construct, self-efficacy affects an individual's behavior related to organizational tasks and duties (Fang, 2001). Individuals who exhibit higher levels of self-efficacy are likely to make greater efforts and demonstrate greater commitment while undertaking an organizational task, thus leading to higher performance.

Sahertian and Soetjipto (2011) further note that self-efficacy affects the efforts exerted in a task, persistence, the level of employee interest, and employee classification of task difficulty. Employees with higher self-efficacy demonstrate higher task effort, increased persistence, maximized interest, and higher tolerance for difficult tasks. Meyer, Stanley, Herscovitch, and Topolnytsky (2002) positively correlate task-specific self-

efficacy and organizational commitment. Sahertian and Soetjipto (2011) argue that self-efficacy merely constitutes employees' self-beliefs with respect to the societal or organizational context. Consequently, strong, extensive self-beliefs in organizational tasks lead to increased employee motivation and task performance, thus developing and preserving one's organizational commitment.

Sahertian and Soetjipto (2011) correlate self-efficacy and organizational commitment in their studies of the impact of task-oriented and relationship-oriented leadership. Sahertian and Soetjipto show a positive relationship between self-efficacy and relationship-oriented leadership. Sturges, Guest, Conway, and Davey (2002) note that relationship-oriented leadership that highly promotes self-efficacy among employees leads to the promotion of self-development and the maximization of performance, thus facilitating intellectual development. Meyer and Maltin (2010) suggest that there is now a substantial body of evidence that demonstrates the organizational benefits of a strongly committed workforce. The meta-analytic reviews on this topic demonstrate that employees who are committed to an organization are less likely to leave, are more likely to attend and participate in events and to perform effectively, and are good organizational citizens.

The role of age. Age can have a relationship with how self-efficacy is applied to work situations, and it can influence CCPs' decisions when applying for a job. For both the very young and the very old, stereotypes tend to suggest that neither of these demographics will perform as well as a middle-aged adult because of the belief that the young do not have experience and that the old are beginning to lose their ability to

perform (Hoare, 2012; Lewis & Ryan, 2014). These stereotypes are mostly untrue but support a culture in which both age groups tend to be viewed in terms of lower performance.

In terms of self-efficacy, older adults tend to activate lower memory performance when negative age stereotyping is in place. Furthermore, younger workers tend to conform to the idea that they are inexperienced, thus lowering both their perception of self-efficacy and their performance (Hoare, 2012). The lack of research addressing the role that age may play in CCPs' self-efficacy and commitment is cause for concern—and for good reason. According to the AC-PE (2014), 60% of students admitted to perfusion schools in the United States are between the ages of 26 and 35 years of age, 45% are less than 25 years of age, and only 9% are between the ages of 36 and 45, indicating that age is a factor in the education and hiring of CCPs in U.S. perfusion settings. Although research on aging has yielded mixed results, many researchers have found a relationship between age and self-efficacy and commitment.

Salami (2008) shows that age and work experience are the predominant predictors of an employee's self-efficacy and commitment. Salami indicates that increased age results in higher organizational commitment. The author argues that older individuals spend more time evaluating their roles and relationships in a given institution than do youths, who are more likely to be affected by uncertainties. Salami's findings resonate with studies conducted in India by Nifadkar and Dongre (2014), who note in the analysis of their empirical data that age is a predictor variable that has a positive relationship with organizational commitment. However, the debate on the impact of age on an employee's

self-efficacy and commitment has revealed divergent views. Mensah and Lebbaeus

(2013) argue that age has an insignificant influence on an employee's commitment. Their

counterargument states that an employee's competence and capability are independent of

his/her age.

According to Irshad and Naz (2011), there is a strong positive correlation between

an employee's age and organizational commitment. Similarly, related works on

organizational commitment and job satisfaction by Castillo (2000), Cabrita and Perista

(2000), and Salami (2008) indicate a significant relationship between an employee's

organizational commitment and his/her age level. Irshad and Naz show that older

employees exhibit higher level organizational commitment and job satisfaction than do

younger employees. They argue that older employees have had ample time to

comprehensively evaluate their relationship with a given organization and thus to develop

a higher level of organizational commitment. Younger employees seem undecided about

their ultimate career and thus demonstrate minimal organizational commitment.

As reported by the U.S. Bureau of Labor statistics (BLS, 2010), age is a major

factor in labor-market behavior. Older workers' labor-force participation rates are

expected to increase. By 2018, Baby Boomers will be in the 55-years-and-older age

group. Although age discrimination exists in the labor force, the Age Discrimination in

Employment Act was amended in 1986 to eliminate mandatory retirement based on age.

In addition, older individuals are more educated than their counterparts in the past (BLS,

2010). Individuals with more years of higher education have higher labor-market

participation rates than do those who are less educated. In the current economic climate,

older individuals stay in the labor market longer. Consequently, the participation rate of older workers in the labor market is expected to increase (BLS, 2010).

Age discrimination in the perfusion setting may be linked to prevailing societal stereotypes that older adults lose the ability to perform and learn when they reach a certain age. When considering the impact of age on the ability to learn and perform new tasks, Mast, Zimmerman, and Rowe (2011) demonstrate that decline does not necessarily accompany age. Furthermore, the ability to learn remains until a person is up to 80 years old, at which time changes related to the comprehension of new ideas occur (Mast et al., 2011). This indicates that the implications of age stereotypes in the perfusion setting can be ameliorated through education. The brain does not shrink with age; instead, there are apparently some visible losses in grey and white matter volume in different areas of the brain. Losses in the entorhinal cortex, hippocampus caudate nucleus, and prefrontal cortex, all of which are associated with optimal learning structures for adults, are visible later in life (Mast et al., 2011).

Mehrotra and Vagner (2012) contend that although the capacity to learn is affected by age, someone who has aged normally has a continuing ability to learn. As capacity diminishes, individual life-long effort and discipline have a higher impact on long-term capacities. Salthouse (2009) argues that age-related decline in cognitive functions can be observed in a person's 20s and 30s. This observation suggests that the mind's decline occurs over decades, beginning once childhood has ended and adulthood has begun. Longitudinal and cross-sectional analysis of this topic shows that declines begin earlier than once believed because early testing was masking the real data

(Salthouse, 2009). This lifelong decline is both slow and minor, which means that it may or may not even affect the overall capacity to continue learning. In terms of self-efficacy, prevailing cultural stereotypes of older adults focus on lower expectations in terms of learning and performance. Negative age stereotyping engenders lower levels of motivation (Bandura, 1997; Hoare, 2012), indicating that age stereotyping, and not age alone, may affect how CCPs will perform future tasks.

Approaches to assessing the role of personal characteristics in commitment have considered individuals' interaction with the work environment (Meyer & Allen, 1991). Individuals whose work experiences are compatible with their personal dispositions exhibit a more positive outlook on the workplace. The idea of how the work environment affects the individual's attitude toward the workplace has been described for decades. Researchers have found a positive correlation between organizational commitment and the personal fulfillment of needs, appraisal, and involvement (Ayers et al., 2007; Flin et al., 2008; Gist & Mitchell, 1992; Locke, 2009; Meyer & Allen, 1991; Mowday et al., 1979).

Research on generational differences among certified public accountants by Westerman and Yamamura (2007) focuses on the relationship between the levels of person-environment fit and job satisfaction and organizational commitment intention. Person-environment fit was measured in terms of the similarity between the actual work environment and the preferred work environment. Person-environment fit on the system maintenance and change dimensions (clarity, managerial control, innovation, physical comfort) predicted the intention to remain in a job for members of Generations X and Y

(born 1965-1994; Westerman & Yamamura, 2007). Members of these younger generations tended to be impatient, strongly oriented toward career development and success, and highly mobile; accordingly, they were both less satisfied and more likely to change jobs if a work environment did not meet their needs. Person-environment fit on the goal orientation dimensions and the system maintenance and change dimensions was not associated with job satisfaction or the intention to remain in the job for Baby Boomers (born 1946-1964). Baby Boomers might have valued good personal relationships more strongly, in part due to their well-developed family and social networks and sense of declining mobility (Westerman & Yamamura, 2007).

Klassen and Chiu (2010) examine the relationships among teachers' years of experience, teacher characteristics (gender and teaching level), three domains of self-efficacy (instructional strategies, classroom management, and student engagement), and two types of job stress (workload and classroom stress). The results of the study show that teachers with greater workload stress have greater classroom management self-efficacy. Teachers with greater classroom stress have lower self-efficacy and lower job satisfaction (Klassen & Chiu, 2010). Those who teach young children (in elementary grades and kindergarten) have higher levels of self-efficacy for classroom management and student engagement, and teachers with greater classroom management self-efficacy or greater instructional strategies self-efficacy have greater job satisfaction (Klassen & Chiu, 2010). The result of the study implies that younger generations may increase self-efficacy in older generations when the two work together.

The role of gender. Gender is a construct that describes the characteristics, behaviors, and roles deemed appropriate and expected of men and women by a given society (Courtenay, 2000). Researchers and practitioners in the field of perfusion have not studied the extent to which gender affects job performance. Historically, the perfusion field has been confined to the traditional patriarchal model, meaning that men have historically dominated the field. The study of gender behavior patterns is of great importance because the perfusion field is becoming more diverse. With respect to gender and self-efficacy, stereotypes about gender-based job performance may impact job performance because self-efficacy is mediated by self-efficacy expectations (Bandura, 1997). Stereotypes may play a mediating role in hiring CCPs. Over the last 10 years (AC-PE, 2014), accredited perfusion schools ($n = 14$) in the United States have experienced an increase in female applicants.

Survey results from 2003 to 2012 show that perfusion schools in the United States have attempted to enroll an equal number of male and female students (SC-PE, 2014). While there remains a question about which gender applies to perfusion schools in greater numbers, there is consensus among CCPs (and especially among female CCPs) concerning implicit gender bias among employers. Cardiothoracic (CT) surgery is a male-dominated field. As reported by the American College of Surgeons Health Policy Research Institute (2010), there are 4,143 active CT surgeons in the United States. Although a spike in female applicants has been observed in recent years, female CT surgeons comprise only 5% ($n = 197$) of the entire population of active CT surgeons in the United States. The traditional patriarchal model in the surgical setting may play a

mediating role in the hiring practices of many employers of CCPs, who may feel

pressured to adhere to gender preferences in hiring CCPs to conform to CT surgeons'

preferred practices.

Compared to 30 years ago, today's female perfusionists may experience a more

progressive work environment (Brewer & Mongero, 2013; Wingood & DiClemente,

2000). However, gender biases in the perfusion work setting appear to align with social

stigmas that have been placed on women throughout history. Correll (2007) contends that

many employers perceive women as less dependable and less authoritative but warmer,

more emotional, and more irrational than their male counterparts.

Gilman, who wrote about gender inequities in 1911 (as cited in Wingood &

DiClemente, 2000), suggested that society's expectations of women were to reproduce

and merely accompany and act as subordinate assistants to men. To an extent, researchers

support the idea that women in modern society become defined in terms of their

functional significance to their male counterparts rather than in terms of their own

significance (Wingood & DiClemente, 2000). According to a survey on women's

perceptions of the work climate (Brewer, & Mongero, 2013), female CCPs represent 33%

(n = 1187) of the U.S. perfusion population. However, 77% of female CCPs report being

supervised by male CCPs, and 51% experience gender bias in the workplace. The gender

biases observed by women in the perfusion setting include inequities in pay and

promotion, unfavorable perceptions of competence, and negative perceptions of

maternity leave (Brewer & Mongero, 2013). As postulated by Bandura (1997),

individuals perform according to what is expected of them. The question remains to what extent the role of women in the perfusion setting is affected by the work climate.

In a study on the subject of gender (Dickerson & Taylor, 2000), men exhibit higher levels of general and activity-specific self-efficacy compared to women. Because of their lower self-efficacy and lack of confidence, women have been observed avoiding supervisory positions, whereas men readily participate in many roles (Dickerson & Taylor, 2000). Similarly, Khalili and Asmawi (2012) note that men indicate a higher overall commitment to organizations than do women. However, women are observed to demonstrate higher normative commitment to organizations. Cohen et al. (2000) hold that males are the predominantly favored gender in workplaces, resulting in an increase in their level of workplace satisfaction and commitment.

Based on self-efficacy theory, the resulting differences in task-specific self-efficacy between men and women are caused by various task-specific experiences (Bandura, 1986). Dickerson and Taylor (2000) argue that the observed variation in work value is a function of net rewards: women tend to have a lower commitment due to their low expectation of a final reward. In contrast, in a study of 772 organizational executives in Hong Kong, Ngo and Tsang (1998) indicate commitment is not dependent on gender. The hypothesis is also consistent with studies conducted by Linz (2003) and Weaver (1977).

Cohen (2000) demonstrates that organizational commitment further varies with the employee's gender, although to a much lower extent. Indartono and Chen (2011) note that male and female employees express different sensitivities, behavioral traits, and

motivational responses to work. Indartono and Cohen note that organizational

commitment seems to be higher in males than in females. However, Marsden, Kalleberg,

and Cook (1993) reach a different conclusion, stating that adjusted family and job data

indicate a higher organizational commitment in women than in men. Marsden et al.

(1993) contend that variations in job expectations by gender result in varying levels of

organizational commitment between males and females. Organizational structures are

identified as fostering employee commitment or job satisfaction based on sex by

facilitating participation, integration, individual mobility, and career development (Arya,

Sharma, & Singh, 2012). Institutions with organizational structures that favor female

participation promote the unbiased integration of both genders into the management

process; furthermore, they offer female workers career mobility and development. In

these workplaces, women consequently exhibit levels of employment satisfaction and

organizational commitment higher than those of men (Marsden et al., 1993).

Despite changes in workplace policies to promote equality, women still

experience implicit gender biases beyond those commonly associated with motherhood

(Correll, Benard, & Paik, 2007). In the United States, it is estimated that on average,

employed mothers suffer a per-child wage penalty of approximately 5%. Newman (2014)

shows how gender is implicated in a wide variety of health workforce considerations,

such as promotion, wage differentials, and continuing education. Compared to male

employees (Newman, 2014), female employees are penalized by employers because of

their perceived incompatibility with male work models. Correll et al. (2007) suggest that

employers penalize mothers or women perceived as potential mothers based on

prevailing negative stereotypes of their competence and commitment to their jobs.

Conversely, employers tend to value fatherhood (Correll, et al., 2007), perhaps because

of the perceived commitment and social position associated with becoming a father. In

line with performance expectations theory, employers implicitly expect more competent

task performances from men than from women (Correll et al., 2007).

Verdonk, Räntzsch, de Vries, and Houkes (2014) explore how medical interns

experience and cope with job-related stress and how they reflect on the gendered aspects

of job-related stress. The researchers report that the field of medicine is still described as

having a patriarchal culture. The effort-recovery model explains job-related stress as

deriving from a discrepancy among job demands, job control, and perceived work

potential (Verdonk et al., 2014). The results show that job-related stress mainly evolves

from having to prove oneself and demonstrate competencies and motivation. Female

students are perceived both as having more job-related stress and as studying harder to

meet expectations. Female students are also less likely to speak up during job-related

stress events than are their male counterparts (Verdonk et al., 2014).

Research in the corporate sector by Phelan et al. (1993) finds that compared with

women, male professional and managerial employees enjoy better objective job

characteristics in terms of higher job titles, higher salaries, and more employees

supervised. However, there are no differences in men and women's perceptions of

coworker cohesion and supervisor support (Phelan et al., 1993). In a multiple regression

framework, the employee's gender, objective job characteristics (salary grade, job work

experience, number of employee's supervised), education, marital status, number of

children, and the interaction between gender and each of these potential predictors do not significantly predict the perception of cohesion or support (Phelan et al., 1993). Among women, the sense of mastery predicts more supervisor support. Among both women and men, interpersonal sensitivity (feelings of alienation, anger, and inferiority) predicts the perception of less workplace cohesion and support.

Long, Kahn, and Schutz (1992) examine a conceptual model of work stressors among female managers. Managers who rate higher on personal agency (an optimistic sense of efficacy) view the work climate more positively; in turn, a more positive work climate is associated with higher job satisfaction and more benign appraisals of job-related stressors. More benign appraisals are associated with less reliance on disengagement coping, which is linked to less distress. These findings may imply either that personal characteristics are important in shaping individuals' reactions to their jobs or that these personality characteristics (sense of mastery and interpersonal sensitivity) may be shaped by expectations and opportunities in the workplace. Employee workload is also significant.

The role of workload. Workload is the amount of work expected to be performed by someone or something within a period of time (Flin et al., 2008). Locke (2009) reports that the length of the work week is steadily increasing in the United States to meet the needs of increasing household costs. Reports indicate that three out of five adults believe that it is much more difficult for families to manage work and family life now than it was 30 years ago (Baltes & Clark, 2009, p. 581). The need to balance long hours at work with one's family and personal life is another factor that adds to job-related stress. Researchers

in the work-life and family domain have found a strong negative correlation between job-related stress and family relationships. Job-related stress interferes with attempts to strengthen the family unit, which frequently contributes to the deterioration of spousal relationships (Baltes & Clark, 2009, p. 582). Experts are not surprised by this correlation because an individual's job is part of his/her life (Baltes & Clark, 2009).

Yang et al. (2004) define workload as the intensity of the job assigned to an employee. In their research, Yang et al. (2004) empirically show the significant effects of workload on employees' organizational commitment and self-efficacy. Linz (2003) further notes that workload is a primary source of employee stress. Therefore, excessive stress contributes to low self-efficacy because employees tend to perceive themselves as lacking the prerequisite skills and the adequate knowledge to manage their workload. Yang et al. (2004) write that as a consequence of workload, stress is the primary cause of employee absenteeism, thus affecting employee's organizational commitment.

The prevalence of organizational restructuring and employee downsizing in light of emerging global market dynamics has resulted in a continual workload increase for employees. Similarly, Bersamin (2006) argues that the level of workload management placed on employees impacts their degree of organizational commitment. Perpetual pressure on employees to perform well can result in work burnout, which damages employee effectiveness (Zhou, Lu, Liu, Zhang, & Chen, 2014). Consistent with the burnout theory by Maslach and Jackson, employee burnout exists in the presence of emotional exhaustion, depersonalization, and decreased professional efficacy, contributing to decreased levels of organizational commitment. However, examinations

of the relationship among workload, stressors, and organizational commitment have indicated mixed findings, with some scholars' findings being inconclusive (Michael, Court, & Petal, 2009). Rosenblatt (2001) finds an insignificant correlation among workload, burnout, and organizational commitment. However, in their findings, Rodriguez-Calcagno and Brewer (2005) note that the employee's level of organizational support is the indicative and the determinative factor of both stress and the employee's organizational commitment.

Other researchers in the surgical setting demonstrate that the nontechnical aspects of performance can enhance a surgeon's technical performance; if those aspects are lacking, however, they can contribute to the deterioration of that performance. The precise extent of this effect remains to be explained (Hull et al., 2012). Wadhera et al. (2010) use observations of 18 cases and focus groups to assess team behaviors in the cardiac surgical setting. The objective of the study is to implement protocol-driven communication strategies from the aviation industry in the surgical setting. The National Aeronautics and Space Administration (NASA) Task Load Index is used to identify common critical stages of cardiac surgical cases, such as intraoperative communication. Wadhera et al. (2010) measure cognitive demands among operating-room staff, map critical events, and evaluate protocol-driven communication. Cognitive workload measures demonstrate high temporal diversity among caregivers in various roles. The results of the study show a significant decrease in the frequency of communication breakdowns after the implementation of a structured aviation communication protocol. The results of the study suggest that effective communication can be structured around

critical events in teams with wide variations in cognitive workload, such as surgical teams.

Schaufeli, Leiter, and Maslach (2009) investigate 35 years of research on the concept of career burnout. This overview finds that the concept of burnout seems to be embedded within broad social, economic, and cultural developments that have occurred in the last 30 years and that denote the profound social impact of the transformation from an industrial to a service economy (Schaufeli et al., 2009). These rapid changes align with the psychological pressures experienced by individuals and appear to be the root cause of burnout. Over the last 35 years, burnout has been conceptualized as the loss of a positive psychological state (Schaufeli et al., 2009). Both nationally and internationally, the concept of burnout has been viewed differently either as a medical diagnosis that requires interventions or as a socially accepted nonmedical condition that does not merit psychiatric intervention (Schaufeli et al., 2009).

Clarke (2006) finds that a more negative work environment, as assessed by more work pressure and less clarity, is associated with poorer job communication, less managerial concern for safety, more unsafe behaviors, and more work-related accidents among employees in an automobile manufacturing plant. A negative work environment predicts work-related accidents better than indices of managerial concern for safety and employees' reactions to safety (Clarke, 2006). Accordingly, high work pressure and lack of clarity may have a direct influence on involvement in work-related accidents independent of employees' attitudes toward safety.

Goddard, O'Brien, and Goddard (2006) focus on Australian university graduates who began work as teachers and reported on their work environment on four occasions over a 2-year period. Beginning teachers report more involvement, coworker cohesion, and autonomy at work; however, they also experience less clarity and innovation and more work pressure. Over the 2-year period, teachers perceive less emphasis on involvement, coworker cohesion, supervisor support, autonomy, and clarity, indicating that the work environment becomes more negative over time. Similarly, teachers' feelings of emotional exhaustion and depersonalization increase over time, and their sense of personal accomplishment decreases (Goddard et al., 2006). High work pressure and a lack of innovation at the baseline tend to predict increases in emotional exhaustion and depersonalization and a decline in the sense of personal accomplishment.

Fatigue is a state of tiredness that is an adverse effect of long work hours or rotating shifts without sufficient sleep (Flin et al., 2008). In the CCP domain, Trew et al. (2011) report that the unpredictable nature of cardiopulmonary bypass surgery can lead to extended working hours and subsequently, to fatigue for CCPs. A survey assessing the prevalence of fatigue in CCPs ($n = 445$) shows that 75.9% of CCPs are concerned about the impact of job-related stress on their ability to perform their job (Trew et al., 2011). Although there is a growing concern about mental well-being and job performance among some medical professionals, perfusion leaders believe it is not economically practical to mandate reduced working hours. Only 32% believe that fatigue should be taken more seriously in training CCPs and that specific guidelines should be mandated by perfusion governing bodies (Trew et al., 2011), as is the case in training physicians,

pilots, and transportation-industry workers. Only 13% believe both that the causes of fatigue should be identified and that changes should be legislated and enforced by state or federal authorities. Similar findings are reported by Ames et al. (2004).

Burnout is a loss of enjoyment and interest in performing one's job (Locke, 2009). Blum et al. (2011) report that in the healthcare industry, burnout has become a patient-safety issue.

The Institute of Medicine (OIM) reports that long working hours and sleep deprivation have been standard practice in modern physician training. Research has linked fatigue with deficits in human performance. Catastrophic events over the last 40 years in the aviation and transportation industries, in medicine, and at nuclear power plants have all been linked to deficits in human performance (Flin et al., 2008). The scientific evidence linking fatigue with deficits in human performance demonstrates that fatigue is a public-safety issue. The understanding gained from the scientific evidence has urged the U.S. Congress to further investigate how current medical practices affect patient safety (Wahr et al., 2013). The outcomes of further research in the medical field have fostered initiatives to implement significant changes in the number of hours that residents are allowed to work.

Caruso et al. (2009) support the argument that fatigue not only is associated with systematic cognitive and performance deficits but also puts patients at risk. However, some proponents of maintaining the traditional physician-training model (unregulated working hours) argue that reducing the number of hours that training physicians spend in the clinical setting diffuses direct responsibility for individual patients, thus disrupting

continuity of care and putting patients at risk (Caruso et al., 2009). The implications of human factors (e.g., fatigue) have a major effect on patients' outcomes, prompting policymakers to take action.

Bui, Hodge, Shackelford, and Acsell (2011) examine the factors that contribute to burnout among CCPs in the United States. The purpose of that study is to determine the current level of stress and burnout among CCPs. Its results show a significant relationship ($p<0.05$) between job demand variables such as stress level, conflict, call duties, hours worked, and case load. All of these variables demonstrate a statistically significant relationship with burnout. Bui et al. (2011) show that the CCP job climate continues to change. Many employers of CCPs experience high employee turnover rates, longer work hours, and increased stress related to more-complex procedures. Understanding the sources of professional burnout and stress may enable the formulation of a strategy to help prevent such negative outcomes.

Kaptanoglu and Demir (2013) investigate the level of job satisfaction among CCPs in Turkey. This cross-sectional study is composed of 52 out of 112 randomly selected CCPs from public and private healthcare institutions. The questionnaire contains items about the CCPs' sociodemographic characteristics and an instrument specifically designed to investigate their job satisfaction. Multiple logistic regression models are applied with respect to age, gender, work setting, income, professional evaluation, possibility to improve and qualify, professional relationships, and time spent in the current job. The result of this survey study shows that income, professional development,

and recognition are the most dissatisfying factors, whereas the most satisfying area is professional relationships (Kaptanoglu & Demir, 2013).

The role of work experience. As demonstrated by Khalili and Asmawi (2012), work experience is positively related to employee self-efficacy and commitment. The amount of time spent by an individual practicing and perfecting skills results in the development of self-efficacy toward a given profession. Consequently, more work experience leads to a more potent employee self-efficacy. Bandura (1992) adds that an individual's self-efficacy continues to develop with time and experience such that work experience incrementally but directly translates into the development of self-efficacy. Researchers have found the correlations between years of work experience and organizational commitment to be insignificant (Cohen, 1993; Meyer & Allen, 1984). However, Cohen holds that findings that positively relate work experience to organizational commitment are limited in scope because the results are based on linear correctional analysis.

Indartono and Chen (2011) report that work experience is positively related to organizational commitment. The level of employees' organizational commitment is highly dependent on the extent of the socialization process. The longer the working experience and encounters in an organization, the more advanced organizational commitment becomes. Iqbal (2010) notes that work experience is paramount in the analysis of organizational commitment and job satisfaction because the length of service determines the depth of the employee's internalization of the cultures and values of a given institution. Moreover, more years of work experience expose employees to

increased feelings of responsibility toward a given organization. Employees who are

highly familiar with an institution develop high self-efficacy, permanently underpin their

dependency on the firm, and to a larger extent consider the organization to be a pertinent

constituent of their lives (McConnell, 2006). Employees with more work experience tend

to demonstrate organizational commitment through exemplary attendance records, strict

adherence to organizational policies, and decreased turnover rates. Further studies in

South Korea indicate a decrease in employees' organizational commitment due to the

prevalence of an irregular workforce (Seong, Doo-seung, & Won-woo, 2012).

The role of education. Pandya (2011) contends that "education is an important

agency of social control and social transformation" (p. 28). The studied agency has

provided for a worldwide adoption of the need to provide education to the masses.

However, education suffers from problems of disparity, given the gaps in the types of

education available to the poor compared to the rich and to males compared to females

(Pandya, 2011). Students in most societies age out of their public education systems;

thus, once they pass a certain age, learning is not considered an appropriate service. To

some extent, the economy has changed this idea (Pandya, 2011).

Social constructivist approaches are defined through the development of the ideas

presented by Vygotsky and Piaget. Those approaches are defined by the importance of

culture in providing the social context in relation to cognitive development (Pandya,

2011). There are two basic ideas that drive social constructivism in the classroom. The

first is cognitive or individually developed constructivism, which has been influenced by

Piaget. The second is social constructivism, as defined by Vygotsky (Kalina & Powell,

2010). Both ideas about constructivism are based on teaching tools that include using inquiry as a basis for learning and building on previous experience. Cognitive constructivism, as defined by Piaget, supports the idea that thinking precedes language. Social constructivism supports the opposite notion, i.e., that language precedes thinking (Kalina & Powell, 2010). Bandura (1997) underscores the importance of social support for creating a social context to construct new knowledge and skills. In the perfusion setting, previous experiences, personal characteristics, and social support may be necessary structures to produce the motivation to achieve technical and cognitive skills.

Bandura (1997) asserts that employees' education is positively related to their self-efficacy. Based on the concept of vicarious experiences, education provides employees with an opportunity to learn from professionals who are more experienced and skilled; consequently, employees develop a higher sense of self-efficacy related to achieving the same status. Judge et al. (2007) indicate a significant correlation between educational background and an employee's self-efficacy. Education equips employees with necessary skills and a pertinent professional identity and thus, with a higher level of self-confidence (Judge et al., 2007).

Nifadkar and Dongre (2014) indicate a negative relationship between an employee's organizational commitment and his/her educational background. Employees with a higher educational background exhibit the lowest organizational commitment. This finding is consistent with Salami (2008), who notes that the higher the employee's educational level, the lower the employee's organizational commitment. In contrast, Irshad and Naz's (2011) statistical analysis indicates that higher educational levels among

employees result in increased organizational commitment and job satisfaction. Iqbal (2010) attributes this increased organizational commitment to the higher status and salary packages accorded to highly educated employees. Consequently, higher living standards result in job and organizational satisfaction. Additional studies indicate that employees with higher salaries and favorable employment packages have higher levels of commitment (Iqbal, 2010). Employees with lower education levels, then, tend to underperform due to lower motivation and lack of job satisfaction based on their low remuneration compared to that received by employees with higher degrees.

Weinberg et al. (2012) report that hospital-based research links higher proportions of nurses holding baccalaureate of science in nursing (BSN) degrees to lower risks of patient mortality. Although studies do not explain this mechanism, Weinberg et al. (2012) note that the correlation between higher education and better patient outcomes has led organizations to implement initiatives to hire more personnel with BSN degrees and to incentivize current employees to pursue higher degrees. This initiative has led to a 10% increase in the proportion of hospital nurses holding baccalaureate degrees. Although a relationship between higher levels of nursing education and better patient outcomes exists (Weinberg et al., 2012), a causal relationship is difficult to extrapolate because Weinberg et al. (2012) do not investigate how nurses' education shapes patient outcomes.

Turnipseed (1994) and Westerman and Yamamura (2007) note that institutions that promote personal growth and innovation among employees change employee perceptions about those institutions. Innovation and personal growth promote higher levels of employee commitment and are associated with more debate, dynamism, trust,

challenge, support, and discussion of new ideas, along with less conflict within the organization (Turnipseed, 1994; Westerman & Yamamura, 2007). Overall, the results suggest that personal growth and innovation improve or enhance both the quality of work and the work environment. Studying healthcare, Bower (1979) shows associations between nurse practitioners' practice settings and their clinical performance. Nurses who seek personal growth place greater emphasis on the quality of their work relationships, provide improved care, and have more influence on patient care; furthermore, patient satisfaction is higher. Researchers in the education domain have reported similar findings.

Compared to teachers with less professional development, those who have more years of training perceive their school work environment as higher in involvement, coworker cohesion, supervisor support, task orientation, clarity, managerial control, and innovation. As a result, they also experience lower work pressure (Shechtman, Levy, & Leichtentritt, 2005). Schechtman et al. (2005) indicate that more-educated teachers report higher self-efficacy. Moreover, teachers who believe that education contributed to their professional development tend to have more positive perceptions of their school work environment.

The results of these studies align with the previous work by Bandura (1997), who notes that personal growth plays a role in self-confidence in taking on complex tasks. In the acute surgical setting, teams are organized by professional background and/or seniority (Flin et al., 2009). More-educated individuals may acquire more self-confidence to offset the barriers that hierarchical communication models place in employees' path.

Perceived rank or status influences behaviors such as speaking up or challenging other team members in addressing errors (Flin et al., 2009). Teams in high-stress settings such as the operating room are structured within the hierarchical boundaries of their jobs (e.g., doctors, nurses, and surgical technicians, in that order.) In this context, lower-ranking employees may be afraid to offer input because even valid input from subordinates may be rejected. Moos and Schaefer (1987) state that how employees perceive the aesthetics of the physical environment may affect their mood in the workplace.

Stajkovic and Luthans (1998) demonstrate that self-efficacy influences many areas of human affairs, including (but not limited to) vocational choice and career pursuits, health behavior and physical functioning in sports psychology and medicine, along with educational achievement in children and adolescents. Those researchers show that self-efficacy is indeed related to performance by studying the underlying mechanisms of the relationship between self-efficacy and work-related performance. A follow-up analysis shows that meta-analytic results (based on 6,128 groups) reveal that collective efficacy is significantly related to group performance.

Stajkovic, Lee, and Nyberg (2009) suggest that future research should convert their findings to a probability of success index to help facilitate practice. Judge et al. (2007) question the unique contribution of self-efficacy to work-related performance. Controlling for personality, intelligence, general mental ability, and job or task experience, they present results based on a meta-analysis to show that self-efficacy predicts performance in jobs or tasks of low complexity but not those of medium or high

complexity. Additionally, self-efficacy predicts task performance but not job performance (Judge et al., 2007). Overall, the predictive validity of self-efficacy is attenuated in the presence of individual differences, although this attenuation is context-dependent.

The role of human factors. Human factors include how the job, the individual, and organizational interactions affect employees' patterns and behaviors (Flin et al., 2008). The application of human interaction-factor principles can be traced to the military and the aviation industry (Flin et al., 2008). The application of human interaction factor principles to aviation flight safety has enhanced equipment design, the work environment, and human performance. Unlike previous research focusing exclusively on the worker (ElBardissi & Sundt, 2012; Flin et al., 2009), researchers studying in hospital settings should consider organizational and human factors from the perspective of patient safety.

Studies of high-risk settings in the airline industry, unlike those in the healthcare industry, have linked effective team functioning to safety (Mazzacco et al., 2009). The surgical setting shares a similar working model with settings in the airline industry—in both contexts, teams work together with instruments and complex technology in a high-risk milieu. There is little explicit research linking the impact of team dynamics in the surgical setting to improvements in patient safety and outcomes.

Through structured observations of 149 surgical team members, Mazzacco et al. (2009) find that teams that exhibit cohesion during surgical procedures are less likely to experience adverse outcomes. Participants' behaviors that are more likely to cause death

or complications include a lack of information sharing during the surgical-procedure and patient-handoff phases. The root causes of medical errors are thus located in team behavior. The Institute of Medicine (IOM) has emphasized the need to promote cohesive team behavior in surgical settings in a continued effort to identify the root causes of unintentional patient harm (Mazzacco et al., 2009). A sentinel event is an unexpected occurrence that involves death or serious physical or psychological injury or the risk thereof (Joint Commission on the Accreditation of Healthcare Organizations [JCAHO], 2011). Breakdowns in communication account for 70% of the root causes of 2,455 sentinel events reported by hospitals to the JCAHO (Flin et al., 2009).

Human Factors and Communication Failures

Communication is the transfer of information, ideas, or feelings (Flin et al., 2009). One of the leading causes of injuries in the workplace is a lack of effective communication (Weaver et al., 2010). Agencies that accredit and certify hospitals in the United States such as JCAHO have reported that nearly 70% of sentinel events in the healthcare setting are caused by a lack of teamwork and communication (Weaver et al., 2010). Evidence from the healthcare domain suggests that ineffective communication contributes to unintended patient harm. The World Health Organization has identified organizational and human factors that influence patient safety. Human factors in the healthcare setting include individuals' actions and reactions related to the organization and to the job itself and the manner in which these behaviors affect the psychological state of the individual who cares for the patient (Flin et al., 2009). The promotion of a

culture of safety involves how an organization addresses employees' job-related stress (Flin et al., 2009).

Job performance. Reports from JCAHO (Weaver et al., 2010) indicate that in a sample of 196,462 providers, 79% feel positively about the teamwork in their work setting and 62% report a positive view of team communication among their teams. However, only 44% of team members feel that there is effective communication during patient handoffs (e.g., giving a report about a patient to another team member; Weaver et al., 2010). Communication is a critical element during patient handoffs in all domains of medicine, but it is imperative in high-risk areas such as the surgical setting. In the surgical setting, the patient handoff is the time when critical information about the patient is transferred to the surgical team (Weaver et al., 2010).

Other researchers have validated previous studies that assert that the leading causes of errors in surgical settings are breakdowns in communication and team cohesion (McCulloch, Rathbone, & Catchpole, 2011). Assessments of the work environment in previous studies that have sought to improve the attitudes, technical skills, and efficiency of surgical teams have shown a correlation between team training and improved patient outcomes. However, there is an absence of reliable research that explicitly focuses on the study of teams in surgical settings. Of 1,036 articles, only 14 randomized and nonrandomized studies assert that team training has improved patient safety and outcomes (McCulloch et al., 2011). More research is required to better assess the benefits of team education in the clinical setting.

Team performance. Ineffective communication in the clinical setting may be obstructed by the team structure (Flin et al., 2009). In the surgical setting, teams are organized by professional background or seniority. Perceived rank or status can influence behaviors of self-beliefs, affecting the ability to speak up or challenge other team members in addressing errors (Bandura, 1997; Flin et al., 2009). Understanding a team's dynamics can help supervisors more effectively achieve organizational goals and employees' goals. The organizational culture represents a team's shared perceptions of organizational policies, practices, and procedures that can only be accomplished through effective communication (Flin et al., 2009).

In recent years, healthcare organizations have begun to assess the aviation industry's team-functioning model for implementation in surgical settings (Flin et al., 2009). The adaptation of evidence-based team-functioning strategies from the aviation industry to the surgical setting is not surprising, because the surgical setting has a working model similar to that of the airline industry: Teams work together with instruments and complex technology in a high-risk milieu. However, team dynamics in the surgical setting are complex and pose many challenges. Ineffective communication in the clinical setting may be caused by the hierarchical nature of the team structure (Flin et al., 2009; Moos & Schaefer, 1987). In the surgical setting, teams are organized by professional background and/or seniority. Perceived rank or status influences the team member's self-confidence about challenging other team members in addressing errors (Bandura, 1997; Flin et al., 2009). Teamwork also plays an important role in patient safety. Teamwork and leadership style have been associated with better employee

engagement and welfare, which may impact a practitioner's ability to care for patients (Manser, 2009).

Leach et al. (2009) assess the performance of surgical teams. Team-behavior cohesiveness is an important component of service delivery. The researchers in this qualitative inquiry observe the behavior of 10 high-performing and high-reliability surgical teams. Their study emphasizes on patient safety in acute-care hospitals. A key factor in patient safety is the understanding of the nature of surgical teams and the factors that affect team performance. Although research in this area is limited, it is pivotal to understanding the influence of both working conditions and the environmental context on surgical team performance. Leach et al. (2009) show that the type of job clarity and the degree of autonomy vary among the seven observed stages of the surgical process. The overall implications of this study are that in high-performing and high-reliability environments such as those of CCPs, job clarity, communication, and effective leadership can contribute to a successful surgical result, improvement in the overall process, error reduction, and enhanced knowledge creation and dissemination (Leach et al., 2009; Manser, 2009). Positive patterns in communication, coordination, and leadership are fundamental for effective team performance (Manser, 2009). Researchers studying teamwork and patient safety in the surgical domains have shown that despite significant progress, better instruments and theoretical models of team performance must be developed to design interventions that address specific team performance problems (Manser, 2009).

Job-Related Stress

Stress is the adverse effect that people experience when excessive demands are placed on them (Flin et al., 2008). Stress is a major concern in the workplace because it impacts employees' overall welfare (Dijkstra, Beersma, & Evers, 2011). Over the last 2 decades, scholars and practitioners have emphasized the effects of stress on job productivity and performance. However, few scholars and practitioners have focused on the effects of stress on individuals' health (Dijkstra et al., 2011). Occupational stress is pervasive among healthcare workers and is related to workload, inadequate time off, and restricted autonomy. These factors can result in emotional exhaustion and aversion to patients; failure to address stressors can affect patient care.

In a hospital setting, most errors occur when critical tasks are performed under job-related stress (Flin et al., 2009). In the United States, 41% of surgical residents report that 32% of their most serious mistakes in the clinical setting were caused by fatigue (Flin et al., 2009). Similarly, 61% of anesthesiologists and nurse anesthetists admit to making mistakes when fatigued. However, 60% of these clinicians believe that they can perform their tasks effectively during surgeries when fatigued, indicating that clinicians may fail to recognize their levels of exhaustion (Flin et al., 2009). Organizations should pay more attention to conflict in the workplace as an indicator of stress-related outcomes, such as job-related stress. Individuals with a greater internal locus of control suffer less from job-related stress (Dijkstra et al., 2011).

Health. In addition to the emotional implications of job-related stress, the medical implications of stress have been well documented (Stojanovich, 2010). Flin et al. (2008)

report that 17 out of 24 studies find a significant association between low job-related stress and cardiovascular disease. Although the etiology of autoimmune disease is multifactorial and includes genetic, environmental, hormonal, and immunological factors, an association is found between physical and psychological stresses in the development of autoimmune disease (Flin et al., 2008; Locke, 2009; Stojanovich, 2010). Researchers of animal and human models have demonstrated the effects of stressors (e.g., workload) on immune function. A high proportion (up to 80%) of patients report uncommon emotional stress before the onset of disease. Thus, the need for coping strategies through multidisciplinary care interventions is evident.

Researchers' findings have frequently associated differences in employee patterns and behaviors imposed by work demand among variables such as age, gender, experience, working overtime, management, and the receipt of emergency calls from home (Queiros, Kaiseler, Dias, & Pereira, 2013). The numerous researchers who have addressed stressors in the workplace have asserted that the topic should be given more urgent attention in the clinical setting because job-related stress affects job productivity, performance, and employees' overall health (Dijkstra et al., 2011). Few scholars and practitioners have focused their efforts on the effects of stress on individuals' health (Dijkstra et al., 2011).

Employees' perceptions of the workplace affect both work quality and performance (Mosadeghrad, Ferlie, & Rosenberg, 2011). Job-related stress can negatively affect employees' work life in the healthcare domain and is associated with hostility, aggression, absenteeism, turnover, and poor job performance. A major

consequence of stress in the clinical setting is the quality of healthcare services provided by healthcare workers in critical-care settings (Mosadeghrad et al., 2011). Mosadeghrad et al. (2011) find that employee behaviors toward the job and the organization emanate from low salaries, a heavy workload, a lack of recognition and managerial support, and high levels of pressure to complete tasks quickly. The recognition of job-related stress should be of particular interest to healthcare institutions because it is associated with low productivity, workplace accidents, and turnover (Hilton, Sheridan, Cleary, & Whiteford, 2009). The study implies that job-related stress has a direct impact on employees' overall quality of life.

Work environment. In the workplace, stressors emanate from job demands, lack of control, leadership, role clarity, and relationships both among individuals and with the organization (Flin et al., 2008; Moos, 2008). Data in the form of scores that assess employee perceptions of the workplace are among the most important pieces of information that organizations can collect (Locke, 2009). Nevertheless, many organizations question the relevance of allocating resources to collect employee data (Locke, 2009).

In qualitative studies, employees and managers indicate that the factors that affect employee behaviors toward the job and the organization are neither discussed, measured, nor given sufficient importance (Judge & Klinger, 2009, p.107). Nonetheless, the ramifications of employee patterns and behaviors affect all domains in the workplace, including employees' quality of life. Employee perceptions about the work environment predict not only managerial effectiveness but also a wide range of employee behaviors

that can affect their self-efficacy and commitment (Bandura, 1997; Flin et al., 2009; Locke, 2009; Meyer & Herscovitch, 2001). Historically, the relationship between self-efficacy and commitment has rarely been measured, which has contributed to the lack of reliable research establishing strong correlations between the two. Researchers have suggested that if organizations are interested in understanding the causes of employee patterns and behaviors related to the workplace, then the best place to look is in the work environment itself (Judge & Klinger, 2009).

Listyowardojo et al. (2011) compare employees' attitudes about and perceptions of institutional practices that influence patient safety among all professional groups in a hospital setting. A questionnaire is used to measure nine dimensions of organizational and safety culture. The 2,995 participants include physicians, nurses, clinical workers, laboratory workers, and managers. Listyowardojo et al. (2011) suggest that interventions to promote safety culture should be tailored to the target group, given that attitudes and perceptions may differ among groups. The significance of understanding groups' attitudes and behaviors lies in the analysis of the IOM's landmark reports, which in recent years have estimated that 44,000-98,000 people in the United States die in hospitals each year because of preventable medical errors, thus making medical errors the eighth-leading cause of death. The results of this study speak to the urgency of identifying the issues that affect employees' work performance to formulate systematic solutions.

Employee burnout. Scholars and practitioners in clinical settings have shown that employees and supervisors are vulnerable to the physical and psychological demands

of their jobs (Nahrgang, Morgeson, & Hofmann, 2011). In many healthcare domains (e.g., those of CCPs), tasks require sustained physical and psychological stamina to address emotional conflicts and task overload. Job pressure has been associated with burnout, absenteeism, and poor performance. Stress and physical demands in the healthcare domain have been associated with employee fatigue, which can lead to employee injuries or medical errors that themselves lead to patient fatalities (Nahrgang et al., 2011). A meta-analysis of 203 independent samples ($n = 186{,}440$) shows a relationship between job demands and safety outcomes (Nahrgang et al., 2011). Job complexity compromises employees' health and is positively related to burnout (a leading cause of low job performance), which suggests that a supportive environment can promote employees' engagement, knowledge, and autonomy (Nahrgang et al., 2011).

Burnout is the loss of enjoyment and interest in performing one's job (Locke, 2009). Many workplace stressors lead to burnout (e.g., workload, job demands) Queiros et al. (2013) identify predictors of burnout in the clinical setting with a sample of 1,157 men and women from various hospitals in Portugal. The results of the study show that gender, age, experience, overtime, managers, job satisfaction, and emergency calls at home are predictors of burnout (Queiros et al., 2013). Researchers should focus on sociodemographic, work, and personality factors to understand burnout. The implications of these findings should be considered when designing burnout-prevention programs in the clinical setting (Queiros et al., 2013).

Leadership and coping. Research in many domains indicates that leaders are recognized as sources of job-related stresses in the workplace. Numerous reports from

employees about sources of job-related stress have found that 60%-70% of American employees regard their immediate supervisor as a source of stress (Locke, 2009). However, effective management is one of the top mediators in coping with job-related stress. A sample of 402 individuals from numerous organizations reveals that effective managers are identified as peers and superiors. Stress management is ranked second on a list of 10 skills attributed to managers (Locke. 2009). Coping with stress requires a cooperative approach. Researchers have noted the importance of social support as a mediating variable in coping with job-related stress; social support includes friends, family, colleagues, and professional interventions (Flin et al., 2008). Coping with stress also involves mediators such as diet, exercise, and sufficient sleep. People who exercise are more likely to effectively cope with stress and to have reduced fatigue (Flin et al., 2008).

Wiegmann, Eggman, El Bardissi, Parker, and Sundt (2010) emphasize teamwork, communication, leadership style, and the organization's role in almost every industry's quality and safety. As in most industries, healthcare is a team-based profession. Although there is only a limited amount of research in the healthcare domain that addresses the impact of team dynamics on patient care, in recent studies, researchers have recognized that poor communication and teamwork are the root causes in a large percentage of sentinel events within healthcare domains. Forty-five percent of the variance in the errors committed during cardiac cases is generally clustered around issues of miscommunication, lack of coordination, failures in monitoring, and lack of team familiarity. Wiegmann et al. (2010) note that mental resiliency is a key factor in

ameliorating a surgical team's impact on patient care because resilience is reflected not only in the ability to remain calm following ineffective attempts to remedy problems but also in the ability to maintain a belief throughout a problem that it is ultimately resolvable.

El Bardissi et al. (2008) observe 31 cardiac surgical cases to identify factors that affect team dynamics. Although there have been few efforts to prospectively collect data on team dynamics, the significance of this study rests on previous research findings that suggest that teamwork failures are strongly associated with the occurrence of surgical errors. Surgical team structures are also evaluated in an effort to identify whether those structures have an impact on surgical team performance. The results of this study show a strong correlation between the occurrence of technical errors and teamwork failures. The results indicate interventions to improve teamwork and communication, such as preoperative briefings, revised approaches to the structuring of operative teams to favor members who have gained familiarity with the operating surgeon, standardized communication practices, and postoperative debriefings (ElBardissi et al., 2008).

Implications of Employee Turnover

Replacing employees has financial implications. The cost of replacing an employee in the acute healthcare setting is at least twice the employee's annual salary (Duffield et al., 2011; Wilson et al., 2011). Although scholars and practitioners have observed increased turnover rates among critical-skills personnel (e.g., CCPs, nurses) for many years, the root causes of this pattern have not been properly addressed (Duffield et al., 2011). In the United States, 35% of newly graduated nurses resign from their

positions within 1 year, and 57% leave within 2 years (Duffield et al., 2011). In the healthcare industry, critical-skills personnel such as CCPs, nurses, and surgical technicians are vulnerable to job-related stress, which contributes to increased turnover rates because of the stressful working environment created by job demands, workload, and the role's required critical-care skill set. As a result, the yearly turnover rate in surgical fields is approximately 55% (Duffield et al., 2011; Hayes et al., 2010). Kenward and Kenward (2011) stress the importance of identifying the root causes of employees' job-related stresses to formulate strategies to address this issue.

Impact of work climate. Work climate refers to the circumstances or situations that may harm employees' interests, including their health or welfare (Moos, 2008). Horizontal hostility in the workplace negatively contributes to work climate (Wilson et al., 2011). Horizontal hostility, also referred to as bullying, manifests in behaviors such as infighting among coworkers, sabotage, eye-rolling responses, and/or rude remarks made with the intent to demean or expose an individual's private matters (Wilson et al., 2011). Horizontal hostility has serious implications for employee retention in clinical settings. Studies show a strong relationship between horizontal hostility and employee turnover rates. A sample of more than 230 healthcare organizations in the United States shows that employers spend more than $300,000 for every 1% increase in the nursing turnover rate (Wilson et al., 2011). In 2002, the cost of replacing a nurse, after adjusting for inflation, ranged from $82,000 to $92,000 and was as high as $145,000 for a specialized nurse. Although studies have not been conducted in the perfusion environment, inferences can be drawn from other healthcare areas. A turnover rate of 19% in a hospital with 500

nurses has been calculated to cost the organization between $7.8 and $9 million (Wilson et al., 2011).

The effects of horizontal hostility on an organization's financial viability are frequently ignored or minimized, suggesting that supervisors pay more attention to employees' perceptions of hostile behavior. However, supervisors frequently lack the tools required to educate staff, managers, and leaders to minimize horizontal hostility (Wilson et al., 2011). Institutions should not only identify horizontal hostility but also provide effective systems and processes to address this type of behavior when it occurs, because it has a profound impact on employee commitment (Flin et al., 2008, p. 161; Wilson et al., 2011).

Impact of leadership style on self-efficacy and commitment. A leader is an individual who has been appointed to direct and manage others' work in a group (Flin et al., 2008). Good leaders lead with charisma and inspiration to unite and motivate followers to accomplish shared goals and visions (Flin et al., 2008). Researchers in the corporate sector have proclaimed that organizational effectiveness not only contributes to improvements in work performance but also reduces absenteeism and turnover (Al-Hussami, 2009).

Duffield et al. (2011) highlight leadership style as the primary factor that contributes to turnover in the clinical setting. Employees' perceptions of a good leader underscore someone who engages the employee in solving problems, shows flexibility in scheduling assignments, appears highly available and approachable, and offers recognition and appraisal (Duffield et al., 2011). A high turnover rate has consequences

across all levels of care in a clinical setting. Inexperienced managers lack the necessary skills to address and resolve interpersonal and intrapersonal situations. Patient safety and productivity are jeopardized when numerous new employees are in training (Duffield et al., 2011).

Supervisors should adopt leadership styles that foster team cohesion to lead workers toward a common vision (Flin et al., 2008; Locke, 2009). The extent to which employees are committed to their jobs largely depends on the amount of support offered by their supervisors. Employees who are encouraged to explore new ideas to improve their practice tend to be more involved and committed to the organization (Ayers et al., 2007; Bandura, 1997).

Supervisors who apply effective leadership styles are able to motivate employees to accept more difficult challenges and follow procedures, thus promoting self-belief, motivation, and loyalty to the organization (Bandura, 1997; Mullen, Kelloway, & Teed, 2011). Managers who appraise and value employees' contributions and opinions are likely to promote better job performance. Furthermore, a strong association between this type of management behavior and greater safety compliance and employee involvement has been found (Mullen et al., 2011). Research findings show that when leaders communicate effectively, their subordinates experience higher levels of satisfaction (Madlock, 2008), thus linking effective leadership communication with self-efficacy and commitment (Madlock, 2008). There are also important associations among communication, leadership, and employees' job and communication satisfaction (Madlock, 2008).

Impact of satisfied employees. In the healthcare domain, researchers have demonstrated that collaborative approaches among critical-skills personnel (e.g., CCPs, nurses) and their supervisors are essential to increase employee satisfaction (Hayes et al., 2010). The satisfaction of critical-care personnel is pivotal because it positively influences the satisfaction of their patients (Boey, 2012). In the current healthcare environment, the financial implications of patient dissatisfaction have a profound impact on hospital reimbursement; however, patient satisfaction in critical-care settings is rarely measured. Current studies show a positive correlation between the manner in which caregivers perceive their work environment and patient satisfaction. Thus, establishing a relationship between the caregiver and the manager is pivotal in achieving both caregiver and patient satisfaction (Boey, 2012).

Shortages in critical-care personnel in surgical settings are common worldwide. By 2020, there will be a shortage of nursing professionals in the United States, resulting in a workforce that is 20% below anticipated requirements (Hayes et al., 2010). Shortages of healthcare professionals are not isolated to the field of nursing. In the perfusion setting, shortages of perfusionists also appear to be on the rise. Stress is a significant cause of turnover, poor morale, poor patient outcomes, and financial costs in acute care units. Understanding the causes of employee dissatisfaction may help retain critical-skills personnel (Hayes et al., 2010). In addition, Hayes et al. (2010) maintain that employee satisfaction is a multifactorial phenomenon that may involve all or a combination of the following factors: coping mechanisms, autonomy, coworker reciprocity, direct patient care, organizational policies, effective resources, and opportunities for education.

Implications

The implications for positive social change include a better understanding of how CCPs' self-efficacy and commitment impact the individual, the community, the organization, and job performance. A research-based understanding of the antecedents that lead to job-related stresses may lead to positive social change, resulting in the improvement of human and social conditions at multiple levels. The outcomes of this inquiry may facilitate the development of new ideas in the form of both better leadership strategies to improve working conditions and the implementation of actions designed to promote CCPs' worth, dignity, and development. This outcome could help perfusion supervisors and administrators gain new understandings and thus improve job performance and retention in surgical settings. This knowledge may impact the institutions for which CCPs work and the patient communities that CCPs serve because satisfied individuals may provide better patient care that may in turn save many lives.

This project's directions depend on the study's outcomes. I intend to develop an online tool to collect data to evaluate both current employees and prospective employees (as part of the interview process). For current employees, the tool will include a self-administered questionnaire for self-evaluation and external evaluation by the supervisor. Based on the average scores of the self-evaluation and the external evaluation, current CCPs will receive automated feedback concerning what steps to take to improve their self-efficacy. For prospective employees, the tool will include a self-evaluation and an external evaluation by the references provided by the interviewee. The average scores of the self-evaluation and the external evaluation will produce a score that will help the

employer make a hiring decision. This tool will be specific for CCPs, and it will be based on Raelin's (2009) WS-Ei.

This project may provide tools for leaders and managers in the CCP profession to implement improvements in CCPs' working conditions, leadership, and management. The findings of this research can be used by managers and leaders in the CCP profession to influence policymakers to create better health programs for CCPs and other healthcare workers.

The results of the study can help employers create tools to hire new employees who have the values, attitudes, and behaviors required by each employer. The entire practice of perfusion could be positively affected if perfusion leaders use the results of the inquiry to implement training and systematic policies and guidelines to improve self-efficacy in the workplace. This quantitative study could be replicated in other areas of the surgical setting to determine levels of self-efficacy and commitment among other surgical team members. Understanding the mechanisms of self-efficacy is important, because CCPs with high levels of self-efficacy may be more committed to the job and the organization in light of the fact that self-efficacy increases employee satisfaction, engagement, and work performance. Finally, the outcome of this study may prompt new studies to investigate whether age, gender, workload, experience, and education impact CCPs' commitment.

Summary

Numerous studies conducted in many sectors, including the corporate, education, and healthcare domains, have demonstrated the benefits of self-efficacy and commitment

to the overall health of employees and their organizations. Satisfied employees are likely to perform job-related tasks better than are employees with job-related stress. Similarly, research findings show that satisfied employees are more likely to stay with their organizations for a longer time. Organizations that collect data to assess employee behaviors and perceptions about both the job and the organization are more likely to develop evidence-based strategies to address the antecedents that lead to fatigue, dissatisfaction, and turnover. Supervisors who provide feedback and appraisal, and who are concerned about the overall well-being of their employees, enjoy high levels of employee commitment to their job and their organization.

The above assertions provide the basis for investigating the relationship of self-efficacy and employee commitment in the CCP domain. The demanding roles of CCPs have led to a growing concern among practitioners regarding CCPs' job-related stress and the role it may play in CCPs' overall self-efficacy and commitment. In perfusion practice, data assessing the attitudes and behaviors of CCPs are scarce. Guided by the theories of self-efficacy and organizational commitment, this quantitative correlational study may show the relationship (if any) between the predictor variables of age, gender, workload, experience, and education and self-efficacy and the criterion variable of commitment. In Section 2, I present an overview of this study's methodology, including the operationalization of the variables, the study design, the population and sample, ethical considerations, instrumentation, and data-analysis methods.

Section 2: The Methodology

Introduction

In the healthcare domain, it is a challenge to hire and retain employees with critical skills (Bandura 1997; Locke, 2009). Not all employees perform or commit to their job and the organization in the same manner (Meyer & Maltin, 2010). The purpose of this quantitative inquiry is to investigate not only the relationship between self-efficacy and commitment among CCPs in the United States but also the extent to which the predictor variables of age, gender, workload, experience, and education impact CCPs' commitment. In Section 2, I present an overview of the methodology used for this study, including the research design and approach, the setting and sample, instrumentation and materials, data collection and analysis, and the study's assumptions and limitations.

Research Design and Approach

A correlational design was selected as the most appropriate research method to collect the data needed to answer the research questions and test the hypotheses presented in Section 1, given that the objective was to examine the potential relationships among the variables (Cooper & Schindler, 2005; Creswell, 2005; Johnson & Christensen, 2007; Neuman, 2006). Numerical data allowed me to test my hypotheses using parametric analyses to estimate the relationships between the predictor and criterion variables and descriptive tests to examine the measures of central tendency and dispersion (Creswell, 2005; Leedy & Ormrod, 2004). I tested whether self-efficacy, as measured by the WS-Ei, is a statistically significant predictor of the level of commitment among CCPs, as measured by the OCQ. I collected data to investigate whether age, gender, workload,

experience, and education are significant predictors of the level of commitment among

CCPs.

A correlational design aims to identify the nature of the relationships among

variables using trends, meanings, and suggested characteristics. Correlational designs are

used when independent variable variation has already occurred (Creswell, 2012). For this

study, I had no control over the predictor variables; the variation in the predictor

variables occurred naturally before data collection. Triola (1998) asserts that the basic

purpose of a correlational study is to determine the relationship among variables—but not

the cause of that relationship.

Sample and Setting

The local setting of the project study is a perfusion organization located in a

southern U.S. state. The perfusion organization employs $n = 50$ CCPs with various

characteristics (e.g., age, gender, workload, experience, and education). Although the

project was local, a national sample provided a de facto representation of the local setting

because the available participant pool in the local setting was $n = 50$, and this small

sample size did not provide sufficient power for the planned analyses (see the power

analyses set forth below).

Power analysis (Faul et al., 2009) for multiple regression was performed with

G*Power 3.1.9.2. Using the F test, a small effect size of $f^2 = 0.07$ was selected to provide

a conservative estimate for sample size calculations. An alpha of 0.05 was selected

because it is the most commonly used value in social-science research. A power of 0.80

was selected because social-science research accepts that this power has the ability to

detect the probability of a high Type II error. Six predictor variables were used to complete the power analysis. The results of the power analysis indicated that I needed a sample of 202 participants to power the study.

Instrumentation and Materials

Data for this study were collected using two instruments, the WS-Ei (Appendix D) and the OCQ (Appendix F). The two preestablished survey scales collected CCPs' self-efficacy levels (WS-Ei) and commitment levels (OCQ); the scales were administered together to examine the relationship between the predictor variable of self-efficacy and commitment among CCPs. To reach members of the perfusion community, I used professional perfusion organizations' online message boards, specifically Perfusion.com (PDC) and the American Society of Extracorporeal Technology (AmSECT). Mind Garden, an independent publisher of psychological assessments and instruments, created a link to the survey site. The link contained one overall instrument that included the implied consent, basic demographic questions (see Appendix B), and the preestablished tools mentioned above.

Work Self-Efficacy Inventory

The WS-Ei is a 30-item survey that measures the participant's work self-efficacy (WSE) as a predictor variable; it takes approximately 10 minutes to complete. The WS-Ei is a self-assessment that allows participants to reflect on their confidence in their ability to perform a variety of workplace activities (Raelin, 2010). The WS-Ei is organized into seven dimensions (Learning, Problem Solving, Pressure, Role Expectations, Teamwork, Sensitivity, and Work Politics) with individual scores and one overall composite index.

To compute scores for each of the subscale dimensions, I summed the participants' values for all of the items in each subscale. Overall work self-efficacy was the composite score that measured each respondent's overall confidence in managing him/herself well in the workplace. The WS-Ei uses a 5-point Likert scale with the following responses: (1) *not at all confident*, (2) *a little bit confident*, (3) *moderately confident*, (4) *very confident*, and (5) *completely confident*. The overall work self-efficacy is the sum of all of the scores from each of the 30 items, which ranged from 30 to 150, in the survey.

      Work self-efficacy inventory reliability. Raelin (2010) reports two studies to support the reliability of the WS-Ei. The first study used a sample of 1,638 sophomore undergraduate students. Raelin states that the study calculated a Cronbach's alpha coefficient of internal consistency for the full scale of 0.94, which is above the recommended 0.70. For the second study, a sample of 496 managers in a manufacturing industry was selected, and a strong Cronbach's alpha of 0.97, which is also above the recommended 0.70, was calculated (Raelin, 2010).

      Work self-efficacy inventory validity. Raelin (2010) posits that the inventory has consistently shown strong convergent and discriminant validity. To ensure face and content validity, the original version of the inventory was submitted for content analysis by 66 expert judges who were either faculty or administrative staff affiliated with some of North America's major universities (Raelin, 2010). According to Raelin, through multiple regression analysis, researchers conducting a study with engineering faculty in 2007 found that co-op experience was the most important predictor ($p < 0.01$) for a high work self-efficacy level. Raelin explains that this finding lends a degree of convergent

validity to the WS-Ei because early work experiences are theorized to both shape and enhance existing work self-efficacy among young workers.

Organizational Commitment Questionnaire

The OCQ is a 15-item survey that measures the criterion variable of employee commitment (EC); it takes less than 5 minutes to complete. I rated the items on a 7-point Likert scale with the following anchors and associated scores: (1) *strongly disagree*, (2) *moderately disagree*, (3) *slightly disagree*, (4) *neither disagree nor agree*, (5) *slightly agree*, (6) *moderately agree*, and (7) *strongly agree*. The final OCQ score is the sum of all of the scores from each of the 15 items on the questionnaire.

Organizational commitment questionnaire reliability. Mowday, Porter, and Steers's (1979) OCQ has been used with significant success to assess employees' levels of commitment to the workplace. The reliability of the OCQ is well documented, with Cronbach's alpha values between 0.82 and 0.93 (Mowday et al., 1979). According to Kanning and Hill (2013), the instrument has shown a retest reliability of 0.59 over a 10-week period.

Organizational commitment questionnaire validity. Positive associations were found (Kanning & Hill, 2013; Mowday et al., 1979) between job satisfaction and readiness to remain with the organization. Negative correlations were found with regard to the intention to leave the organization. The results of the aforementioned studies lend a level of divergent validity to the OCQ. Kanning and Hill perform confirmatory factor analysis to test the construct validity of the OCQ. Their results show a comparative fit index (CFI) of 0.95, a goodness of fit index (GFI) of 0.91, and a root mean square error

of approximation (RMSEA) of 0.07. Both CFI and GFI show a good fit for the construct of the OCQ because both have values above 0.9. RMSEA shows a good fit if its value is below 0.05. Because both CFI and GFI indicate a good fit and because the RMSEA of 0.07 is low, it can be concluded that the one-factor structure is confirmed, thus indicating the construct validity of the OCQ. The numerous tests performed on both the WS-Ei and the OCQ have indicated that the instruments are both valid and reliable.

Operationalization of Variables

Age. I collected age data using a basic demographic questionnaire. Age is a continuous variable (Creswell, 2012) ranging from 18 to 100 years.

Employee commitment (EC). I measured EC with the participants' scores from the OCQ; I also measured employees' commitment to their companies. EC is a continuous variable (Creswell, 2012) ranging from 1 to 7. I obtained the final scores from the sum of the 15 items on the OCQ. The range was 15 to 105.

Education. Education is an ordinal variable (Creswell, 2012) with four levels. An associate's degree had a value of 1, a bachelor's degree had a value of 2, a master's degree had a value of 3, and a doctoral degree had a value of 4. I collected education data using the demographic questionnaire.

Years of experience. I collected experience data with the demographic questionnaire. Experience is a continuous variable (Creswell, 2012) ranging from 0 to 50.

Gender. I collected gender data with the basic demographic questionnaire. Gender is a dichotomous variable (Creswell, 2012) with levels of either male or female. I coded gender data by assigning males a value of 1 and females a value of 0.

Workload. Workload is a continuous variable (Creswell, 2012) that was measured using the number of cases worked by the participant in the past year. I collected workload data with the demographic questionnaire. To maintain certification/licensing, a perfusionist must work a minimum of 40 cases per year, which gave this variable a range from 40 to 365.

Work self-efficacy (WSE). WSE measured the work self-efficacy of the participant using the score obtained from the WS-Ei. WSE is a continuous variable (Creswell, 2012) ranging from 1 to 5. I obtained the final scores from the sum of the 30 items on the WS-Ei. The range was 30 to 150.

Data Collection and Analysis

I used convenience sampling. The sample was drawn from 4,000 U.S. CCPs. The survey was made available on professional perfusion organizations' online message boards to all U.S. CCPs who were willing to participate in the study. The content moderators of Perfusion.com and the American Society of Extracorporeal Technology approved the content of the survey and posted a survey link on online message boards to invite all U.S. CCPs to participate. After the moderators posted the invitation link, all members of the perfusion organizations noted above received automated email notifications. The email contained information about the study and a direct link to the survey. CCPs could take the survey by clicking on the link contained in their email notification, or they could do so by logging in to the organizations' websites. The content moderators linked the servers to the CCPs' personal e-mail addresses; however, their personal e-mail addresses were not viewable either by other CCPs or by me. I did not

have access to any CCPs' personal contact information. I contacted the moderators by email each time I needed to repost the invitation link.

I obtained written permission from Mind Garden to use the WS-Ei (Appendix C). The OCQ can be reproduced and used for noncommercial research and educational purposes without seeking written permission (Appendix E). Mind Garden provided the survey results to me in a comma-separated value (CSV) file for analysis; it did not track identifiers, including Internet Protocol (IP) addresses. I will keep password-protected electronic copies of the results for 5 years in a locked office and delete those electronic files after 5 years in accordance with the guidelines of Walden University's Institutional Review Board (IRB).

I did not require a signed consent form because the participants expressed their implied consent by clicking on the survey link, after which they were directed to complete the survey (Appendix B). The survey contained a description of the study, including its purpose and goals. My contact information and Walden University's IRB contact information were made available to the participants in the event that they had questions or concerns. Follow-up messages were posted by the managers of the aforementioned message boards until I collected 264 responses, which exceeded the minimum of 202 that I needed. It took me 14 days (February 25 to March 10) to collect the data, and no additional data were collected after March 10.

Data Analysis

I performed all of the statistical analyses using the Statistical Package for the Social Sciences (SPSS) for Windows (Kirkpatrick & Feeney, 2012). To describe the

distribution of data (Creswell, 2012), the measures of central tendency for all of the continuous variables in the study (e.g., age, experience, workload, WSE, and EC) are presented below. Frequencies and percentages were included for all of the categorical and ordinal variables to observe how often values for the variables (e.g., gender and education) occurred (Creswell, 2012). All of the inferential tests used a 95% level of significance because this is the most commonly used significance level in social-science research to detect a Type I error.

I checked assumptions prior to data analysis. Assumptions included the absence of outliers, normality, linearity, and homoscedasticity. Multiple regression analysis is robust for deviations from normality provided that the homoscedasticity assumption is met (Kirkpatrick & Feeney, 2012; Tabachnick & Fidell, 2012). I performed visual inspection of a histogram and normal Q-Q plots on the criterion variable of the study to check for deviations from the normality assumption. The normality assumption was met. I checked the plot of residuals by performing a regression analysis to confirm multicollinearity. The homoscedasticity assumption was met. Tabachnick and Fidell note that the transformation of variables can frequently cause more trouble compared to not transforming. After the study met the homoscedasticity assumption, I used the raw, untransformed criterion variable values of EC for analysis.

Multicollinearity is defined as a correlation of 0.90 or greater (Tabachnick & Fidell, 2012). I checked the evidence of multicollinearity between any pair of predictor variables (age, gender, workload, experience, education, and WSE) to determine whether the omission of one of the variables was necessary or whether the retention of all six

variables was more appropriate. The predictor variables of gender, workload, and education were not assessed further. However, age and experience were determined to be useful control variables in any additional analysis.

Results

In the following section, I present the results of the data analysis. I conducted a multiple regression analysis to examine the relationship between self-efficacy and commitment among CCPs in the United States. In addition, I collected data on demographic variables, including age, gender, workload, experience, and education, to test the relationship between these predictor variables and commitment. Finally, I examined the relationship between self-efficacy and commitment while controlling for the demographic variables.

Demographic Information

To conduct the analyses noted above, I gathered responses from 264 participants. Prior to the analysis, I examined items for missing responses. I removed the scores of 13 participants who had one or more responses missing among the items used to calculate commitment or self-efficacy. Of the final sample of 251, most of the respondents were male (63%) and had a bachelor's degree (59%). Twenty-seven participants indicated that they had earned an associate's degree (11%), whereas 64 indicated that they had earned a master's degree (26%). The remaining six respondents (2%) had earned doctorates. Nearly equal numbers of the sampled participants worked at hospitals (57%) and in private practices (42%).

I sorted the participants into separate age groups based on life stages. A majority fell into the mature adulthood (50-80 years of age) age group (55%), whereas fewer participants were classified as belonging to early adulthood (20-34 years of age; 15%) or midlife (35-49 years of age; 27%). I did not place seven participants (3%) into one of the three groups because they did not indicate age. Table 1 presents the frequencies and percentages for the demographic information.

Table 1

*Frequencies and Percentages for Sample Demographics (*N *= 251)*

Demographic	*N*	%
Gender		
Female	91	36
Male	157	63
Missing	3	1
Highest level of education		
Associate's degree	27	11
Bachelor's degree	149	59
Master's degree	64	26
Doctorate	6	2
Missing	5	2
Practice type		
Hospital	144	57
Private	105	42
Missing	2	1
Age		
Early adulthood (20-34)	37	15
Midlife (35-49)	68	27
Mature adulthood (50-80)	139	55
Age not indicated	7	3

Next, I assessed the continuous variables to calculate the means and the standard deviations to describe the sample in more detail. Actual participant ages ranged from 25 to 71 years and centered to a mean of 50 years of age (*SD* = 11). The participants

indicated between 1 and 44 years of practicing perfusion ($SD = 11$) and between three

and 300 cases per year, with an average of 121 cases ($SD = 51$). The participants also

reported the number of CCPs in their organization; the sample included individuals

whose organizations included between one and 1,100 CCPs. The average number of

CCPs in an organization was 32 ($SD = 113$). Table 2 shows the means and standard

deviations for the continuous descriptive data.

Table 2

Means and Standard Deviations for Sample Demographics

Variable	min.	max.	*M*	*SD*
Age	25	71	50.03	11.14
Years practicing perfusion	1	44	23.04	10.90
Cases per year	3	300	121.27	51.11
Number of CCPs in organization	1	1,100	32.54	113.08

Next, I assessed the psychometric scores for self-efficacy and commitment for the

overall averages and averages within each of the life-stage groups. Self-efficacy was

measured using the WS-Ei, whereas commitment was measured using the OCQ. For the

WS-Ei, self-efficacy scores range from 1 to 150, and possible commitment scores on the

OCQ range from 1 to 105. Within the group of early adults ($n = 37$), the average self-

efficacy score was 124 ($SD = 15$), and the average commitment score was 70 ($SD = 18$).

In the midlife group (35-49 years of age), the average self-efficacy score was 126 ($SD =$

13), and the average commitment score was 70 (*SD* = 20). In the group of mature adults,

the self-efficacy scores centered on a mean of 129 (*SD* = 14), and the average

commitment score was 73 (*SD* = 21). The overall self-efficacy scores centered on a mean

of 127 (*SD* = 14), whereas the overall commitment scores centered on an average of 72

(*SD* = 20). Table 3 presents the means and standard deviations for each age group's self-

efficacy and commitment scores.

Table 3

Mean Self-Efficacy and Commitment for Each Age

Score	Overall (*n* = 244)		Early adulthood (20 - 34) (*n* = 37)		Midlife (35-49) (*n* = 68)		Mature adulthood (50 - 80) (*n* = 139)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Overall Self-efficacy	127.50	14.46	123.86	14.61	125.96	12.74	129.12	14.35
Commitment	72.07	19.97	70.30	18.46	69.68	20.03	73.09	20.89

Note. Seven participants did not indicate an age and were not included in age group tabulations.

I assessed continuous variables to calculate the means and standard deviations to

describe the mean self-efficacy scores between male and female CCPs. With respect to

the participants' gender, there were 157 males and 91 females. Three participants were

excluded because they did not report gender. The mean self-efficacy score for males was

127 (*SD* = 15). The level of the self-efficacy scores of the female participants was 128

(*SD* = 13). The mean self-efficacy scores for men and women were 128, with a slightly

higher SD for males. Table 4 presents the means and standard deviations for the

continuous descriptive data.

Table 4

Mean Self-Efficacy and Commitment for both Genders

	Overall (n = 248)		Male (n = 157)		Female (n = 91)	
Score	*M*	*SD*	*M*	*SD*	*M*	*SD*
Overall Self-efficacy	127.39	14.37	127.21	15.08	127.70	13.14

Research Question 1

Does self-efficacy predict level of commitment among CCPs in the United States?

$H_0 1$: Self-efficacy does not predict level of commitment among CCPs in the United States.

$H_1 1$: Self-efficacy predicts level of commitment among CCPs in the United States.

To examine Research Question 1, I conducted a simple linear regression to investigate the predictive relationship between self-efficacy and commitment. Prior to the analysis, I removed any cases with missing data for the OCQ scale, which left me with 251 cases. I also assessed the assumptions of the regression. The assumption of normality was assessed using a normal P-P plot, whereas the assumption of homoscedasticity was assessed using a standardized residual scatterplot (Figure 1). The normal P-P plot did not substantially deviate from the normal line, and the study met this assumption. Similarly, the residual scatterplot did not greatly deviate from a random rectangular distribution. This assumption was also met (Stevens, 2009).
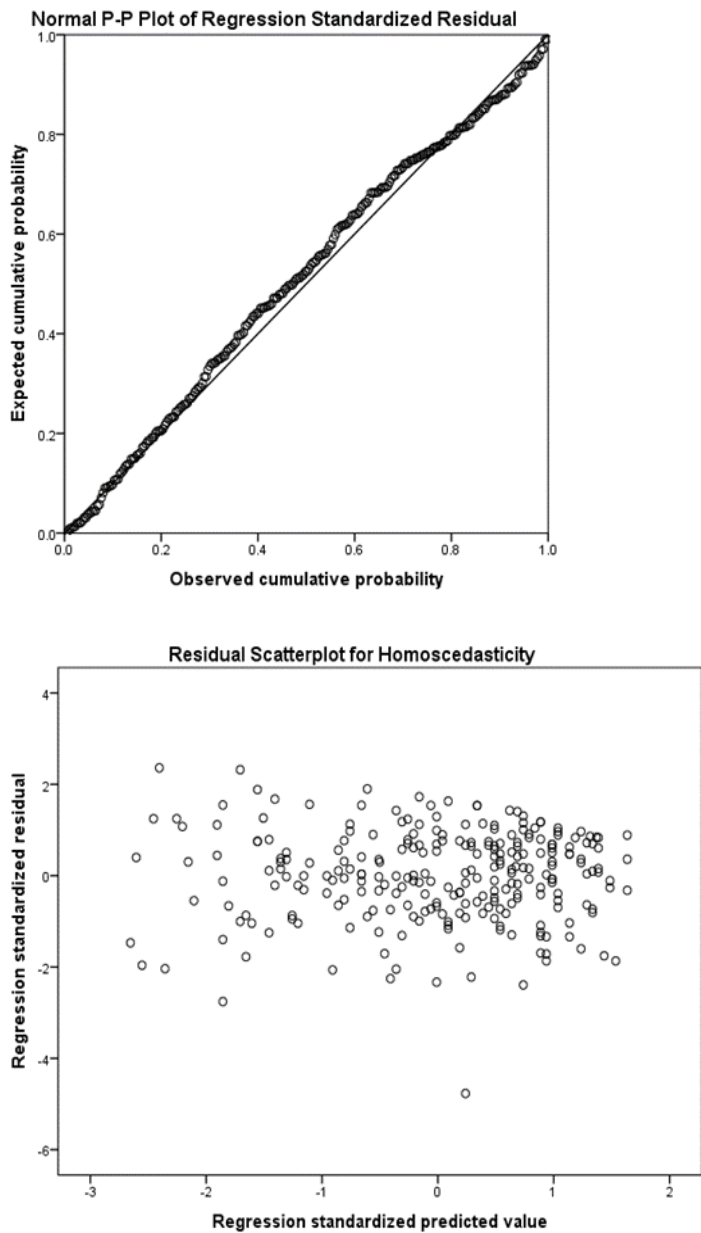
Figure 1. Assumption plots for normality and homoscedasticity OCQ on SE.

The results of the regression of commitment on self-efficacy indicate a good model fit ($F(1,249) = 39.86$, $p < 0.001$, $R^2 = 0.14$), and the null hypothesis was rejected in favor of the alternative. These results indicate that (R^2) participants' corresponding self-efficacy scores explained approximately 14% of the variance in the commitment scores.

Because I determined a significant model, I further assessed the individual predictor of

self-efficacy. An examination of the standardized beta (β) using Cohen's (1988)

guidelines suggests a medium-strength direct relationship between self-efficacy and

commitment. This positive association indicates that an increase in self-efficacy

corresponds to an increase in commitment. In addition, an examination of the

unstandardized beta (*B*) of 0.52 suggests that an increase in one unit of self-efficacy

corresponds to an increase of 0.52 units in the commitment scores. Table 5 presents the

results of this regression analysis.

Table 5

Simple Linear Regression of Commitment on Self-Efficacy

Variable	*B*	*SE*	β	*t*	*p*
Self-efficacy	0.52	.08	.37	6.31	< .001

Note. B = unstandardized beta, *SE* = standard error, β = standardized beta, *t* = *t* test

statistic, *p* = probability value.

Research Question 2

To what extent do age, gender, workload, years of experience, or education

predict variations in the level of commitment among CCPs in the United States?

H₀2: Age, gender, workload, years of experience, or education does not predict

variations in the level of commitment among CCPs.

H₁2: Age, gender, workload years of experience, or education predicts variations

in the level of commitment among CCPs.

To examine Research Question 2, I conducted a multiple linear regression to investigate the predictive relationship between the demographic variables of interest and commitment. Prior to the analysis, I assessed the regression's assumptions. The assumption of normality was assessed using a normal P-P plot, whereas the assumption of homoscedasticity was assessed using a standardized residual scatterplot (Figure 2). The normal P-P plot did not substantially deviate from the normal line, and this assumption was met. Similarly, the residual scatterplot did not greatly deviate from a random rectangular distribution. This assumption was also met (Stevens, 2009). I assessed issues of multicollinearity by examining variance inflation factors (VIFs), and multicollinearity was determined to be nonproblematic in this model.
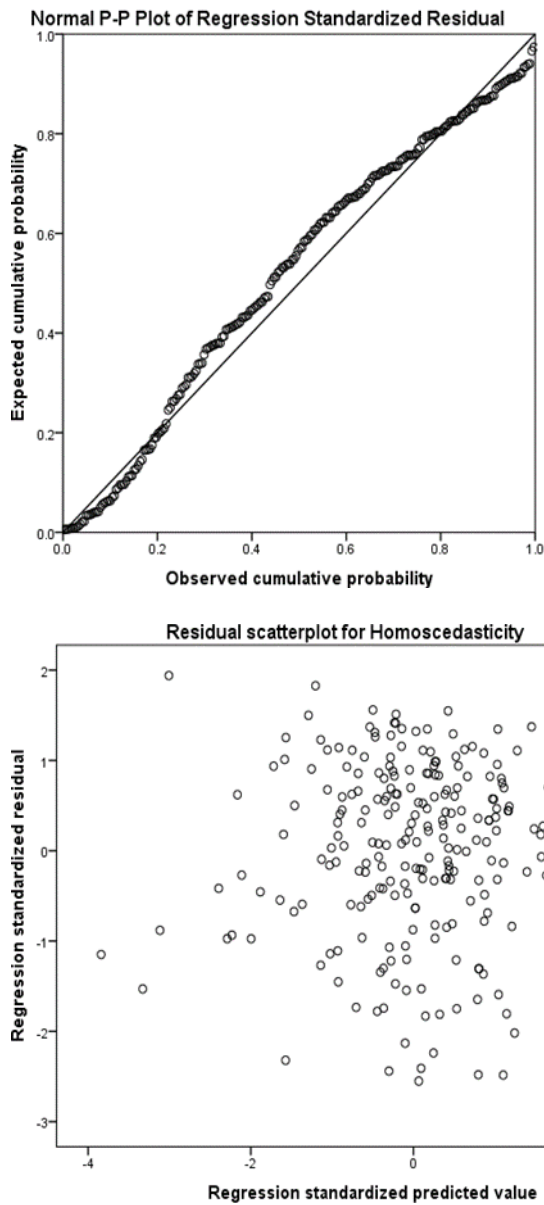
Figure 2. Assumption plots for normality (above) and homoscedasticity (below) of OCQ

on demographics variables.

The results of the regression of commitment on the demographic variables of

interest do not indicate a good overall model fit ($F(5, 230) = 1.37$, $p = 0.235$, $R^2 = 0.03$),

which indicates that a linear combination of age, gender, average number of cases per

year, years of practice, and education does not contribute to a significantly predictive

model. For the purposes of this specific analysis and research question, I did not further

assess the individual predictors, and the null hypothesis was not rejected (Tabachnick &

Fidell, 2012).

However, a post hoc power analysis conducted on this result indicated that I had

only achieved a power of 0.65, which indicates that the analyses were underpowered.

Results in this case should be interpreted with caution because the type II error rate is

elevated, indicating that one may erroneously fail to reject the null hypotheses. For

assessing significant covariates, the individual predictors of age ($t = -2.09$, $p = 0.038$) and

years of practice ($t = 2.52$, $p = 0.012$) were determined to be potential confounding

factors. Although I did not further assess the results of this analysis, the covariates of age

and years of experience were determined to be useful control variables in any additional

analysis. Table 6 presents the results of this regression analysis.

Table 6

Multiple Linear Regression of Commitment on Demographics (N=236)

Variable	B	SE	β	t	p
Age	-0.63	0.30	-.35	-2.09	.038
Gender (ref: 0 = female)	1.44	2.83	.03	0.51	.610
Education	1.27	2.21	.04	0.57	.568
Years of practice	0.79	0.31	.42	2.52	.012
Average cases per year	-0.01	0.03	-.01	-0.18	.855

Note. B = unstandardized beta, *SE* = standard error, β = standardized beta, *t* = *t* test

statistic, *p* = probability value.

Age and Years of Practice

As an ancillary analysis, I again assessed the relationship between self-efficacy

and commitment while controlling for the contribution of age and years of practice to

these commitment scores. To assess the aforementioned covariates and self-efficacy as

two separate constructs, I conducted the analysis in two steps. In Step 1, I used the

regression to assess the overall contribution of age and years of practice to the

commitment scores alone. In Step 2, I entered the self-efficacy scores into the model. An

examination of the two steps enabled the effect of the covariates to be divided so that I

could examine the self-efficacy score, because it corresponds to commitment beyond the

effects of age and years of practice (Urdan, 2010).

Prior to the analysis, I assessed the assumptions of the regression. The assumption

of normality was assessed using a normal P-P plot, whereas the assumption of

homoscedasticity was assessed using a standardized residual scatterplot (Figure 3). The

normal P-P plot did not substantially deviate from the normal line, and the study met this

assumption. Similarly, the residual scatterplot did not greatly deviate from a random

rectangular distribution. This assumption was also met (Stevens, 2009). I assessed issues

of multicollinearity by examining VIFs, and multicollinearity was determined to be

nonproblematic in this model.
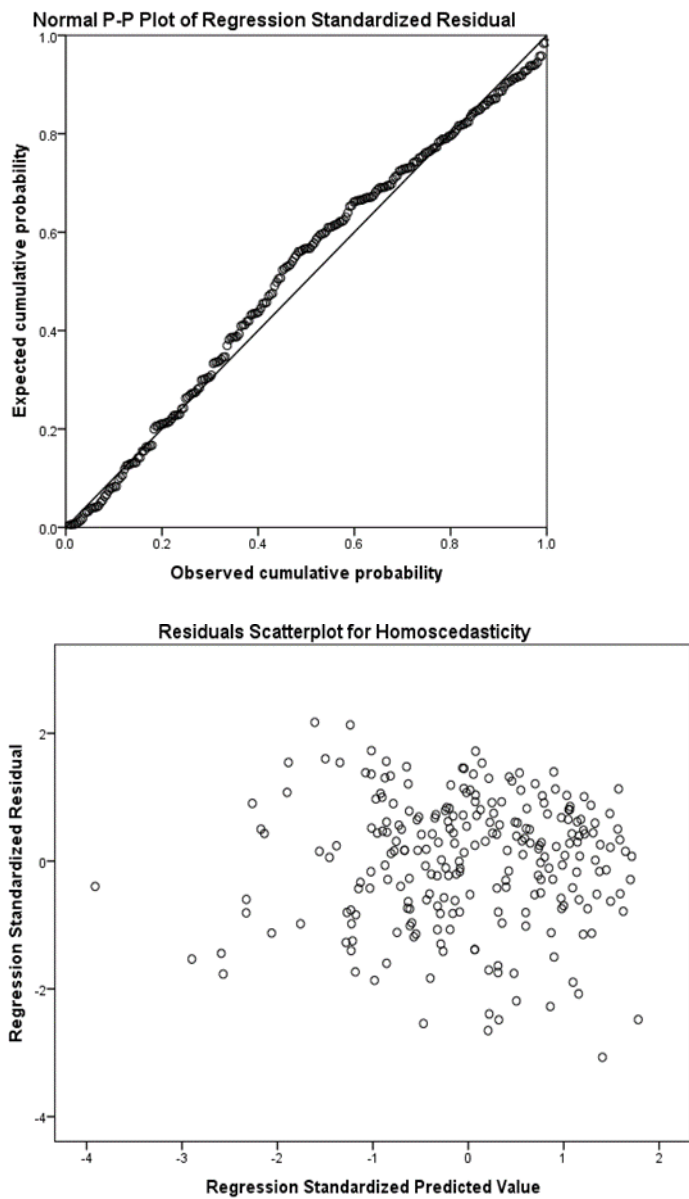
Figure 3. Assumptions plots for normality (above) and homoscedasticity (below) of OCQ

on SE with demographic control variables.

This first step of the model did not have a significant fit ($F(2,240) = 2.86$, $p =$

0.059, $R^2 = 0.02$), which indicates that a linear combination of age and years of practice

did not have a statistically significant overall relationship with the commitment scores.

However, a post hoc power analysis conducted on this result indicated that I had only

achieved a power of 0.50, which indicates the analyses were also underpowered. Results in this case should be interpreted with caution because the type II error rate is elevated, indicating that one may erroneously fail to reject the null hypotheses. The R^2 coefficient in this step suggested that these two demographic variables may contribute to as much as 2% of the variation in the participants' commitment scores. In the next step, the self-efficacy scores were entered into the model, and the model converged to a significant fit ($F(3,239) = 14.55$, $p < 0.001$, $R^2 = 0.15$). I assessed the change in R^2 values first, which suggests that the self-efficacy scores corresponded to an additional 13% of the variability in the commitment scores beyond that explained by age and years of practice alone.

In the final model, only self-efficacy was found to be significant ($t = 6.09$, $p < 0.001$). Using Cohen's (1988) guidelines, an examination of the standardized beta (β) for self-efficacy suggested a medium-positive relationship between self-efficacy and commitment after controlling for age and years practicing perfusion. This positive association further indicates that an increase in self-efficacy corresponds to a significant increase in commitment. In addition, an examination of the unstandardized beta (B) of 0.55 suggests that an increase in one unit of self-efficacy corresponds to an increase of 0.55 units in the commitment scores after controlling for the effects of age and years of practice. Table 7 presents the results of this regression analysis.

Table 7

Multiple Linear Regression of Commitment (OCQ) on Self-Efficacy (WS-Ei) while Controlling for Age and Years of Practice (N = 243)

Variable	B	SE	B	t	p
Step 1 (R^2 = .02)					
Age	-0.57	0.29	-.32	-1.97	.050
Years of practice	0.70	0.30	.38	2.35	.020
Step 2 (R^2 = .15)					
Age	-0.27	0.28	-.15	-0.99	.323
Years of practice	0.26	0.29	.14	0.92	.360
Self-efficacy	0.55	0.09	.38	6.09	.000

Note. Note. B = unstandardized beta, *SE* = standard error, β = standardized beta, *t* = *t* test statistic, *p* = probability value.

Role of the Researcher

In quantitative research, participants act independently of the researcher. My role in this quantitative study was limited to administering the survey, analyzing the data, interpreting and reporting the summary of the findings, and making recommendations (Lodico et al., 2010). I have no personal relationship with any of the participants, given that these were professional discussion groups. The participants were not my subordinates, and I did not pressure or coerce the participants to participate in the study. My role as the researcher was not combined with any other role or responsibility related to the participants.

Assumptions, Limitations, Scope, and Delimitations

The calculated sample size required for this study was *n* = 202. One of the limitations of this survey study was that the available participant pool in the local setting was *n* = 50. Therefore, although the project was local, I used a national sample as the de

facto representation of the local setting. Additional limitations of this study included the low participation rates associated with survey studies. This phenomenon may result in a high Type II error rate because the researcher may not detect statistical differences.

To test this limitation, I conducted a post hoc power analysis on the nonsignificant regression results. This power analysis indicated that although the p values may have approached significance ($p = 0.059$, $p = 0.235$), the achieved power ranged between 0.50 and 0.65. Because this value was lower than the 0.80 indicated in the a priori analysis, the small sample size may have limited power to determine significance. Analyses that are underpowered result in inflated type II error rates, leading to a situation in which researchers may fail to reject the null hypothesis when indeed they should have rejected the null hypotheses. Researchers may erroneously conclude that there was no statistically significant effect of the predictor variables on the dependent variable. Consequently, one cannot say with confidence that there is no direct relationship between age, gender, workload, experience, education and commitment. Additional research with a larger sample size is recommended to examine this relationship.

The barriers that limit participation in online survey studies may also affect reliability and generalizability (Creswell, 2012); however, $n = 264$ responses were collected, and 251 responses were ultimately used in the analyses. Another limitation was that some individuals chose not to answer demographic questions and therefore, I excluded those responses. The survey was anonymous; I assumed that CCPs answered the questions honestly, given that the survey questions either were affective or reflected poorly on their organization.

Data from this study may not be characteristic of each perfusion practice statewide or nationwide. I based the study's validity on the assumption that the participants responded to the questions both truthfully and accurately based on their personal experience. It is also assumed that the questions in the inventories used in this study were capable of reflecting the lived experiences of the participating CCPs and that this project study could rely on this information for guidance in recommending either policies to regulate working hours or strategies for coping with job-related stresses. The scope of this study was limited to an examination of self-efficacy and commitment among selected CCPs. Only practicing CCPs from the U.S. were surveyed. International CCPs and uncertified CCPs were not included. The items above required a response, and participants who answered negatively were denied access to the survey. This exclusion was due to the intention to capture data only from certified perfusionists in the U.S.

Protection of Participants and Ethical Considerations

I conducted this study in accordance with the parameters established by Walden University's IRB. Prior to data collection, I obtained approval from the Walden University IRB to conduct this study. Walden University's approval number for this study is 02-17-15-0325389. To help ensure the ethical treatment and protection of the research participants, I adhered to U.S. Federal Government Department of Health and Human Services (2012) regulation 45 CFR § 7246.10. This regulation states that the possibility and degree of harm or discomfort expected in the research should not be greater in and of itself than any harm ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

The implied consent outlined the voluntary nature of participation in completing the survey. The survey contained information about the possible risks of participation. Because I did not track personal identifiers for this study, minimal confidentiality risks were expected. The burden imposed on participants was limited to the time and effort required to complete the survey. I expected that the psychological stress (e.g., fatigue) of completing the survey would be no greater than what one would experience in everyday life. However, I instructed participants to omit any question in the survey that may cause discomfort and indicated that participants could withdraw from the study at any time. I provided the participants with my contact information, Walden University's IRB approval number for the study, and Walden University's IRB contact information in the event that participants required further information regarding the nature of the study or wished to voice any concerns about the survey. Contact information was also available for the participants to learn the results of the study.

Discussion and Conclusion

In Section 2, I explained the methodology of the correlational study. CCPs who practice in the U.S. constituted the population for this inquiry. I collected data using a survey instrument that included implied consent, demographic questions to collect age, gender, workload, experience, and education information; the OCQ, which measures an employee's commitment; and the WS-Ei, which measures a participant's work self-efficacy. I analyzed the data using SPSS. Hypothesis testing was performed by simple linear regression and multiple regression analyses to test the predictive relationship, if

any, between the predictor variables (e.g., age, gender, workload, experience, education, and WSE) and the criterion variable (EC).

The findings presented in this section indicate a significant link between self-efficacy and commitment, which was determined with more than 99% confidence. Participants with higher self-efficacy scores tend to have higher corresponding commitment scores. After controlling for the effects of age and the number of years practicing perfusion, the relationship between self-efficacy and commitment remains statistically significant. These findings suggest that a participant's self-efficacy score corresponds to up to 13% of the variability in commitment scores beyond what may be predicted by a participant's age or number of years practicing perfusion. Additional research may be necessary to investigate the relationship between the predictor variables (e.g., age, gender, workload, experience, or education) and self-efficacy. I examine and report the findings of this study and introduce the project in Section 3.

Section 3: The Project

Introduction

In this section, I discuss this study's project. The subsections consist of the goals, rationale, supporting literature, implementation, evaluation, and implications for social change related to the project. With this policy-change position paper, I intend to inform the stakeholders of the policy recommendation plan about strategies for increasing CCP commitment in the local perfusion setting.

Description and Goals

From a CCP's perspective, a lack of self-efficacy in overall abilities becomes an obstacle to job performance. The goal of this project was to provide an evidence-based argument map for stakeholders in the local perfusion setting while demonstrating the urgency of implementing training strategies and policy changes to improve the overall commitment among CCPs. For justifiable reasons, I used argumentation as a tool to find better solutions to disparities in U.S. CCPs' self-efficacy. As is common in the social sciences, I followed an inductive approach to pursuing truth and knowledge through what I find to be true of smaller groups. My aim was both to help stakeholders become aware of problems and to critically examine their original ideas/practice, that is, the implementation of a formative assessment to guide self-efficacy training.

I explained the status of perfusion practice in the United States and how the results of this study could improve perfusion practice in the local setting. My primary goals were to make recommendations based on the results of the study: (a) to persuade perfusion leaders and policymakers to implement formative evaluation to guide self-

efficacy training, (b) to implement regulated work hours, and (c) to maintain the status quo.

Rationale

The resulting project, Policy Change Recommendations for Stakeholders, is an effective method of communicating useful strategies to stakeholders in the local perfusion setting. The project consists of recommendations for stakeholders in the local perfusion setting based on the data analysis of the associated doctoral study. Using a policy-change position paper, I present my view of the issue of low levels of CCP commitment using methods of survey data analysis. The data analysis determined the extent to which self-efficacy predicts commitment among CCPs and the extent to which age, gender, workload, experience, and education predict commitment among CCPs in the United States.

The results of the study specifically demonstrated that self-efficacy predicts CCPs' commitment. Thus, the focal point of this policy-change position paper is to convince stakeholders in the local setting that both assessing and promoting self-efficacy are important in improving their work environment. This position paper should generate critical reflection by comparing divergent viewpoints on self-efficacy.

Literature Review

I examined self-efficacy and organizational commitment within the broader framework of the literature on application, age, gender, workload, experience, and education. The literature review involved the following databases: Sage, Google Scholar, EBSCO, and Thoreau. Keywords were used separately or in combination and included

the following: *self-efficacy, application, sources, development, collective efficacy, social,*

theory, organization, organizational commitment, affective, continuance, normative,

employee satisfaction, motivation, behavior, attitude, communication, work environment,

job-related stress, age, gender, experience, workload, education, work performance,

empowerment, autonomy, teamwork, performance appraisal, coworker cohesion,

supervisor support, task orientation, work pressure, job clarity, managerial control,

innovation, *support, inductive argument,* and *critical thinking.*

Self-Efficacy and the Primal State of Human Development

The origin of self-efficacy is an attribute of human development (Bandura, 1997).

Bandura discusses how human beings have always attempted both to control the events in

their lives and to influence certain factors to achieve desired outcomes, suggesting that

the perception of self-efficacy is at the core of human effectiveness. Self-efficacy

increases as a result of satisfaction, which comes from completing tasks with a sense of

skill and knowledge, and it is rooted in the primal states of human development at a time

when people had a limited understanding (Bandura, 1997; Kruglanski & Stroebe, 2011)

of science to explain phenomena in their world. Instead, they appealed to supernatural

agents as a means to find control in their lives. To achieve control, individuals used both

rituals and various types of behavior to protect themselves from perceived supernatural

powers. This behavior is not surprising: human beings have always believed that they can

take measures to change their circumstances (Turner, 2012). In the early stages of human

development, humans believed that they had found proof when an irrelevant ritual

coincided with a positive outcome, which reinforced the idea that they could control their destiny.

As belief in the supernatural has diminished, a more complete understanding of the world has developed. However, people still tend to create beliefs about the aspects of life over which they perceive control. Bandura (1997) contends that the key factors are personal efficacy and other beliefs that incorporate the factor of human agency. Bandura (1986) has developed social cognitive theory to translate personal efficacy into the idea of propositional beliefs. Propositional beliefs are functional beliefs that relate to one another and create a network through which individuals can establish active change (Bandura, 1997). Propositional beliefs or the understanding of causal relationships may have been the foundation for individuals to exercise critical thought to avoid fatal events in their lives.

Bandura (1997) addresses the concept of fate through the idea of triadic reciprocal causation. The three major classes of determining causal structure are behavior, internal personal factors, and the external environment, all of which unite to create outcomes (Ponton & Carr, 2012). Rather than continuing to use fate as a means to explain incidents, Bandura creates triadic reciprocal causation as a means to understand how human agency operates and explains that "in this transactional view of self in society, internal personal factors in the form of cognitive, affective, and biological event; behavior; [and] environmental events all operate as interacting determinants that influence one another bidirectionally" (p. 6). The three determinants do not necessarily have the same strength. Rather, they have relative influence and reciprocal effects that oscillate to create a holistic

dynamic. The results of the associated study suggest that age, gender, workload, experience, and education do not have a significant direct relationship with CCPs' commitment. Instead, these factors are potential confounding variables that affect CCPs' self-efficacy and commitment. Bandura created the triadic reciprocal causation paradigm to help human beings understand how they can be effective in their own environment. Current research findings offer a number of different ways in which self-efficacy is established.

Individuals develop self-efficacy during childhood, in work environments, and through the support of organizations, all of which help individuals understand their performance abilities (Caesens & Stinglhamber, 2014). Through social learning theory, Bandura studies the foundations of human learning and examines how social learning models may help people understand new behaviors (Bandura, 1973; Sims & Manz, 1982). Bandura finds three different types of systems that can regulate and control behavior. The first system involves what occurs before behavior influences a timely response. The first system is associated with the social context and the performers that create the environment in which behavior manifests. The second system involves the feedback that results from a particular behavior. This feedback influences how behavior manifests in a similar situation. Finally, the third system involves the cognitive functions that occur during social learning that supports how behavior manifests (Bandura, 1973). Self-efficacy emerges as a behavior that receives positive feedback and contributes to cognitive learning in a social context that increases performance. The application of self-efficacy strategies to improve self-efficacy in CCPs may be an appropriate

recommendation because the previously described systems can both regulate and control CCPs' behavior.

Tirosh, Tsamir, Levenson, Tabach, and Barkai (2013) study performance in mathematical and nonmathematical tasks in 132 kindergarten students between 5 and 6 years of age. Tirosh et al. (2013) ask the children to examine their own performance and abilities to assess self-efficacy with respect to tasks that include sorting, mathematics, and reciting the alphabet. The children tend either to be accurate in their assessment of their performance or to overestimate their abilities. The results of the study should be interpreted with caution because self-assessments that focus on kindergarteners have limitations (Tirosh et al., 2013). Kessen (2014) evaluates individual children in a wider range of age groups and examines the development of self-efficacy in American children, finding that the concept of American exceptionalism influences children's self-efficacy.

The results of this study's data analysis that the overall self-efficacy level among U.S. CCPs in the study is significantly high (e.g., a mean of 127.50), which indicates that self-efficacy can be nurtured by both mentors and the environment. As the emergence of child psychology created the concept of the child, one of the field's most important components involved the principle that the child is an individual (e.g., a separate instance of self). Many theories accept the idea of individualism and view each child as a unit of study, whereby the consequences of choices mark development in terms of self-identification. As individuals begin to perceive children as individuals, their choices and sense of self create their identity, and self-efficacy emerges as a method of creating a structure in which this identity exists (Kessen, 2014). For a long time, children based

their identities on what they can do until adolescence, when they define their identities based on what they believe. The combination of what they believe about themselves and what they believe about the world becomes their worldview.

Researchers have studied self-efficacy in numerous ways. Bandura (2012) focuses on social cognitive theory, which is rooted in the agent perspective. Bandura has grounded control theory in a cybernetic model (e.g., trait self-efficacy theory) and the Big Five personality theory, based on a decontextualized trait model. Examining self-efficacy using these theories supports the idea that self-efficacy is a system in which individuals develop their sense of self and the capabilities through which they will enact their identity (Bresó, Schaufeli & Salanova, 2011). Caprara, Alessandri, and Eisenberg (2012) and Cole and Donohue (2011) demonstrate that the social context of self-efficacy is rooted in the idea that identity provides a framework through which an individual expresses the self. What individuals believe about the self can define how behaviors are determined. Under the premise of self-identity as a determinant of behavior, work environments that offer opportunities for socialization, autonomy, and creative freedom to CCPs engender higher levels of self-efficacy.

The development of creative self-efficacy in a work context occurs over time as an individual begins to have more confidence in how he or she creatively contributes to his/her work environment. Tierney and Farmer (2011) demonstrate that over the course of 6 months, if employees are required to behave creatively in their work positions, then they experience a decreased sense of efficacy in terms of the creative work that is expected. Those researchers correlate increases in creative self-efficacy with creative

performance when the employee instigates that performance. However, if the employer has an expectation of creativity, then the pressure of that expectation changes the manner in which self-efficacy develops. Caprara et al.'s (2012) point of contention can be better understood when contextualized with the idea that self-efficacy is rooted in identity. Central to the manner in which self-efficacy manifests in the local perfusion setting is the understanding that CCPs are not passive in the environment but instead manipulate the available resources to create a self. Social cognitive theory contradicts earlier contentions that assume that the environment creates the individual, and the individual has no say in the matter (Bandura, 1977; 1997).

The results of the data analysis do not demonstrate a significant relationship between age, gender, workload, experience, or education and CCPs' commitment. However, with respect to self-efficacy, an improved understanding demonstrates that although skills and beliefs are required to attain competency with respect to any behavior, self-efficacy operates separately from the concept of ability. Researchers have suggested that because self-efficacy involves a belief or disbelief in one's own capabilities, it has a direct effect on how anxiety and depression manifest. A downward efficacy spiral in an individual or group can result from the personal and environmental factors noted above (Bandura, 1997; Hicks & McFrazier, 2014). Both self-efficacy and a lack of self-efficacy determine capability and can affect the manner in which self-evaluation influences CCPs' overall health and well-being.

Regarding the association between workload and self-efficacy, Bandura (1997) classifies self-efficacy according to three dimensions: strength, level of difficulty, and

generality. Strength refers to an individual's belief in his/her own self-efficacy. Failures

diminish the strength of belief in self-efficacy and affect how an individual views his/her

ability to achieve certain goals. For example, the manner in which workplace demands

vary in the CCP work setting necessitates a framework of difficulty levels related to how

a CCP might handle those tasks, and a CCP's level of self-efficacy is associated with the

task's level of difficulty. The concept of generality refers to the idea that an individual is

only capable in highly specific situations and that he/she demonstrates only a few

behaviors that reflect self-efficacy (Prince-Embury & Saklofske, 2013).

Researchers have classified self-efficacy as either domain- or task-specific

(Bandura, 1977). Belief in the self varies in terms of the different tasks for the specific

domains in which self-efficacy is necessary. The original concept of self-efficacy

developed by Bandura depends on measurements of task- and domain-specific

approaches (Prince-Embury & Saklofske, 2013). Researchers have long understood that

the determination of self-efficacy is a component of academic success. For example, a

CCP who believes that he or she is good at analyzing data will likely perform well in that

area. However, someone who believes that he or she is not good at data analysis will

likely perform poorly (Caprara, Vecchione, Alessadri, Gerbino, & Barbaranelli, 2011).

The importance of self-efficacy in the workplace underscores the hierarchal

nature of the CCP work setting. That is, a lack of confidence in overall abilities may

become a barrier to communicating crucial information to superiors. Surveying personal

observations in the field of perfusion, a good quality in a perfusionist or aspiring

perfusionist is the ability to project confidence in communicating and to demonstrate

sound judgment in assessing and managing situations. A lack of assertiveness creates

doubt about the CCP's abilities among team members, particularly surgeons who rely on

CCPs' expertise while they operate on the heart.

Organizational Commitment and Cost/Benefit

The data analysis demonstrates that self-efficacy predicts the level of

commitment to the organization among CCPs in the United States. The positive

association between self-efficacy and CCP commitment indicates that an increase in self-

efficacy corresponds to an increase in commitment. The positive association between the

predictor (e.g., self-efficacy) and the criterion (e.g., commitment) variable is

unsurprising. There is overwhelming evidence that demonstrates this relationship in

many domains. In addition, the results of the analysis are significant to stakeholders in

the perfusion community because researchers have never studied the abovementioned

variables in connection with U.S. CCPs.

Meyer and Allen (1999) define employee commitment as a cost/benefit

evaluation of both the organization and the employee. Commitment is a complex

construct, and it emanates from a feeling of benefit instead of from a feeling of being

trapped. Commitment emanates from a number of different elements related to both

motivation and on-the-job experiences. The issue of commitment has two different parts

(Meyers & Allen, 1999): the nature of commitment as it manifests in the relationship

between the employer and the employee and the entity to which an employee chooses to

offer his/her commitment.

Meyer and Allen (1999) identify three distinct characterizations of organizational commitment that have different perspectives. These perspectives are continuance, normative, and affective commitment. Employees develop continuance commitment when they are aware of the cost that they will incur by leaving the organization. This type of employee stays out of necessity and is motivated by the fear of losing benefits, family ties, or a social circle. In accordance with Meyer and Allen (1997), continuance commitment may be more prevalent in older employees.

The results of my study indicate that mature adults are more committed to their jobs (a mean of 73.9) than are younger adults (a mean of 70.30). Employees express normative commitment through a sense of obligation toward the organization. Feeling obligated to remain with the organization may be the result of benefits provided by the organization (e.g., signing bonuses, moving expenses, tuition reimbursement). An affective commitment means that the employee has an emotional attachment and a sense of identity that derives from being involved in the organization.

These employees will continue in their commitment to their position because they want to stay with the organization. The implications of the type of commitment expressed by CCPs other than affective commitment have important consequences in the local setting because they relate to poor job performance. A desirable commitment behavior underscores affective commitment. However, it may not be possible to understand CCPs' feelings about an organization unless stakeholders collect formative data to evaluate CCPs.

More generally, researchers are currently analyzing the overall understanding of the concept of commitment in terms of satisfaction, regulation, engagement, effect, citizenship behaviors, and well-being (Meyer et al., 2012). One aspect of the current focus evaluates organizational commitment using the concepts of globalization and intercultural contact. Whereas previous researchers examined the Westernized development of organizational commitment, more recent studies span the globe to examine how cultural context affects how an organization creates motivation toward commitment.

One way that employers can foster commitment in the local setting is through training and ensuring that CCPs understand what they are doing in their jobs. Because I know that there is a significant predictive relationship between self-efficacy and CCP commitment, training to enhance self-efficacy could serve multiple purposes. CCPs train to perform their job with the knowledge and skills they have acquired through experience. Self-efficacy is achieved when the employee has the comfort and confidence that come from having learned what they need to know and having experienced what it is like to use that knowledge and training (Myers & Allen, 1997). Creating this level of self-efficacy can promote an emotional bond between the recipient and the organization that provides the training.

Employers can foster loyalty by spending time and effort on training the individual. Myers and Allen (1997) have found that institutional strategies are central to creating organizational commitment. Socialization strategies are highly effective in releasing performance-related pressure for those who are new to the job. Structured

information provides a sense of security that contributes to self-efficacy, whereas unstructured information can leave the new employee feeling alienated and like an outsider. Socialization and information can affect both self-efficacy and commitment.

Mastenbroek, Jaarsma, Scherpbier, Beukelen, and Demerouti (2012) study 860 veterinary professionals and 170 colleagues to understand how workplace engagement enhances job and personal resources through relationships that improve performance. The researchers aim to explain how employees develop commitment in terms of both self-efficacy and a belief in their job capabilities. Mastenbroek et al. (2012) indicate that there is no relationship between job demands and personal resources and find that an employee's personal resources directly relate to performing tasks that exceed everyday expectations instead of tasks that are expected as part of one's job performance.

This study's finding may be related to the fact that the professionals in the study already have self-efficacy because of education that supports their ability to perform under extraordinary circumstances. This study can help address the issue of perfusionists in terms of how they approach their job. Perfusionists are trained professionals and do not begin their jobs until they have acquired high levels of training. The question remains whether training to improve self-efficacy will have an effect on those who already believe that they can perform their job and know that they have the skills and knowledge required to perform it. The descriptive analysis comparing gender differences with respect to the level of self-efficacy indicates no differences (a mean of 127.70 for males and a mean of 127.74 for females) in the level of self-efficacy among U.S. CCPs. The scores suggest that CCPs are highly motivated regardless of gender.

Implications of Age and Gender in the Workplace

The data analysis demonstrates that age is a moderate predictor of CCP commitment. Research findings on this subject indicate that age may affect how CCPs can apply self-efficacy to work situations. Stereotypes tend to suggest that neither the very young nor the very old perform as well as middle-aged adults (Hoare, 2012). Furthermore, it is often believed that the young do not have experience, whereas the old are beginning to lose their ability to perform. These stereotypes are mostly untrue, but they support a culture in which people tend to regard these age groups in terms of lower performance. In terms of self-efficacy, older adults tend to activate lower memory performance when negative age stereotyping occurs. Younger workers tend to conform to the idea that they are inexperienced, lowering their perception of self-efficacy and consequently lowering their performance (Hoare, 2012).

Implications of Self-Efficacy in Younger and Older Individuals

To test how males and females behave under pressure and in dangerous circumstances, a study conducted by Black, Sun, Rohrbach, and Sussman (2011) evaluates gender differences in terms of the effective decision-making process involved in using condoms. This study is particularly interesting because it examines how adolescents make important decisions with respect to both gender and self-efficacy. The ability to use a condom has a high level of influence on whether adolescents choose to use a condom even when they know the consequences of not doing so. Essentially, age and experience do not increase the likelihood of using a condom, primarily because adolescents lack the self-efficacy to insist on the use of a condom during a sexual

encounter. In this case, although gender is not a factor in adolescent decisions to use a condom, self-efficacy becomes a factor.

In terms of ability, males and females are effective when they have self-efficacy acquired through knowledge and skills. By contrast, they are both ineffective when placed in a situation in which they must make a decision under pressure and without the knowledge that would create a sense of self-efficacy. If these outcomes regarding making decisions under pressure are applied to CCPs, the importance of cognitive skills in decision making can be inferred. Bandura (1997) suggests that knowledge is key to setting higher goals and engaging in both argumentation and effective communication. In addition, individuals with higher cognitive skill are more likely to display more confidence and motivation, both of which are essential qualities for CCPs.

One area in which adults experience a pronounced problem compared to the young is technological advancement. Navigating the new technologies that are emerging in the 21st century can be difficult for many adults because they did not grow up in a society in which these technologies were part of their social experience. In this domain, self-efficacy may be important. Those who lack self-efficacy regarding computer use may fail to continue learning because they believe that they lack sufficient knowledge and skills. Older adults who possess a low sense of self-efficacy with respect to computer learning experience anxiety, which tends to affect the relationship between work performance and age. However, when older adults face new learning situations, they tend to rely not only on the strengths that they have acquired but also on domain-specific knowledge (Chu, 2012). In essence, older adults compensate for their perceived lower

level of acquisition and the longer period of time that is required to learn new skills. The learning process in adults is prolonged; however, adults preserve knowledge so that they can use it in the most efficient ways (Chu, 2010).

Black et al. (2011) and Chu (2010) can be compared in terms of the manner in which they approach the concept of self-efficacy and the problem of age. In both studies, researchers aiming to understand the role of social experience within a particular demographic community use social experience as a method of measuring self-efficacy. Among adolescents, condoms can be both a mystery and a part of their emerging sexual experiences. Among individuals over the age of 50, some are familiar with using computers, whereas others have difficulty adapting to new technology. Chu's study is somewhat weakened because it involves a lower number of participants. However, similarities emerge when comparing Chu's study with the study conducted by Black et al. (2011). Demographic age groups create self-efficacy when they learn skills that involve a relatively unfamiliar tool, whereas self-efficacy is missing when employees lack skills.

When examining adults with respect to issues involving information and indication technology, gender again begins to emerge as a criterion for the development of self-efficacy. Although there are equally positive relationships between self-efficacy and learning to use information and communication technology (ICT) among males and females, females tend to have a lower level of confidence in their ability to solve problems using ICT than males do. When knowledge is available, the two groups' self-efficacy is the same. With regard to learning, females exhibit lower levels of self-efficacy than males do in terms of whether they believe they can achieve the goals set by the

researchers. If self-efficacy exists, then gender tends to be immaterial. However, where learning is concerned, gender is significant (Tømte & Hatlevik, 2011). Huffman, Whetten and Huffman (2013) find that in terms of using technology, self-efficacy is higher in male participants than in female participants, and no other relationship can explain these differences. In accordance with the results of this study, the descriptive data do not show differences in self-efficacy levels between the genders. This finding may be an indication that regardless of gender, CCPs share similar traits.

One interesting demographic group in which age plays an important role in terms of self-efficacy is that of sixth- to eighth-graders. Diseth (2014) conducts a study in Norway in which researchers test sixth- and eighth-grade students in terms of both self-efficacy and academic achievement. Whereas the sixth-graders demonstrate no relationship between gender and self-efficacy, by eighth grade, gender begins to make a difference. Eighth-grade girls exhibit lower levels of self-esteem and self-efficacy and have lower opinions of their own intelligence compared to boys at the same grade level, who do not experience these issues. Age and gender emerge as significant when specific domains of knowledge related to maturity and growth appear to have highly different effects on males and females during this period of adolescence. The preceding point of contention suggests the need for further study to demonstrate how age and gender affect CCPs' self-efficacy.

Implications of Self-Efficacy on Stress

Stress is a factor in the psychology of work because of the desire to balance personal identity and expected achievements. The tension between what an employee desires and what an employer expects from the employee becomes an overwhelming part of the manner in which most individuals approach their work experience. One way in which employees and employers can reduce stress in the workplace is by building self-efficacy. In this manner, the perceived stress and state of negativity can be counteracted through a belief that one's skills and capabilities suffice to create satisfactory performance (Hahn, Binnewies, Sonnentag, & Mojza, 2011; Klassen & Chiu, 2011).

Reducing stress can be an important factor in creating a safer work environment in the local setting. Occupational accidents occur more often when people exhibit low self-efficacy than in situations in which people feel confident that they have the skills and capacity to perform. When CCPs understand their jobs and believe that they possess the relevant skills and adequate knowledge, they behave with confidence, which decreases the number of potential accidents and lowers the level of stress among employees (Lorente, Salanova, & Martinez, 2011).

Walumbwa et al. (2011) investigate the link between performance and ethical leadership in the People's Republic of China by examining leader-member exchange and self-efficacy and organizational identification. Walumbwa et al. (2011) conduct a study among 72 supervisors and 201 of their direct reports. The research findings indicate that ethical leadership gradually increases employee performance, as rated by immediate supervisors. The researchers link the relationship between ethical leadership and

performance to self-efficacy and organizational identification because the employees perceive the organization as fair. The implications of this study suggest that authoritarianism, which has been a predominant feature in relationships between Chinese supervisors and workers, may be detrimental to overall performance. Increasing ethical leadership in the CCP environment so that the environment becomes more fair and balanced may increase self-efficacy as CCPs begin to believe that they are the source of their own achievement and performance instead of feeling pressured by stakeholders to achieve and perform.

Implications of Experience on Self-Efficacy

A number of factors affect how employees experience self-efficacy within the workplace. One of these factors is the experience that an individual can acquire in terms socialization. Socialization fosters a climate for performing collectively to achieve positive outcomes. An effective CCP is a CCP who has attained sufficient knowledge and skills to perform his/her job, the drive to accomplish his/her goals effectively, and the ability to create a sense of contentment with respect to work. Experience is a method through which workers can increase self-efficacy by becoming more confident in their jobs, creating a sense that they are part of the system and functioning as a positive element (Parschau et al., 2013; Tims, Bakker, & Derks, 2014).

In Bandura's (2012) study, self-efficacy is a key concept that represents people's beliefs about their ability to perform at designated levels. These beliefs influence how individuals construct events in their lives. Bandura expands on the idea that agent causality has an influence on desired outcomes. That is, individual employees perceive

self-efficacy as individual behavior because it functions within domain-specific beliefs regarding an individual's capacity. Researchers have associated self-efficacy with the collective capacities that occur within specific domains (Bandura, 2012).

Behavior can be highly influenced by self-efficacy when it is associated with job involvement and satisfaction, health outcomes, and the feeling of belonging that is essential for a good work environment. Experience provides a framework in which self-efficacy can increase. Individuals can reduce anxiety as they begin to understand that they belong in the workplace and are performing to achieve desired outcomes based on experience (Cascio et al., 2014; Tschannen-Moran & Johnson, 2011). With respect to years of practice, for mature adults, self-efficacy scores center on a mean of 129.12 and an average commitment score of 73.09. In comparison, early adults achieve a lower average self-efficacy score of 123.86 and a lower average commitment score of 70.30, which indicates that work experience is a significance factor in both self-efficacy and commitment.

Workload and its Effect on Self-Efficacy

Although this study's data analysis suggests that workload is not a statistically significant predictor of commitment, workload is significant because it is associated with self-efficacy (Bandura, 2012). Previous researchers have indicated that job stressors (e.g., from increased workload) can be positively related to how work behavior manifests. Sonnentag and Spychala (2012) examine the relationship between supervisor-rated proactive behavior and job stressors, such as situational constraints and time pressure. The intention is to discover whether there is a connection between proactive behavior and

self-efficacy and whether individuals maintain this connection throughout the roles played by the supervisor. The study analyzes 140 employees' proactive behavior to obtain an understanding of the mediation model.

Sonnentag and Spychala (2012) demonstrate increased levels of self-efficacy when proactive behavior is present in individuals across various roles. In addition, they find that job-related control is related to proactive behavior. However, there are constraints that are not significant in the proactive behavior domain. The findings of the study reveal significant results; however, Sonnentag and Spychala rely on self-examination as a method of studying proactive behavior and may not have fully reflected how that behavior manifests.

Sonnentag and Spychala's (2012) study is related to a study by Chang and Edwards (2014) in which social cognitive career theory is examined in terms of coping styles, self-efficacy, and job satisfaction. Chang and Edwards demonstrate that self-efficacy is essential in performance and crucial in determining both coping styles and job satisfaction. The key finding in both studies is that experience is essential to employees' ability to function in an effective manner. Individuals exhibit proactive behaviors only when they have gathered sufficient experience to support self-efficacy. Developing adequate coping styles and maintaining job satisfaction result from experience and support how employees function in leadership roles. With respect to perfusion practice, the study suggests that a lack of experience may make it difficult for CCPs to maintain self-efficacy if CCPs have not obtained the relevant knowledge and skills. Although self-

efficacy can exist without experience, experience helps close the gaps because knowledge and skills provide the resources to develop self-efficacy (Nie, Lau, & Liau, 2011).

An observable effect in the local setting is that emotions and stress can occur when expectations place pressure on CCPs, and counterproductive work behaviors can emerge as a result. Self-efficacy can mitigate the problem of counterproductive work behaviors that result from stress or strained relationships (Fida, Paciello, Tramontano, Barbaranelli, & Farnese, 2014). Work creates an additive and moderating role in an individual's life, and the regulatory self-control that comes from emotional self-efficacy (Bandura, 2012) can affect how work stress is experienced. In a study of 1,147 Italian workers (Fida et al., 2014), it is observed that people who believe that their abilities to manage work activities are sufficient do not exhibit counterproductive behaviors at work. Those who are not as capable of coping with negative feelings experience stress, which indicates that self-efficacy moderation is absent (Fida et al., 2014).

Implications of Self-Efficacy on Health

Belief plays a powerful role both in aiding stress reduction and in increasing performance. High demand and low control in the workplace have a significant influence on the etiology of diabetes. However, individuals can positively affect health through the development of self-efficacy (Toker, Gavish, & Biron, 2012). These findings suggest that individuals' overall health is associated with how they perceive and conduct themselves. Toker et al. (2012) indicate that those who experience high demand and low control in their job environment experience higher levels of blood glucose, whereas those who experience high demand and high levels of support and have high levels of self-efficacy

display decreased blood pressure and glucose levels. The connection between health and self-efficacy seems rational because of how blood glucose reacts to stressful situations in the workplace.

The concept of health and self-efficacy is extended by examining Weng et al. (2013), who demonstrate that self-efficacy influences depression, symptoms of distress and subjective workability. Studying liver-transplant recipients on a global scale, they examine the factors that influence employment status to understand how individuals mitigate the stress of illness (to a certain extent) by self-efficacy. After the patients undergo transplant surgery, their employment rate is 45.2%, which suggests that transplant surgery affects how they approach work. Weng et al. (2013) demonstrate that decreased symptoms of depression and the decreased severity of other symptoms help individuals continue to function at work. Once at work, self-efficacy supports a positive belief system that is necessary to keep them working. That is, individuals return to work more easily when self-efficacy supports the belief that work is possible following a stressful medical procedure.

Implications of Self-Efficacy on Higher Education

Numerous factors influence self-efficacy in terms of higher education. The ability to complete a higher education provides an individual with status in the community, functional skills and tangible proof of goal orientation. Self-efficacy is essential to the process of obtaining higher education because one must be motivated and open to learning to finish the process. It is essential that students in higher education believe that they can achieve and accomplish their goals (Dither, Dochy, & Segers, 2010). During an

individual's process of acquiring a higher-education degree, an individual experiences satisfaction when self-efficacy guides work toward specific tasks and goals. Through self-efficacy, task-value prediction can be achieved (Joo, Lim, & Kim, 2012; Zimmerman, Bandura & Martinez-Pons, 2010).

Once individuals have obtained a higher degree, they feel that they have acquired the necessary skills and knowledge to work effectively within their chosen field. Regardless of whether a candidate enters a new job with the appropriate skills, he/she has the knowledge needed to learn and expand his/her overall understanding of whatever work environment he/she enters (Dabbagh, & Kitsantas, 2012; Zuffianò et al., 2013). My data analysis demonstrates that in the perfusion environment, education alone is not a significant predictor of commitment. The descriptive data analysis concerning perfusion education reveals that only 2% of CCPs hold doctoral degrees and 11% hold associate's degrees. With respect to higher-education degrees and self-efficacy, Bandura (1997) maintains that higher knowledge engenders inquiry, empowerment, overall self-confidence, and motivation. In relation to Bandura's premise, with regard to policy changes in future perfusion practice, one way in which stakeholders may make a difference is through the promotion of education. The compensation package should include tuition reimbursement for CCPs.

Stakeholders should consider continuing education or job training not merely as an employee benefit but as an investment because of the potential impact of such benefits on the company's financial health (Sprague, 2013). Nurses who hold BSNs have more positive job experiences, fewer concerns about care quality, and significantly lower risks

(5%) of patient death (Aiken et al., 2011). As reported by the American Association of Colleges of Nursing (AACN; 2015), the nursing profession's future encompasses a more highly educated nursing workforce in the interest of improving patient safety and nursing care. The debate on education's costs and benefits among healthcare institutions across the nation has prompted significant changes in established recruitment policies. As a first step, the changes aim to increase the percentage of BSNs employed in critical areas to 80%. The changes also aim to provide tuition reimbursement as an incentive to promote current employees' transition from the associate's degree to the bachelor's degree in nursing (AACN, 2015).

Application of Collective and Self-Efficacy in the Workplace

Stakeholders can apply self-efficacy in the workplace on both the individual and the collective levels (Locke, 2009). Effective employee performance (e.g., behavioral factors) is a product of how employees are affected (e.g., cognitive factors) by decisions made by their organization (e.g., environmental factors) (Bandura, 1997; Locke, 2009). Stakeholders should recognize that self-efficacy derives from the acquisition of complex cognitive, social, linguistic, and physical skills that are acquired through experience. Similarly, collective efficacy can result from the belief that a task can be achieved using the strengths of each individual in a group. One individual's perceptions of the workplace and his/her capabilities can affect the group dynamics in accomplishing collaborative tasks (Bandura, 1977; 1997). To develop an effective workforce, employers should engage in socialization practices to improve self-efficacy.

One of the ways in which socialization occurs is through collective experiences.

As stated by Tucker, Jimmieson, and Oei (2013), "Karasek's Job Demand-Control model proposes that control mitigates the positive effects of work stressors on employees' strain" (p. 1). Tucker et al. (2013) examine how control may either buffer or exacerbate strain when individuals perceive demands at the individual level. Tucker et al. (2013) hypothesize that one member in a group can affect a group's collective efficacy and examine 544 employees in Australian organizations by dividing the participants into 23 work groups.

Tucker et al. (2013) reveal that there is significant cross-level interaction in three different directions according to control, demands, and collective efficacy; this interaction is related to anxiety and job satisfaction. When participants perceive high levels of collective efficacy, there is a high sense of control that buffers the negative consequences of high demands, which create anxiety and diminished satisfaction. When groups exhibit low levels of efficacy, they remain highly effective in terms of managing anxiety. However, low levels of collective efficacy do not affect job satisfaction. Overall, the results of this study indicate that a sense of self-efficacy on the individual level is associated with the sense of collective efficacy, thus changing how individuals perceive anxiety and satisfaction.

Strategy for Self-Efficacy Training Delivery

In the current work environment, processes and practices change rapidly; thus, stakeholders must continuously develop strategies to deliver training and development (T&D) so that their employees can learn new skills and maintain their abilities. The twenty-first century has contributed to a new type of economy, namely, the knowledge-

creation economy (Sprague, 2013). Compared to 20th-century employees, workers are now more likely to assume tasks that involve learning and applying new skills on a daily basis, and it is often the worker's responsibility to learn new skills independently. Problem-solving and knowledge creation are the support systems for jobs in the perfusion environment. Nevertheless, regardless of domain, in the knowledge economy of the workplace, employee training requires a broad-level approach. This broad-level approach means that stakeholders emphasize evidence-based skills that help employees improve workplace relationships to manage projects collectively.

The changing landscape in the work environment means that stakeholders manage projects and people across regions with the use of technology as the new model for education and training. As the general complexity of jobs increases across the national spectrum, so does the need for job-specific training. As posited by Sprague (2013), best practices include retaining skilled, high performers and taking advantage of mentoring and informal coaching between employees. In the perfusion setting, this medium means that core competencies for training personnel will include an understanding of how adults from different demographics or generations learn and an in-depth knowledge of technology and learning applications across generations.

The Internet is an efficient, cost-saving measure in the delivery of T&D (Sprague, 2013). Many organizations across domains are reducing training costs by eliminating off-site training, conferences and training-related travel (Sprague, 2013). Stakeholders in the local perfusion setting and across the nation are likely to adopt similar strategies to reduce T&D costs. In addition, using the Internet as a platform to deliver T&D is a good

strategy because it offers the ability to deliver information quickly, and virtual space is

accessible at any time. However, mature CCPs (55%, according to our descriptive data

analysis) may require technology and computer-applications training to keep abreast with

online T&D. Finally, as suggested by Sprague (2013), best practices include retaining

skilled, high performers and taking advantage of mentoring and informal coaching

between employees. The allocation of funds may be necessary to train the trainer as an

alternative to using costly subject-matter experts.

<div align="center">**Summary**</div>

By managing physiological and metabolic demands, perfusionists are responsible

for ensuring that a patient receives the full benefits of a heart-lung device when the

patient's own heart and lungs are not functioning properly. The high level of stress

involved in this type of work is likely to influence the degree to which someone in this

profession is effective. Developing perfusionist training requires an understanding of how

self-efficacy affects an individual's commitment to his/her work responsibilities. The

analysis of the collected data indicates that self-efficacy is a statistically significant

predictor of the level of commitment among CCPs in the U.S. The five predictor

variables of age, gender, workload, experience, and education are not statistically

significant predictors of the level of commitment among CCPs in the U.S. Instead, they

are confounding factors that affect both self-efficacy and commitment.

I find that self-efficacy predicts commitment among CCPs in the U.S. with more

than 99% confidence. Individuals can improve job performance through training and

policy changes (Bandura 1997; Flin et at., 1998; Locke, 2009) grounded in emerging

evidence-based concepts related to self-efficacy. Because self-efficacy predicts commitment in U.S. CCPs, the implementation of policies to assess the work self-efficacy of CCPs is an appropriate method to guide training. Stakeholders must first collect quantitative data to determine whether CCPs believe that they have not only the ability to do what is necessary but also the fortitude and tools required to accomplish both personal and organizational goals. Stakeholders may apply self-efficacy individually and collectively in the acute surgical setting to improve motivation and retention among CCPs.

Self-efficacy refers to an individual's belief that he or she can achieve a particular goal, but it does not suffice to create positive outcomes. However, without self-efficacy, it may be difficult for CCPs to achieve their goals and desired outcomes. Bandura's theory of self-efficacy demonstrates that humans have always believed that they could find a means to control outcomes. One manner in which CCPs experience the motivation to control outcomes is by believing that with their cognitive and technical skills, they can control whether a patient receives proper care. By developing the belief that one has the ability to use one's overall skills to control outcomes, an individual may begin to achieve positive outcomes. Stakeholders must note that there is a distinct reason that Bandura created a three-dimensional model for the influences that create positive outcomes. Human beings cannot control every aspect of a desired outcome. During self-efficacy training, stakeholders should recognize the internal and external factors that affect CCPs' knowledge and skills.

Implementation

The proposal for implementing the policy-change recommendations requires that these recommendations be written and presented to stakeholders. I expect that stakeholders will ask me to advise them in the event that they implement the recommendations in the local setting. The delivery of the policy recommendation requires support and resources. Those resources include both monetary and human capital, which represent a potential barrier, in addition to the stakeholders' potential rejection of the recommendations. However, based on the analysis of the required resources, the evidence regarding the local setting, the results of the study, and the literature, the most likely option is that the stakeholders in the local community will provide guidance to CCPs regarding self-directed learning. For any option chosen by the stakeholders, I suggest the creation of a portable 5x8-inch self-efficacy white paper that the stakeholders may distribute to each employee to support the option selected by the stakeholders. The white paper contains evidence-based tips on increasing the level of self-efficacy in the workplace (see Appendix A).

To collect the data for this project, I enlisted various resources from both Walden University and outside resources. I accomplished the data collection and the analysis related to the levels of self-efficacy and commitment among CCPs in the United States with the guidance of the Walden University support system. I enlisted outside agencies (e.g., Mind Garden, Inc.) to customize and create the survey link. To publish the survey link, I enlisted the help of two professional organizations in the perfusion community: Perfusion.com and the American Society of Extracorporeal Technology. To be in a

position to provide strategies and recommendations to stakeholders, I used two pre-established instruments to collect data: the WS-Ei (Raelin, 2010) and the OCQ (Mowday et al., 1979).

Statistical Package for the Social Sciences (2012) was used for the statistical analysis (e.g., the mean, mode, standard deviation, frequency, and percentages) and inferential statistics (e.g., simple linear and multiple regressions) to test the hypotheses about the criterion variable (e.g., EC) and the predictor variables (e.g., (a) age, (b) gender, (c) experience, (d) workload, (e) education, and (f) WSE). Finally, I used a basic demographic questionnaire to collect information from the CCPs about themselves and their work settings.

General self-efficacy refers to an individual's level of self-confidence about taking action to manage a wide array of situations (Bandura, 1997). In contrast, work self-efficacy assesses individuals' confidence about managing workplace experiences (Raelin, 2010). Measuring work self-efficacy is central to evaluating current or prospective workers (Raelin, 2010). The WS-Ei is a validated instrument (Raelin, 2010) that measures a range of job behaviors and practices, including the social requirements necessary for an individual to succeed in the workplace.

Potential Resources and Existing Supports

A sustainable work environment in the local perfusion setting depends on identifying and understanding the factors that contribute to a downward spiral of self-efficacy in CCPs and the organization. However, crafting an intervention and assessing the intervention's impact require stakeholders' impartial support. Stakeholders for policy

implementation include the president and the vice president of the local perfusion organization. Stakeholders must pledge to develop a work environment that enables the surgical setting to move toward sustainability while enhancing the quality of the care offered to the patients.

Potential Barriers

Potential barriers include financial and human resources and the internalized culture of practice. The monetary and human capital required to implement the recommendations represents a potential barrier, in addition to the potential rejection of the recommendations by the stakeholders. Internalized culture is another potential barrier. Organizational culture refers to a team's shared perceptions of organizational policies, practices, and procedures. The optimal organizational culture can only be cultivated through effective relationships that contribute to employee satisfaction.

Proposal for Implementation and Timetable

After final approval of my completed doctoral study, including the project, I will meet with the president and the vice president of the local organization (Table 8) to discuss policy options. The stakeholders should approve the implementation of changes in the work environment. I based the rationale for engaging these stakeholders on their position in the hierarchy, their ability to effect change, and their ability to provide financial support for the sustainability program.

Table 8

1-Year Sustainability Plan

Component/Method	Action	Timeline
Develop vision and case for support	Solicit the help of other members to help organize online meetings and written material.	Month 1
Establish reciprocity with stakeholders.		
The agenda will include the results of the Study/ the shared vision and program goals.	Meeting outcome will expand vision. Identify interested individuals to form a committee. I will Schedule follow-up meeting. Establish best strategies and formalize advisory committee roles.	Month 2
Address the issue with company administrators.		
I will explain why this program is needed and who will benefit from it.		
Solicit ideas about which stakeholders may share the same concerns and ideas for implementation.		
Buy-in		
Follow-up	Follow-up meeting	Month 3
Learning Materials	Design/Order Self-efficacy white paper. Distribute self-efficacy white paper to all CCPs	Month 4
Annual employee evaluation	Administer the Work Self-Efficacy inventory.	Month 5
	Share results and provide self-efficacy training/feedback/recommendations.	December
Formative assessment of the effectiveness of intervention	Assess the effectiveness of the intervention by re-administering the Work Self-efficacy inventory.	Annually

Note. The table above provides a tentative timeline for the implementation of self-efficacy training.

Project Outline

The outline (Table 9) of an education program should follow the four sources of self-efficacy proposed by Bandura (1977): performance outcomes, vicarious experience, verbal persuasion, and physiological arousal. When assigning tasks, supervisors should develop strategies that apply the sources of self-efficacy theory. When tasks progress from easy to difficult, employees realize that they are competent at performing them (Stajkovic et al., 2009). Giving an employee the opportunity to attempt new tasks after successfully accomplishing a job perceived as difficult will encourage both personal and professional growth (Bandura, 1997; Locke, 2009; Stajkovic et al., 2009).

Observing peers in a social and professional climate that supports employees in their ideas without fear of judgment or retaliation may enable employees to become more vocal and forthcoming with respect to sharing their ideas and concerns. Modeling peer behavior promotes both learning and engagement. This reciprocity between observer and mentor results in higher self-esteem (Locke, 2009; Stajkovic et al., 2009). Supervisors should provide employees with encouragement during the inactive mastery process, appraise their performance, and issue positive feedback after they complete a task. Research indicates that when supervisors demonstrate respect for an employee in an open forum, employees' self-confidence and performance both improve (Locke, 2009; Stajkovic et al., 2009).

The level of success with which individuals accomplish tasks depends on how they interact with their environment (Bandura, 1997). To improve self-efficacy, employees should perform different tasks under different conditions. Employers should

allow employees to perform certain tasks under different scenarios and circumstances because individuals tend to perform differently based on the feedback that they receive from the work environment. Under pressure, employees may either accomplish a task successfully or fail altogether (Locke, 2009; Pajares, 2006; Stajkovic et al., 2009). Supervisors should enable individuals to experience different situations that employees can associate with self-accomplishment. Working under different conditions fosters self-efficacy because employees learn to accomplish tasks under the pressure of unforeseen situations (Locke, 2009; Stajkovic et al., 2009).

Table 9

Scope of Program Implementation

Self-efficacy Component	Action
Identify learning style/stage	Dependent, interested, involved, or self-directed
Work Roles	Stakeholders will clearly define Job responsibilities to avoid role ambiguity.
Job Future	The organization will offer opportunities for continuing education and advancement.
Social Environment	The organization will promote personal interaction, emotional support, and assistance in completing tasks. The organization will promote teamwork and collaboration.
Performance feedback and appraisal	Feedback should be accurate, timely, and specific so that the individual or group can better understand the cause and effect of behavioral patterns that contribute to poor performance.
Content	The organization will rotate employees through different work settings to stimulate employees to use their skills, improve current skills, and acquire new skills.
Autonomy	The organization will give employees the opportunity to voice their opinions and ideas on how to best accomplish and manage their own tasks.
Manage workload and schedules	Workload and schedule will match the employee's skill level and available resources.
Secondary prevention of stress	The individual will be offered treatment to manage stress through the provision of in-house counseling paid for by the organization
Tertiary prevention of stress	Individuals will be able to recognize the symptoms of stress in themselves and other team members to seek stress management strategies.

Note. From "*Safety at the sharp end: A guide to non-technical skills,*" Flin, et al., 2008, Burlington, VT: Ashgate Publishing, LTD, p. 170**.**

Roles and Responsibilities

I assumed the role of an advocate for positive social change to guide the project in the local setting. If the stakeholders in the local organization chose to implement the recommendations, I offered my involvement during the process. I assumed responsibility for presenting each recommendation option to stakeholders to ensure a clear vision of the plan's execution.

Project Evaluation

I performed a formative evaluation of the policy-change recommendations as part of the project study. I collected quantitative data to assess perfusionist self-efficacy and commitment using the work self-efficacy inventory and the organizational commitment questionnaire. Once the recommendations are implemented, the work self-efficacy inventory (see Appendix A) will be used for a formative evaluation of the level of the self-efficacy of CCPs, which will be held each December.

Implications, Including Social Change

Local Community

The content of these policy-change recommendations meets the needs of stakeholders in the local perfusion organization by using self-efficacy as a predictor of CCP commitment. The implications of the findings for positive social change include helping the stakeholders to better understand how CCPs' overall well-being affects the individual, the community, the organization, and job performance. The outcomes of this inquiry may facilitate the development of new ideas in the form of better leadership strategies to improve working conditions, the implementation of actions designed to

support CCP engagement, and the professional development of CCPs. The implementation of the recommendations may help perfusion supervisors and administrators understand how CCPs' self-efficacy and commitment help improve job performance in surgical settings. This knowledge could affect both the institution for which CCPs work and the patient community that CCPs serve, because committed CCPs can provide better patient care in their communities.

Far-Reaching

Research on the impact of self-efficacy on employee commitment is extensive; this is not surprising, because self-beliefs have a powerful influence on an individual's job performance, behavior regulation, and vulnerability to stressors in the workplace (Bandura, 1997; Locke, 2009; Pajares, 2006). For more than 25 years, researchers have assessed the work climate in high-stress work settings and established that human factors create unfavorable conditions that may harm employee health and/or the welfare of those to whom services are provided (Gist, & Mitchell, 1992). The mechanism for changes in employee behaviors is the relationship between the employee and the workplace because the extent to which the employee interacts with the job and the organization plays a critical role in how the employee behaves within the organization (Meyer & Allen, 1991; Mowday et al., 1979).

Stakeholders who wish to improve the workplace in any perfusion setting can benefit from this study because employees with high levels of self-efficacy and commitment may be more satisfied with the job and the organization, which may both increase employee engagement and improve work performance. The results of this study

may positively affect the entire practice of perfusion if the outcomes of the inquiry indicate a need to implement training and systematic policies and guidelines to improve practice. Researchers could replicate the study in other areas of the surgical setting to determine levels of self-efficacy and commitment among other surgical team members.

Conclusion

In section 3, I present this project's goals, rationale, supporting literature, implementation, evaluation, and implications for social change. The project informs stakeholders in the local perfusion organization and may assist with providing solutions to reduce low levels of CCP self-efficacy. The format of the policy-change recommendations includes an annual assessment to evaluate self-efficacy levels. The policy recommendations include the options of implementing evidence-based self-efficacy using the work self-efficacy scale, implementing regulated working hours, or maintaining the status quo. Possible strategies for a self-efficacy intervention include self-implemented, subject matter expert (SME), and employee engagement through health promotion. In section 4, I present my reflections and conclusions.

Section 4: Reflections and Conclusions

Introduction

In this section, I present numerous reflections on the project study and my conclusions. In the subsections, I describe the project's strengths and provide recommendations to remedy its limitations. Other subsections include information about scholarship, project development, leadership, self-analysis, and the project's potential impact on society. Implications, applications, and directions for future research conclude this section of the study.

Project Strengths

The strength of the project lies in the identification of how the local problem of low levels of CCP commitment is associated with low levels of self-efficacy and factors such as age, gender, workload, experience, and education. Of substantial importance is the ability to acquire the knowledge to offer strategies from the larger population of CCPs in the U.S. that stakeholders could implement at the local level. The results of this project educate both stakeholders and CCPs about both the antecedents of low CCP job commitment and the strategies that stakeholders can use to increase CCP self-efficacy. Formative data collection as part of CCPs' annual evaluation is a useful strategy because it may help formulate specific self-efficacy training. In this manner, CCPs' overall well-being could increase, thus improving both CCP retention and the quality of CCPs' work performance.

Recommendations for Remediation of Limitations

Over a period of 3 weeks, more than 500 CCPs clicked on the survey link. However, not all of those who clicked completed the survey in its entirety. There were only 251 complete responses. One limitation of the study was sample size. The sample only represented 9.4% of the total U.S. CCP population. A larger sample could have been more representative of the total population and provided needed statistical power to test hypotheses.

Recommendations for Alternative Approaches

In future studies, researchers can remediate the sample-size limitation by discussing the study in CCP meetings and posting in more CCP online communities, including Facebook. Another relative limitation of the project was the lack of transparency associated with self-reporting. In a future assessments, researchers can add a statement to the survey instrument that asks the CCPs to enlist their ethical and moral values when responding, which could ensure honesty.

In addition, stakeholders must be willing to allocate financial resources both to hire an SME and to cover the costs of materials and health promotion. The use of local individuals as mentors may be an alternatives to hiring an SME. This alternative seems viable because ongoing evaluation and support are the key to a successful intervention. I chose policy-change recommendations as the culminating project because I could present the project as an argument for positive change.

The project may start a debate on current issues in perfusion with respect to low CCP job commitment and its causes. I can use the Internet to share my recommendations

with local perfusion organizations. Any intervention that stakeholders might consider would have to use an online platform to reach CCPs in the local setting dispersed across the United States. I can generalize the study's findings and recommendations to other perfusion settings because findings from the larger group share similarities with the local setting, given that self-efficacy predicts job commitment across perfusion domains.

Scholarship

Through this doctoral project, I have learned that scholarship is a journey that fosters life-long learning, discovery, depth, and breadth. During this journey, I have faced challenges in areas such as scholarly writing and developing the research skills required to conduct analysis and report results. My initial lack of skills required self-guided learning, enlisting support from the doctoral committee and the writing center, and guidance in the use of statistics. Whereas self-regulation was a necessary skill for growth, divergent viewpoints were vital to enable me to think critically about my cognitive and technical skills. I challenged my preconceived ideas of myself and my actions based on the input of my cohort, which has made the journey meaningful. The overall scope of the journey has challenged me as a researcher to emphasize the depth and breadth of the available literature to inform my inquiry. Looking beyond this doctoral project, I will continue to create positive change in the field of perfusion by expanding my knowledge through meaningful research projects.

Project Development and Evaluation

Project development and evaluation involve knowing one's audience to enable selection of the appropriate project strategy. I selected a policy-change position paper

based on my personal knowledge of the perfusion field. Presenting an evidence-based argument for possible recommendations for positive change in the workplace seemed the most appropriate strategy. Personal experience in the perfusion community has taught me that CCPs exchange information through evidence-based discussion and debate in online forums to achieve consensus regarding ongoing issues. The recommendation to employ a formative evaluation using a validated instrument was also a strategy to collect data for future research, whether locally or globally.

Leadership and Change

I believe that learning is a process through which people enlist previous understandings to construe revised understandings of the meaning of experiences to guide future action. In the local perfusion setting, this statement means that presenting evidence of previous behavioral patterns of CCPs in the workplace may prompt stakeholders to act to remediate disparities.

However, the proponents of such changes must have the credibility to influence stakeholders to work toward a common goal. This journey has helped me both to construct new knowledge and to transform myself from a passive to an active advocate for positive social change. This transformation required questioning the status quo and the data collection to influence others to question and promote change. I view myself as a good leader not only when my actions evoke freedom and autonomy but also, and most importantly, when others perceive me as a role model for growth and development. The positive experience of this journey motivates me to lead future research and to continue to work harder to effect change for the betterment of all.

Analysis of Self as Scholar

A self-analysis as a scholar begins with a self-reflection on one's doctoral project. Throughout this study, I have taken pride in ensuring that the project is original, meaningful, and appropriate for positive social change in the perfusion work setting. I conducted myself with integrity and adhered to ethical and moral values in performing the study. Concretely, I followed the appropriate guidelines, as established by the IRB and the federal government, to protect research participants. Finally, a scholar-practitioner enlists the criticism of others as a tool to investigate areas in need of improvement. I learned as much from my mistakes as I did from my triumphs, which attests to the fact that people do not live in isolation. I view scholarship as having the ability to amalgamate different points among various contentions to make rational decisions for positive social change.

Analysis of Self as Practitioner

As a practicing CCP, I view myself as a mentor to new CCPs who are entering the profession. Becoming a mentor entails leading by example, with both confidence and respect. Above all, a mentor must have the knowledge to identify knowledge gaps in the teaching or work environment so that the practitioner can propose solutions. I feel that I have acquired the necessary skills to be an effective leader/mentor. As a lifelong learner, I will continue to examine and remedy disparities in the workplace.

Analysis of Self as Project Developer

When I reflect on my journey as a project developer, I realize how little knowledge I had about developing a project. The challenges that I faced were the result

of my lack of experience in finding resources to guide the project. However, the limitations that I encountered forced me to do more research and think critically about the project genera that could work, given my knowledge of the perfusion work setting. I realized it was difficult to design a project for an audience that is not easily persuaded to change internalized practices. It was important for me to know for whom I created the project, because job characteristics could dictate the audience's behavior with respect to content-delivery methods.

I developed the project with the understanding that there was limited research on CCPs' workplace behavioral patterns. I had to find a creative method to convince stakeholders that CCPs' adverse behaviors in the workplace are bound to continue if left unaddressed. My strategy was to enlist the results of the data analysis and the literature to inform stakeholders how CCPs' well-being affect overall job performance and safety in the workplace. Sharing the results was my contribution to positive social change in the perfusion environment. I also feel that the creation of this project was my ethical and moral responsibility as a scholar-practitioner. The completion of the project, however, was a team effort that required the help of colleagues, stakeholders, and the Walden doctoral committee.

The Project's Potential Impact on Social Change

My findings will contribute to closing the gap in research on this issue in the perfusion community. My study may encourage future research in the perfusion community by inspiring others to think critically about their current practices, thus questioning the status quo. My inquiry's research findings may serve as a foundation for

positive change in the workplace, including the implementation of systematic policy changes. Because I drew the sample from the larger perfusion community, I would categorize it as homogenous. The results represent the entire community, with a high level of confidence. Stakeholders in all domains in the perfusion community can use my findings to establish interventions to increase self-efficacy in CCPs. On a final note, understanding the factors that affect self-efficacy or commitment may financially benefit stakeholders by decreasing turnover rates and improving the workforce over time by recruiting motivated candidates.

Implications, Applications, and Directions for Future Research

This study has implications both for the broader perfusion community and for CCPs. Based on the data analysis, the results indicate that self-efficacy predicts commitment among U.S. CCPs with a 99% level of confidence. Variables such as age, gender, workload, experience, and education may indirectly affect commitment. This finding is not surprising. Meyer and Allen (1991) note that although researchers have established the relationship between personal characteristics (e.g., age, gender, experience, or education) and commitment, the association is neither strong nor consistent. However, although the exact mechanism is somewhat unclear, individual factors may be confounding variables that affect both self-efficacy and commitment. Future research guided by the results of my study may be required to test these personal characteristics. Future research on CCP self-efficacy as it relates to employee commitment is required because this issue is one of increasing concern among stakeholders in both the local setting and the perfusion community.

Conclusion

In Section 4, I presented my reflections on scholarship, project development, evaluation, and leadership for change. I reflected on overcoming the various challenges experienced during my doctoral journey and on the progressive cognitive skills required to become a scholar. Furthermore, I considered my experiences in project development and evaluation during my doctoral process. Finally, I reflected on the role and the desirable characteristics of a leader as an agent for positive change.

In the final subsections, I offered my reflections on the doctoral study experience and the impact of my project on social change. Similarly, those subsections underscored the implications and applications of my study and directions for future research. During the doctoral research experience, I have learned the overall process of conducting research: literature review, data collection and analysis, scholarly writing, and most importantly, critical thinking skills. I presented my objectives both as a researcher and as a lifelong learner for future research. I intend to incorporate the skills and knowledge acquired during my doctoral journey to advancing the field of perfusion through meaningful inquiries.

References

Accreditation Committee-Perfusion Education. (2014). *Accreditation committee-perfusion education: Overall outcomes* 2001-2012. Retrieved from http://ac-pe.org/wordpress/wp-content/uploads/2014/12/Overall-outcomes-2001-2012.pdf

American Association of Colleges of Nursing (2015). *Fact sheet: The impact of education on nursing practice.* Retrieved from http://www.aacn.nche.edu/media-relations/fact-sheets/impact-of-education

Al-Hussami, M. (2009). Predictors of nurses' commitment to health care organisations. *Australian Journal of Advanced Nursing, 26*(4), 36-48. Retrieved from http://ajan.com.au/Vol26/26-4.pdf#page=37

American Board of Cardiovascular Perfusion. (2014). *Recertification*. Retrieved from http://abcp.org/recertification.htm

American College of Surgeons Health Policy Research Institute. (2010). *The surgical workforce in the United States: Profile and recent trends*. Retrieved from http://www.acshpri.org/pubs.html.

Ames, M. M., Kilpatrick, A. O., Zoller, J., Sistino, J. J., Blackwell, M., & Acsell, J. (2004). A national study of job satisfaction and burnout among perfusionists. *Journal of Extra-Corporeal Technology*, *36*(1), 44-50. Retrieved from http://www2.amsect.org/sections/members/ecu/library/ject/2004_volume36/issue1/ject_2004_v36_n1_ames.pdf

Aiken, L. H., Cimiotti, J. P., Sloane, D. M., Smith, H. L., Flynn, L., & Neff, D. F. (2011). The effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments. *Medical care*, *49*(12), 1047. doi:10.1097/MLR.0b013e3182330b6e.

Arya, B., Sharma, M., & Singh, S. (2012). Moderating effect of gender role orientation on the relationship between organizational commitment and self-efficacy. *International Journal of Scientific and Research Publications, 2*(12), 1-5. http://www.ijsrp.org/research-paper-1212/ijsrp-p1260.pdf

Ashford, J. B., & LeCroy, C. W. (2010). *Human behavior in the social environment: A multidimensional perspective* (4th ed.). CA: Wadsworth, Cengage Learning.

Ayers, S., Baum, A., McManus, C., Newman, S., Wallston, K., Weinman, J., & West, R (Eds.). (2007). *Cambridge handbook of psychology, health and medicine*. Cambridge University Press.

Baker, D. (2000). *An examination of the relationship between employee empowerment and organizational behavior*. (Unpublished doctoral dissertation). University of Iowa, Iowa City.

Baltes, B. B., & Clark, M. A. (2009). Achieve work–family balance through individual and organizational strategies. In E. A. Locke (Ed.), *Handbook of principles of organizational behavior* (pp. 581-592). United Kingdom: John Wiley and Sons, Ltd.

Bandura, A. (1973). *Aggression: A social learning analysis.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191-215. doi:10.1037//0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1992). Exercise of personal agency through the self-efficacy mechanisms. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 3-38)*.* Washington, DC: Hemisphere.

Bandura, A. (1994). Regulative function of perceived self-efficacy. In Michael G. Ramsey; Clinton B. Walker; & James H. Harris (Eds.), *Personnel selection and classification* (pp. 261-271). doi:10.4324/9780203773918

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, *38*(1), 9-44. doi:10.1177/0149206311410606

Bersamin, K. (2006). *Moderating job burnout: An examination of work stressors and organizational commitment in a public sector environment*. (Unpublished doctoral dissertation). Nova Southeastern University, Fort Lauderdale, Florida.

Black, D. S., Sun, P., Rohrbach, L. A., & Sussman, S. (2011). Decision-making style and gender moderation of the self-efficacy–condom use link among adolescents and young adults: informing targeted STI/HIV prevention programs. *Archives of pediatrics & adolescent medicine*, *165*(4), 320-325. doi:10.1001/archpediatrics.2011.17

Blum, A. B., Shea, S., Czeisler, C. A., Landrigan, C. P., & Leape, L. (2011). Implementing the 2009 Institute of Medicine recommendations on resident physician work hours, supervision, and safety. *Nature and science of sleep*, *3*(1), 47. doi:10.2147/nss.s19649

Boev, C. (2012). The relationship between nurses' perception of work environment and patient satisfaction in adult critical care. *Journal of Nursing Scholarship*, *44*(4), 368-375. doi:10.1111/j.1547-5069.2012.01466.x

Bower, F. L. (1979). *Relationship of practice setting variables to nurse practitioners performance* (Doctoral dissertation, University of California-San Francisco). *Dissertation Abstracts International, 13,* 674B-675B.

Bresó, E., Schaufeli, W. B., & Salanova, M. (2011). Can a self-efficacy-based intervention decrease burnout, increase engagement, and enhance performance? A quasi-experimental study. *Higher Education*, *61*(4), 339-355. doi:10.1007/s10734-010-9334-6

Brookfield, S.D. (2010). *Developing critical thinkers: Challenging adults to explore alternative ways of thinking and acting*. San Francisco, CA: John Wiley & Sons.

Bui, J., Hodge, A., Shackelford, A., & Acsell, J. (2011). Factors contributing to burnout among perfusionists in the US. *Perfusion*, *26*(6), 461-466. doi:10.1177/0267659111411521

Bureau of Labor Statistics. (2010). Employment outlook: 2008–18. Retrieved from http://www.dol.gov/mlr/2010/12/errata.pdf

Caesens, G., & Stinglhamber, F. (2014). The relationship between perceived organizational support and work engagement: The role of self-efficacy and its outcomes. *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, *64*(5), 259-267. doi.org/10.1016/j.erap.2014.08.002

Caprara, G. V., Alessandri, G., & Eisenberg, N. (2012). Prosociality: the contribution of traits, values, and self-efficacy beliefs. *Journal of personality and social psychology*, *102*(6), 1289. doi:10.1037/a0025626

Caprara, G. V., Vecchione, M., Alessandri, G., Gerbino, M., & Barbaranelli, C. (2011). The contribution of personality traits and self-efficacy beliefs to academic achievement: A longitudinal study. *British Journal of Educational Psychology*, *81*(1), 78-96. doi:10.1348/2044-8279.002004

Carrington, M., Chen, R., Davies, M., Kaur, J., & Neville, B. (2011). The effectiveness of a single intervention of computer-aided argument mapping in a marketing and a financial accounting subject. *Higher Education Research & Development*, *30*(3), 387-403. doi:10.1080/07294360.2011.559197

Caruso, J. W., Veloski, J., Grasberger, M., Boex, J. R., Paskin, D. L., Kairys, J. C., ... & Stryjewski, F. G. (2009). *Systematic review of the literature on the impact variation in residents' duty hour schedules on patient safety*. Philadelphia, PA: Jefferson Medical College.

Cascio, M. I., Magnano, P., Elastico, S., Costantino, V., Zapparrata, V., & Battiato, A. (2014). The relationship among self-efficacy beliefs, external locus of control and

work stress in public setting schoolteachers. *Open Journal of Social Sciences*, *2*(11), 149-156. doi:10.4236/jss.2014.211021

Chi, H., Yeh, H., & Choum, S. (2013). The organizational commitment, personality traits, and teaching efficacy of junior high school teachers: The mediating effect of job involvement. *Journal of Human Resource and Adult Learning, 9*(2), 131-142. Retreived from http:www.hraljournal.com

Chu, R. J. C. (2010). How family support and Internet self-efficacy influence the effects of e-learning among higher aged adults–Analyses of gender and age differences. *Computers & Education*, *55*(1), 255-264. doi:10.1016/j.compedu.2010.01.011

Clarke, S. (2006). Safety climate in an automobile manufacturing plant: The effects of work environment, job communication, and safety attitudes on accidents and unsafe behavior. *Personnel Review*, *35*(4), 413-430. doi:10.1108/00483480610670580

Cohen, A. (1993). Age and tenure in relation to organizational commitment: A Meta-analysis. *Basic and Applied Social Psychology, 14*(2), 143-159. doi:10.1207/s15324834basp1402_2

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). St. Paul, MN: West Publishing Company.

Cohen, J., Wolfowitz, J., & Ewan R. B. (2000). *Introductory statistics for the behavioral sciences*. Orlando, FL: Harcourt Brace College Publishers.

Cole, M. B., & Donohue, M. V. (2011). *Social participation in occupational contexts: In schools, clinics, and communities*. NJ: Slack.

Cooper, D. R., & Schindler, P.S. (2005). *Business research methods* (9th ed.). Boston, MA: McGraw-Hill

Correll, S. J., Benard, S., & Paik, I. (2007). Getting a job: Is there a motherhood penalty? *American journal of sociology*, *112*(5), 1297-1339. doi:10.1086/511799

Courtenay, W. H. (2000). Constructions of masculinity and their influence on men's well-being: a theory of gender and health. *Social Science & Medicine, 50*(10), 1385-1401. doi 10.1016/s0277-9536(99)00390-1

Cox, D. W., & Salkind, N. J. (2005). Self-efficacy. *Encyclopedia of human development* (pp. 1135-1138). doi:10.4135/9781412952484.n549

Cozby, P. C. (2004). *Methods in behavioral research.* New York, NY: McGraw-Hill Higher Education.

Creswell, J. W. (2005) *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston, MA: Pearson Education, Inc.

Dabbagh, N., & Kitsantas, A. (2012). Personal learning environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *The Internet and higher education*, *15*(1), 3-8. doi:10.1016/j.iheduc.2011.06.002

Detary, T. (2003). *The relationship between self-efficacy, optimism, and organizational commitment among registered nurses in a long-term milieu*. (Unpublished doctoral dissertation). Argosy University, Sarasota.

Dickerson, A., & Taylor, M. A. (2000). Self-limiting behavior in women. *Group & Organizational Management, 25*(2), 191-210. doi:10.1177/1059601100252006

Dijkstra, M. T., Beersma, B., & Evers, A. (2011). Reducing conflict-related employee strain: The benefits of an internal locus of control and a problem-solving conflict management strategy. *Work & Stress*, *25*(2), 167-184. doi:10.1080/02678373.2011.593344

Diseth, Å., Meland, E., & Breidablik, H. J. (2014). Self-beliefs among students: Grade level and gender differences in self-esteem, self-efficacy and implicit theories of intelligence. *Learning and Individual Differences*, *35*, 1-8. doi:10.1016/j.lindif.2014.06.003

Duffield, C. M., Roche, M. A., Blay, N., & Stasa, H. (2011). Nursing unit managers, staff retention and the work environment. *Journal of Clinical Nursing*, *20*(1-2), 23-33. doi:10.1111/j.1365-2702.2010.03478.x

ElBardissi, A. W., & Sundt, T. M. (2012). Human factors and operating room safety. *Surgical Clinics of North America, 92*(1), 21-35. doi:10.1016/j.suc.2011.11.007

ElBardissi, A. W., Wiegmann, D. A., Henrickson, S., Wadhera, R., & Sundt, T. M. (2008). Identifying methods to improve heart surgery: an operative approach and strategy for implementation on an organizational level. *European Journal of Cardio-Thoracic Surgery*, *34*(5), 1027-1033. doi:10.1016/j.ejcts.2008.07.007

Fang, M. (2001). *Job characteristics and self-efficacy as predictors of organizational commitment.* (Unpublished doctoral dissertation). University of Nevada, Las Vegas.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analysis using G*Power3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149-1160. doi:org/doi:10.3758/brm.41.4.1149

Fida, R., Paciello, M., Tramontano, C., Barbaranelli, C., & Farnese, M. L. (2014). "Yes, I can": the protective role of personal self-efficacy in hindering counterproductive work behavior under stressful conditions. *Anxiety, Stress, & Coping*, 1-21. doi:10.1080/10615806.2014.969718

Flin, R., O'Connor, P., & Crichton, M. (2008). *Safety at the sharp end: A guide to nontechnical skills*. Burlington, VT: Ashgate Publishing, Ltd.

Flin, R., Winter, J., & Cakil Sarac, M. R. (2009). Human factors in patient safety: Review of topics and tools. *World Health*, 2(5), 1-63. Retrieved from http://testing.chfg.org/resources/10_qrt01/WHO_PS_HF_Review.pdf

Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, *17*(2), 183-211. doi:10.5465/amr.1992.4279530

Gilman, C. P. (1914). *The man-made world, or, our androcentric culture* (No. 6557). New York, NY: Charlton Company.

Goddard, R., O'Brien, P., & Goddard, M. (2006). Work environment predictors of

    beginning teacher burnout. *British Educational Research Journal*, *32*(6), 857-

    874. doi:10.1080/01411920600989511

Hahn, V. C., Binnewies, C., Sonnentag, S., & Mojza, E. J. (2011). Learning how to

    recover from job stress: Effects of a recovery training program on recovery,

    recovery-related self-efficacy, and well-being. *Journal of Occupational Health*

    Psychology, *16*(2), 202-216. doi.org/10.1037/a0022169

Hayes, B., Bonner, A., & Pryor, J. (2010). Factors contributing to nurse job satisfaction

    in the acute hospital setting: a review of recent literature. *Journal of Nursing*

    Management, *18*(7), 804-814. doi:10.1111/j.1365-2834.2010.01131.x

Hellgren, J., Naswall, K., & Sverke, M. (2008). *The individual in the changing working*

    life. Cambridge: Cambridge University Press. doi:10.1017/cbo9780511490064

Hicks, T., & McFrazier, M. (2014). *College student self-efficacy research studies*. Prerie

    View, TX: A & M University.

Hilton, M. F., Sheridan, J., Cleary, C. M., & Whiteford, H. A. (2009). Employee

    absenteeism measures reflecting current work practices could be instrumental in a

    re-evaluation of the relationship between psychological distress/mental health and

    absenteeism. *International Journal of Methods in Psychiatric Research*, *18*(1),

    37-47. doi:10.1002/mpr.275

Hoare, C. (2012). *The Oxford handbook of reciprocal adult development and learning.*

    New York, NY: Oxford University Press. Retrieved from

    http://www.krepublishers.com

Huffman, A. H., Whetten, J., & Huffman, W. H. (2013). Using technology in higher education: The influence of gender roles on technology self-efficacy. *Computers in Human Behavior*, *29*(4), 1779-1786. doi:10.1016/j.chb.2013.02.012

Hull, L., Arora, S., Aggarwal, R., Darzi, A., Vincent, C., & Sevdalis, N. (2012). The impact of nontechnical skills on technical performance in surgery: a systematic review. *Journal of the American College of Surgeons*, *214*(2), 214-230. doi:10.1016/j.jamcollsurg.2011.10.016

Indartono, S., & Chen, C.V. (2011). Moderating effects of tenure and gender on the relationship between perception of organizational politics and commitment and trust. *South Asian Journal of Management, 18*(1), 7-36. Retrieved from http://eds.b.ebscohost.com.ezp.waldenulibrary.org/eds/pdfviewer/pdfviewer?sid= 999cef45-72b4-451f-9909-ec88cd0f457e%40sessionmgr111&vid=11&hid=103

Iqbal, A. (2010). An empirical assessment of demographic factors, organizational ranks and organizational commitment. *International Journal of Business and Management, 5*(3). doi:10.5539/ijbm.v5n3p16

Irshad, E., & Naz, S. (2011). Job satisfaction, organizational commitment, and personality traits: A relationship study. *Journal of Humanities and Social Sciences, 19*(2), 37-60. Retrieved from http://search.proquest.com/docview/1115591549?accountid=14872

Johnson R. B., & Christensen L. B. (2007). *Educational research: Quantitative, qualitative, and mixed approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Joo, Y. J., Lim, K. Y., & Kim, J. (2013). Locus of control, self-efficacy, and task value as predictors of learning outcome in an online university context. *Computers & Education*, *62*, 149-158. doi:10.1016/j.compedu.2012.10.027

Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A., & Rich, B. L. (2007). Self-efficacy and work-related performance: The integral role of individual differences. *Journal of Applied Psychology*, *92*(1), 107. doi:10.1037/0021-9010.92.1.107

Judge, T. A., & Klinger, R. (2009). Promote job satisfaction through mental challenge. In E. A. Locke (Ed.), *Handbook of principles of organizational behavior* (pp. 107-121). United Kingdom: John Wiley and Sons, Ltd.

Kanning, U. P., & Hill, A. (2013). Validation of the organizational commitment questionnaire (OCQ) in six languages. *Journal of Business and Media Psychology, 4*(2), *11-22*. Retrieved from http://www.journal-bmp.de

Kaptanoglu, A. Y., & Demir, T. (2013). Examining job satisfaction among perfusionists: A brief report from Istanbul. *Journal of the Pakistan Medical Association*, *63*(9), 1157-1162. Retrieved from http://www.researchgate.net

Kenward, L., & Kenward, L. (2011). Promoting interprofessional care in the peri-operative environment. *Nursing Standard*, *25*(41), 35-39. doi:10.7748/ns2011.06.25.41.35.c8571

Kessen, W. (Ed.) (2014). 2 The American child and other cultural inventions. *Growing Up in a Changing Society*, *34*(10), 26.

Khalili, A., & Asmawi, A. (2012). Appraising the impact of gender differences on

 organizational commitment: Empirical evidence from a private SME in Iran.

 IJBM, *7*(5). doi:10.5539/ijbm.v7n5p100

Kirkpatrick, L., & Feeney, B. (2012). *A Simple guide to IBM SPSS: For version 20.0*.

 Belmont, CA: Cengage Learning.

Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job

 satisfaction: Teacher gender, years of experience, and job stress. *Journal of*

 Educational Psychology, *102*(3), 741. doi:10.1037/a0019237

Klassen, R. M., & Chiu, M. M. (2011). The occupational commitment and intention to

 quit of practicing and pre-service teachers: Influence of self-efficacy, job stress,

 and teaching context. *Contemporary Educational Psychology*, *36*(2), 114-129.

 doi:10.1016/j.cedpsych.2011.01.002

König, C. J., Debus, M. E., Häusler, S., Lendenmann, N., & Kleinmann, M. (2010).

 Examining occupational self-efficacy, work locus of control and communication

 as moderators of the job insecurity—job performance relationship. *Economic and*

 Industrial Democracy, *31*(2), 231-247 doi:10.1177/0143831x09358629.

Kruglanski, A.W. & Stroebe, W. (2011). Handbook of the history of social psychology.

 New York: Routledge.

Leach, L. S., Myrtle, R. C., Weaver, F. A., & Dasu, S. (2009). Assessing the performance

 of surgical teams. *Health Care Management Review*, *34*(1), 29-41.

 doi:10.1097/01.hmr.0000342977.84307.64

Lee, S. W., & Schwarz, N. (2012). Bidirectionality, mediation, and moderation of metaphorical effects: The embodiment of social suspicion and fishy smells. *Journal of personality and social psychology*, *103*(5), 737-749. doi: 10.1037/a002970

Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: Planning and design* (8th ed.). Upper Saddle River, NJ: Prentice Hall.

Lewis, C. C., & Ryan, J. (2014). Age and influence tactics: A life-stage development theory perspective. *International Journal of Human Resource Management*, *25*(15), 2146-2158.

Líbano, M. D., Llorens, S., Salanova, M., & Schaufeli, W. B. (2012). About the dark and bright sides of self-efficacy: Workaholism and work engagement. *Spanish Journal of Psychology*, *15*(2), 688-701. doi:10.5209/rev_sjop.2012.v15.n2.38883

Lin, T. J., Horng, R. Y., & Anderson, R. C. (2014). Effects of Argument Scaffolding and Source Credibility on Science Text Comprehension. *Journal of Experimental Education*, *82*(2), 264-282. doi:10.1080/00220973.2013.769423

Linz, S. J. (2003). Job satisfaction among Russian workers. *International Journal of Manpower, 24*(6), 626-652. doi:10.1108/01437720310496139

Listyowardojo, T. A., Nap, R. E., & Johnson, A. (2011). Variations in hospital worker perceptions of safety culture. *International Journal for Quality in Health Care*, *24*(1), 9-15. doi:10.1093/intqhc/mzr069

Liu, H., Song, G., & Wang, D. (2011). The Influence of Self-Efficacy on Flight Dispatchers' Stressor-Strain Relationships. *Social Behavior and Personality: an international journal*, *39*(6), 839-850. doi.org/10.2224/sbp.2011.39.6.839

Locke, E. A. (Ed.). (2009). Cultivate self-efficacy for personal and organizational effectiveness. *Handbook of principles of organizational behavior* (2 ed.; pp. 179-195). United Kingdom: John Wiley and Sons, Ltd.

Lodico, M. G., Spaulding, D. T., & Voegle, K. H. (2010). *Methods in educational research: From theory to practice*. San Francisco, CA: John Wiley & Sons.

Long, B. C., Kahn, S. E., & Schutz, R. W. (1992). Causal model of stress and coping: Women in management. *Journal of Counseling Psychology, 39*(2), *227*-239. doi:10.1037/0022-0167.39.2.227

Lorente, L., Salanova, M., & Martínez, I. M. (2011). Developing a job-related self-efficacy scale among construction workers. *Revista Interamericana de Psicología Ocupacional, 30*(1), 149-160. http://www.researchgate.net/publication

Madlock, P. E. (2008). The link between leadership style, communicator competence, and employee satisfaction. *Journal of Business Communication*, *45*(1), 61-78. doi:10.1177/0021943607309351

Manser, T. (2009). Teamwork and patient safety in dynamic domains of healthcare: a review of the literature. *Acta Anaesthesiologica Scandinavica*, *53*(2), 143-151. http://dx.doi.org/10.1111/j.1399-6576.2008.01717.x

Marsden, P., Kalleberg, A., & Cook, C. (1993). Gender differences in organizational commitment influences of work positions and family roles. *Work and Occupation, 20*(3), 368-390. doi:10.1177/0730888493020003005

Mast, B. T., Zimmerman, J., & Rowe S.V. (2011). What do we know about the aging brain? Implications for learning late in life. In C. M. Smith & N. DeFrates-Densch (Eds). *Handbook of research on adult learning and development* (ch. 24). New York, NY: Taylor and Francis.

Mastenbroek, N. J. J. M., Jaarsma, A. D. C., Scherpbier, A. J. J. A., van Beukelen, P., & Demerouti, E. (2014). The role of personal resources in explaining well-being and performance: A study among young veterinary professionals. *European Journal of Work and Organizational Psychology*, *23*(2), 190-202. doi:10.1080/1359432X.2012.728040

Mazzacco, K., Petitti, D. B., Fong, K. T., Bonacum, D., Brookey, J., Graham, S., & Thomas, E. J. (2009). Surgical team behaviours and patient outcomes. *American Journal of Surgery*, *197*(5), 678-685. doi:10.1016/j.amjsurg.2008.03.002

McConnell, C.J. (2006). *An examination of the relationships among person-organization fit, individual and organizational value structures, and affective, normative, and continuance components of organizational commitment.* (Unpublished doctoral dissertation). Nova Southeastern University, Fort Lauderdale, Florida.

McCulloch, P., Rathbone, J., & Catchpole, K. (2011). Interventions to improve teamwork and communications among healthcare staff. *British Journal of Surgery*, *98*(4), 469-479. doi:10.1002/bjs.7434

Mehrotra, C. M. M., & Vagner, L. S. S. (2012). *Aging and diversity: An active learning experience.* New York, NY: Taylor and Francis.

Mensah, A., & Lebbaeus, A. (2013). The influence of employees' self-efficacy on their quality of work life: The of Cape Coast, Ghana. *International Journal of Business and Social Studies, 4*(2), 195-205. Retreived from http://www.ijbssnet.com

Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of occupations: Extension and test of a three-component conceptualization. Organizational commitment. *Human Resource Management Review, 1*(1), 61-89. doi:10.1016/1053-4822(91)90011-z

Meyer, J. P., & Allen, N. J. (1999). *Commitment in the workplace: Theory, research, and application*. Thousand Oaks, CA: Sage Publ.

Meyer, J. P., & Allen, N.J. (1997). *Commitment in the workplace: Theory, research and application*. Newbury Park, CA: Sage.

Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: Toward a general model. *Human Resources Review, 11*(3), 299-326. doi:10.1016/s1053-4822(00)00053-x

Meyer, J. P., & Maltin, E. R. (2010). Employee commitment and well-being: A critical review, theoretical framework and research agenda. *Journal of Vocational Behavior, 77*(2), 323-337. doi:10.1016/j.jvb.2010.04.007

Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organisations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology, 78*(4), 538-551. doi:10.1037/0021-9010.78.4.538

Meyer, J. P., & Allen, N.J. (1984). Testing the "side-bet theory" of organizational commitment: Some methodological considerations. *Journal of Applied Psychology*. *69*(3), 372-378. doi:10.1037/0021-9010.69.3.372

Meyer, J. P., Stanley, D. J., Jackson, T. A., McInnis, K. J., Maltin, E. R., & Sheppard, L. (2012). Affective, normative, and continuance commitment levels across cultures: A meta-analysis. *Journal of Vocational Behavior*, *80*(2), 225-245. doi:10.1016/j.jvb.2011.09.005

Meyer, J. P., Stanley, D.J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior, 61*(1), 20-52. doi:10.1006/jvbe.2001.1842

Michael, O., Court, D., & Petal, P. (2009). Job stress and organizational commitment among mentoring coordinators. *International Journal of Educational Management*, *23*(3), 266-288. doi:10.1108/09513540910941766

Moos, R. (1986). Work as a human context. In M. S. Pallack & R. O. Perloff (Series Ed.), *Psychology and work: Productivity, change, and employment, 5*(1), 9-52. doi:10.1037/10055-001

Moos, R. H. (2008). *Work environment scale: A social climate scale* (4 ed.). Palo Alto, CA: Consulting Psychologists Press.

Moos, R. H., & Schaefer, J. (1987). Evaluating health care work settings: A holistic conceptual framework. *Psychology and Health*, *1*(2), 97-122. doi:10.1080/08870448708400318

Mosadeghrad, A. M., Ferlie, E., & Rosenberg, D. (2011). A study of relationship between job stress, quality of working life, and turnover intention among hospital employees. *Health Services Management Research*, *24*(4), 170-181. doi:10.1258/hsmr.2011.011009

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). Organizational commitment questionnaire. *PsycTESTS Dataset*. doi:10.1037/t08840-000

Mowday, R.T., Porter, L.W., Steers, R.M. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, *14*(2), 224-247. doi:10.1016/0001-8791(79)90072-1

Mullen, J., Kelloway, E. K., & Teed, M. (2011). Inconsistent style of leadership as a predictor of safety behaviour. *Work & Stress*, *25*(1), 41-54. doi:10.1080/02678373.2011.569200

Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology*, *96*(1), 71-94. doi:10.1037/a0021484

Neuman, W. L. (2006). Basics of social research: Quantitative and qualitative approaches. New York, NY: Pearson/Allyn & Bacon.

Newman, C. (2014). Time to address gender discrimination and inequality in the health workforce. *Human Resources for Health*, *12*(1), 25. doi:10.1186/1478-4491-12-25

Ngo, H., & Tsang, A. (1998). Employment practices and organizational commitment: Differential effects for men and women? *International Journal of Organizational Analysis, 6*(3), 251-266. doi:10.1108/eb028887

Nie, Y., Lau, S., & Liau, A. K. (2011). Role of academic self-efficacy in moderating the relation between task importance and test anxiety. *Learning and Individual Differences*, *21*(6), 736-741. doi:10.1016/j.lindif.2011.09.005

Nifadkar, R., & Dongre, A. (2014). To study the impact of job satisfaction and demographic factors on organizational commitment among girls' College, Pune, India. *Journal of Business Management and Social Sciences Research*, *3*(1), 1-8. http://www. borjournals.com

Pajares, F. (2006). Self-efficacy during childhood and adolescence: Implications for teachers and parents. In T. C. Urdan (Ed.), *Self-efficacy beliefs of adolescents* (pp. 339-367). Retrieved from

http://www.uky.edu~eushe2/Pajares/PajaresAdoed2006.pdf

Pandya, R. (2011). *Spectrum of lifelong education*. New Delhi, India: Concept Publishing.

Parschau, L., Fleig, L., Koring, M., Lange, D., Knoll, N., Schwarzer, R., & Lippke, S. (2013). Positive experience, self-efficacy, and action control predict physical activity changes: A moderated mediation analysis. *British journal of health psychology, 18*(2), 395-406. doi:10.1111/j.2044-8287.2012.02099.x

Phelan, J., Bromet, E. J., Schwartz, J. E., Dew, M. A., Parkinson, D. K., & Curtis, E. C. (1993). The work environments of male and female professionals: Objective and

subjective characteristics. *Work and Occupations, 20*(1), *68*-89.

doi:10.1177/0730888493020001004

Ponton, M. K., & Carr, P. B. (2012). Autonomous learning and triadic reciprocal

causation: A theoretical discussion. *International Journal of Self-Directed*

Learning, *9*(1), 1-10. Retreived from

http://sdlglobal.com/IJSDL/IJSDL9.1.pdf#page=6

Prince-Embury, S., & Saklofske, D. H. (2013). *Resilience in children, adolescents, and*

adults: Translating research into practice. New York: Springer Science+Business

Media.

Queiros, C., Carlotto, M. S., Kaiseler, M., Dias, S., & Pereira, A. M. (2013). Predictors of

burnout among nurses: An interactionist approach. *Psicothema*, *25*(3). 330-335.

doi:10.7334/psicothema2012.246

Raelin, J. A. (2010). *Work self-efficacy inventory*. Retrieved from Mind Garden, Inc.

http://www.mindgarden.com

Rodriguez-Calcagno, M., & Brewer, E. W. (2005). Job stress among Hispanic

professionals. *Hispanic Journal of Behavioral Sciences, 27*(4), 504-516.

doi:10.1177/0739986305280691

Rosenblatt, Z. (2001). Teachers' multiple roles and skill flexibility: effects on work

attitudes. *Educational Administration Quarterly, 37*(5), 684-708.

doi:10.1177/00131610121969479

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57*(6), 1069-1081. doi:10.1037/0022-3514.57.6.1069

Sahertian, P., & Soetjipto, B.E. (2011). Improving employee's organizational commitment, self-efficacy, and organizational citizenship behavior through the implementation of task-oriented and relationship-oriented leadership behavior. *Business Review, 17*(2), 48-60. http://www.jaabc.com/brcv17n2preview.html

Salami, S. O. (2008). Demographic and psychological factors predicting organizational commitment among industrial workers. *Anthropologist*, *10*(1), 31-38.

Salthouse, T. A. (2009). When does age-related cognitive decline begin? *Neurobiology of aging*, *30*(4), 507-514. doi:10.1016/j.neurobiolaging.2008.09.023

Schaubroeck, J., & Merritt, D. E. (1997). Divergent effects of job control on coping with work stressors: The key role of self-efficacy. *Academy of Management Journal*, *40*(3), 738-754. doi:10.2307/257061

Schaubroeck, J., Lam, S. S., & Xie, J. L. (2000). Collective efficacy versus self-efficacy in coping responses to stressors and control: a cross-cultural study. *Journal of Applied Psychology*, *85*(4), 512-525. doi.org/10.1037/0021-9010.85.4.512

Schaufeli, W. B., Leiter, M. P., & Maslach, C. (2009). Burnout: 35 years of research and practice. *Career development international*, *14*(3), 204-220. doi:10.1108/13620430910966406

Schunk, D. H. (1995). Self-efficacy, motivation, and performance. *Journal of Applied Sport Psychology, 7(2)*, 112-137. doi:10.1080/10413209508406961

Seong, J.Y., Doo-seung, H., & Won-woo, P. (2012). Work status, gender, and organizational commitment among Korean workers: The mediating role of person-organization-fit. *Asia Pacific Journal of Management, 29*(4), 1105-1129. http://link.springer.com/article/10.1007/s10490-011-9248-6

Shechtman, Z., Levy, M., & Leichtentritt, J. (2005). Impact of life skills training on teachers' perceived environment and self-efficacy. *Journal of Educational Research, 98*(3), *144-154.* doi:10.3200/JOER.98.3.144-155

Simbula, S., Guglielmi, D., & Schaufeli, W. B. (2011). A three-wave study of job resources, self-efficacy, and work engagement among Italian schoolteachers. *European Journal of Work and Organizational Psychology*, *20*(3), 285-304.

Sims, H. P.. & Manz, C. C. (1982) Social learning theory, *Journal of Organizational Behavior Management*, *3(4),* 55-63. doi:10.1300/J075v03n04_06

Sonnentag, S., & Spychala, A. (2012). Job control and job stressors as predictors of proactive work behavior: Is role breadth self-efficacy the link?. *Human Performance*, *25*(5), 412-431. doi:10.1080/08959285.2012.721830

Sprague, C. (2013). Corporate education services industry. *Salem press encyclopedia*. Retrieved from Ebscohost database.

Stajkovic, A. D., & Luthans, F. (1998,). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, *124*(2), 240-261. doi.org/10.1037/0033-2909.124.2.240

Stajkovic, A. D., Lee, D., & Nyberg, A. J. (2009). Collective efficacy, group potency, and group performance: meta-analysis of their relationship, and test of a

mediation model. *Journal of Applied Psychology*, *94*(3), 814-828. doi:10.1037/a0015659

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). Mahwah, NJ: Routledge Academic.

Stojanovich, L. (2010). Stress and autoimmunity. *Autoimmunity Reviews*, *9*(5), A272-A276. doi:10.1016/j.autrev.2009.11.014

Sturges, J., Guest, D., Conway, N., & Davey, K. (2002). A longitudinal study of the relationship between career management and organizational commitment among graduates in the first ten years at work. *Journal of Organizational Behavior, 23*(6), 731-748. doi:10.1002/job.164

Swanwick, R., Kitchen, R., Jarvis, J., McCracken, W., O'Neil, R., & Powers, S. (2014). Following Alice: theories of critical thinking and reflective practice in action at postgraduate level. *Teaching in Higher Education*, *19*(2), 156-169. doi:10.1080/13562517.2013.836099

Tabachnick, B. G., & Fidell, L. S. (2012). *Using multivariate statistics* (6th ed.). Boston, MA: Pearson Education.

Taylor, E. W., & Cranton, P. (2012). *The handbook of transformative learning: Theory, research, and practice*. San Francisco, CA: Jossey-Bass.

Teclaw, R., Osatuke, K., Fishman, J., Moore, S. C., & Dyrenforth, S. (2014). Employee age and tenure within organizations: Relationship to workplace satisfaction and workplace climate perceptions. *Health Care Manager*, *33*(1), 4-19. doi:10.1097/01.HCM.0000440616.31891

The Joint Commission on the Accreditation of Healthcare Organizations (2011). Sentinel

 Events. Retrieved from

 http://www.jointcommission.org/assets/1/6/2011_CAMBHC_SE.pdf

Thompson, J. A. (2006). *Factors that influence the career decisions of peri-operative*

 nurses (Doctoral dissertation, Texas Woman's University, Denton, TX).

 Dissertation Abstracts International, *66*(11B), Publication No. AAT 3195998.

Tierney, P., & Farmer, S. M. (2011). Creative self-efficacy development and creative

 performance over time. *Journal of Applied Psychology*, *96*(2), 277.

 doi.org/10.1037/a0020952

Tims, M., Bakker, A., & Derks, D. (2014). Daily job crafting and the self-efficacy-

 performance relationship. *Journal of Managerial Psychology*, *29*(5), 3-3.

 doi.org/10.1108/JMP-05-2012-0148

Tirosh, D., Tsamir, P., Levenson, E., Tabach, M., & Barkai, R. (2013). Exploring young

 children's self-efficacy beliefs related to mathematical and nonmathematical tasks

 performed in kindergarten: abused and neglected children and their peers.

 Educational Studies in Mathematics, *83*(2), 309-322. doi:10.1007/s10649-012-

 9458-y

Toker, S., Gavish, I., & Biron, M. (2013). Job demand–control–support and diabetes risk:

 The moderating role of self-efficacy. *European Journal of Work and*

 Organizational Psychology, *22*(6), 711-724. doi:10.1080/1359432X.2012.698058

Tømte, C., & Hatlevik, O. E. (2011). Gender-differences in Self-efficacy ICT related to

 various ICT-user profiles in Finland and Norway. How do self-efficacy, gender

and ICT-user profiles relate to findings from PISA 2006. *Computers & Education*, *57*(1), 1416-1424. doi:10.1016/j.compedu.2010.12.011

Trew, A., Searles, B., Smith, T., & Darling, E. M. (2011). Fatigue and extended work hours among cardiovascular perfusionists: 2010 Survey. *Perfusion*, *26*(5), 361-370. doi:10.1177/0267659111409278

Triola, M. (2010). *Elementary statistics* (11th ed.). Boston, MA: Pearson Education.

Tschannen-Moran, M., & Johnson, D. (2011). Exploring literacy teachers' self-efficacy beliefs: Potential sources at play. *Teaching and Teacher Education*, *27*(4), 751-761. doi:10.1016/j.tate.2010.12.005

Tucker, M. K., Jimmieson, N. L., & Oei, T. P. (2013). The relevance of shared experiences: A multi-level study of collective efficacy as a moderator of job control in the stressor-strain relationship. *Work & Stress*, *27*(1), 1-21. do:10.1080/02678373.2013.772356i

Turner, F. J. (2012). *Social work treatment: interlocking theoretical approaches.* New York, NY: Oxford University Press.

Turnipseed, D. (1994). The relationship between the social environment of organizations and the climate for innovation and creativity. *Creativity and Innovation Management*, *3*(3), *184-195.* doi:10.1111/j.1467-8691.1994.tb00172.x

U.S. Department of Health & Human Services (2012). *Regulations*. Retrieved from http://www.hhs.gov/regulations/index.html

Urdan, T.C. (2010). *Statistics in plain English* (3rd ed.). New York, NY: Taylor &Francis Group.

Verdonk, P., Räntzsch, V., de Vries, R., & Houkes, I. (2014). Show what you know and deal with stress yourself: A qualitative interview study of medical interns' perceptions of stress and gender. *BMC Medical Education*, *14*(1), 96. doi:10.1186/1472-6920-14-96

Wadhera, R. K., Parker, S. H., Burkhart, H. M., Greason, K. L., Neal, J. R., Levenick, K. M., & Sundt III, T. M. (2010). Is the "sterile cockpit" concept applicable to cardiovascular surgery critical intervals or critical events? The impact of protocol-driven communication during cardiopulmonary bypass. *Journal of Thoracic and Cardiovascular Surgery*, *139*(2), 312-319. doi:10.1016/j.jtcvs.2009.10.048

Wahr, J. A., Prager, R. L., Abernathy, J. H. III., Martinez, E. A., Salas, E., Seifert, P. C., & … Nussmeier, N. A. (2013). Patient safety in the cardiac operating room: Human factors and teamwork: A scientific statement from the American Heart Association. *Circulation, 128*(10), 1139-1169. doi:10.1161/CIR.0b013e3182a38efa

Walumbwa, F. O., Mayer, D. M., Wang, P., Wang, H., Workman, K., & Christensen, A. L. (2011). Linking ethical leadership to employee performance: The roles of leader–member exchange, self-efficacy, and organizational identification. *Organizational Behavior and Human Decision Processes*, *115*(2), 204-213. doi:10.1016/j.obhdp.2010.11.002

Weaver, C. N. (1977). Relationships among pay, race, sex, occupational prestige, supervision, work autonomy and job satisfaction in a national sample. *Personnel Psychology, 30*(3), 4374-45. doi:10.1111/j.1744-6570.1977.tb00436.x

Weaver, S. J., Rosen, M. A., DiazGranados, D., Lazzara, E. H., Lyons, R., Salas, E., &
King, H. B. (2010). Does teamwork improve performance in the operating room?
A multilevel evaluation. *Joint Commission on Quality and Patient Safety*, *36*(3),
133-142. http://www.ahrq.gov/

Weinberg, D. B., Cooney-Miner, D., & Perloff, J. N. (2012). Analyzing the relationship
between nursing education and patient outcomes. *Journal of Nursing
Regulation*, *3*(2), 4-10. http://www.journalofnursingregulation.com

Weng, L. C., Huang, H. L., Wang, Y. W., Lee, W. C., Chen, K. H., & Yang, T. Y.
(2013). The effect of self-efficacy, depression and symptom distress on
employment status and leisure activities of liver transplant recipients. *Journal of
advanced nursing*, *110* (1), 5-8. doi:10.1111/jan.12315

Westerman, J. W., & Yamamura, J. H. (2007). Generational preferences for work
environment fit: Effects on employee outcomes. *Career Development
International*, *12*(2), 150-161. doi:10.1108/13620430710733631

Wiegmann, D. A., Eggman, A. A., ElBardissi, A. W., Parker, S. H., & Sundt III, T. M.
(2010). Improving cardiac surgical care: A work systems approach. *Applied
Ergonomics*, *41*(5), 701-712. doi:10.1016/j.apergo.2009.12.008

Wingood, G. M., & DiClemente, R. J. (2000). Application of the theory of gender and
power to examine HIV-related exposures, risk factors, and effective interventions
for women. *Health education & behavior*, *27*(5), 539-565.
doi:10.1177/109019810002700502

Wilson, B. L., Diedrich, A., Phelps, C. L., & Choi, M. (2011). Bullies at Work. *Journal*

of Nursing Administration, 41(11), 453-458. doi:10.1097/nna.0b013e3182346e90

Yang J., Edwards D. J., & Love P. E. D. (2004) *Measuring the impact of daily workload upon plant operator production performance using artificial neural networks,* Civil Engineering and Environmental Systems, *21*(4), 279-293. doi:10.1080/10286608412331333220

Zhou, Y., Lu, J., Liu, X., Zhang, P., & Chen, W. (2014). Effects of core self-evaluations on the job burnout of nurses: The mediator of organizational commitment. *PLoS ONE*, *9*(4), e95975. doi:10.1371/journal.pone.0095975

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (2010). In recent years, there has been a growing interest in students' self-regulation. *SAGE Directions in Educational Psychology*, *29*(3), 663-676. doi:10.3102/00028312029003663

Zuffianò, A., Alessandri, G., Gerbino, M., Luengo Kanacri, B. P., Di Giunta, L., Milioni, M., & Caprara, G. V. (2013). Academic achievement: The unique contribution of self-efficacy beliefs in self-regulated learning beyond intelligence, personality traits, and self-esteem. *Learning and Individual Differences*, *23*, 158-162. doi:10.1016/j.lindif.2013.07.006

Appendix A: Recommendations/White Paper

Strategies for Increasing Self-Efficacy in Perfusionists: Policy Change

Recommendations for Stakeholders

Introduction

Individuals with limited ability in a focal skill, such as critical thinking, have

exaggerated perceptions of their abilities to perform tasks (Carrington, Chen, Davies,

Kaur, & Neville, 2011). This point is further supported by Brookfield's (2010) contention

that when individuals do not challenge their assumptions, they fail to recognize the

limitations of their own abilities. A policy-change position paper is a useful tool for

presenting an opinion about an issue (Lin et al., 2014). Guided by the premise noted

above, a debate on the current issue (high turnover rates) in the local perfusion setting

may affect the larger perfusion community.

Based on the results of the associated doctoral study, the purpose of this paper is

to convince stakeholders to assess and promote self-efficacy in a local perfusion setting

located in the southern United States. The results of the associated doctoral study indicate

that self-efficacy predicts commitment among CCPs in the United States. I aimed to

generate critical reflection by comparing divergent viewpoints on self-efficacy to

improve CCP commitment and delineated potential strategies to increase self-efficacy in

the workplace.

Brookfield (2010) contends that critical thinking begins with (a) questioning

assumptions about previous actions, events, experiences, or decisions, then (b) checking

the accuracy of those assumptions by examining different perspectives and sources, and

then (c) making informed decisions based on reliable evidence to support those assumptions. The overarching aim of this paper is to guide and inform future practice and behavior in the local setting. Fostering an environment for the critical assessment of current practice, the self and the environment in which CCPs operate may help (Brookfield, 2010) stakeholders become aware of the multiplicity of values, social structures (e.g., hierarchy, patriarchal culture of practice), and levels of creativity that exist in the workplace. Individuals can exercise critical thinking through intrinsic actions (e.g., oral or written input); through that mechanism, individuals can formulate logical solutions to problems. Critical thinking can also manifest through interactions between the individual and the organization (e.g., extrinsic actions). An example of an extrinsic influence on critical thinking would be taking collective action to close a nuclear power plant after observing how radiation affects a community after an accident (Brookfield, 2010). Collective effort to effect positive change is a tenet of self-efficacy (Bandura, 1997), and it is an important factor that stakeholders should adopt in perfusion practice, because perfusion errors can result in serious accidents.

In academia, educators have long advocated the Socratic method of critical thinking and reflective practice with an emphasis on personal experience as an essential component in the learning process. Considering adult learning styles/stages, a position paper should serve as a tool in the local perfusion setting that guides self-directed learning, with adult learners taking the initiative while not being constrained by structures that interfere with their responsibilities (Swanwick et al., 2014). Conversely, through reflection, adults can learn from alternative approaches and circumstances (e.g., online,

self-guided, mentors, goal setting). Swanwick et al. (2014) suggest that regardless of the domain, there is always a need for internal inquiry, placing oneself in another's shoes, and examining the world from different perspectives.

Stakeholders have ethical and moral responsibilities with respect to encouraging positive change for their organizations. Responsible stakeholders implement changes for the common good of others when disparities in the workplace exist. However, positive change is impossible without taking definitive action to ameliorate disparities in the workplace. This paper aims to induce complete or partial change in the observable activities in perfusion practice based on the results of the study.

Recommendations for Policy Changes

In recent years, the question of CCP turnover rates has become a matter of significant concern at the local level. Some perfusion leaders contend that intervention is necessary on financial, employee well-being, and patient-safety grounds. Others contend that intervention is unwarranted because small businesses cannot absorb the costs of continuing professional development to help CCPs cope with the factors that contribute to a downward efficacy spiral. I conclude that the stakeholders of the local organization, as leading entities in the perfusion community, should take the action necessary to improve the workplace. This course of action will decrease turnover rates, improve employee well-being, and improve overall employee performance. The alternative course of action is to do nothing and let employees solve their own work problems. I recommend the following measures: 1) evidence-based self-efficacy assessments to evaluate prospective and current employees, 2) the implementation of regulated working hours,

and 3) maintaining the status quo.

Purpose

The purpose of this proposal is to persuade the leaders of a local perfusion company to implement evidence-based changes to increase employee commitment. There is no reliable policy to assess perfusionists' perceptions of their capabilities and the workplace. The current method of employee evaluation fails to increase retention, which is obvious from the high turnover rates (between 50 and 75%). A validated instrument to collect CCP perceptions of work is not part of the employee-evaluation process. This lack of evidence is a barrier to addressing CCPs' needs, because the antecedents that affect commitment are unavailable. I ask the stakeholders of the local perfusion organization to consider the available evidence of the implications of low levels of self-efficacy for employee commitment.

Need

Through a formative evaluation of perfusionists in the United States, I find that self-efficacy is indeed a predictor of commitment (*p =.001*). Confounding factors that affect employee self-efficacy include age, gender, workload, experience, and education. Doing nothing to improve self-efficacy in CCPs can have financial implications for the employer, negative consequences for the employee, and negative consequences for the patient. Another point of contention is that replacing and training a CCP or other healthcare professional imposes a burden on current employees and can cost the organization as much as twice the employee's annual salary. In addition, various local perfusion settings are experiencing turnover rates up to 50% and 75% (community

research partner, personal communication, November 18, 2014). The causes of these high

turnover rates are unknown. However, research indicates that a lack of employee

engagement (Meyer & Allen, 1997) affects employee commitment. Fortunately, the

issues that affect employees and the organization in the local setting can be resolved by

gathering valid and reliable evidence regarding CCPs' perceptions of themselves and the

workplace. There is a need for the stakeholders of the local perfusion company to invest

in the implementation of evidence-based policies to improve CCPs' self-efficacy.

Rationale

Workplace research findings suggest that employers who attempt to increase self-

efficacy in employees must first identify the source of the downward efficacy spiral. In

the workplace, self-efficacy is a critical component because it has a significant effect on

behavioral patterns that are related to work performance and coping with work-related

stressors (Bandura, 2012). It is essential that to engage in practices that enhance self-

efficacy as a means to developing a more efficient workforce, both perfusionists and

perfusion leaders have a full understanding of the factors that affect perfusionists' levels

of self-efficacy. Variations in efficacy affect the motivation of both individuals and

teams. In addition, research conducted in the workplace (Bandura, 1997; 2012; Meyer, et

al., 2012) demonstrates that self-efficacy and collective efficacy are essential when

engaging in individual, collaborative, and group-based tasks, which is consistent with the

work dynamics of the local perfusion work setting. Based on inferences from research in

other domains, the manner in which perfusionists view their own capabilities affects not

only their personal work but also the quality of the work performed by their team. The

mechanism that explains this behavior suggests the validity of Bandura's contention that lower levels of self-efficacy affect the performance of each individual on a team, thus affecting overall team performance.

The results of this study suggest that increased levels of self-efficacy increase levels of commitment and vice versa. Bandura maintains that the relationship between self-efficacy and job behavioral patterns is cyclical in nature (Bandura, 2012). That is, performance affects self-efficacy, which in turn affects performance. A deviation in either self-efficacy or performance results in a deviation in the other factor, which results in an upward or a downward efficacy spiral (Table A1). A downward spiral can have a major impact on the performance of the individual or team because it lowers confidence in overall job performance.

Table A1

Self-Efficacy Spirals

Upward Efficacy Spiral	Downward Efficacy Spiral
View difficult tasks as challenges to be mastered	View challenging tasks as threats to be
Develop a strong connection with and deeper interest in work-related tasks	avoided
Set more challenging goals	Believe more challenging tasks are
More committed to their work	
Sustain their efforts in the face of setbacks or failure	beyond their capabilities
Recover quickly from setbacks and disappointments	Hold on to failures and negative
Attribute setbacks to insufficient effort or knowledge	experiences
	Quickly give up in the face of failure
	Quickly lose confidence in their abilities

Note. From "*Self-efficacy: The exercise of control,*" Bandura, 1997, NY: W. H. Freeman and Company.

In the United States, catastrophic events in the trucking, aviation, and healthcare industries have prompted significant changes in both working hours and training to improve behavioral patterns in the workplace (Ahmed et al., 2014; Flin et al., 2008; Goel, 2014). These changes are not surprising, because job demands contribute to ineffective cognitive functioning, which can significantly affect employee behavioral patterns (Bandura, 1997; Flin et al., 2008). One example of ineffective cognitive functioning is the catastrophic incident that occurred on the evening of March 27, 1977, when two Boeing 747 aircraft collided on the runway at Los Rodeos Airport on the island of Tenerife, Spain, killing 583 passengers (Flin, et al., 2008). This frightening event served

as the catalyst for systemic changes in the aviation industry, reflected in restricted working hours for flight crews and evidence-based training to improve safety and efficacy in team functioning.

Similarly, in 2003, the state of New York pioneered regulations for training physicians after the tragic death of a young woman, Libby Zion, in a New York hospital (Ahmed et al., 2014). An examination of the incident determined that a lack of supervision/mentoring, the resident's lack of familiarity with the patient's complex diagnosis, and the resident's fatigue were contributing factors in the tragic outcome. In the healthcare environment, the debate about the impact of regulated working hours on the training of new physicians and the financial impact that regulation could have on the organization continues. The limited research findings suggest that restricting house staff's working hours helps save lives. However, others believe that this measure is associated with limited learning and delayed patient care. Furthermore, others contend that regulation's potentially deleterious effects on the quality of care do not result in statistically significant differences in more serious outcomes (Ahmed et al., 2014). The question remains whether policy makers in the local perfusion setting should wait for a tragic event to occur before implementing policy changes.

The inference drawn from the incidents described above is that a catastrophic event is the catalyst for policy makers to think critically about the status quo before taking action. The leaders in the local setting may apply the lessons learned from the research conducted both in the trucking and aviation industries and in new physician training to the local perfusion work setting. As in the aviation industry and teaching

hospitals, the perfusion work setting is a high-stress, hierarchal environment in which

changes in behavioral patterns (e.g., a downward efficacy spiral, turnover, and fatigue)

can contribute to catastrophes. Perhaps the best example of successful employee

engagement comes from Google.

Supervisors and employees at Google routinely receive 360-degree assessments to

evaluate behavioral patterns (Davis, 2012). Engaging employees is a tenet of self-efficacy

(Bandura 1997), because vicarious experiences promote motivation to work harder

toward goal attainment. Google provides employees with creative freedom and

encourages them to own their careers. This creative freedom promotes empowerment,

autonomy, and accountability (Davis, 2012). Google offers employees an attractive work

environment, high salaries, generous benefits, job flexibility, and above all, health

promotion (Davis, 2012; Roak, 2013). The rationale for protecting an employee's well-

being is based on the fact that employees are invested in their organization's well-being

because their own well-being depends on it (Roak, 2013). Thus, if the organization's

internalized culture is actively resistant to engagement, then the implication is employee

turnover. The leaders of the local setting should consider engaging employees by

promoting healthy habits in the form of free gym memberships, because this practice

would improve (Bandura, 2012; Smith, 2014) self-efficacy and productivity.

A survey report indicates that 17% of perfusionists in the United States work

more than 60 hours per week, 7% receive daily emergency assignments, and 28% receive

emergency assignments every other day (Huckaby, 2009). Data from the electronic

scheduling system in the local perfusion setting indicate that in 2014, emergency call

assignments were 50% when fully staffed, 75% when understaffed, and 75% when fully staffed while training a new CCP. The implications of working extra shifts can negatively affect CCPs' health because occupational stress is a major risk factor for a range of health outcomes (Ebert et al., 2014) such as depression, heart disease, and related mortality. In addition, stress is associated with substantial economic costs as a result of absenteeism, staff turnover, and poor job performance. Although stakeholders cannot discriminate based on appearance, a comprehensive strategy to promote healthy habits should be included to improve self-efficacy.

According to the Centers for Disease Control (CDC), more than one-third (34.9% or 78.6 million) of U.S. adults are obese. Exercise is a factor associated with longevity because it reduces health risk factors. In addition to reducing the health risk factors for illnesses, adopting an exercise routine can help individuals cope with occupational stress and depression and improve their motivation and cognitive abilities. A literature review (Smith, 2014) has statistically demonstrated a significant relationship between self-efficacy and exercise behavior. Of particular interest are the improved self-efficacy levels in participants who included dancing in their exercise routines. Thus, an investment in CCP health should include allocating funds to enhance CCP work self-efficacy through physical exercise. In the current economic environment, cutting costs is necessary to maintain financial viability. Professional development experts are costly (Table 2). Therefore, resistance to the implementation of policy changes from the stakeholders in the local perfusion setting is expected.

Reports indicate that hiring a SME to provide self-efficacy training is a cost that small business leaders, such as those in the local setting, may not be willing to accept. Providing expert training can cost employers an average of $1,000 USD or more per participant (Paradise & Patel, 2009). An alternative could be to use the Internet to guide strategies for improving CCPs' self-efficacy. The enlistment of available talent in the local setting may help with the implementation of an intervention.

Reciprocal determinism is a tenet of self-efficacy. Reciprocal determinism means that a supervisor can be both an agent for change and a respondent to change (Bandura, 1997). Thus, to promote desirable behaviors, stakeholders can use changes in the environment, the examples of role models, and reinforcements. Available resources that stakeholders can use include supervisors and managers. Enlisting supervisors seems to be a viable strategy because the local setting includes perfusion accounts throughout the United States. Internet-based employee engagement could be an effective means for interventions to manage the antecedents of a low self-efficacy spiral across domains. However, in the literature (Davis, 2012), it is unclear whether guided or unguided help provides better value for the investment. Some argue that Internet-based interventions without guidance are often much less effective than interventions that include at least some professional guidance. Therefore, the solution lies in training supervisors to serve as mentors in their local setting.

The problem in the work setting is that certain supervisors display a strong aversion to improvement-oriented input from subordinates. Fast, Burris, and Bartel (2014) note that supervisors with low managerial self-efficacy tend to minimize their

subordinates' voices as a way of compensating for a threatened ego. Thus, if supervisors

are to serve as role models, training is necessary. However, training requires an average

investment of $1,800 USD (ATD, 2015) per participant, which the employer may

contend is too much. However, such training may be a viable alternative compared to the

cost of an SME (Table 2).

Table A2

Cost-Benefit Analysis

Input Self-Directed		Input Contract SME		Output	Outcomes	Impacts
White paper	$1,050	Quote based on 50 CCPs $1,103 per CCP	$55,150	Increased levels of Self -efficacy	Increased CCP well-being	Increased Commitment
Initial survey and licenses fee	$1,120				Able to cope with occupational stress	Decreased turnover rates
$550 Annually	$1,000	Time away from work			Increased motivation	Increased work performance
Miscellaneous						
Gym membership $1500/month	18,000	$$$			Increased job satisfaction	Improved workforce over time by recruiting motivated candidates
Total	$21,170	$55,150				

Note. Project option 1: The implementation of evidence-based self-efficacy assessment to evaluate prospective and current CCPs based on 50 participants.

Because stress can be debilitating, demoralizing, and destructive to mental and physical health (Ebert et al., 2014) and because regulated working hours may not be an option, the employer should provide CCPs with proven tools to learn strategies to eliminate the harmful effects of stress. Self-efficacy can empower (Giran, Amin, & Halim, 2014) employees to create a reduced-stress environment for themselves and their teammates, thus improving the workforce overall. In conclusion, the stakeholders in the local perfusion setting should implement evidence-based self-efficacy assessments to evaluate prospective and current employees to provide proper training, feedback, and recommendations. As I have demonstrated, this course of action will decrease turnover rates and improve CCPs' well-being and overall job performance.

Recommendations

1.   Implement Evidence-Based Self-Efficacy Assessments

I recommend implementing evidence-based self-efficacy assessments to evaluate prospective and current employees. A change in recruiting practices will decrease turnover rates by assessing the candidate's self-efficacy level prior to hiring and by asking previous employers or peers to assess the potential employee's self-efficacy level prior to employment. Some may argue that potential employees are not always honest either in self-reporting or in their interview answers. However, I would respond that a multiple-rating, validated inventory could provide a discriminant selection of candidates with higher levels of self-efficacy. Over time, higher levels of self-efficacy will increase the likelihood of a more motivated team of perfusionists.

Providing self-efficacy resources or training to current employees will improve

employees' awareness of self-efficacy, thus improving CCPs' overall well-being by encouraging employee engagement and improving employee morale, team cohesion, and the employee-employer relationship. Some may argue that employee compensation and benefits are sufficient to increase employees' overall well-being and commitment. I would respond that assessing employees' levels of self-efficacy is necessary to effectively address the perception of their capabilities and their feelings about the employer. Meyer and Allen (1997) contend that satisfied employees are more committed to their employers and more motivated to work. Perfusionist salaries vary widely depending on education, work setting, and years of practice. A 2009 survey report (N = 918) indicates that CCP salaries averaged $70,000 USD in certain areas and $141,000 USD in other areas. Eleven percent of CCPs receive bonuses, and 86% receive continuing-education allowances that average $1,700 USD (Huckaby, (2009). However, compensation and benefits may only go so far when the employee is unhappy about his/her job and employer, as noted in the local setting.

Many employees remain with an employer because they feel obligated (Meyer & Allen, 1997) to repay the benefits received from the organization (e.g., signing bonuses, moving expenses, tuition reimbursement). Other employees may be unhappy with their employer but would lose too much by relocating. I argue, in accordance with Meyer and Allen's organizational commitment theory, that the only desirable CCP is one who has affection for the job and the employer. Affective commitment can be achieved (Bandura, 2012; Meyer & Allen, 1997) with higher levels of self-efficacy.

2.   **Regulated Working Hours**

Regulated working hours will improve employee and patient safety by decreasing stress, fatigue, and burnout. Some may argue that it is not financially feasible to decrease the number of working hours. I would respond that working long hours decrease the motivation to perform and the ability to make rational decisions because stress and fatigue affect one's cognitive faculties and thus contribute to unsafe situations in the workplace.

Opponents of the decrease in duty hours maintain that limiting surgical resident training time could affect their quality of education and patient outcomes. The American College of Surgeons, Division of Education (Ahmed et al, 2014) has argued that mastery in surgery requires extensive, immersive experiences. Thus, restricting the number of training hours is inadequate because it limits exposure to diverse procedures, techniques, and work patterns, all of which affect competency. Similar to the training of surgical residents, the training of CCPs requires extensive and immersive experiences to produce proficiency in the techniques required to provide support for various surgical procedures.

Although specific research on the CCP work setting is lacking, research in other areas (Bandura, 1997; Flin et al., Locke, 2009; Meyer et al., 2012) has indicated a strong relationship between increased workload and stress, fatigue, the ability to make rational decisions, and commitment. Research in the perfusion setting and other work settings indicates that the factors that decrease commitment include changes in economic climate, increased workload, and working alternating shifts and long consecutive hours (Ames et al., 2004; Bandura, 1997; Flin, O'Connor, & Crichton, 2008; Locke, 2009; Trew, Searles,

Smith, & Darling, 2011; Wahr et al., 2013). Such factors have resulted in job-related stresses, fatigue, burnout, and high turnover rates for CCP professionals and in healthcare domains as a whole.

Opposition to the ideas of implementing regulated working hours or team efficacy training for CCPs is expected from employers because of those ideas' perceived financial impact on companies (community research partner, personal communication, June 28, 2014; Trew et al., 2011). I argue that my proposal is a long-term investment because changes that affect CCPs and the outcome of patients reflect the organization's moral values, ethical values and mission. One method of ameliorating stakeholders' lack of interest could be to share resources to create awareness in the perfusion community. Online message boards (e.g., Facebook) are powerful, cost-efficient tools for exchanging information in the perfusion community.

3.   **Maintaining the Status Quo**

Maintaining the status quo will contribute to ongoing high turnover rates, decrease productivity, and negatively affect employee well-being and overall safety in the workplace. It will do so for the following reasons: the lack of resources to address employee needs, the employer's lack of interest in engaging employees, and the inability to routinely assess employee perceptions regarding employers. Some may argue that adults are autonomous and self-directed, and that they will learn only when they are ready to learn something they require. I would respond that certain adults require mentors to point them in the right direction with respect to taking action to solve problems. Critical events often force individuals to think critically about a work situation. The

question remains whether employers and perfusionists can afford to place themselves and their patients at risk before the employer implements policy changes to increase self-efficacy.

Conclusion

A starting point for changing behavioral patterns in the perfusion workplace is an assessment of the work context to gather information about the current state of the work environment. This assessment is essential for defining the problem and identifying options to resolve it. The associated research study provides a formative assessment of CCPs' behavioral patterns as they relate to self-efficacy and commitment. Stakeholders should use the results of the data analysis as a first step to guide options for future practice. Doing nothing to improve self-efficacy in CCPs will perpetuate the financial implications for the employer, with negative consequences for employees, turnover, and ultimately, patients. Stakeholders have the option either to maintain the status quo or to take action to mitigate low levels of CCP commitment. Taking action to improve CCPs' overall well-being is not only an employee benefit but also an investment because of the impact that this benefit could have on the company's financial health.

References

Ahmed, N., Devitt, K. S., Keshet, I., Spicer, J., Imrie, K., Feldman, L., … Rutka, J.
(2014). A Systematic Review of the Effects of Resident Duty Hour Restrictions in
Surgery. *Annals of Surgery,* 259(6), 1041–1053.
doi:10.1097/sla.0000000000000595

Association for Talent Development (2015). *Conferences & events*. Retrieved from
hpps://www.td.org/events

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H.
Freeman and Company.

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited.
Journal of Management, *38*(1), 9-44. doi:10.1177/0149206311410606

Center for Disease Control and Prevention (2014).Obesity and socioeconomic status in
adults: United States, 2005–2008. Retrieved from
http://www.cdc.gov/nchs/data/databriefs/db50.pdf

Davis, N. M. (2012). Google's Top Recruiter. *HR Magazine, 57*(7), 40-41. Retrieved
Ebscohost database.

Ebert, D., Lehr, D., Smit, F., Zarski, A.-C., Riper, H., Heber, E., … Berking, M. (2014).
Efficacy and cost-effectiveness of minimal guided and unguided internet-based
mobile supported stress-management in employees with occupational stress: a
three-armed randomised controlled trial. *BMC Public Health*, *14*(1), 807.
doi:10.1186/1471-2458-14-807

Fast, N. J., Burris, E. R., & Bartel, C. A. (2014). Managing to stay in the dark: managerial self-efficacy, ego defensiveness, and the aversion to employee voice. *Academy of Management Journal, 57*(4), 1013-1034. doi:10.5465/amj.2012.0393

Giran, H., Amin, A., & Halim, B. A. (2014). The impact of self-efficacy towards motivation at Kolej Poly-Tech MARA Kuantan, Malaysia. *Asian Social Science*, *10*(19), 69. doi:10.5539/ass.v10n19p69

Goel, A. (2014). Hours of service regulations in the United States and the 2013 rule change. *Transport Policy*, *33*, 48-55Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2011). *The adult learner*. Burlington, MA: Elsevier, Inc. Retreived from Ebscohost database.

Huckaby, B., (2009). 2009 perfusionits benefits & salary: Survey results. Retrieved from http://perfusion.com

Meyer, J. P., Stanley, D. J., Jackson, T. A., McInnis, K. J., Maltin, E. R., & Sheppard, L. (2012). Affective, normative, and continuance commitment levels across cultures: A meta-analysis. *Journal of Vocational Behavior*, *80*(2), 225-245. doi:10.1016/j.jvb.2011.09.005

Paradise, A., & Patel, L. (2009). 2009 State of the Industry report, American society for training and development. Alexandria, VA. Retrieved from https://www.td.org

Patel, M. S., Volpp, K. G., Small, D. S., Hill, A. S., Even-Shoshan, O., Rosenbaum, L., ... & Silber, J. H. (2014). Association of the 2011 ACGME resident duty hour reforms with mortality and readmissions among hospitalized Medicare patients. *JAMA*, *312*(22), 2364-2373. doi:10.1001/jama.2014.15273

Roark, P. (2013). Employee Engagement. *Leadership Excellence*, *30*(9), 25-26.

    Retrieved from Ebscohost database.

Smith, T. E. (2014). *Salsa dancing as an intervention increasing the self-efficacy levels of*

    nonregular exercisers (Doctoral dissertation, Capella University). Retrieved

    from ProQuest database.

White Paper

Self-E: A Primer for Self-Efficacy in the Workplace

Introduction

A correlational study on U.S. perfusionists ($n = 251$) demonstrates that self-efficacy predicts commitment with a 99% confidence level. Factors that indirectly affect self-efficacy and commitment include age, gender, workload, level of experience, and education (Garcia, 2015). Self-efficacy is the belief in one's ability to successfully accomplish a task (Bandura, 1977; 1997). Supervisors who attempt to increase employees' self-efficacy must first identify the source of the downward efficacy spiral. Self-efficacy is a critical component in the workplace because it has a significant effect on behavioral patterns that are related to work performance and coping with work-related stress (Bandura, 2012). It is essential that perfusionists and perfusion leaders fully understand the factors that affect perfusionists' levels of self-efficacy and engage in practices that enhance self-efficacy as a means of developing a more efficient workforce. Variations in efficacy affect the motivation of both individuals and teams.

Self-Efficacy and Collective Efficacy

Workplace research (Bandura, 1997; 2012; Meyer et al., 2012) demonstrates that self-efficacy and collective efficacy are essential when engaging in individual, collaborative, and group-based tasks. The manner in which perfusionists view their capabilities affects not only their personal work but also the quality of their team's work performed, because lower levels of self-efficacy affect the performance of each individual on the team. The relationship between self-efficacy and job performance is

cyclical in nature (Bandura, 2012). That is, performance affects self-efficacy, which in turn affects performance. A deviation in either self-efficacy or performance results in a deviation in the other and can result in either an upward or a downward efficacy spiral. A downward spiral (Table A3) can have a debilitating impact on the performance of the individual or team because it lowers confidence in overall job performance.

Table A3

Self-Efficacy Spirals

Upward Efficacy Spiral	Downward Efficacy Spiral
View difficult tasks as challenges to be mastered	View challenging tasks as threats to be avoided
Develop a strong connection and deeper interest with work-related tasks	
Set more challenging goals	Believe more challenging tasks are
More committed to their work	
Sustain their efforts in the face of setback or failure	beyond their capabilities
Recover quickly from setbacks and disappointments	Hold on to failures and negative
Attribute setbacks to insufficient effort or knowledge	experiences
	Quickly give up in the face of failure
	Quickly lose confidence in their abilities

Note. From "*Self-efficacy: The exercise of control,*" Bandura, 1997, NY: W. H. Freeman and Company.

Factors that Affect Self-Efficacy

A first step in addressing the issue of a downward efficacy spiral is the collection

of data to assess the factors that trigger an efficacy spiral. Researchers (Bandura, 1986;

1997; 2012; Stajkovic, 1998) have emphasized three major factors that affect efficacy: 1)

a lack of performance feedback, 2) a lack of job clarity, and 3) a lack of coping

mechanisms to overcome failure.

a.   **Lack of Performance Feedback**

The quality of performance feedback is central to increasing efficacy (Bandura,

1997). Inaccurate feedback or a lack of feedback may initiate a downward efficacy spiral.

Feedback should be accurate, timely, and specific so that the individual or group involved

can better understand the cause and effect of the behavioral patterns that contribute to

poor performance.

b.   **Lack of Job Clarity**

Supervisors are less likely to provide accurate feedback when the job assignment

is ill defined, unknown, ambiguous, or unpredictable. Ineffective feedback between the

supervisor and the employee occurs when the supervisor is unclear about what the

feedback should entail (Bandura, 1997). When feedback is absent, corrective action is

less likely to occur, and self-efficacy decreases. To increase self-efficacy, it is important

for supervisors to assign tasks that are challenging but that feature both clear expectations

and a level of complexity that is appropriate to the employee's skill level.

c.   **Lack of Coping Mechanisms to Overcome Failure**

Perceptions of a perfusionist or a team's capability could be the result of success

or failure in previous job performance. Initial attempts to perform a task when work experience is limited can have a traumatic influence on the individual, resulting in a strong, persistent effect on perceived efficacy. An initial failure in a task can precipitate a downward self-efficacy spiral (Bandura, 1997; 2012). In the perfusion setting, an increased sense of self-efficacy may develop when a perfusionist or team has experienced many successful task completions. Thus, it is imperative that supervisors comprehensively understand the source of self-efficacy to identify the factors that trigger a downward efficacy spiral.

Sources of Self-Efficacy

Past Performances

A meaningful way to achieve a high level of self-efficacy or collective efficacy is through mastery of experiences (Bandura, 2012). The application of Bandura's model in the perfusion work setting suggests that perfusionists who have experienced on-the-job success will be more confident in performing similar tasks than those who have experienced failure.

Modeling

Bandura (2012) contends that watching others successfully complete a task has a positive effect on the observer. The positive effect on the observer will manifest as increased confidence in achieving a similar task. As proposed by Bandura (2012), seeing one's peers succeed increases the observer's belief that he or she has the potential to master similar tasks. An effective model in the perfusion setting would be a CCP with a higher level of self-efficacy than the observer.

Social Persuasion and Feedback

Effective teachers or preceptors have the ability to persuade their trainees or students that they (i.e., the trainees) have the ability to successfully perform a given task. Consistent with Bandura (2012), when teachers/preceptors, supervisors, or peers express confidence in a trainee's abilities, the trainee will perform at a higher level. Making the trainee feel important and competent can decrease work-related stress.

Stressful Situations

Perfusionists are likely to experience emotional, psychological, or physiological strain in the work setting because of job demands. Bandura (2012) suggests that psychological arousal might influence the level of self-efficacy in individuals. For example, a perfusionist who expects to fail at a prescribed task or who finds a task too demanding will experience psychological cues (e.g., sweating, increased heart rate, or headaches).

Persistent manifestations of emotional cues contribute to a downward efficacy spiral. Because there is a correlation between psychological strain and self-efficacy (Bandura 2012), it is critical for supervisors in the perfusion setting to understand the role that psychological arousal may play in the workplace. When psychological strain is not addressed (Bandura, 1997; 2012), it may contribute to burnout, poor work performance, or turnover.

Self-Efficacy for Learning and Performance

Teaching or training adults may require observing their learning attitude or stage

(Table A4).

Table A4

Grow's Staged Self-Directed Learning Model

Stages	Mentee/Mentor Responsibilities
1. Dependent	Mentee needs immediate authoritative feedback. The mentor serves as authority coach. The mentor offers immediate feedback, drills.
2. Interested	Mentee may require motivation, goal setting. The mentor becomes a motivator, guide. The mentor offers suggestions on how to improve learning.
3. Involved	Mentees see themselves as participants in their own education. The mentor takes the role of facilitator. Facilitator participates as equal/team.
4. Self-Directed	Mentee works independently. Mentor becomes a consultant, delegator. The mentor offers independent assignments.

Note. Adapted from *The adult learner.* by M.S. Knowles, E.F. Holton III, and R.A. Swanson, 2011, Burlington, MA: Elsevier, Inc., p.185. Copyright 2011 by Elsevier, Inc.

Bandura (1997) holds that self-efficacy affects learning and performance in the workplace in five ways:

1. **Self-efficacy and goal orientation**

Self-efficacy guides the choices that we make, the degree of difficulty of the goals that we choose, and the level of commitment that we have to personal goals (Bandura, 1997). In the workplace, nurturing self-efficacy will motivate perfusionists with low levels of self-efficacy to choose goals that are more challenging.

2. **Self-Efficacy and learning**

An important fact regarding self-efficacy (Bandura, 1997) is that individuals learn, perform, and exert effort at levels that are consistent with their perceived level of self-efficacy. In the perfusion work setting or the training environment, supervisors/trainers should enlist candidates with high self-efficacy: these candidates will work hard to learn how to perform new tasks because motivation engenders the confidence required to succeed in future tasks.

3. **Self-Efficacy and persistence**

Motivated perfusionists will be more persistent when engaged in challenging tasks (Bandura, 1997). Perfusionists with high self-efficacy will persist longer to accomplish a challenging task. This reason for this augmented effort to accomplish tasks is that individuals who are more confident regard difficult tasks as challenges and opportunities to learn and acquire new knowledge and skills.

4. **Self-Efficacy and resiliency**

It is likely that perfusionists have experienced disappointments and setbacks at

some point in their careers. Higher levels of self-efficacy will affect how a person responds to disappointment (Bandura, 1997). In line with this premise, supervisors should expect that perfusionists who have higher levels of self-efficacy will recover faster from setbacks and disappointments than those who have lower levels of self-efficacy.

5.   Self-efficacy and work-related stress

Perceived self-efficacy will influence how an individual copes with work-related stress (Bandura, 1997). When presented with tasks or goals that are too ambitious, individuals with lower levels of self-efficacy will experience a more intense physiological stress reaction than those who have higher levels of self-efficacy.

Recommendations

Recruitment Practices

Hiring practices should include the use of specific questions in a multiple-rater questionnaire that probes an applicant's level of work self-efficacy (Bandura, 2012). This probing practice may help develop a workforce with higher work self-efficacy. The discriminant selection of job candidates with higher levels of self-efficacy will increase the likelihood of more motivated perfusionist teams in the workplace.

Workload Management

The complexity of job demands has an impact on self-efficacy (Bandura, 2012). Individuals who gain mastery by completing complex and challenging tasks will increase their level of self-efficacy. Therefore, trainers/preceptors should provide an environment that challenges trainees to engage in progressively more challenging tasks. When trainees feel that their work is not sufficiently challenging, they tend to experience boredom and

disengagement, which contribute to decreasing self-efficacy.

Improved Training Strategies

The practice of guided experience, mentoring, and role modeling are necessary actions that supervisors can take to increase the self-efficacy expectations of perfusionists with respect to job-related tasks. As postulated by Bandura (2012), an effective role model is someone who exemplifies self-efficacy. Supervisors should invest (free of charge) in continuing education opportunities for all employees as a means to enhance perfusionist self-efficacy.

Implement Self-Management Strategies

Systematic self-management strategies help improve job performance (Bandura, 2012). An important goal is to help employees become critical of their current actions to improve future actions in the workplace. Self-management strategies include self-evaluation, self-monitoring, and self-reinforcement. Autonomy contributes to self-efficacy expectations. However, it is imperative that perfusionists first learn how to set realistic personal goals, delineate clear priorities, and enhance their organizational and time-management skills.

Set Attainable Goals

A first step in goal setting is to set goals that suit the level of the perceived self-efficacy of a perfusionist or a team. Then, as self-efficacy and performance improve, the perfusionist or team's ability to cope with increased task complexity and higher goals should increase. Goals that are too ambitious may result in performance failure, which will contribute to a downward efficacy spiral. Bandura (2012) maintains that when

individuals experience performance failure, they develop a fear of failure and therefore are less motivated to accept challenging tasks. Conversely, goals that are set too low can engender a false sense of self-efficacy that may contribute to frustration and discouragement when tasks become more difficult. Therefore, it is important to set attainable goals and goals that are sufficiently challenging to engender task mastery and therefore, higher-level performance.

Implement Coaching Strategies

Supervisors, trainees, or preceptors should increase the quality and quantity of the constructive feedback, guidance, support, and education (Bandura, 1997) that they provide their perfusionists. It is essential for feedback to be accurate, timely, and specific so that the individual or the team can understand the causal relationship of the individual or the team's actions, which will improve future performance.

Have Confidence in Team Members

It is important that the supervisor, trainers/preceptors, and peers both have confidence in trainees and be capable of persuading trainees that they have the ability to succeed in a given assignment. Bandura (2012) observes that when supervisory confidence increases, the employee's ability to perform a task increases. Supervisors should use various methods of communication to express confidence in a perfusionist or a team because this practice will have the largest impact on efficacy.

Mentoring Strategies

To improve the quality of coaching, select the top performers and promote them to leadership or mentoring positions. Selecting the best employees as mentors will

improve the quality and quantity of positive role models in the workplace (Bandura, 2012). It is important for supervisors and team leaders to adopt a supportive leadership style.

Appraise and Reward

Supervisors should acknowledge and reward both small and large successes. This practice will promote self-efficacy and contribute to greater accomplishments. A good method for increasing collective efficacy (Bandura, 2012) is to notify the team when a student or trainee succeeds at a particularly demanding task. This practice will increase the self-efficacy of the other team members with respect to similar tasks.

<div align="center">

Specific Suggestions

</div>

The components of the WS-Ei inventory (Table 2) provide a sense of how higher levels of efficacy can be developed.

The Work Self-Efficacy Inventory Survey Rating Form: Self/Other

General self-efficacy refers to an individual's level of self-confidence in managing a wide array of situations (Bandura, 1997). By contrast, work self-efficacy assesses an individual's confidence in managing workplace experiences (Raelin, 2010). Measuring work self-efficacy is central to evaluating current or prospective workers (Raelin, 2010). The Work Self-Efficacy Inventory (WS-Ei) is a validated instrument (Raelin, 2010) that measures a range of job behaviors and practices, including the social requirements necessary for an individual to succeed in the workplace.

Raelin (2010) has developed the WS-Ei based on the premise that individuals with higher work self-efficacy are more likely to succeed in the workplace (Raelin,

2010). In turn, successful work accomplishments increase self-efficacy through a feedback loop that ties subsequent performance to augmented self-efficacy beliefs. The WS-Ei features seven 5-point Likert-type scales in a response format that ranges from "not at all confident" to "completely confident" and consists of eight items organized into the following seven dimensions and an overall composite score: 1) Learning, 2) Problem Solving, 3) Pressure, 4) Role Expectations, 5) Teamwork, 6) Sensitivity, and 7) Work Politics.

The WS-Ei, also referred to by Raelin (2010) as 360-Degree Feedback, is a multiple-rating, self-administered tool. The employer compares the employee's self-perception of performance with others' performance ratings to obtain a composite score. To complete this analysis, it is necessary for the respondent to complete a performance measure (Raelin, 2010). Using the same format, the employer enlists significant coworkers to evaluate the respondent's work performance. Significant coworkers include the focal person's supervisor, subordinates, and peers.

The employer can use the multiple scores to analyze the CCP's efficacy in comparison with the CCP's performance not only as a basis for professional and personal development but also as a tool for performance feedback. However, the WS-Ei does not address the respondent's moral compass when completing the inventory. To foster critical thinking about the nature of the perfusion field, it is important that respondents are honest regarding their feelings about an individual. Therefore, I have added a statement to encourage honest, unbiased responses in the WE-Si instructions. In addition, demographic items should include the participant's role (e.g., I am a supervisor,

coworker, instructor, or classmate). Because the form will be used to assess current

employees and for hiring purposes, two statements to measure the rater's confidence in

recommending a person were added, making the form domain-specific.

Instructions

Applying your ethical and moral values for the advancement of perfusion

practice, please provide your honest responses. Using the rating scale below, provide

your impression of yourself or the person you are rating with regard to his/her success in

performing seven specific and one overall work activity. Statements one and ten are only

for the rating individual. The supervisor will share only the aggregated score of rating

individuals.

Table A5

Work Self-Efficacy Inventory

Self: Thinking about your recent work experience, how successful has you been: Other: Thinking about his or her recent work experience, how successful has (name person) been:	Not at all	A little	A moderate amount	A Lot	Completely
1 I have limited knowledge about this person, and wish decline participation.					☐
2 Learning productively on the job?	1	2	3	4	5
3 Solving problems at work?	1	2	3	4	5
4 Accomplishing the recent work experience well under time and schedule constraints?	1	2	3	4	5
5 Understanding what is expected of him/her in this recent work experience role?	1	2	3	4	5
6 Working effectively within a team environment?	1	2	3	4	5
7 Demonstrating sensitivity to others?	1	2	3	4	5
8 Recognizing what the accepted practices are in your organization?	1	2	3	4	5
9 Managing him/herself well in the workplace?	1	2	3	4	5
10 Based on your knowledge of the person you rated, and of the qualities of an effective perfusionist, how confident are you in recommending this person?	1	2	3	4	5

Note. Adapted from. Work Self-Efficacy Inventory Manual. by J. A. Raelin, 2010, retrieved from http://www.mindgarden.com. Copyright 2010 by Mind Garden, Inc.

Inability to Learn Effectively

If your learning ability is interfering with your confidence, then you may first be required to determine your optimal learning style. For example, do you learn best from reading, from plunging into experience, from observing others, and so forth? Once your preferred style is determined, you may wish to experiment with new learning approaches to determine whether your overall learning from the workplace can be enhanced using a diverse learning method (Raelin, 2010).

Low Problem Solving Ability

If your confidence in your problem-solving ability is relatively low, then you may first need to determine whether your skills require enhancement at the individual or team level. At the individual level, you may need to determine either that you approach problems with a sufficient plan or strategy or that once engaged, you know how to slow down sufficiently to learn from your actions. At the team level, you may need to discover whether you know how to deploy the talent of each member to maximize your team's human capital (Raelin, 2010).

Inability to Function Under Pressure

If you do not feel sufficiently confident in your ability to function well under pressure, then you may wish to engage in simulated experiences under timed conditions. You may also find it beneficial to ask trusted peers or coaches to help you conduct "after-action reviews" of your conduct during stressful episodes to help you improve your behavior under pressure over time (Raelin, 2010).

Lack of Confidence in Role Expectations

If the issue is your confidence in your role expectations, then you might solicit the views of peers, superiors, or subordinates concerning your handling of responsibilities. Where divergences in expectations occur, you can begin to reconcile these differences by seeking to balance them or by searching for accurate information on your own and by enlisting others' job duties (Raelin, 2010).

Inability to Function as a Team Member

If you want to develop a higher level of confidence in facilitating the teams of which you are a member, then you might first enroll in an in-group development course to learn the natural dynamics of groups and teams as they evolve over time. Thereafter, you might participate in facilitator training to receive ongoing feedback on your team-coaching skills and use of team-intervention techniques (Raelin, 2010).

Lack of Sensitivity toward Others

Self-efficacy has been studied in different work settings as a moderator of interpersonal communication or sensitivity and behavior (Raelin, 2010). If feedback has weakened your confidence in your sensitivity toward others, then the first requisite task is to become more aware of any behavior that may produce defensiveness—or even despair or anger—in others. Perhaps you focus more on giving your own opinions than on carefully listening to others. Using classes in listening and interpersonal communications in combination with effective coaching, you may find that you can change your communication to display greater sensitivity to others (Raelin, 2010).

Inability to Diagnose Work Politics

If you need to enhance your ability to better diagnose the politics inside your organization, then you might initially share your perceptions with a mentor to compare notes on how things "get done" in your organizational culture. You might also read accounts of the institutional manifestations of organizational cultures so that you know which artifacts to look for to help you become more aware of the politics around you (Raelin, 2010).

Conclusion

Self-efficacy has a direct effect on performance. That is, the level of self-efficacy influences how an individual approaches a task, the motivation to engage in a task, the level of effort exerted toward a particular task, the level of persistence when facing a difficult challenge, and ultimately, work performance. Self-efficacy has a universal influence on the choices that perfusionists make and the degree of difficulty of the goals that they set for themselves. Supervisors who wish to improve individual or collective work performance should engage in practices that enhance self-efficacy in their workforce. A first step would be to assess self-efficacy as part of the recruitment and evaluation process using validated instruments.

References

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191-215. doi:10.1037//0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1994). Regulative function of perceived self-efficacy. In Michael G. Ramsey; Clinton B. Walker; & James H. Harris (Eds.), *Personnel selection and classification* (pp. 261-271). doi:10.4324/9780203773918

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, *38*(1), 9-44. doi:10.1177/0149206311410606

Garcia, G. (2015). *The relationship between self-efficacy and commitment among certified clinical perfusionists*. (Unpublished doctoral dissertation). Walden University, Mineapolis, MN.

Raelin, J. A. (2010). *Work self-efficacy inventory*. Retrieved from Mind Garden, Inc. http://www.mindgarden.com

Stajkovic, Alexander, D. Luthans, F. (1998). Self- efficacy and work-related performance: A meta-analysis. *Psychological bulletin. 124*(2)*,* 240-261. doi:10.1037/0033-2909.124.2.240

Appendix B: Consent Form/Demographics

Note: Survey link is located at the bottom of this page.

Dear colleagues,

You are invited to take part in a research study entitled "The Relationship Between Self-Efficacy and Employee Commitment Among Perfusionists in the United States." The researcher is <u>asking only practicing Certified Clinical Perfusionists (CCPs) in the United States to participate in the study</u>. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part. This study is being conducted by Gilbert Garcia, CCP, who is a member of Perfusion.Com, Inc. and AmSECT, and is a doctoral student at Walden University. Although he is part of the perfusion community, his role as a researcher is separate from his professional role.

Background Information:

The purpose of this study is to measure levels of self-efficacy and commitment among certified clinical perfusionists in the United States.

Procedures:

If you agree to participate in this study, you will be asked to complete a survey. The completion of the survey will be done securely and anonymously over the Internet and will take approximately 15 minutes of your time. Data for this survey study will be collected once.

The survey consists of 45 questions: 30 questions to assess your confidence in managing workplace experiences and 15 questions to measure possible feelings that you might have about the company or organization for which you work.

Voluntary Nature of the Study:

This study is voluntary. I will respect your decision regardless of whether you choose to participate. I will not treat you differently if you decide not to participate in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Participating in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as fatigue. Participating in this study will not pose a risk to your safety or well-being. Although there may be no direct benefit to you, the possible benefit of your participation may be in the form of sharing the results of the study with both perfusionists and perfusion-community leaders to develop strategies to improve the workplace. Participants' individual survey results will not be shared.

Payment:

Participation in this study does not include any thank-you gifts, compensation, or reimbursements.

Privacy:

Any information that you provide will be kept anonymous. The researcher will not collect your personal information such as your name, email, or IP address. Therefore, your name and anything else that could identify you will not be included in the study reports. All data will be kept in a secure, password-protected electronic file. Data will be kept for at least 5 years, as required by Walden University.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via e-mail at gilbert.garcia@waldenu.edu or by telephone 814-591-0638. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott, the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 02-17-15-0325389, and it expires on February 16, 2016.

Statement of Consent:

I have read the above information, and I feel I understand the study well enough to make a decision about my involvement. By clicking on the survey link contained in the notification for this study, I understand that I am agreeing to the terms described above. Please feel free to print this form for your records.

Click on Survey link below

Please Respond by March 30**,** 2015

http://transform.mindgarden.com/survey/16691

Demographic Questionnaire

Instructions: There are no right statements in this demographics survey. Please answer each item by clicking or entering the response that best describes you and your practice. The survey should take no more three minutes of your time.

1. **Are you a CCP practicing in the US?**

   ▢Yes
   ▢No

2. **What is your age in years?** ▢

3. **What is your gender?**

   ▢Female
   ▢Male

4. **What is your highest level of education?**

   ▢Associate's Degree
   ▢Bachelor's Degree
   ▢Master's Degree
   ▢Doctorate Degree

5. **How many years have you practiced perfusion?** ▢

6. **How many cases on average do you work a year?** ▢

7. **Is your practice hospital-based or a private group?**

   ▢Hospital-based
   ▢Private perfusion group
   How many CCPs does your organization employ? ▢

Appendix C: Permission for Demographics/Work Self-Efficacy Inventory

Permission for Gilbert Garcia to reproduce one copy within 1 year of June 19, 2014

The Work Self-Efficacy Inventory Form A

Joseph A. Raelin
The Knowles Chair of Practice-Oriented Education Northeastern University
Published by Mind Garden, Inc. info@mindgarden.com www.mindgarden.com

Appendix D: The Work Self-Efficacy Inventory Survey

The Work Self-Efficacy Inventory Survey

Instructions: There are 30 statements in this inventory that reflect your confidence in your ability to perform a variety of workplace activities. Using the scale indicated, circle the number that most applies to you. The survey should take no more than ten to fifteen minutes of your time.

Thinking about your most recent work experience, how confident are you in your ability to:	Not at all	A Little	A Moderate Amount	A Lot	Completely
1 Know what is expected of you as a worker.	1	2	3	4	5
2 Help build a team as a working unit.	1	2	3	4	5
3 Determine what is expected of you on the job.	1	2	3	4	5
4 Know how things "really work" inside an organization.	1	2	3	4	5
5 Be clear when presenting your ideas.	1	2	3	4	5
6 Work under pressure.	1	2	3	4	5
7 Master an organization's slang and special jargon.	1	2	3	4	5
8 Manage conflict among group members.	1	2	3	4	5
9 Understand what all of the duties of your role entail.	1	2	3	4	5
10 Solve new and difficult problems.	1	2	3	4	5
11 Work under extreme circumstances.	1	2	3	4	5
12 Understand the politics in the organization.	1	2	3	4	5
13 Continue to learn once you're on the job.	1	2	3	4	5
14 Develop cooperative working relationships with others.	1	2	3	4	5
15 Invent new ways of doing things.	1	2	3	4	5
16 Solve most problems even though no solution is immediately apparent.	1	2	3	4	5
17 Find out exactly what a problem is when first becoming aware of it.	1	2	3	4	5
18 Listen effectively to gain information.	1	2	3	4	5
19 Know an organization's long-held traditions.	1	2	3	4	5
20 Work well in situations that other people consider stressful.	1	2	3	4	5
21 Understand the behavior appropriate to your role.	1	2	3	4	5
22 Challenge things that are done by the book.	1	2	3	4	5
23 Learn from your mistakes.	1	2	3	4	5
24 Solve problems no matter how complex.	1	2	3	4	5
25 Coordinate tasks within your work group.	1	2	3	4	5
26 Learn to improve on your past performance.	1	2	3	4	5
27 Be sensitive to others' feelings and attitudes.	1	2	3	4	5
28 Function well at work even when faced with personal difficulties.	1	2	3	4	5
29 Concentrate on what someone is saying to you even though other things could distract you.	1	2	3	4	5
30 Listen effectively to understand opposing points of view.	1	2	3	4	5

Appendix E: Permission for Organizational Commitment Questionnaire

PsycTESTS Citation:

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). Organizational Commitment

Questionnaire [Database record]. Retrieved from PsycTESTS.

doi:10.1037/t08840-000

Test Shown: Full

Test Format:

Organizational Commitment Questionnaire items are rated on a 7-point Likert

scale with the following anchors: strongly agree, moderately agree, and slightly

agree, neither agree nor disagree, slightly disagree, moderately disagree, strongly

disagree.

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of

organizational commitment. *Journal of Vocational Behavior, 14*(2), 224-247.

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Appendix F: Organizational Commitment Questionnaire

Organizational Commitment Questionnaire

Items

_____

Listed below are a series of statements that represent possible feelings that individuals might have about the   company or organization for which they work. With respect to your own feelings about the particular   organization for which you are now working (company name) please indicate the degree of your agreement or   disagreement with each statement by checking one of the seven alternatives below each statement. [a]

1. I am willing to put in a great deal of effort beyond that normally expected in order to help this organization   be successful.

2. I talk up this organization to my friends as a great organization to work for.

3. I feel very little loyalty to this organization. (R)

4. I would accept almost any type of job assignment in order to keep working for this organization.

5. I find that my values and the organization's values are very similar.

6. I am proud to tell others that I am part of this organization.

7. I could just as well be working for a different organization as long as the type of work was similar. (R)

8. This organization really inspires the very best in me in the way of job performance.

9. It would take very little change in my present circumstances to cause me to leave this organization. (R)

10. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.

11. There's not too much to be gained by sticking with this organization indefinitely. (R)

12. Often, I find it difficult to agree with this organization's policies on important matters relating to its employees. (R)

13. I really care about the fate of this organization.

14. For me this is the best of all possible organizations for which to work.

15. Deciding to work for this organization was a definite mistake on my part. (R)

[a] Responses to each item are measured on a 7-point scale with scale point anchors labeled: (1) *strongly disagree* ; (2) *moderately disagree* ; (3) *slightly disagree* ; (4) *neither disagree nor agree* ; (5) *slightly agree* ; (6) *moderately agree* ; (7) *strongly agree* . An "R" denotes a negatively phrased and reverse scored item.