**HERO Elements of Psychological Capital:   
Fostering Career Sustainability via Resource Caravans**

**Abstract**

A growing body of empirical research in vocational psychology has equivocally manifested the importance of psychological resources in sustainable careers. Drawing on a framework of conservation of resources theory, the purpose of this paper is to examine the role of the HERO (Hope, (Self)-Efficacy, Resilience, and Optimism) elements of psychological capital as a mechanism for explaining perceived employability. We develop a conceptual model and empirically test it using questionnaire data from 421 software engineers working for private IT companies in India. Findings indicate that hope, self-efficacy, and optimism determine perceived employability, and that resilience and self-efficacy are mediators. The theoretical contribution comes from advancing understanding of sustainable careers by empirically examining how individual elements of psychological capital can create resource caravans. These personal resources empower individuals to take ownership of their careers and navigate different contexts over time, offering practical implications for career counseling and benefits to individuals and organizations.

**Keywords**: Hope, Self-efficacy, Resilience, Optimism, Perceived Employability, Sustainable Careers.

**HERO Elements of Psychological Capital:   
Fostering Career Sustainability via Resource Caravans**

**Introduction**

The unstable and unpredictable nature of contemporary careers places ever-greater importance on the need for knowledge workers to adapt and embrace sustainable careers (Haibo et al., 2018). The sustainability of organizations is dependent on the sustainable careers of their employees to deal with chance events and career shocks such as pandemics and global economic recessions (Akkermans et al., 2020; Akkermans et al., 2018). A sustainable career showcases the interconnected and interdependent relationship between an individual and an organization operating within a career ecosystem (Baruch, 2013). Organizations that foster sustainable careers in their workers benefit from increased productivity, competitive advantage, and financial performance (Donald et al., 2020). This can be achieved via the new psychological contract (Baruch and Rousseau, 2019), which captures the unwritten and unspoken contract that can lead to sustainability for both parties (Chudzikowski et al., 2020).

A sustainable career is defined by De Vos et al. (2020) as a sequence of work encounters reflected through many consistent trends over time, spanning several social spaces characterized by individual agencies, bringing significance to the individual. The indicators of a sustainable career include person-centric, context-specific, period/time-specific, and systematic factors (De Vos et al., 2020). Our study focuses on the person-centric level of software engineers, operating within the context of organizations within the technology sector in India, at a snapshot in time of January 2019.

Despite conceptual work by Donald et al. (2020) and De Vos et al. (2020), the empirical validation of a sustainable career remains in its embryonic state. Therefore, by drawing on a framework of Conservation of Resources (CoR) theory (Höbfoll, 1989), the purpose of this paper is to examine the role of the HERO (Hope, (Self)-Efficacy, Resilience, and Optimism) elements of Psychological Capital (PsyCap) (Luthans et al., 2007) as a mechanism for explaining Perceived Employability (PE). We acknowledge that PE is the psychological notion of employability (Peeters et al., 2020; Vanhercke et al., 2014). Perceived employability as a means for a sustainable career translates into a meaningful balance for an individual between their work and personal life (Magnano et al., 2019). It enables the individual to navigate unpredictable work environments over time (Chiesa et al., 2018) through coping and adaptation approaches (Blustein et al., 2019). This captures the view that career adaptability is a psychosocial construct (Johnston, 2018) and a measure of career success (Praskova and Johnston, 2020) via increased levels of person-job fit (Kaur and Kaur, 2020). The theoretical contribution comes from the development of a conceptual model and empirical validation, offering a new approach to fostering sustainable careers via resource caravans. Our context of knowledge workers in India also contributes as non-Western cultures are underrepresented in vocational psychology and career theory literature (Hong et al., 2020). Practical implications for career counseling and development are also discussed.

**Theoretical Framework**

Conservation of Resources (CoR) theory reflects the desire of an individual to acquire resources and subsequently to gain additional resources whilst safeguarding against the potential or actual loss of their existing resources (Höbfoll, 1989). However, research applying CoR as a framework should move beyond objective gains and losses (Donald et al., 2018). Instead, the inherent subjectivity of the CoR theory should be embraced when framing PE and psychological functioning within gain and loss cycles (Vanhercke et al., 2014). Subjective gains leading to increased levels of PE can lead to higher levels of health, happiness, and productivity (De Lange et al., 2015), which are also indicators of a sustainable career (Magnano et al., 2019). A resource-based outlook on how positive psychological elements of Hope, (Self)-Efficacy, Resilience, and Optimism (HERO) may contribute to developing sustainable careers via PE has not previously been explored. The CoR theory offers a clear theoretical framework that allows empirical investigation of how these elements build a resource caravan at the individual level and the subsequent benefits of these resource caravans to the individual and the organization.

Among the many determinants of employability, the importance of personal resources, values, and work attitudes still finds its merit in the current literature (Di Fabio, 2017; Magnano et al., 2019; Blokker et al., 2019; Peeters et al., 2020; Baruch et al., 2019). Resource caravans capture the notion that resources aggregate or fail to do so in clusters (Höbfoll, 2012). From a psychological viewpoint, sustainable careers are related to personal resources, both tangible and intangible, that help one find meaningful work and life balance (De Vos et al., 2020). A sustainable career is about being proactive on career decisions and developing resources in response to external influences (Akkermans & Tims, 2017; Ali et al., 2020; Hirschi et al., 2015). Sustainable careers can, therefore, be explained on the purview of CoR theory, whereby an individual seeks to acquire resources through life-long learning. These resources then accumulate in the form of resource caravans leading to enhanced levels of PE and increased levels of productivity and happiness (De Lange et al., 2015). This builds on the view that perceived employability is a crucial component of a sustainable career (De Vos et al., 2020; Donald et al., 2020; Magnano et al., 2019; Van der Klink et al., 2016).

**Literature Review and Development of Hypotheses**

*Psychological Capital (PsyCap) HERO Elements and Perceived Employability (PE)*

  Psychological Capital (PsyCap) represents a person’s positive motivational inclinations to succeed through psychological constructs (Luthans et al., 2007, Black et al., 2020). Human capital, incorporating PsyCap is a predictor of PE (Donald et al., 2019) and PsyCap manifests positive psychological wellbeing among employees (Li, 2018). The HERO elements of PsyCap are **H**ope, (Self)-**e**fficacy (SE), **R**esilience (RES), and **O**ptimism, which share the common themes of

*positive appraisal of circumstances and probability for success based on motivated effort and perseverance* (Luthans et al., 2007, p.550).

Hope is explained as an individual’s perceived competence to identify different pathways to reach their desired goal and to become self-motivated by their agency when thinking about pursuing those pathways (Snyder et al., 2002). Self-efficacy is defined as an individual’s poise in successfully executing a job (Stajkovic and Luthans, 1998). Resilience refers to the capacity to recover from adversity, conflict, failure, or even positive events (Luthans et al., 2007). Optimism is associated with a tendency for an individual to view events from a positive perspective (Luthans et al., 2007). These four positive psychological resources help maintain an internalized sense of control of one’s surroundings and goals and act as a buffer against organizational cynicism (Naseer et al., 2020).

From a positive psychological theory perspective, PsyCap and its elements enhance the chances of experiencing a positive interaction with the life and work environment, thereby impacting one’s success and happiness (Gu et al., 2019). In line with the CoR theory assumptions, the increase or decrease of accumulated resources by an individual is an antecedent of PE (Berntson, 2008; Höbfoll et al., 2003), whereby resource changes impact PE in the same direction (Kirves et al., 2014). Despite age or experience, job seekers heavily rely on personal resources, especially positive psychological resources, during their career journey (Nimmi et al., 2020; Seligman and Csikszentmihalyi, [2000](https://www.tandfonline.com/doi/full/10.1080/13639080.2017.1352083?casa_token=otOAYCEI5soAAAAA%3AvQkpOEPyCCuzEkGs2zKL1WKcL2EBZs1NOY1j8XgAzzxbDKka0x3KejEZ-LPCDx8Dv_F9OBP9OcBLDQ)). Therefore, we could hypothesize that Psycap HERO elements enhance PE through the construction of a resource caravan (Li, 2018). Employees with a higher level of positive psychological resources may be more inclined to gain unique resources, enhancing their PE (Chiesa et al., 2018; Donald et al., 2019; Ngoma and Ntale, 2016). However, studies examining the HERO elements role of PsyCap and the pattern in which these resources accumulate to predict PE are lacking. This study responds to this gap and also addresses calls in the literature for the HERO elements of PsyCap to be assessed individually regarding their impact on career outcomes (Black et al., 2020; Yu et al., 2019). The four personal resources of HOPE are referred to as the ‘Hero Within’ (Luthans and Avolio, 2014), which are developed over time and lead to increased levels of well-being and performance (Tang, 2020). We believe that these specific resources can help people to succeed when facing difficult tasks and situations and to guard themselves against burnout (Baron et al., 2016). Since well-being and performance are aligned with the psychology of sustainability and sustainable development (Di Fabio, 2017), our study focuses on these HERO elements to understand their specific relationship to sustainable careers.

*Hope and Perceived Employability (PE)*

 Hope is defined by Cheavens and Sympson (1997) as a reasoning pattern involving agency and pathways to set goals and the perception that one can achieve them. Hope expresses an inherent positive future orientation with the expectation of goal attainment and is amenable to change over time (Kasler et al., 2017). A positive psychological state created by high levels of Hope helps employees to focus on their goals (Luthans et al., 2019) and these individuals are more willing to invest extra effort to achieve their goals (Yu et al., 2019). Although Hope is considered a trait, previous studies indicate that Hope can be taught among individuals, including in school or workplace settings (Gillham and Reivich 2004). The combination of way-power and will-power encompassed by Hope has been positively associated with individual outcomes including career exploration, career SE, emotional wellness, and motivation (Hirschi et al., 2015; Munoz et al. 2016; Valero et al. 2015). Hope as a trait has also been linked to employability as a mechanism for effective career management (Kasler et al., 2017). Hence, based on CoR theory and the above arguments, the study postulates the following hypothesis:

**Hypothesis 1 (H1)**: Hope is positively associated with PE.

*Optimism and Perceived Employability (PE)*

Optimism is one’s positive provenance on success in life pursuits (Luthans et al., 2010). Optimism, as a personality disposition is related to how an individual orients to future events, reflecting their adaptability. Optimism enables an individual to adapt their Knowledge, Skills, and Attitudes (KSAs) to new circumstances. Seligman (1998) illustrated that optimism predicts employees’ positive career outcomes. Highly optimistic employees tend to get a hold of their destinies’ anchor (Seligman, 1998). The predictive power of Optimism on PE has been hinted at in previous literature. For example, Scheier and Carver (1985) observe that an optimistic person generally perceives daily work events positively. Additionally, Fugate et al. (2004) claim that optimistic employees view changes in the workplace as challenges and make the effort to adapt to such environmental changes. Furthermore, Kirves et al. (2014) showed that enhanced optimism is directly related to PE. However, empirical investigation of the relationship between Optimism and PE has been limited to graduates. Since optimistic life orientation is amenable even in adulthood (Feldt et al., 2006; Kirves et al., 2014), we propose:

**Hypothesis Two (H2)**: Optimism is positively associated with PE

*Resilience (RES) and Perceived Employability (PE)*

Resilient individuals showcase their ability to navigate and recover from failures and stressful life events (Tugade and Fredrickson, 2004). This characteristic is usually activated in a person as a response to setbacks and can be particularly useful during a job search. Resilience as a ‘new positive organizational behavior capacity’ is one of the most sought-after qualities in employees, particularly during turbulent times such as chance events or career shocks (Akkermans et al., 2018; Luthans, 2002). Thus, particular focus should be placed on RES in the context of career sustainability for individuals who face risks to their employment due to the temporary nature of contemporary careers (London, 1997). A study by Hong (2012) found the significant protective power of RES on unemployed people by assisting them to manage their emotions via self-affirmation, persistence, and self-reflection. Resilience is thus essential during critical career transitions for promoting a motivational orientation and a desire for personal development to overcome obstacles (Hirschi et a., 2015). Career RES positively correlates with job performance, career success, career decision-making strategies, career adaptability, and career adaptation (Buyukgoze-Kavas, 2016; Rossier et al., 2017; Wei and Taormina, 2014). Hence, we hypothesize:

**Hypothesis Three (H3)**: RES is positively associated with PE.

*Self-efficacy (SE) and Perceived Employability (PE)*

Luthans et al. (2010) define SE as the self-confidence to invest in demanding and challenging tasks and succeeding in achieving them. Their definition aligns with the earlier definition of SE by Bandura (1997, p.3) as

*beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments*

In educational psychology studies, Knight and Yorke (2004) position SE beliefs as a component of employability in their USEM model. From an employment perspective, SE is determined by early career experiences and interaction with people at work, which affects attitude, perception, and behavior (Berntson, 2008). Self-efficient employees rely on their abilities and strengths to navigate challenging work and non-work situations. Employees who demonstrate SE are ready to undertake serious challenges and invest in efforts to develop resource caravans as a means to achieve personal goals (Luthans, 2002; Luthans and Youssef, 2004). Furthermore, SE has been shown to lead to PE (Ngo et al., 2017), and the potential for a reciprocal relationship has also been postured (Berntson, 2008). Hence, based on this premise, we hypothesize:

**Hypothesis Four (H4)**: SE is positively associated with PE.

*The Mediating Role of Self-efficacy (SE) and Resilience (RES): Resource Caravans*

In this study, we look to understand the importance of the HERO elements of PsyCap as predictors of PE. According to CoR theory (Höbfoll, 1989), the four HERO elements are considered personal resources. Yu et al. (2019) denote a sequential approach for PsyCap in how it determines work and career outcomes. Existing literature has hinted that the HERO PsyCap elements of Hope and Optimism are developed in an individual before and during the early stages of their career (Black et al., 2020; Yu et al., 2019). The positive state of mind formed by Hope and Optimism resources and aggregated within a resource caravan can enhance the potential for an individual to develop themselves within an organization (Yu et al., 2019). Through the development of Hope and Optimism, individuals subsequently accumulate additional psychological resources including SE and RES through a goal-orientated approach (Roesch and Vaughn, 2006; Yu et al., 2019). We propose that this sequential development of resources leads to the phenomenon of a resource caravan, whereby resources aggregate in clusters and enhance workplace outcomes (Kirves et al., 2014). The resource caravan created due to these resources provide the individual with increased confidence and courage to contend with the realities of the job market and work environment (Höbfoll et al., 2018). Resilient employees tend to have an active approach to life, are curious, and are flexible, intuitive, innovative, independent, skilled, and confident (Yu et al., 2019). This offers a potential explanation of how the HERO elements of PsyCap determine PE, building on previous studies indicating the positive role that SE and RES play in determining PE (Berntson, 2008; Ngo et al., 2017; Rossier et al., 2017).

We seek to empirically test the view that as an individual progresses through their career, Hope can determine SE and RES (Lane and Chapman, 2011; Panter-Brick, and Eggerman, 2012), which in turn mediates the relationship between Hope and PE. Additionally, we seek to empirically test if Optimism can determine SE and RES (Tan and Tan, 2014; Martínez-Martí, and Ruch, 2017), which in turn mediates the relationship between Optimism and PE. Thus, we offer the following hypotheses:

**Hypothesis Five (H5)**: RES mediates the relationship between Hope and PE.

**Hypothesis Six (H6)**: RES mediates the relationship between Optimism and PE.

**Hypothesis Seven (H7)**: SE mediates the relationship between Hope and PE.

**Hypothesis Eight (H8)**: SE mediates the relationship between Optimism and PE.

**Conceptual Model**

Figure I offers a conceptual model based on **H1-H8** for empirical validation.

\*INSERT FIGURE I HERE\*

**Method**

*Participants and Procedure*

The study was conducted in India among software engineers of private IT companies during which the job market conditions were stable for the IT sector. The selection criteria included, 1) Engineers with B. Tech qualification, 2) with at least one year of experience, and 3) the job position required a B. Tech as qualification criteria. The data was collected mainly from three cities that have a maximum concentration of IT companies. Both online and offline survey methods were used. A total of 421 usable responses were collected through both online and offline modes. Among the respondents, 167 were females and 254 males. The mean age was 29.59 years (ranging from 21 to 48, SD =5.98). The mean value for years of experience was 6.65 (SD = 5.33).

*Measures*

**Perceived Employability (PE)** was assessed via a scale developed by Rothwell and Arnold (2007). There were a total of six items in two dimensions. The first dimension was the perceived value of occupation in the current organization (internal employability) with three items. A sample item was "Even if there was downsizing in this organization, I am confident that I would be retained." The second dimension was the perceived value of occupation outside the current organization (external employability) with three items. A sample item was "I could easily get a similar job to mine in almost any organization." This scale employed a five-point Likert scale (1=strongly disagree, 5=strongly agree).

**Psychological Capital (PsyCap)** was measured with the Psychological Capital scale developed by Luthans et al.,(2007). The Psychological Capital scale comprises four subscales with equal contribution to one’s psychological strength: (1) Hope, (2) (Self)-efficacy, (3) Resilience, and (4) Optimism (HERO). Each of these subscales consists of six items. This scale employed a five-point Likert scale (1=strongly disagree, 5=strongly agree).

In the circulated questionnaire, we tried to capture various information from the sample respondents, such as psychographic and demographic characteristics. The various information captured during the survey is gender, experience, job position, age, job type, etc. As previous empirical studies have established that respondents’ age, experience, and gender influence their employability perceptions (Li, 2018) and well-being, our study considered these as control variables in the data analysis stage. In this study, age and experience were measured as a continuous variable (in years) and gender as a categorical variable.

*Strategy of Analysis*

Data analysis was done in two stages. In the first stage, Harmon’s single factor test was applied to check for common method bias. The unidimensionality of constructs was confirmed with exploratory factor analysis. The reliability of the scales was assessed using Cron-bach alpha values. In the second stage of the study, the hypotheses were tested using structural equation modeling using Warp-PLS. The mediation effects were assessed using the indirect effect of the independent variable on the dependent variable in the presence of a mediator.

**Results and Analysis**

*Descriptive Statistics*

The mean, standard deviation, and correlations (Table I) indicated a reliable correlation for the variables under study.

\*INSERT TABLE I HERE\*

*Data Validation*

The study data was generated from a single source (self-reported survey data) and thus we needed to check for common method bias (Podsakoff et al., 2003). We used Harman’s single factor test as an exploratory assessment. The factor extraction results revealed an extracted total variance of 30.6% showing the absence of common method bias.

The fit of the data with the proposed conceptual model (Figure I) was tested using variance‐based structural equation modeling (Partial Least Squares analysis) with WARP PLS v.6.0 statistical software (Kock, 2015). The Cronbach alpha values for scales used were above the cut-off value of 0.7 (PE 0.84, SE 0.84, Hope 0.83, RES, 0.71, and Optimism 0.70). Measurement model results are provided in Table II.

\*INSERT TABLE II HERE\*

Convergent validity was assessed using Composite Reliability (CR). In this study, the CR values ranged from 0.70 to 0.91 and met or exceeded the recommended level of 0.70 (Gefen et al., 2000). The Average Variance Extracted (AVE) was also in the range of 0.51 to 0.62, within the recommended level of 0.50 (Hair et al., 2010). The results of the Variance Inflation Factor (VIF) were in the range of 1.47 to 2.37 (as evidenced in Table II), below the recommended cut-off level of 5 (Hair et al., 2010). The findings approve the reliability and validity of the study variables.

SEM-PLS was performed using Warp PLS 6.0 to test the proposed hypotheses. The goodness of the model fit was checked through Average Path Coefficient (APC), Average R2 (ARS), and Average Variance Inflation Factor (AVIF). Values of the APC (0.334, p < 0,001) and ARS (0.415, p < 0,001) are significant. Potential multicollinearity was also checked using the Average block VIF (AVIF) and full collinearity Variance Inflation Factor (AFVIF), and values lower than 3.33 indicated no issues with multicollinearity. Adequacy of the hypothesized model was established using an overall goodness‐of‐fit (GoF) index which was 0.446.

The R2 and cross-validated communality Q2 were checked in line with recommendations by Fornell and Larcker (1981). The model has medium prediction quality as indicated in Table III as the cross-redundancy value was found to be more than zero.

\*INSERT TABLE III HERE\*

*Hypothesis Testing – Direct Effect*

The results of the direct hypotheses are given in Table IV.

\*INSERT TABLE IV HERE\*

Results showed that Hope (β = 0.105, p = 0.013), Optimism (β = 0.164, p <0.001), and SE (β = 0.347, p < 0.001) significantly predicts PE. However, the relationship between RES and PE (β = 0.031, p = 0.260) was not significant. Therefore, **H1, H2, and H4** were accepted and **H3** was rejected.

The Warp PLS program also provided the effect sizes of each predictor on the dependent variable. Following guidelines by Kock (2015), and Wong (2013), the absolute effect size values were explored. The values indicated a large effect size (>.35) for Hope to SE (effect size = 0.398; β= 0.575). The absolute effect size was medium for Hope to RES (effect size = 0.302; β = 0.440), Optimism to RES (effect size = 0.251, β= 0.378) and SE to PE (effect size = 0.187 β = 0.347). Results also indicate small effect size for Optimism to SE (effect size = 0.098, β = 0.178), Hope to PE (effect size = 0.051, β = 0.105) and Optimism to PE (effect size = 0.075, β = 0.164).

*Mediation Analysis*

This research used Variance Accounted For (VAF) as a mediation test method for testing **H5**-**H8**. VAF is a more suitable and appropriate method than others in testing mediation effects in PLS-SEM because PLS-SEM involves the use of resampling methods and does not need any assumptions on variable distribution (Sholihin and Ratmono, 2013). The mediation analysis results are presented in Table V.

\*INSERT TABLE V HERE\*

The indirect effect of Hope on PE through RES was positive and significant (Path coefficient = .166; p < 0.001). Moreover, the Variance Accounted For (VAF) value was checked to confirm whether a mediation effect exists or not. The VAF value for the corresponding model was .347, leading to acceptance of **H5**. The indirect effect of Hope on PE through SE was positive and significant (Path coefficient = .278; p < 0.001). A VAF value for this corresponding model is .591 and concludes that partial mediation exists and supports **H7**. Therefore, RES and SE served as an intervening mechanism through which Hope enhanced PE.

The results also indicate that RES partially mediates the association between Optimism and PE (Path coefficient = .229 p < 0.001). The VAF value of the corresponding model was .498, leading to acceptance of **H6**. The indirect path coefficient between Optimism and PE through SE was found to be significant (Path coefficient = .181 p < 0.001). The VAF value for the corresponding model was .404, leading to acceptance of **H8**. Therefore, RES and SE served as an intervening mechanism through which Optimism enhanced PE.

Therefore, the mediation analysis in this study fulfils the assumptions and supports the presence of partial mediation such that the relationship of Hope and Optimism on PE is partially mediated by RES and SE.

**Discussion**

*Theoretical Implications*

Despite conceptual work by De Vos et al. (2020) and Donald et al. (2020), the empirical validation of a sustainable career remains in its embryonic state. Savickas and Baker (2005, p.15) state that the purpose of empirical studies in vocational psychology is

*to advance knowledge about vocational behavior, improve career interventions, and inform social policy about work issues.*

Our study responds to such calls by addressing the lack of empirical studies on sustainable careers and the underrepresentation of non-Western cultures in the field of vocational psychology (Hong et al., 2020). Moreover, very few studies have specifically looked at the predictive power of PsyCap on PE (Chiesa et al., 2018; Donald et al., 2019; Li, 2018). None of these studies have explicitly explored the HERO elements of PsyCap within a Non-Western context. We position PsyCap as a positive ‘state-like trait’ which is malleable (Madrid et al., 2018; Yu et al., 2019). Thus, the theoretical contribution of our study comes from the development of a conceptual model of the HERO elements of PsyCap. We subsequently empirically investigated the model to understand how these four distinct PsyCap components operate systematically to determine PE. We capture how the HERO elements of PsyCap enable an individual to develop resources that accumulate in resource caravans (Höbfoll, 2012; Höbfoll et al., 2018). The enhancement of PE through these resource caravans fosters career sustainability, as PE is an antecedent of a sustainable career (Donald et al., 2020).

We originally proposed that the four HERO elements of PsyCap would determine PE. This was empirically supported for Hope, SE, and Optimism, but rejected for RES. A reasonable explanation for the rejection of the RES-PE relationship is that the participants for this study were employed and the IT sector had a stable labor market when they completed the questionnaire. Previous studies have indicated the importance of RES during periods of unemployment and when job searching in a competitive labor market (Chen & Lim, 2012; Vanhercke et al., 2015). Thus, the relationship between RES and PE may be dependent on the time and context aspects of sustainable careers (De Vos et al., 2020).

Our findings indicate that SE has strong predictive power over PE, supporting previous predictions from studies in the workplace (Berntson, 2008), and studies in educational settings (Knight & Yorke, 2004). Our findings also reflect the role of SE on career outcomes as investigated and reported via the Social Cognitive Model of Career Self-Management (Lent and Brown, 2013; Atitsogbe et al., 2019). The mediating roles of RES and SE were also empirically tested on the relationships between Hope and PE and Optimism and PE. The findings confirmed the mediation roles in each of these cases. Our contribution is based on the assumption that Hope and Optimism are already developed among employees during academic life and the early stages of their careers (Feldman and Kubota, 2015; Yu et al., 2019). Hope and Optimism appear to operate as pre-requisite resources of a resource caravan (Höbfoll, 2012). This enables the development of SE and RES resources to aggregate within a resource caravan, leading to increased levels of PE and career sustainability (De Vos et al., 2020; Donald et al., 2020). Our study, therefore, reiterates the importance of the development, aggregation, and maintenance of HERO resources within a resource caravan as a means for navigating the unpredictable nature of contemporary careers and overcoming career shocks (Akkermans et al., 2018; Luthans, 2002).

*Limitations and Recommendations for Future Research*

The cross-section design and the use of questionnaires as a single source of data is a potential limitation of our study. However, common method bias checks were negative and our study had a 95% confidence interval and a 5% margin of error. Other limitations include the subjectivity of PE and the sole focus on software engineers within private IT organizations in India. Future research could complement our study by adopting a longitudinal approach to see if the relationships identified in our study change across the working lifespan to explore further the time element of sustainable careers (De Vos et al., 2020). For example, does a delay in acquiring Hope and Optimism resources impact the relationships with PE, given our assumption that Hope and Optimism are already developed among employees during academic life and the early stages of their careers (Feldman and Kubota, 2015; Yu et al., 2019). An objective evaluation of employability could be considered, as could exploration of other variables that may have a mediating or moderating role. Other indicators of sustainable careers like health, career success, and satisfaction could also be considered. Finally, our study could be replicated in different cultures, countries, and/or sectors of employment to look for similarities and differences within these cohorts and to explore further the context element of sustainable careers (De Vos et al., 2020).

*Practical Implications*

The practical implications of our study focus on career counseling and development opportunities in acknowledgment that vocational psychology primarily sits within the field of counseling psychology (Jackson and Verdino, 2012). The CoR theory suggests that resource caravans can offer an opportunity for an individual to reduce their levels of psychological stress (Höbfoll, 2012). Our study embraces the inherent subjectivity of the CoR theory as a means for framing psychological functioning and PE within gain and loss cycles (Vanhercke et al., 2014). We believe that the individuals and career counselors have a role to play in supporting the development of resource caravans.

At the individual level, the subjective gains from the HERO elements of PsyCap can lead to enhanced levels of PE, representing the psychological notion of employability (Peeters et al., 2020; Vanhercke et al., 2014). Subjective gains leading to increased levels of PE can lead to higher levels of health, happiness, and productivity (De Lange et al., 2015), which are also indicators of a sustainable career (Donald et al., 2020; Magnano et al., 2019). Furthermore, increased levels of PE can lead to a meaningful balance for an individual between their work and personal life (Magnano et al., 2019). It can also enable the individual to navigate unpredictable work environments over time (Chiesa et al., 2018) through coping and adaptation approaches (Blustein et al., 2019). This captures the view that career adaptability is a psychosocial construct (Johnston, 2018) and a measure of career success (Praskova and Johnston, 2020) via increased levels of person-job fit (Kaur and Kaur, 2020). The individual should, therefore, look to take ownership of their career and construct a career caravan through an accumulation of the HERO elements as a resource (Hobfoll et al., 2018). The individual may also benefit from working with career counselors (Donald et al., 2018). Career counselors need to become aware of the benefits of the HERO elements and support individuals with development opportunities to acquire resources. In particular, career counselors need to provide opportunities for individuals to develop Hope and Optimism during education and in the early stages of a carer. These prerequisites can then lead to SE and RES as aggregate resources within a resource caravan (Höbfoll, 2012). The HERO elements of PsyCap should, therefore, be positioned by career counselors as a means for helping the individual to overcome career shocks (Akkermans et al., 2018; Luthans, 2002) and for a sustainable career (De Vos et al., 2020; Donald et al., 2020).

Furthermore, organizations should provide a context in which individuals can build resource caravans over time because the benefits to the individual can also translate to benefits for the organization. This captures the view that a sustainable career showcases the interconnected and interdependent relationship between an individual and an organization, evidencing a new psychological contract (Baruch and Rousseau, 2019; Chudzikowski et al., 2020), operating within a career ecosystem (Baruch, 2013). Organizational gains from increased levels of PE and career sustainability in their workers include increased levels of worker commitment, wellbeing, and performance (Hodges, 2010), leading to increased levels of productivity, profitability, and competitive advantage (Donald et al., 2020). Therefore, we propose that organizations should consider psychological assessments during the recruitment selection process. We also propose that coaching and mentoring programs should be put in place to help employees to develop HOPE components of PsyCap as a means for coping with adversity either in the workplace, in their careers, or in their personal lives.

**References**

Akkermans, J., Richardson, J., & Kraimer, M. (2020). The Covid-19 crisis as a career shock: Implications for careers and vocational behavior. *Journal of Vocational Behavior*, *119*. https://doi.org/10.1016/j.jvb.2020.103434

Akkermans, J., Seibert, S. E., & Mol, S. T. (2018). Tales of the unexpected: Integrating career shocks in the contemporary careers literature. *SA Journal of Psychology*, *44*,  
1-10. https://doi.org/[10.4102/sajip.v44i0.1503](http://dx.doi.org/10.4102/sajip.v44i0.1503)

Akkermans, J., & Tims, M. (2017). Crafting your career: How career competencies relate to career success via job crafting. *Applied Psychology*, *66*(1), 168-195. [https://doi.org/10.1111/apps.12082](https://psycnet.apa.org/doi/10.1111/apps.12082)

Ali, Z., Ghani, U., Islam, Z. U., & Mehreen, A. (2020). Measuring career shocks: A study of scale development and validation in the Chinese context. *Australian Journal of Career Development*, *29*(3), 164-172. [https://doi.org/10.1177/1038416220950737](https://doi.org/10.1177%2F1038416220950737)

Atitsogbe, K. A., Mama, N.P., Sovet, L., Pari, P., & Rossier, J. (2019). Perceived employability and entrepreneurial intentions across university students and job seekers in Togo: The effect of career adaptability and self-efficacy. *Frontiers in Psychology*, *10*, 180. <https://doi.org/10.3389/fpsyg.2019.00180>

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

Baron, R. A., Franklin, R. J., & Hmieleski, K. M. (2016). Why Entrepreneurs Often Experience Low, Not High Levels of Stress: The Joint Effects of Selection and Psychological Capital. *Journal of Management*, *42*(3), 742-768. https://doi.org/10.1177/0149206313495411

Baruch, Y. (2013). Careers in academe. The academic labor market as an eco-system. *Career Development International*, *18*(2), 196-210.  
https://doi.org/[10.1108/CDI-09-2012-0092](http://dx.doi.org/10.1108/CDI-09-2012-0092)

Baruch, Y., Bhaskar, A .U., & Mishra, B. (2019). Career dynamics in India: a two-wave study of career orientations and employability of graduates. *Personnel Review*, *49*(3), 825-845. <https://doi.org/10.1108/PR-10-2018-0429>

Baruch, Y., & Rousseau, D. M. (2019). Integrating Psychological Contracts and Ecosystems in Career Studies and Management. *Academy of Management Annals*, *13*(1), 84-111.<https://doi.org/10.5465/annals.2016.0103>

Berntson, E. (2008). *Employability perceptions: Nature, determinants, and implications for health and well-being* (Doctoral Dissertation, Psykologiska Institutionen).

Black, D., Bissessar, C., & Boolaky, M. (2020). The missing HEROs: the absence of, and need for, PsyCap research of online university students. *Open Learning: The Journal of Open, Distance and e-Learning*, (ahead-of-print). <https://doi.org/10.1080/02680513.2020.1855133>

Blokker, R., Akkermans, J., Tims, M., Jansen, P., & Khapova, S. (2019). Building a sustainable start: The role of career competencies, career success, and career shocks in young professionals' employability. *Journal of Vocational Behavior*, *112*, 172-184. https://doi.org/[10.1016/j.jvb.2019.02.013](https://doi.org/10.1016/j.jvb.2019.02.013)

Blustein, D. L., Kenny, M. E., Di Fabio, A., & Guichard, J. (2019). Expanding the Impact of the Psychology of Working: Engaging Psychology in the Struggle for Decent Work and Human Rights. *Journal of Career Assessment*, *27*(1), 3-28. [https://doi.org/10.1177/1069072718774002](https://doi.org/10.1177%2F1069072718774002)

Buyukgoze‐Kavas, A. (2016). Predicting career adaptability from positive psychological traits. *The Career Development Quarterly*, *64*(2), 114-125. https://doi.org.10.1002/cdq.12045

Chen, D. J. Q., & Lim, V. K. G. (2012). Strength in adversity: The influence of psychological capital on job search. *Journal of Organizational Behavior*, *3*(6), 811-839. <https://doi.org/10.1002/job.1814>

Chiesa, R., Fazi, L., Guglielmi, D., & Mariani, M. G. (2018). Enhancing sustainability: Psychological capital, perceived employability, and job insecurity in different work contract conditions. *Sustainability*, *10*, 2475. <https://doi.org/10.3390/su10072475>.

Chudzikowski, K., Gustafsson, S., & Tams, S. (2020). Constructing alignment for sustainable careers: Insights from the career narratives of management consultants. *Journal of Vocational Behavior*, *117*, 103312. <https://doi.org/10.1016/j.jvb.2019.05.009>

De Lange, A. H., Kooij, D. T. A. M., & van der Heijden, B. I. J. M. (2015). Human resource management and sustainability at work across the lifespan: An integrative perspective. In L. M. Finkelstein, D. M. Truxillo, F. Fraccaroli, & R. Kanfer (Eds.), *SIOP organizational frontiers series. Facing the challenges of a multi-age workforce: A use-inspired approach*, (pp. 20-79). Routledge/Taylor & Francis Group.

De Vos, A., Van der Heijden, B. I. J. M., & Akkermans, J. (2020). Sustainable careers: Towards a conceptual model. *Journal of Vocational Behavior*, *117*, 103196. <https://doi.org/10.1016/j.jvb.2018.06.011>

Di Fabio, A. (2017). The psychology of Sustainability and Sustainable Development for Well-being in Organizations. *Frontiers in Psychology*, *8*, 1534. <https://doi.org/10.3389/fpsyg.2017.01534>

Donald, W. E., Ashleigh, M. J., & Baruch, Y. (2018). Students’ perceptions of education and employability: Facilitating career transition from higher education into the labour market. *Career Development International,* *23*(5), 513-540. https://doi.org/10.1108/CDI-09-2017-0171

[Donald, W .E.](https://www.emerald.com/insight/search?q=William%20E.%20Donald), [Baruch, Y.](https://www.emerald.com/insight/search?q=Yehuda%20Baruch), & [Ashleigh, M. J.](https://www.emerald.com/insight/search?q=Melanie%20J.%20Ashleigh) (2020). Striving for sustainable graduate careers: Conceptualization via career ecosystems and the new psychological contract. [*Career Development International*](https://www.emerald.com/insight/publication/issn/1362-0436), *25*(2), 90-110.  
<https://doi.org/10.1108/CDI-03-2019-0079>

Donald, W. E., Baruch, Y., & Ashleigh, M. J. (2019). The undergraduate self-perception of employability: Human capital, careers advice, and career ownership. *Studies in Higher Education*, *44*(4), 599-614.<https://doi.org/10.1080/03075079.2017.1387107>

Feldt T, Ma¨kikangas A, & Aunola K. (2006). Sense of coherence and optimism. In L. Pulkkinen, J. Kaprio, & R. J. Rose (Eds.), *Socioemotional Development and Health From Adolescence to Adulthood*, (pp. 286-305). Cambridge University Press.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50. <https://doi.org/10.2307/3151312>

Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior*, *65*(1), 14-38. https://doi.org/[10.1016/j.jvb.2003.10.005](http://dx.doi.org/10.1016/j.jvb.2003.10.005)

Gefen, D., Straub, D., & Boudreau, M. C. (2000). Structural equation modelling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, *4*. <https://doi.org/10.17705/1CAIS.00407>

Gillham, J., & Reivich, K. (2004). Cultivating optimism in childhood and adolescence. *The Annals of the American Academy of Political and Social Science*, *591*(1), 146-163. [https://doi.org/10.1177/0002716203260095](https://doi.org/10.1177%2F0002716203260095)

Gu, Y., Tang, T., Wang, H., & Zhou, W. (2019). Sustainable career development of new urban immigrants: A psychological capital perspective. *Journal of Cleaner Production*, *208*, 1120-1130. https://doi.org/[10.1016/j.jclepro.2018.10.210](https://www.x-mol.com/paperRedirect/861913)

Haibo, Y., Xiaoyu, G.,Xiaoming, Z., & Zhikin, H. (2018). Career Adaptability With or Without Career Identity: How Career Adaptability Leads to Organizational Success and Individual Career Success. *Journal of Career Assessment*, *26*(4), 717-731. [https://doi.org/10.1177/1069072717727454](https://doi.org/10.1177%2F1069072717727454)

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Pearson.

Hirschi, A., Herrmann, A., & Keller, A. C. (2015). Career adaptivity, adaptability, and adapting: A conceptual and empirical investigation. *Journal of Vocational Behavior*, *87*, 1-10. [https://doi.org/10.1016/j.jvb.2014.11.008](https://psycnet.apa.org/doi/10.1016/j.jvb.2014.11.008)

Höbfoll, S. E. (2012). Conservation of resources and disaster in cultural context: The caravans and passageways for resources. *Psychiatry: Interpersonal & Biological Processes*, *75*(3), 227-232. https://doi.org/[10.1521/psyc.2012.75.3.227](https://doi.org/10.1521/psyc.2012.75.3.227)

Höbfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513-524. [https://doi.org/10.1037/0003-066X.44.3.513](https://psycnet.apa.org/doi/10.1037/0003-066X.44.3.513)

Höbfoll, S. E., Halbesleben, J., Neveu, J-P., & Westman, M. (2018). Conservation of resources in organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*,  
103-128.<https://doi.org/10.1146/annurev-orgpsych-032117-104640>

Höbfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of personality and social psychology*, *84*(3), 632. http://doi.org/[10.1037/0022-3514.84.3.632](http://dx.doi.org/10.1037/0022-3514.84.3.632)

Hong, J. Y. (2012). Why do some beginning teachers leave the school, and others stay? Understanding teacher resilience through psychological lenses. *Teachers and Teaching*, *18*(4), 417-440. <https://doi.org/10.1080/13540602.2012.696044>

Hong, R., Romans, J. S. C., Koch, J. M., & Ramakrishnan N. (2020). Impact of Cultural Individualism and Collectivism on Protean and Boundaryless Career Attitudes and Job Satisfaction. *Journal of Career Development*, (ahead-of-print).  
<https://doi.org/10.1177/0894845320922608>

Jackson, M. A. &, Verdino, J. R. (2012). Vocational Psychology. In R. W. Rieber (Ed.), *Encyclopedia of the History of Psychological Theories*. Springer. https://doi.org/10.1007/978-1-4419-0463-8\_304

Johnston, C. S. (2018). A Systematic Review of the Career Adaptability Literature and Future Outlook. *Journal of Career Assessment*, *26*(1), 3-30. [https://doi.org/10.1177/1069072716679921](https://doi.org/10.1177%2F1069072716679921)

Kasler, J., Zysberg, L., & Harel, N. (2017). Hopes for the future: demographic and personal resources associated with self-perceived employability and actual employment among senior year students. *Journal of Education and Work*, *30*(8), 881-892. <https://doi.org/10.1080/13639080.2017.1352083>

Kaur, H., & Kaur, R. (2020). The relationship between career adaptability and job outcomes via fit perceptions: A three-wave longitudinal study. *Australian Journal of Career Development*, *29*(3), 196-204. [https://doi.org/10.1177/1038416220935677](https://doi.org/10.1177%2F1038416220935677)

Kirves, K., Kinnunen, U., & De Cuyper, N. (2014). Contract type, perceived mobility and optimism as antecedents of perceived employability. *Economic and industrial democracy*, *35*(3), 435-453. [https://doi.org/10.1177/0143831X13486702](https://doi.org/10.1177%2F0143831X13486702)

Knight, P., & Yorke, M. (2004). *Learning, curriculum and employability in higher education*. Routledge.

Kock, N. (2012). *WarpPLS 5.0 User Manual*. Script Warp Systems.

Lane, F. C., & Chapman, N. H. (2011). The Relationship of Hope and Strength's Self-Efficacy to the Social Change Model of Leadership. *Journal of Leadership Education*, *10*(2), 116-137.

Lent, R. W., & Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, *60*(4), 557-568. [https://doi.org/10.1037/a0033446](https://psycnet.apa.org/doi/10.1037/a0033446)

Li, Y. (2018). Linking protean career orientation to well-being: The role of psychological capital. *Career Development International*, *23*(2), 178-196. [https://doi.org/10.1108/CDI-07-2017-0132](https://psycnet.apa.org/doi/10.1108/CDI-07-2017-0132)

London M. (1997). Overcoming career barriers: A model of cognitive and emotional processes for realistic appraisal and constructive coping. *Journal of Career Development*, 24(1), 25–38. <https://doi.org/10.1023/A:1025082420866>

Luthans, F. (2002). Positive organizational behavior: Developing and managing psychological strengths. *The Academy of Management Executive*, *16*(1), 57-72. <https://doi.org/10.5465/ame.2002.6640181>

Luthans. F., & Avolio, B. J. (2014). Brief Summary of Psychological Capital and Introduction to the Special Issue. *Journal of Leadership & Organizational Studies*, *21*(2), 125-129. [https://doi.org/10.1177/1548051813518073](https://doi.org/10.1177%2F1548051813518073)

Luthans, F., & Youssef, C. M. (2004). Human, social and now positive psychological capital management: Investing in people for competitive advantage. *Organizational Dynamics*, *33*(2), 143-160. [https://doi.org/10.1016/j.orgdyn.2004.01.003](https://psycnet.apa.org/doi/10.1016/j.orgdyn.2004.01.003)

Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, *21*(1), 41-67. http://doi.org/[10.1002/hrdq.20034](https://doi.org/10.1002/hrdq.20034)

Luthans, F., Avolio, B., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: measurement and relationship with performance and satisfaction. *Personnel Psychology*, *60*(3), 541-572. <https://doi.org/10.1111/j.1744-6570.2007.00083.x>

Luthans, K. W., Luthans, B. C., & Chaffins, T. D. (2019). Refining grit in academic performance: The mediational role of psychological capital. *Journal of Management Education*, *43*(1), 35-61. [https://doi.org/10.1177/1052562918804282](https://doi.org/10.1177%2F1052562918804282)

Magnano, P., Santisi, G., Zammitti, A., Zarbo, R., & Di Nuovo, S. (2019). Self-perceived employability and meaningful work: the mediating role of courage on quality of life. *Sustainability*, *11*(3), 764. <https://doi.org/10.3390/su11030764>

Martínez-Martí, M. L., & Ruch, W. (2017). Character strengths predict resilience over and above positive affect, self-efficacy, optimism, social support, self-esteem, and life satisfaction. *The Journal of Positive Psychology*, *12*(2), 110-119.  
<https://doi.org/10.1080/17439760.2016.1163403>

Munoz, R. T., Hellman, C. M., Buster, B., Robbins, A., Carroll, C., Kabbani, M., ... & Fox, M. D. (2016). Life satisfaction, hope, and positive emotions as antecedents of health related quality of life among homeless individuals. *International Journal of Applied Positive Psychology*, *1*(1), 69-89. https://doi.org/10.1007/s41042-017-0005-z

[Naseer, S.](https://www.emerald.com/insight/search?q=Saima%20Naseer), [Raja, U.](https://www.emerald.com/insight/search?q=Usman%20Raja), [Syed, F.](https://www.emerald.com/insight/search?q=Fauzia%20Syed), & [Baig, M. U. A.](https://www.emerald.com/insight/search?q=Muhammad%20Usman%20Anwar%20Baig) (2020). When and why organizational cynicism leads to CWBs. [*Personnel Review*](https://www.emerald.com/insight/publication/issn/0048-3486), *50*(1), 90-107.  
<https://doi.org/10.1108/PR-09-2019-0480>

Ngo, H. Y., Liu, H., & Cheung, F. (2015). *Antecedents and Outcomes of Perceived Employability: A Study of Hong Kong Employees*. Academy of Management Annual Meeting Proceedings 2015.

Ngoma, M., & Dithan Ntale, P. (2016). Psychological capital, career identity and graduate employability in Uganda: the mediating role of social capital. *International Journal of Training and Development*, *20*(2), 124-139. <https://doi.org/10.1111/ijtd.12073>

Nimmi, P. M., Zakkariya, K. A., & Nezrin, R. (2020). Insight to impact: The effect of protean career attitude on employability perceptions of IT professionals. *Colombo Business Journal*, *11*(1), 1-23. <http://doi.org/10.4038/cbj.v11i1.55>

Panter-Brick, C., & Eggerman, M. (2012). Understanding culture, resilience, and mental health: The production of hope. In M. Ungar (Ed.), *The social ecology of resilience: A handbook of theory and practice*, (pp. 369-386). Springer Science + Business Media.

Peeters, E. R., Akkermans, J., & De Cuyper, N. (2020). The Only Constant Is Change? Movement Capital and Perceived Employability, *Journal of Career Assessment*, *28*(4), 674-692. [https://doi.org/10.1177/1069072720918195](https://doi.org/10.1177%2F1069072720918195)

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, *88*(5), 879.  
https://doi.org/[10.1037/0021-9010.88.5.879](https://doi.org/10.1037/0021-9010.88.5.879)

Praskova, A., & Johnston, L. (2020). The Role of Future Orientation and Negative Career Feedback in Career Agency and Career Success in Australian Adults. *Journal of Career Assessment*, (ahead-of-print). [https://doi.org/10.1177/1069072720980174](https://doi.org/10.1177%2F1069072720980174)

Roesch, S. C., & Vaughn, A. A. (2006). Evidence for the factorial validity of the dispositional Hope Scale, *European Journal of Psychological Assessment*, *22*(2),  
78-84. [https://doi.org/10.1027/1015-5759.22.2.78](https://psycnet.apa.org/doi/10.1027/1015-5759.22.2.78)

Rossier, J., Ginevra, M. C., Bollmann, G., & Nota, L. (2017). The Importance of Career Adaptability, Career Resilience, and Employability in Designing a Successful Life. In K. Mareer (Ed.), *Psychology of Career Adaptability, Employability and Resilience*, (pp. 65-82). Springer International Publishing.

Rothwell, A., & Arnold, J. (2007). Self-perceived employability: Development and validation of a scale. *Personnel Review*, *36*(1), 23-41. https://doi.org/[10.1108/00483480710716704](http://dx.doi.org/10.1108/00483480710716704)

Savickas, M. L., & Baker. D. B. (2005). The history of vocational psychology: Antecedents, origin, and early development. In W. B. Walsh & M. L. Savickas (Eds.), *Handbook of vocational psychology: Theory, research, and practice*, (pp. 15-50). Erlbaum.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health psychology*, *4*(3), 219. http://dx.doi.org/10.1037//0278-6133.4.3.219

Seligman, M. E. P. (1998). *Learned Optimism: How to Change Your Mind and Your Life*. Pocket Books.

Seligman, M. E. P., & Csikszentmihalyi, M. (2014). Positive Psychology: An introduction. In *Flow and the Foundations of Positive Psychology*, (pp. 279-298). Springer.

Snyder, C. R., Shorey, H. S., Cheavens, J., Pulvers, K. M., Adams III, V. H., & Wiklund, C. (2002). Hope and academic success in college. *Journal of educational psychology*, *94*(4), 820. https://doi/10.1037/0022-0663.94.4.820

Stajkovick, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: a meta-analysis. *Psychological Bulletin*, *124*(2), 240-261.   
<https://doi.org/10.1037/0033-2909.124.2.240>

Tan, C., & Tan, L. S. (2014). The role of optimism, self-esteem, academic self-efficacy and gender in high-ability students. *The Asia-Pacific Education Researcher*, *23*(2),   
621-633. <https://doi.org/10.1007/s40299-013-0134-5>

Tang, J-J. (2020). Psychological Capital and Entrepreneurship Sustainability. *Frontiers in Psychology*, (ahead-of-print). <https://doi.org/10.3389/fpsyg.2020.00866>

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, *86*(2), 320-330. https://doi.org/10.1037/0022-3514.86.2.320

Valero, D., Hirschi, A., & Strauss, K. (2015). Hope in adolescent careers: Mediating effects of work motivation on career outcomes in Swiss apprentices. *Journal of Career Development*, *42*(5), 381-395. [https://doi.org/10.1177/0894845314566866](https://doi.org/10.1177%2F0894845314566866)

Van der Klink, J. J. L. et al. (2016). Sustainable employability – definition, conceptualization, and implications: A perspective based on the capability approach. *Scandinavian Journal of Work, Environment and Health*, *42*(1), 71-79. https://doi.org/[10.5271/sjweh.3531](https://doi.org/10.5271/sjweh.3531)

Vanhercke, D., Cuyper, N. D., Peeters, E., & Witte, H. D. (2014). Defining perceived employability, a psychological approach. *Personnel Review*, *43*(4), 592-605. <https://doi.org/10.1108/PR-07-2012-0110>

Vanhercke, D., Kirves, K., De Cuyper, N., Verbruggen, M., Forrier, A., & De Witte, H. (2015). Perceived employability and psychological functioning frames by gain and loss cycles. *Career Development International*, *20*(2), 179-198. <https://doi.org/10.1108/CDI-12-2014-0160>

Wei, W., & Taormina, R. J. (2014). A new multidimensional measure of personal resilience and its use: Chinese nurse resilience, organizational socialization and career success. *Nursing Inquiry*, *21*(4), 346-357. https://doi.org/[10.1111/nin.12067](https://doi.org/10.1111/nin.12067)

Wong, K. K. K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, *24*(1), 1-32. https://doi.org/10.1007/978-3-319-05542-8\_15-1

Yu, X., Li, D., Tsai, C. H., & Wang, C. (2019). The role of psychological capital in employee creativity. *Career Development International*, *24*(5), 420-437. https://doi.org/[10.1108/CDI-04-2018-0103](http://dx.doi.org/10.1108/CDI-04-2018-0103)

**Figure I: Conceptual Model**

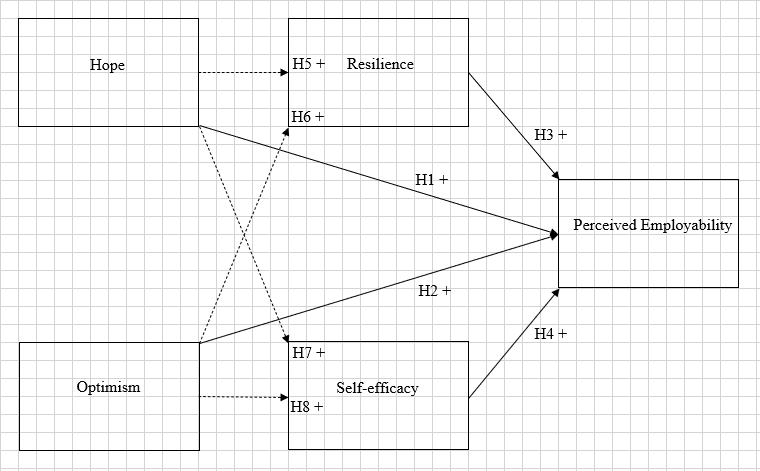


Figure I shows the conceptual model for this paper. The dotted arrow lines indicate the mediation roles of Resilience and Self-efficacy on the relationships between Hope and Perceived Employability, and between Optimism and Perceived Employability.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table I: Descriptive Statistics (N = 421)** | | | | | | | | | | |
|  | Mean | S.D | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. Hope | 3.73 | 0.63 | 1 |  |  |  |  |  |  |  |
| 2. Self-efficacy | 3.80 | 0.66 | .68\*\* | 1 |  |  |  |  |  |  |
| 3. Resilience | 3.62 | 0.55 | .63\*\* | .62\*\* | 1 |  |  |  |  |  |
| 4. Optimism | 3.59 | 0.54 | .53\*\* | .48\*\* | .62\*\* | 1 |  |  |  |  |
| 5. Employability | 3.65 | 0.66 | .43\*\* | .50\*\* | .38\*\* | .40\*\* | 1 |  |  |  |
| 6. Age | 29.59 | 5.98 | .17\*\* | .16\*\* | .12\* | 0.02 | 0.04 | 1 |  |  |
| 7. Gender | 1.39 | 0.49 | -.22\*\* | -0.09 | -.21\*\* | -.19\*\* | -0.04 | -0.07 | 1 |  |
| 8. Experience | 6.65 | 5.33 | .16\*\* | .18\*\* | .13\* | 0.03 | 0.06 | .89\*\* | -.15\*\* | 1 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | | | |
| \*. Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table II: Measurement Model Statistics** | | | | | | |
| Constructs | Type | No. of items | CR | AVE | Cronbach | VIF |
| PE | Reflective | 11 | 0.875 | 0.524 | 0.842 | 1.474 |
| SE | Reflective | 6 | 0.906 | 0.617 | 0.837 | 2.306 |
| Optimism | Reflective | 6 | 0.696 | 0.562 | 0.696 | 1.937 |
| Hope | Reflective | 6 | 0.828 | 0.541 | 0.828 | 2.329 |
| RES | Reflective | 6 | 0.712 | 0.513 | 0.712 | 2.371 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Table III: R2 and Q2 Coefficients** | | | |
| Endogenous Constructs | PE | SE | RES |
| R² | 0.327 | 0.478 | 0.441 |
| Q² | 0.328 | 0.478 | 0.441 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table IV: Estimation of Direct Path Coefficients** | | | | | |
| H No. | Path | Beta | P Value | Standard Error | Effect Size |
| H1 | Hope - PE | 0.105 | 0.013 | 0.047 | 0.051 |
| H2 | Optimism - PE | 0.164 | <0.001 | 0.047 | 0.075 |
| H3 | RES to PE | 0.031 | 0.260 | 0.047 | 0.014 |
| H4 | SE to PE | 0.347 | <0.001 | 0.046 | 0.187 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Table V: Mediation Analysis** | | | | |
| H No. | Path | Direct Effect without Mediator | Direct Effect with Mediator | Indirect Effect | Total Effect |
|
| H5 | Hope - RES - PE | 0.482\*\*\* | 0.312\*\*\* | 0.166\*\*\* | 0.478\*\*\* |
| H6 | Optimism - RES - PE | 0.459\*\*\* | 0.213\*\*\* | 0.229\*\*\* | 0.460\*\*\* |
| H7 | Hope - SE - PE | 0.482\*\*\* | 0.192\*\*\* | 0.278\*\*\* | 0.470\*\*\* |
| H8 | Optimism - SE - PE | 0.459\*\*\* | 0.266\*\*\* | 0.181\*\*\* | 0.447\*\*\* |
|  |  |  |  |  |  |
|  | \*\*\* Sig at 95% |  |  |  |  |
|  |  |  |  |  |  |