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# A Longitudinal Examination of the Association Between Psychological Capital, Perception of Organizational Virtues and Work Happiness in School Staff

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## Abstract

**Background:** Developing employee wellbeing has recently been recognized as an important way to improve organizational performance. Sloan's (1987) dual-intervention approach suggests that employee wellbeing can be developed bottom-up, by improving employee psychological wellbeing, or top-down by changing the organization. This longitudinal study explores the association between psychological capital (bottom-up factors), organizational virtues (top-down factors), and work happiness.

**Method:** A three-wave repeated measures correlation study was used to analyze the pattern of relationships between employee psychological capital (PsyCap), perception of organizational virtues (OV) and work happiness in staff at an independent K-12 school in Victoria, Australia over a 15-month timespan (baseline N= 247).

**Results:** Within and across time, both employee psychological capital and perception of organizational virtues independently related to greater work happiness. PsyCap and OV strongly correlated with work happiness, with a simplex structure i.e., variables closer in time were more strongly correlated, with correlation strength declining over time. Further, there was some evidence of a small of a synergistic effect.

**Results:** The results suggest that while leaders might target psychological capital in employees or target the organization's culture to develop employee wellbeing, further benefit may arise by using both top-down and bottom-up strategies. These findings can be used to help schools and other organizations build employee work happiness.

## Background

One major source of strategic capital in today's information and knowledge-driven society is people (Lorange 2005). Certainly, the nature of business has shifted from a concentration on financial capital to a concentration on human capital (Bartlett and Ghoshal 2002), suggesting that an organization's people are critical to its innovation, performance and competitiveness. As such, employee wellbeing has gained recognition as an important outcome that organizations need to foster if they are to make best use of the capacity of their human capital and perform well.

Increasing evidence from the field of positive psychology suggests that optimal levels of wellbeing influence positive outcomes for employees and organizations. Wellbeing in

employees has been related to their levels of engagement (Harter et al. 2003), organizational citizenship behaviors (LePine et al. 2002) and overall career success (Boehm and Lyubomirsky 2008). For organizations, employee wellbeing is linked with customer satisfaction, (Giardini and Frese 2008) productivity, presenteeism, and effort at work (Keyes 2005); lower voluntary turnover (Wright and Bonett 2007) and fewer absenteeism/sick days (Keyes 2005). Organizations who develop employee wellbeing receive a positive return on investment through reduced absenteeism and compensation claims (Price Waterhouse Coopers 2014). As such, it is in the interest of organizations to intentionally develop employee wellbeing.

Happiness and wellbeing at work has been defined in a number of ways. Definitions include: the presence of positive experiences and absence of negative experiences (Cotton and Hart 2003); workplace affect and job satisfaction (Page and Vella-Brodrick 2009) and more broadly as a positive state of mind arising from one's experiences at work (Page 2005). Fisher (2010) proposes that happiness at work should be treated as a multidimensional concept, and argues that measures of work happiness such as job satisfaction (Locke 1976), positive affect (Fisher 1997) and thriving and vigor (Spreitzer and Sonenshein 2004) are too narrow. She proposes a higher-order approach to conceptualizing 'work happiness' and suggests it is the combination of three aspects: (a) engagement with the work itself; (b) satisfaction with the job and, (c) feelings of affective commitment to the organization as a whole. This multi-dimensional model of work happiness parallels recent developments in wellbeing theory to multi-dimensional frameworks (e.g. Huppert and So 2013; Seligman 2011).

Each of the individual elements of Fisher's (2010) model of work happiness has a conceptual and theoretical evidence base. Work engagement is defined as comprising cognitive, affective and behavioral elements in relation to an individual's performance of their job role (Schaufeli and Bakkar 2003). Engaged employees have influence over events in their lives through their energy and self-efficacy (Bakker and Demerouti 2008), they create their own positive feedback through their positive attitude and activity level, and consider work to be fun (Gorgievski et al. 2010). Job satisfaction is defined as "an evaluative state that expresses contentment with, and positive feelings about one's job" (Judge and Kammeyer-Mueller 2012, p. 347). This suggests that it includes both cognition (contentment) and affect (positive feelings), and that overall job satisfaction is the result of a process of evaluation of individual job facets or characteristics. Evidence suggests that high levels of job satisfaction relate to job performance (Judge et al. 2001), and psychological and physical health (Faragher et al. 2005). Affective organizational commitment is an organization member's emotional attachment to, identification with and involvement in the organization (Meyer and Allen 1984; Allen and Meyer 1990). Employees with high levels of affective commitment have been found to have higher job performance and organizational citizenship behaviors, and lower absenteeism and intentions to quit (Meyer et al. 2002).

By presenting work happiness as a higher-order construct that comprises the unique and shared variance of these three factors, Fisher suggests that workplace leaders can move beyond boosting each of the variables individually and capitalize on the synergistic effects that occur when the three variables interact. This also allows for more sustainable ways to promote work happiness because if an employee is low on one aspect of work

happiness (e.g., engagement) but has high levels of the other elements (e.g., satisfaction and commitment) they can still achieve happiness at work.

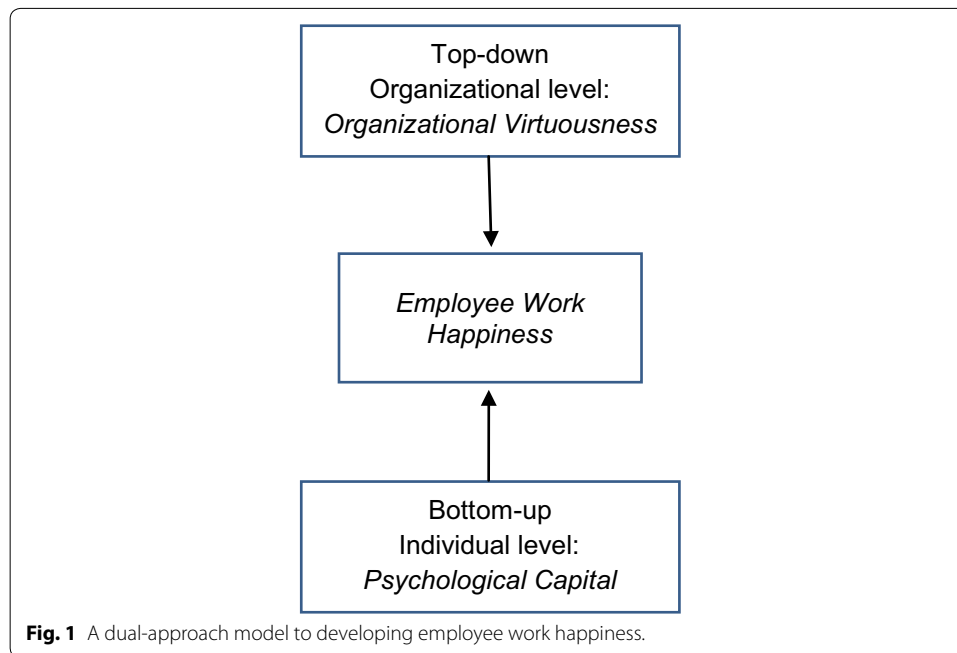
To date, Fisher's higher-order conceptualization of work happiness has not been tested empirically; thus one purpose of this study is to provide an initial test of the model. This is needed because Fisher's model has practical implications for how leaders increase the work happiness of their staff. The traditional approach to increasing happiness has been for researchers and leaders to create change in a raft of the antecedents that have been previously shown to influence engagement, satisfaction and commitment respectively. For example, evidence suggests that numerous factors relate to greater work engagement, such as relationships with colleagues, performance feedback, skill variety, autonomy, learning opportunities, resilience, personal attachment, and supervisor and co-worker support (e.g., Albrecht 2010; Armutlulu and Noyan 2011; Bakker and Demerouti 2008; Hackman and Oldham 1976; Hobfoll et al. 2003; Judge et al. 2004; Morrow 2011). Such research has provided leaders with a large 'shopping list', and it is not surprising that leaders may feel confused by what to do or feel that their approaches are overly complex. For example, how do leaders decide whether to change job characteristics or improve employee attachment or be more considerate themselves as leaders? Instead, by using a higher-order approach to work happiness, leaders can adopt a more parsimonious approach to creating the conditions for employee work happiness.

In this study, we propose that Sloan's (1987) dual-intervention approach can be used to foster work happiness. Sloan (1987) suggests that organizational-level factors such as culture may influence participation in and outcomes of workplace health promotion programs and also proposes that individual-level interventions are required. That is, both top-down, organizational factors and bottom-up individual-level factors matter. The current study examines the naturally occurring relationships between the top-down variable of employee perception of organizational virtue and the bottom-up variable of employee psychological capital on work happiness over time. See Fig. 1.

Psychological capital (PsyCap) is a higher-order factor that comprises an employee's levels of self-efficacy, optimism, hope and resilience (Luthans et al. 2006). Heralding from the field of positive organizational behavior, PsyCap is defined as:

*"an individual's positive psychological state of development characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success"* (Luthans et al. 2006, p. 3).

PsyCap has been empirically linked to a number of desirable employee outcomes including: improved performance in the workplace (Luthans et al. 2005, 2007), lower employee absenteeism (Avey et al. 2006), higher job satisfaction, (Luthans et al. 2007), organizational commitment (Luthans and Jensen 2005) and psychological wellbeing (Avey et al. 2010). However, the relationship between PsyCap and Fisher's (2010) work happiness has not been tested.



In addition to this individual-level factor, Sloan (1987) advocates that leaders must look at organizational-level factors that may influence workplace health. The current study thus examines the influence of work environment; specifically the presence of virtues, on employee happiness at work. Virtues are positive traits representing the best of the human condition such as hope, optimism, kindness and curiosity, which have been shown to be valued across time and culture (Peterson and Seligman 2004). Park and Peterson (2003) suggest that counterparts are present at the organizational-level that embody the moral characteristics of the organization and are an enduring part of its culture.

Within the field of positive organizational scholarship, Cameron et al. (2003) proposes that virtuousness in an organization is operationalized via the behaviors' of individuals and through workplace processes and practices. Research by Cameron et al. (2004) suggested that organizational virtuousness (OV) is a higher-order construct that comprises five virtues: (a) organizational forgiveness, through which mistakes are quickly forgiven and used as opportunities for learning; (b) organizational trust, in the courtesies, consideration and respect enacted in the organization and the mutual trust between peers and leaders; (c) organizational integrity, demonstrated by the honesty, trustworthiness and honor that pervade the organization; (d) organizational optimism, in the belief of organizational members that they will succeed in doing well even in the face of challenges; and (e) organizational compassion, through the common acts of compassion and concern that show that people care about each other. Thus, a workplace that embodies OV demonstrates values such as forgiveness, trust, integrity, optimism and compassion both in the behavior of individual employees and through the processes and practices in the workplace. Research across multiple industries has found that the presence of organizational virtuousness correlates with greater improvement in indicators such as profitability, quality, productivity, customer satisfaction and employee retention (Cameron et al.

2004). However, the relationship between organizational virtuousness (OV) and Fisher's (2010) higher order factor of work happiness has not been tested.

The current research examines relationships between employee PsyCap, perception of OV and work happiness in school staff. There has been growing interest in the study of wellbeing in schools in recent years as interventions from positive psychology have been applied and tested in school environments in what has become known as Positive Education (e.g. Seligman et al. 2009; Norrish et al. 2013; Waters 2011; Kern et al. 2014a). The focus of this work however, has mainly been on improving student wellbeing and associated outcomes. Yet the staff are equally important to creating wellbeing in a school environment. Indeed, Rowe (2003) proposes that teachers are the most valuable resource available to a school. Barber and Mourshed (2007) argue that, "the quality of a school system rests on the quality of its teachers" (p. 14). A significant body of research indicates that other than the student themselves, teachers are the most important influence on student learning (Hattie 2003; Rowe 2003). Beyond the value of teaching staff, others at the school in non-teaching roles can also be beneficial role models for students and help to create and support a positive school environment (Kern et al. 2014b).

Answering recent calls for greater integration between positive organizational behavior and positive organizational scholarship (Youssef and Luthans 2011) the current study examines the influence of employee PsyCap and perception of OV on work happiness. First, we provide the first empirical test of Fisher's work happiness model. Second, we explore the independent and combined influence of top-down and bottom-up influences on work happiness over a 15 month period. In an applied context, this research will help practitioners further understand the impact of developing employee wellbeing through a focus on higher level constructs, and considers whether bottom-up individual-level, top-down organization level, or combined top-down, bottom-up approaches have the greatest impact on employee work happiness. We test the following hypotheses:

1. Employee PsyCap will be positively correlated with perception of virtue in the organization, such that higher levels of PsyCap contribute to seeing more virtue in the organization, and greater virtue in the organization contributes to individual-level PsyCap.
2. Employee PsyCap and perception of virtue in the organization will be independently correlated with greater employee work happiness, both cross-sectionally and prospectively.
3. PsyCap and perception of virtue in the organization will have a synergistic effect, such that together they relate to greater employee work happiness, over and above either constructs alone.

## **Methods**

### **Procedure**

A three-wave repeated measures correlation study was used to analyze the pattern of relationships between employee PsyCap, OV and work happiness. Employees from a large independent school in Victoria, Australia were recruited for the study through a letter and/or email from the researcher, inviting their voluntary participation to complete an online questionnaire. Individuals were included if they were employed at least

8 h per week at the school, to ensure at least a minimum level of engagement with the school. The survey was repeated at three time-points, with approximately 6 months between each one (August 2011, March 2012, November 2012). The surveys were anonymous. Before completing the survey at time 1, participants created a unique user name which they used to complete the surveys again at times 2 and 3. The participants used this unique and anonymous user-name when they completed the surveys again at time 2 and time 3. This ensured anonymity whilst enabling the marrying of results between the three measurement occasions.

The survey was made available to all employees online via the independent survey hosting website Survey Monkey (<http://www.surveymonkey.com.au>). A link to the survey with information about the research was sent to all employees via the organization's email system. In order to ensure accessibility to the survey for staff groups without computer access, a paper version of the survey was also available by request from the researcher. Paper-based responses were entered into Survey Monkey manually by the researcher; this comprised a total of 11 surveys across the three measurement time-points. Regular reminders, via email and verbal announcements at daily staff meetings, were made by the researcher throughout that time to encourage participation. The overall response rate was 75% at time 1, 50% at time 2, and 61% at time 3.

### Participants

Four hundred, thirty-two employees completed the surveys at one or more time points. Of these, 239 were members of teaching staff (60% female, 40% male) and 175 were employed in non-teaching roles (64% female, 36% male). The demographic data for samples at time-points 1, 2 and 3 are shown in Table 1.

**Table 1 Demographic data for the samples at each time-point**

Sample	Age	Gender		Role		
		Female (%)	Male (%)	Teaching (%)	Non-teaching (%)	
Time 1 (n = 247)	18–25 years	2.43%	60	40	40	60
	25–34 years	18.62%				
	35–44 years	23.89%				
	45–54 years	30.77%				
	55–64 years	23.08%				
	65 years+	0.81%				
Time 2 (n = 165)	18–25 years	3.64%	65	35	62	38
	25–34 years	17.58%				
	35–44 years	23.03%				
	45–54 years	35.15%				
	55–64 years	19.39%				
	65 years+	1.21%				
Time 3 (n = 199)	18–25 years	3.02%	56	44	61	39
	25–34 years	17.09%				
	35–44 years	26.3%				
	45–54 years	27.64%				
	55–64 years	22.61%				
	65 years+	3.02%				

A total of 18 participants did not provide demographic data across the three time points.

Sample bias analysis was conducted for the three time-point samples for levels of PsyCap, OV, and work happiness. Comparisons were made between those responding at time 1 only, at time 1 and 2, at time 1 and 3, and at all three time points using a one-way analysis of variance (ANOVA). There were no significant differences amongst these samples, suggesting that those employees who stayed in the study through time 2 and time 3 were not significantly different in levels of PsyCap, OV, or work happiness measures compared to those employees who did not contribute to the study past time 1. For the categorical demographic variables of gender, age and role type (teaching or non-teaching), the relationship between time group and the demographic variable were examined using Pearson's Chi square test. Large  $p$  values across all the tests provided no evidence of response bias (gender:  $p = 0.45$ , role type:  $p = 0.38$ , age:  $p = 0.73$ ).

### Materials

The survey was developed by selecting pre-established scales to measure individual-levels of PsyCap (Luthans et al. 2007), perception of virtue in the organization (organizational virtuousness, OV, Cameron et al. 2004) and work happiness (Fisher 2010).

*PsyCap* PsyCap was measured through the 24-item self-rated PsyCap Questionnaire (PCQ), (Luthans et al. 2007), which has been tested in samples from service, manufacturing, high-tech, military and education sectors and across cultural settings. The four factors (self-efficacy, optimism, hope and resilience) are measured by six items adapted from pre-existing scales (hope: Snyder et al. 1996; optimism: Scheier and Carver 1985; resilience: Wagnild 1993, and efficacy: Parker 1998) with the resulting score providing an individual's level of PsyCap. Example items included: "There are lots of ways around any problem"; "When things are uncertain for me at work, I usually expect the best"; "I usually take stressful things at work in stride"; and "I feel confident presenting information to a group of colleagues". Items were scored on a 6-point Likert scale from "strongly disagree" (1) to "strongly agree" (6), and were averaged together to represent the individual's level of PsyCap (24 items, Cronbach's  $\alpha_{t1} = 0.94$ ,  $\alpha_{t2} = 0.94$ ,  $\alpha_{t3} = 0.92$ ).

*Organizational virtuousness (OV)* OV was measured using 15-item Organizational Virtuousness Scale (Cameron et al. 2004), which comprises five factors: organizational (1) forgiveness, (2) trust, (3) integrity, (4) optimism, and (5) compassion. Example items include, "we are optimistic that we will succeed, even when faced with major challenges"; "people trust the leadership of this organization"; "this organization is characterized by many acts of caring and concern for other people"; "we try to learn from our mistakes here, consequently missteps are quickly forgiven"; and "this organization demonstrates the highest levels of integrity". Items were scored on a 6-point Likert measurement scale from "strongly disagree" (1) to "strongly agree" (6) and higher scores indicate a greater perceived presence of that dimension of OV. Reliability for the overall scale was high across the three time points (15 items,  $\alpha_{t1} = 0.97$ ,  $\alpha_{t2} = 0.97$ ,  $\alpha_{t3} = 0.97$ ).

*Work happiness* Work happiness, according to Fisher (2010), is comprised of: (1) engagement with the work itself; (2) satisfaction with the job, including contextual features such as pay, co-workers, supervision and environment, and (3) feelings of affective commitment to the organization as a whole. A composite measure of work happiness does not exist, thus existing validated measures were selected for the three elements.



**Satisfaction** The Job in General Scale (JIG) (Russell et al. 2004) is a measure of overall satisfaction with a job. It asks respondents to “Think of your job in general. All in all what is it like most of the time?” and lists phrases and adjectives to which respondents to select “yes, like this” if the phrase or adjective describes their current job situation, “no, not like this” if it does not or “unsure” if they cannot decide. Example items include, “good”, “better than most” and “poor”. Responses were scaled such that 0 = no, 0.5 = unsure, and 1 = yes (8 items,  $\alpha_{t1} = 0.82$ ,  $\alpha_{t2} = .84$ ,  $\alpha_{t3} = .83$ ).

**Engagement** The Utrecht Work Engagement Scale-9 (UWES-9) was used to measure work engagement. The UWES is available in 9, 15, and 17-item versions and has been tested across cultural and work settings. The 9-item version was selected in order to reduce total battery size and minimize respondent burnout and drop out, and has shown acceptable levels of reliability in past research (Schaufeli and Bakkar 2003). Example items include, “At my job I feel strong and vigorous”; “I am proud of the work that I do” and “I am immersed in my work”. It is measured on a 7-point Likert scale ranging from ‘Never’ to ‘Always/Every day’ with higher scores representing higher levels of engagement ( $\alpha_{t1} = 0.92$ ;  $\alpha_{t2} = .93$ ,  $\alpha_{t3} = .93$ ).

**Commitment** A 9-item version of the 15-item Organizational Commitment Scale (Mowday et al. 1979) was used in order to manage total battery size. The 9-item version of the scale has been used by a number of authors (Naumann and Bennett 2000; Waters 2004; Joslin et al. 2010). Example items include, “I am proud to tell others that I am part of this organization” and “I really care about the fate of this organization”. The scale is scored on a 7-point Likert scale from “strongly disagree” to “strongly agree”, and higher scores indicate a greater presence of commitment ( $\alpha_{t1} = 0.92$ ,  $\alpha_{t2} = 0.93$ ,  $\alpha_{t3} = 0.93$ ).

### Data Analysis

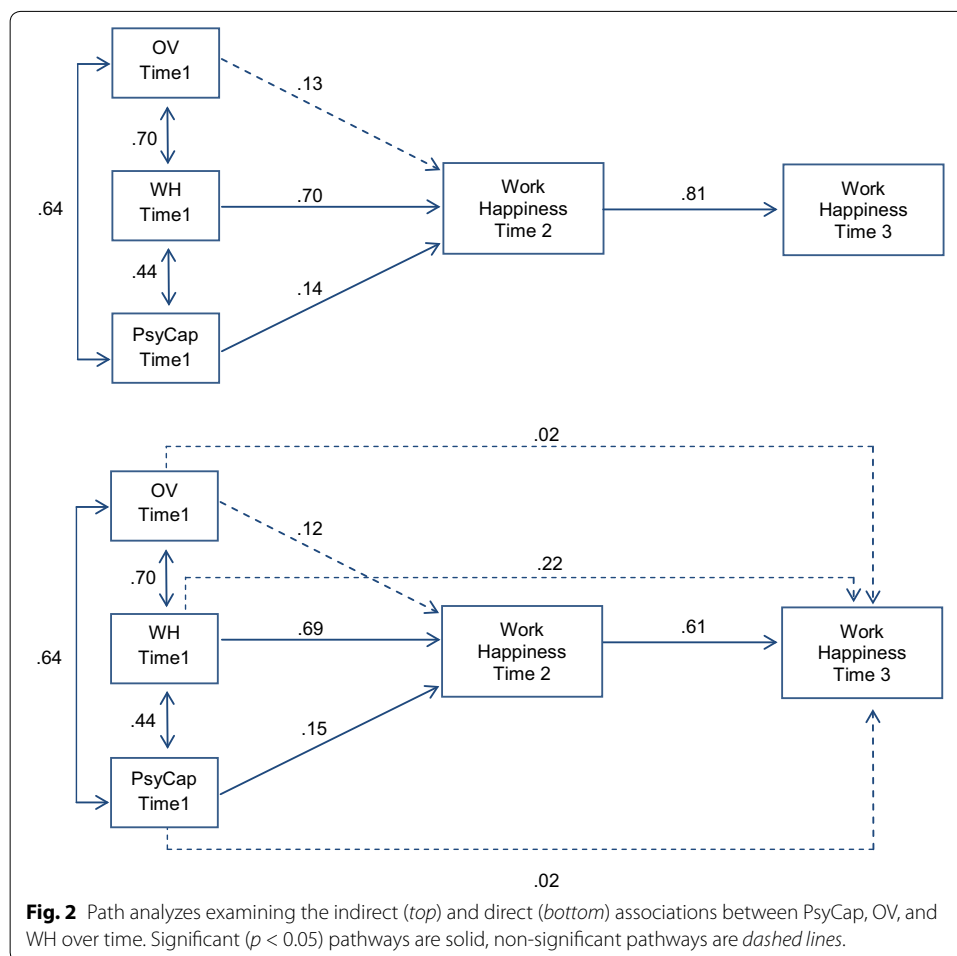
Analyses first tested Fisher’s (2010) model of workplace happiness, using confirmatory factor analysis (CFA). A higher order factor model was tested, in which work happiness was comprised of three latent factors (job satisfaction, work engagement, and organizational commitment), which in turn included the observed items (job satisfaction: 8 items, engagement: 9 items, commitment: 9 items).

To address the main hypotheses, descriptive statistics and correlations between study variables were computed. Two path models were estimated, in which work happiness at times 2 and 3 were regressed on time 1 PsyCap, OV, and work happiness (WH). Model 1 tested a serial model in which time 1 PsyCap, OV, and WH predict time 2 WH, which in turn predicts time 3 WH. Model 2 adds direct effects from time 1 PsyCap, OV, and WH predicting time 3 WH (see Fig. 2).

Finally, to examine whether there was a synergistic effect between PsyCap and OV, five groups were created based on tertile splits on PsyCap and OV: PC + OV high (above 67% in both constructs); PC high (above 67% in PsyCap); OV high (above 67% in perception of OV); PC + OV low (below 33% in both constructs); other (all other combinations). A one-way ANOVA compared the mean scores of work happiness at each time point across these five groups.

In cases where the distributions and patterns in the residuals from the regression models indicated that the assumptions underlying the model were not met, bootstrapping was used. The bootstrap regression results, with bias corrected accelerated confidence





intervals, are reported. The number of cases available for analysis varied across time-points; complete available cases were used for analysis. Descriptive, correlation, and ANOVA analyzes were conducted using SPSS (version 22.0) software; CFA and path analysis were conducted using the lavaan package (version 0.5-18; Rosseel 2012) in R (version 3.1.1). Model fit was evaluated using the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), the comparative fit index (CFI), and the Tucker Lewis Index (TLI). For RMSEA and SRMR, values below 0.08 are considered good fit; for CFI and TLI, values above 0.90 are good fit (Hu et al. 1999).

## Results

### Testing of Fisher's (2010) Model of Work Happiness

Analyzes first tested Fisher's (2010) model of work happiness. Table 2 shows the items with standardized latent factor loadings and fit indices for the three time-points.

Across all three time points the model marginally fit the data. This provides some initial support for Fisher's model, but also suggests that refinements are needed to adequately measure the higher order construct. A closer look at the factor loadings indicate that questionable items were "better than most" and "excellent" for satisfaction, "I get

**Table 2 Factors and items for Fisher's theoretical model of work happiness with standardized latent factor loadings**

Scale and items	Loading		
	Time1	Time2	Time3
Satisfaction	$\alpha = 0.82$	$\alpha = 0.84$	$\alpha = 0.83$
Think of your job in general: what is it like most of the time?			
Good	0.66	0.81	0.73
Undesirable	-0.75	-0.72	-0.77
Better than most	0.57	0.44	0.47
Disagreeable	-0.71	-0.62	-0.59
Makes me content	0.73	0.75	0.66
Excellent	0.57	0.54	0.53
Enjoyable	0.71	0.86	0.66
Poor	-0.73	-0.73	-0.77
Engagement	$\alpha = 0.92$	$\alpha = 0.93$	$\alpha = 0.93$
At my work I feel bursting with energy	0.79	0.73	0.70
At my job I feel strong and vigorous	0.85	0.81	0.78
I am enthusiastic about my job	0.88	0.92	0.93
My job inspires me	0.86	0.92	0.87
When I get up in the morning I feel like going to work	0.79	0.87	0.80
I feel happy when I am working intensely	0.73	0.74	0.65
I am proud of the work that I do	0.70	0.80	0.81
I am immersed in my work	0.73	0.72	0.82
I get carried away when I am working	0.54	0.49	0.56
Commitment	$\alpha = 0.92$	$\alpha = 0.93$	$\alpha = 0.93$
I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.	0.63	0.72	0.72
I talk up this organization to my friends as a great organization to work for.	0.82	0.89	0.89
I would accept almost any type of job assignment in order to keep working for this organization.	0.54	0.54	0.49
I find that my values and the organization's values are very similar.	0.77	0.80	0.83
I am proud to tell others that I am part of this organization	0.87	0.88	0.89
This organization really inspires the very best in me in the way of job performance	0.88	0.83	0.87
I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.	0.80	0.88	0.88
I really care about the fate of this organization.	0.77	0.85	0.76
For me this is the best of all possible organizations for which to work.	0.79	0.85	0.81
Higher order factor			
Satisfaction	0.84	0.85	0.84
Engagement	0.85	0.85	0.89
Commitment	0.76	0.79	0.70
Fit Indices			
N	260	178	207
RMSEA (90% confidence interval)	0.10 (0.09, 0.10)	0.12 (0.11, 0.13)	0.11 (0.11, 0.12)
Standardized Root Mean Square Residual (SRMR)	0.064	0.09	0.07
Comparative Fit Index (CFI)	0.85	0.81	0.82
Tucker Lewis Index (TLI)	0.84	0.79	0.80

Latent model estimated in R using the lavaan package (Rosseeel 2012).

carried away when I am working” for engagement, and “I would accept almost any type of job assignment in order to keep working for this organization” for commitment. However, removing these items did not improve model fit. As developing a measure of work happiness is beyond the scope of the current study, we proceeded with these items as our measure of work happiness, but the measurement error inherent to the measure should be kept in mind in interpreting the results. Items were combined into the three first order factors, and then the three first order factors were standardized and averaged to create single work happiness variables ( $\alpha_{t1} = 0.92$ ,  $\alpha_{t2} = .94$ ,  $\alpha_{t3} = .94$ ).

### Associations Among PsyCap, OV, and Work Happiness

Table 3 shows the means, standard deviations and correlations amongst PsyCap, OV, and work happiness within and across the three measurement time-points. As predicted, PsyCap and OV were strongly positively correlated with one another, both cross-sectionally and over time, such that individuals with greater PsyCap perceived greater OV in the organization, and vice versa. Both PsyCap and OV also strongly correlated with work happiness, with a simplex structure (i.e., variables closer in time are more strongly correlated, with correlation strength declining over time). For example, the correlation between Time 1 PsyCap and work happiness was  $r = 0.65$ , whereas the correlation between Time 1 PsyCap and Time 3 work happiness was  $r = 0.45$ .

Figure 2 summarizes two path models testing prospective associations between Time 1 PsyCap and OV and subsequent work happiness, controlling for Time 1 work happiness. Not surprisingly, work happiness was by far the strongest predictor of subsequent work happiness. PsyCap and OV directly related to greater workplace happiness at Time 2, but were only indirectly related to workplace happiness at Time 3.

### Synergistic Effect

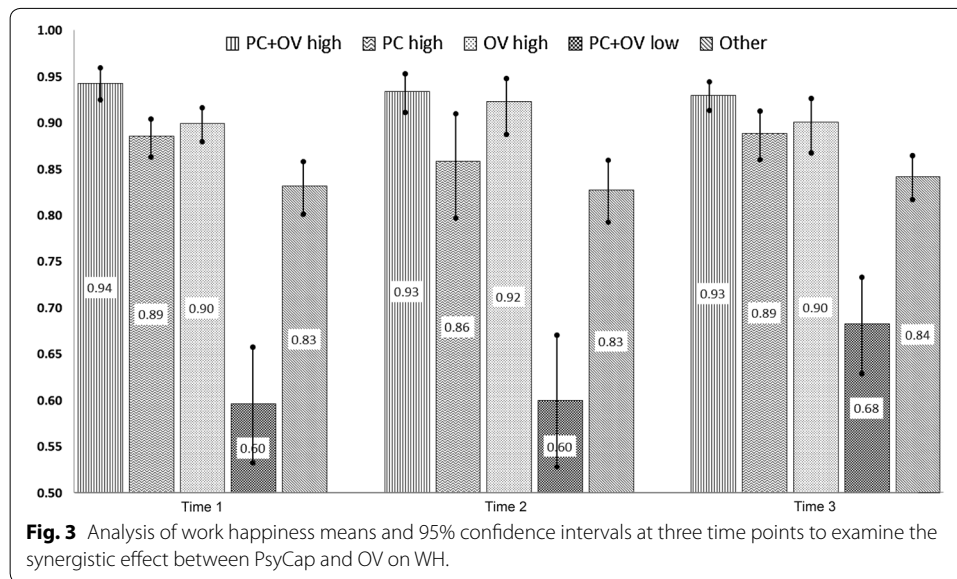
Finally, the synergistic effect of PsyCap and OV on work happiness was tested. Figure 3 shows the mean scores and 95% confidence intervals for the five groups at each time point.

The mean comparison suggests that there is a small synergistic effect between PsyCap and OV, but that having high levels of both or one of the constructs influences levels

**Table 3 Means, standard deviations and correlations for PsyCap, organizational virtuousness (OV) and work happiness within and across three measurement time-points**

Variable	N	M	SD	1	2	3	4	5	6	7	8	9
1. PsyCap Time 1	260	4.75	0.63	1.00								
2. OV Time 1	249	4.77	0.90	0.45	1.00							
3. Work happiness Time 1	260	4.38	0.86	0.65	0.70	1.00						
4. PsyCap Time 2	182	4.77	0.62	0.86	0.51	0.58	1.00					
5. OV Time 2	171	4.91	0.84	0.54	0.79	0.73	0.47	1.00				
6. Work happiness Time 2	178	4.73	0.87	0.66	0.61	0.85	0.64	0.73	1.00			
7. PsyCap Time 3	206	4.81	0.55	0.71	0.31	0.48	0.73	0.41	0.47	1.00		
8. OV Time 3	198	4.88	0.81	0.29	0.71	0.45	0.36	0.78	0.55	0.51	1.00	
9. Work happiness Time 3	207	4.50	0.86	0.45	0.42	0.63	0.41	0.50	0.72	0.59	0.65	1.00

Work happiness is the average standardized scores on job satisfaction, engagement, and commitment, with a constant added to eliminate negative values. All  $ps < 0.01$ .



of work happiness when compared to having low levels of both. The lack of synergy between PsyCap and OV may be explained by a ceiling effect in the measures used in this study, as the mean scores of the ‘high’ groups (67% and above tertile) were close to the maximum scores of the measures.

## Discussion

Bringing together the top-down perspective of positive organizational scholarship with the bottom-up approaches of positive organizational behavior, this study examined the combined effect of employee PsyCap and perception of virtue in the organization (OV) on work happiness. The examinations were performed cross-sectionally and prospectively across a 15 month period. Taken together, the regression analysis, path analysis models, and work happiness mean score comparisons suggest that work happiness can be predicted directly and separately by PsyCap and OV (within and across time). Further, a synergistic effect between the constructs may exist, although this effect is seemingly limited by a ceiling effect with the measures used in this study.

Within and across time, PsyCap and OV were positively associated with one another. It may be that increased PsyCap enables employees to see virtues in their work environment more explicitly. For example, an optimistic employee believes that good things will happen to them (Carver and Scheier 2002). This may influence their motivational state and lead to evaluative processes that allow them to more clearly see the presence of the virtue of optimism in their organization. For example, if a leader introduces a new virtues-based practice at work, employees with high optimism may have a positive predisposition to see the virtue in that new initiative. The underlying explanation for this rests on the idea of attitudes. Attitudes have been found to help categorize objects (Smith et al. 1996), assist decision-making ease (Blascovich et al. 1993) and decision-making quality (Fazio et al. 1992). Thus employees with optimistic attitudes could be more likely to evaluate virtuous practices and policies within the organization through a lens of optimism.

Both PsyCap and OV were also correlated with greater reported work happiness, cross-sectionally and over time. Employees with high PsyCap are hopeful and have positive expectations about future outcomes and they have greater confidence in their ability to deal with challenges and higher levels of resilience. This may provide them with the resources to perform well in their job, thus enabling and supporting their work happiness.

Past research has considered individual-level aspects of organizational climate (e.g., gratitude or trust or compassion) and how these influence worker wellbeing/happiness. Waters (2012) found a significant association between gratitude as a cultural variable at work and levels of job satisfaction in employees. Further, there is evidence that experiencing compassion at work increases member experience of positive emotions (Lilius et al. 2012). Finally, organizational trust has been shown to have a positive relationship with employee satisfaction (Dirks and Ferrin 2001; Rich 1997) and their levels of organizational commitment (Brockner et al. 1997; Dirks and Ferrin 2001).

Past research as also shown that workplace culture influences employee levels of emotional wellbeing (Hartel and Ashkanasy 2011). The current study found that perception of a virtuous culture was related to the work happiness of employees. Organizational virtuousness can be considered as a virtues-based culture that manifests through observable artefacts, espoused values, shared beliefs and collective behaviors. For example, virtues-based practices such as gratitude boards (to support compassion and optimism) or leaders beginning meetings with 'what went well' exercise (to support optimism and trust) provide observable artifacts of the virtuous culture and opportunities to foster virtues through espoused values. Moving deeper than the use of practices, other elements of culture, such as shared beliefs and collective behaviors may be influenced by embedding virtues in organizational behaviors, leadership (Cameron et al. 2011), engaging in strengths-based performance conversations (Bouskila-Yam and Kluger 2011) and infusing virtues into training, development and coaching. Together, these virtue-infused elements of culture may provide organizational resources that influence the quality of relationship between the organization and employee such that their happiness at work increases. For example, a workplace culture in which leaders are optimistic about the future, compassionate in their communication and forgiving when needed, may help develop supportive leader-worker relations and a supportive work community; relationships and community are social resources that may help to develop employee happiness at work (Fisher 2010).

Haidt's (2000) elevation hypothesis can also be used to explain the study results. Employees who perceive more virtuousness in the behavior of colleagues and see more virtue in organizational practices, may be motivated to behave more virtuously themselves. This virtuous behavior can lead to positive core self-evaluation and resilience. Given the link between virtuous behavior and wellbeing that has been established in past research (Proudfoot et al. 2009) this may explain why the current sample of employees reported a relationship between their perception of OV and happiness at work.

When turning to the longitudinal data, the associations between PsyCap, OV, and work happiness were not as strong over time as those within the same time-points. These results provide a temporal understanding of the associations between the variables, which has practical implications for organizations.

Both independently and together, PsyCap and OV had a stronger association with work happiness over time than either variable alone. This suggests that top-down influences on employee work happiness (e.g. the use of positive practices, Cameron et al. 2011) and bottom-up influences on work happiness (such as developing employee PsyCap) have independent and synergistic associations. Therefore, organizations need to focus efforts on developing both individual-level resources (PsyCap) and organizational-level resources (virtues present in the organization, OV) to support employee wellbeing.

The current research has a number of limitations. The correlational design of the study limits our ability to draw conclusions about causality of the associations between PsyCap, OV, and work happiness. For example, within-time results showed significant associations between the three variables, however because of the correlational study design, we cannot draw conclusions about whether higher PsyCap causes employees to have higher levels of work happiness; whether higher levels of work happiness causes people to have higher PsyCap or whether there is a third unidentified variable that underlies the associations. It may be, for example, that employee attitudes are an underlying mechanism that if tested would provide a better understanding of how employee PsyCap and OV influence work happiness over time. Future research should investigate attitudes as a possible underlying mechanism in order to more fully understand the complexity of these relationships. Measures were also self-reported, and method variance could influence correlations. The use of objective measures of organizational virtues or workplace happiness will be valuable in the future.

The main outcome variable, work happiness, is built upon Fisher's (2010) model. To date, there is not a single measure that assesses the three inter-related domains proposed by the model. The current study therefore combined three psychometrically validated measures to approximate such a measure. Although the items provided some support for Fisher's model, model fit could be considerably improved, to the extent that the very strong correlations amongst study variables could reflect inadequate measurement of the underlying constructs. Further testing of Fisher's model, with a related valid measure, is needed.

The study was conducted with employees who work in a school following the growing interest in positive education to study staff wellbeing in addition to the current major focus of positive education on student wellbeing (Kern et al. 2014a; Kristjánsson 2012; Waters and Stokes 2015). While the use of this sample adds to the file of positive education it may not be generalizable to workers from other sectors.

Despite these limitations, the study has a number of strengths. The study provides a first empirical test of Fisher's (2010) theory of employee work happiness. It includes both top-down organization aspects and bottom-up employee aspects thus responding to Sloan's (1987) idea of dual-intervention. The longitudinal nature of the study provides a valuable temporal understanding to the patterns of the associations between PsyCap, OV, and work happiness. The quantitative analysis is appropriate to examine associations between PsyCap, OV, and work happiness to see what naturally occurs without intervention efforts (Creswell 2003).



## Conclusion

Over recent years there has been increasing evidence that links employee happiness to a broad range of positive individual-level and organizational-level outcomes (Fisher 2010). This has led organizations to value the importance of employee happiness and to want to know how it is that employee happiness can be increased (Fisher 2010). The current research adopted Sloan's (1987) dual-intervention approach and examined the interrelationships between employee happiness with a bottom-up, individual-level variable (psychological capital) and with a top-down, organizational-level variable (organizational virtue) within and between three time-points. Rather than study a multitude of individual-level variables and how they relate to individual-level aspects of happiness at work, the current study examined three higher order constructs that have recently been proposed in the fields of POS and POB. The higher order approach allows for shared variance between individual constructs and, ultimately provides a more parsimonious way for approach for studying associations amongst these constructs.

By investigating these interrelationships between work happiness, PsyCap and organizational virtues with a sample of school employees, the study integrates aspects of the fields of positive organizational scholarship, positive organizational behavior and positive education. In an applied setting, the results can be used to help schools and other organizations understand the importance of developing the personal resources of employees (PsyCap) and the culture of the organization to enhance employee work happiness. We hope this study inspires further research into the factors that influence employee happiness at work.

## Authors' contributions

PW led the research, conducted the primary analyses, and drafted and revised the manuscript. MK supervised the analyses and helped revise the manuscript. LW supervised and contributed to the original data analysis and the revision of the manuscript. All authors read and approved the final manuscript.

## Compliance with ethical standards

### Competing interests

The authors declare that they have no competing interests.

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