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Authenticity and its influence on psychological well-being and contingent self-esteem of leaders in Singapore construction sector

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'Authentic leadership' has emerged as an important subject in the management science literature. Although several scholars have presented their viewpoints about authenticity and authentic leadership, there is scarcity of empirical evidence on what leaders can really gain from being authentic. The results of the questionnaire-based survey with 32 leaders suggest that authenticity is significantly correlated with psychological well-being and negatively correlated with contingent self-esteem. Regression analysis also shows that authenticity successfully predicts psychological well-being. These findings indicate that authenticity results in healthy psychological functioning of leaders and hence several positive work-related outcomes.

Keywords: Authenticity, authentic leadership, psychological well-being, contingent self-esteem, Singapore.

Introduction

Many authors suggest that the construction industry needs effective leadership to address the challenges it faces (Bresnen, 1986; Skipper and Bell, 2006). The leadership challenges highlighted by Songer *et al.* (2008) include: difficulties in attracting talent, globalization, various workforce issues, change/transition and teamwork/communication. Songer *et al.* (2008) note that industry leaders expressed 'concerns … over the availability of personnel who demonstrate strong leadership characteristics as well as having the ability to motivate personnel both in the office and at the job site' (p. 62). Toor and Ofori (2008c) outline industry-level challenges such as fragmentation, low levels of professionalism and ethics, adversarialism and poor social image. In order for the construction industry to overcome these challenges, Toor and Ofori (2008a) offer a conceptual overview of authentic leadership, advocate the need for it in the construction industry, and outline a research agenda on it. 'Authentic leadership' is a hot topic in leadership research. Popularized by George (2003) through his best-selling book (*Authentic Leadership: Rediscovering the Secrets to Creating Lasting Value*), it has attracted the interest of researchers in organizational and management studies, resulting in many theoretical advances in it (Luthans and Avolio, 2003; Shamir and Eilam, 2005).

Ofori and Toor (2008), in a study of authentic leaders in Singapore, argue that such leaders possess the values, attributes and qualities that help them to accomplish difficult tasks and address challenges. However, there are few empirical works that provide evidence of potential benefits of authenticity to organizations. This is primarily because the construct of authentic leadership is relatively new. However some works in the social sciences have shown that authenticity leads to healthy psychological functioning (Kernis and Goldman, 2005a), enhanced performance, customer satisfaction (Grandey *et al.*, 2005), mindfulness—which leads to a number of positive psychological outcomes (Lakey *et al.*, 2008), enhanced self-esteem and reduced contingent self-esteem. Studies have also revealed that lack of authenticity can lead to negatively affected psychological health (Neff and Suizzo, 2006).

Although there are many theoretical assertions about the benefits of authenticity, there is little empirical evidence whether authenticity gives leaders any psy-

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chological benefits. Thus, it is pertinent to examine authenticity in relation to psychological well-being—which relates to positive psychological functioning, and contingent self-esteem—which generally relates to negative psychological functioning.

Research objectives

The main objectives of this study are:

(1) To review the links among authenticity, authentic leadership and psychological well-being.
(2) To explore the relationship between authenticity, psychological well-being and contingent self-esteem among leaders in the construction industry.
(3) To identify measures which construction organizations can take to derive benefits from authenticity and psychological well-being.

Leadership in the construction industry

A review of works on leadership in the construction management literature by Toor and Ofori (2008b) shows that such research dates back to the 1980s with studies on leadership orientation of construction managers and its influence on their effectiveness and performance (see, for example, Bresnen, 1986; Bryman *et al.*, 1987). During the 1990s, the focus was on issues such as leadership style (Rowlinson *et al.*, 1993; Dulaimi and Langford, 1999), attributes and behaviours (Anderson, 1992; Muir and Langford, 1994). For example, Rowlinson *et al.* (1993) studied the leadership style of design leaders and found that they employ a different leadership style during each stage of the project. Muir and Langford (1994) found that intuitive judgment played an important role in how managers achieved results through other people.

In the current decade, attention has shifted towards transformational leadership (Chan and Chan, 2005), issues of power (Liu and Fang, 2006), leadership across different cultures (Makilouko, 2004; Toor and Ogunlana, 2008), the leader's emotional intelligence (Butler and Chinowsky, 2006) and leadership development (Skipper and Bell, 2006; Chan, 2008; Toor and Ofori, 2008d). Nonetheless, studies on leadership behaviours, traits and styles are still common in the construction management literature (see Low and Leong, 2001; Fellows *et al.*, 2003; Giritli and Topcu-Oraz, 2004). Wong *et al.* (2007) found that Chinese and expatriate managers did not differ significantly in terms of their perceptions about task performance and interpersonal relationships, although they differed in their cultural values, beliefs and power relationships. Songer *et al.* (2008) emphasize the importance of emotional quotient (EQ) in relation to leadership behaviour in construction in order to effectively tackle the challenges the industry faces.

Some authors criticize the reliance of construction researchers on old models of leadership. Chan (2008) observes that the understanding of construction leadership is still primitive as it is heavily dependent on managerial functionalism. Chan (2008) suggests that the development of leaders should be understood from sociological perspectives as leadership is an emergent process. Other researchers also support a constructionist stance to understand leadership in the construction industry. Toor and Ofori (2008d), for example, note that leaders develop over the course of their lives under influences in their social environment. They assert that there are certain tipping points in the lives of leaders that contribute to their leadership development.

Toor and Ofori (2008b) suggest that research in the construction industry needs to explore new forms of leadership which can enable the construction industry to face the challenges of the global business world. Songer *et al.* (2008) made a similar call.

To this end, Toor and Ofori (2008b) highlight the need for more work on authentic leadership, a construct that has its roots in positive psychology, positive organizational scholarship and positive organizational behaviour. Toor and Ofori (2008a) underscore the importance of objective measurement of performance of authentic leaders. This study attempts to analyse the psychological benefits that leaders may get from being authentic. For this purpose, the construct of 'psychological well-being' was chosen to examine how authenticity enhances positive psychological functioning; and contingent self-esteem was selected to study how authenticity reduced negative psychological functioning.

Authenticity

The concept of authenticity in psychological and philosophical writings can be traced back to the 1950s when humanistic psychologists considered authenticity as a reflection of the congruence between one's self-concept and immediate experiences (Rogers, 1959, 1963) or attainment of self-actualization (Maslow, 1968). Erickson (1995) and Harter (2002) provided comprehensive reviews of the literature on 'authenticity'. Recent conceptualizations of authenticity are influenced by the self-determination theory (Deci and Ryan, 1995) which emphasizes that authenticity is related to high levels of self-determination.

Goldman and Kernis (2002) and Kernis (2003) note that authenticity is a psychological construct which

reflects the unobstructed operation of one's true, or core, self in one's daily enterprise. Referring to Maslow (1968) and Rogers (1959), Goldman (2006) observes that 'psychological authenticity can be conceptualized as a dynamic set of processes whereby one's full inherent nature is discovered, accepted, imbued with meaning, and actualized' (p. 134).

Kernis and Goldman (2005a, 2005b) divide authenticity into four components: awareness, unbiased processing, behaviour and relational orientation. 'Awareness' refers to understanding and knowledge of and trust in one's motives, feelings, desires and self-relevant cognitions, strengths and weaknesses and emotions. 'Unbiased processing' involves impartial self-evaluation without denying, distorting, exaggerating or ignoring private knowledge, internal experiences and externally based self-evaluative information. 'Behaviour' refers to acting in line with one's values, preferences and needs and not conforming to social demands. 'Relational orientation' means genuineness, truthfulness and openness in relationships.

Authenticity of leadership

Luthans and Avolio (2003) define authentic leadership as

> a process that draws from both positive psychological capacities and a highly developed organizational context, which results in both greater self-awareness and self-regulated positive behaviors on the part of leaders and associates, fostering positive self-development. (p. 243)

This definition presents authentic leadership as a multidimensional and multilevel construct (Cooper *et al.*, 2005). This initial conceptualization contains elements from diverse domains—traits, states, behaviours, contexts and attributions. Walumbwa *et al.* (2008) presented a modified definition of authentic leadership:

> a pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development. (p. 94)

Proponents of authentic leadership label it as a prized organizational and individual asset (Goffee and Jones, 2005). They consider it as the 'root construct' of all positive and effective forms of leadership—such as transformational leadership, ethical leadership and servant leadership (Avolio and Gardner, 2005; Gardner *et al.*, 2005). The proponents also believe that it transcends other theories of leadership and helps to explain what is, and what is not the 'genuine' form of leadership (Avolio *et al.*, 2005). Some go on to say that this approach to leadership has the best potential to meet the needs of organizational leaders in today's turbulent operating environment (Luthans *et al.*, 2005).

One strategic advantage the authentic leaders are able to create for their organizations is that they develop their followers into authentic leaders themselves (Luthans and Avolio, 2003; George and Sims, 2007) as they act as their role models by demonstrating commitment, devotion and dedication. They monitor the performance of their followers and correct their followers' mistakes by teaching and coaching them (Bass and Steidlmeier, 1999). They challenge their followers by setting high performance standards through their own examples (Avolio and Luthans, 2006). Authentic leaders maintain high standards of ethics and morality (May *et al.*, 2003), and possess the highest level of integrity, a deep sense of purpose, courage to move forward, passion and skill of leadership (George, 2003).

Leadership scholars suggest that the authentic leaders have good human and social capital (Avolio and Luthans, 2006), and also possess a great deal of positive psychological capacities (PsyCap) (Jensen and Luthans, 2006; Luthans *et al.*, 2007). Authentic leaders are committed to building the highest level of organizational capacity through individual performance (Gardner and Schermerhorn, 2004), and impact at the intra-individual, inter-individual, group and organizational levels (Avolio and Luthans, 2006).

Authenticity of leadership and psychological well-being

Research on well-being dates back to the 1960s. The pursuit of happiness (Bradburn, 1969), life satisfaction (Campbell *et al.*, 1976; Diener *et al.*, 1985), self-esteem (Rosenberg, 1965), emotional well-being (Brunstein, 1993) and 'flow' (Csikszentmihalyi, 2003) and many other notions have been discussed by scholars under the broader construct of 'well-being', which is generally referred to as people's feelings about themselves, their family, work and social environment. Ryan and Deci (2001) offer two main categories of well-being: hedonic well-being and eudaemonic well-being (see also Keyes *et al.*, 2002). Hedonic well-being refers to one's happiness (Ryan and Deci, 2001), whereas eudaemonic well-being refers to personal expressiveness, intensive involvement in life (Waterman, 1993; Ryff and Singer, 1998) one's realization of one's full or true potential.

Ryff (1989) and Ryff and Keyes (1995) conceptualize the construct of psychological or eudaemonic well-being as having six components: self-acceptance,

environmental mastery, positive relations with others, autonomy, purpose in life and personal growth. 'Self-acceptance' means that one feels good about oneself while being aware of one's limitations. 'Environmental mastery' is characterized by one's ability to manage and shape the environment such that one's needs and desires are met. In developing 'positive relations', one engages in trustworthy, warm and healthy identification, love and friendships with others in one's environment. 'Autonomy' refers to one's sense of self-determination, self-regulation and personal authority. 'Purpose in life' is characterized by one's feelings that there is some meaning and purpose to one's efforts and challenges in life. Finally, 'personal growth' refers to one's ability and desire to unleash one's potential and make the best of one's talent and potential.

These conceptual dimensions of eudeamonic or psychological well-being are close to the components of authenticity. In a study of 80 students, Kernis and Goldman (2005a) found significant correlations between authenticity and various psychological well-being measures (such as self-esteem and life satisfaction). In another study of 111 students, they found that authenticity sub-scales were generally related to those of psychological well-being. Kernis and Goldman (2005b) also reported positive relationships between the components of authenticity and psychological well-being.

Some recent works indicate support for the positive influence of leadership behaviours on followers' well-being. For example, Arnold *et al.* (2007) found support for their hypothesis which stated that transformational leadership was positively associated with psychological well-being and that this positive relationship was mediated by perceptions of meaningful work. Nielsen *et al.* (2008) noted that 'followers' experience of a meaningful work environment, role clarity, and opportunities for development partially mediated the relationship between transformational leadership and followers' well-being' (p. 27). Van Dierendonck *et al.* (2004) and Gilbreath and Benson (2004) also established that the well-being of subordinates is significantly influenced by the leadership behaviours of their bosses.

Ilies *et al.* (2005) explored the links between authentic leadership and both leaders' and followers' eudaemonic well-being, building on Kernis's notion of authenticity. They proposed a four-component model of authentic leadership that includes self-awareness, unbiased processing, authentic behaviour/acting and authentic relational orientation. Ilies *et al.* (2005) argue that, from a developmental perspective, dimensions of authenticity can be roughly mapped on to the six aspects of human wellness proposed by Ryff and Keyes (1995) to reflect human actualization.

Ilies *et al.* (2005) assert that authenticity has a substantial influence on leaders' own well-being as well as followers' well-being and self-concept. This is because authentic leaders are able to manifest their true selves, which leads to self-realization. They also argue that

> self-awareness and unbiased processing should lead to increased self-acceptance and environmental mastery, and also help one define one's purpose in life; authentic relational orientation should lead to positive relationships; self-awareness and unbiased processing should enhance one's personal growth through self-development; and authentic behaviors and actions are by definition self-determined. (p. 376)

Ilies *et al.* (2005) also posit that relational authenticity and unbiased processing foster personal growth as authentic leaders are open to internal evaluation and outside feedback. From the above review on authentic leadership and psychological well-being, the following is proposed:

> *Hypothesis 1*: Authenticity of leaders is positively correlated with their psychological well-being.

Authenticity of leadership and contingent self-esteem

Self-esteem is a self-measure of one's self-worth. High self-esteem is usually linked with a number of positive outcomes including genuine happiness, self-confidence, self-efficacy and subjective well-being. However, high self-esteem can also result in self-serving bias, narcissism, over-confidence and inflated feelings of self-worth (Kernis and Goldman, 2006b). Leary and Baumeister (2000) show that individuals with high and low self-esteem react differently in situations involving conflict and task interdependence. Goldman (2006) describes self-esteem in terms of fragile and secure forms based on stability, contingency, congruence and defensiveness. Secure self-esteem refers to a strong sense of self and positive feelings of self-worth (Kernis, 2003) and absence of vacillating behaviours to conform to society's demands. Secure high self-esteem is therefore linked with healthy psychological functioning and authenticity of the self (Kernis and Goldman, 2006a; Kernis *et al.*, 2008).

Studies have shown that individuals with high self-esteem are more likely to demonstrate willingness to assume leadership positions (Linimon *et al.*, 1984) and display positive leadership behaviours (Andrews, 1984; Atwater *et al.*, 1999). Deci and Ryan (1985) asserted that high self-esteem is related to greater sense of personal locus of control. Chemers *et al.*

(2000) posit that leaders with higher self-esteem are likely to be 'calmer and more thoughtful, more motivated and enthusiastic, and more resilient and perseverant than less positive leaders' (p. 269). Therefore, high self-esteem is likely to result in positive judgments of others leading to enhanced relationships, mutual trust and group coherence, and thus, better group performance.

Contingent self-esteem is 'the extent to which individual's self-worth depends upon meeting expectations, matching standards, or achieving specific outcomes or evaluations' (Kernis *et al*., 2005a, p. 219). Individuals with low, fragile or contingent self-esteem are motivated to conform to the social demands, demonstrate short-term fluctuations in feelings of self-worth, show defensive behaviours, evaluate themselves contingent upon specific outcomes, and demand regular relational reassurance (Goldman, 2006). Kernis *et al*. (2008) argue that contingent high self-esteem is not well anchored as it needs continuous social approval and validation by others. Such individuals are likely to suffer from low self-esteem if they are not able to meet specific outcomes or evaluations. In order to circumvent social disapproval, they are likely to express less certainty about their attitudes and behaviours (Baumeister, 1988). These assertions are in line with Crocker and Park's (2004) argument that people with high contingent self-esteem are constantly driven to achieve success and avoid failure in order to seek the validation of their self-worth. Also, individuals with contingent self-esteem are likely to be less considerate as they want to gain success which might even come at the expense of others (Crocker and Park, 2004).

Goldman (2006) observes that psychological authenticity and optimal self-esteem give rise to healthy functioning. Therefore, individuals with high self-esteem are more likely to present their authentic self to others. They are happy with what they are and are willing to show their weaknesses. Kernis and Goldman (2005a) found contingent self-esteem to be negatively related to an overall measure of authenticity and its components. Goldman and Kernis (2002) found that authenticity was positively correlated to self-esteem. Their study also found that individuals who exhibited authentic behaviours were less likely to score high on contingent self-esteem.

Based on the above discussion, the following hypotheses are offered:

Hypothesis 2: Leaders' authenticity is negatively correlated with their contingent self-esteem.

Hypothesis 3: Leaders' psychological well-being is negatively correlated with contingent self-esteem.

Method

Authentic leadership development and influence in the construction industry of Singapore was examined. Interviewees were identified in a snowball sampling approach using a peer nomination process. Some present and past presidents of professional institutions and trade associations were first interviewed. They could be considered as authentic as they had been elected as leaders by their peers and had very high reputations. The interviews focused on how these leaders developed, their perceptions about the attributes of authentic leaders, and the advice they would give to young professionals to develop them as authentic leaders. The presidents and past presidents were asked to nominate other senior construction practitioners who fitted the definition of an 'authentic leader'—one who has a sense of purpose, practises solid values; who leads with heart and soul, and who demonstrates self-discipline (George, 2003). Some 45 such nominated persons were next interviewed. Each of the 45 interviewees was requested to nominate one or more managers from their respective organizations whom they perceived as 'authentic leaders' (fitting the definition of George (2003)) and who performed well in their leadership positions. A total of 90 managers were nominated by these senior executives.

The 90 nominated managers who were authentic leaders, and also performed well, formed the sample from whom quantitative data were collected to test the hypotheses. The precondition of studying only peer-nominated 'authentic leaders' reduced the number of potential participants. Various efforts were made to increase the response rate. Meetings were held with the nominated managers to explain the study's objectives and encourage them to participate in it. Follow-up e-mail messages were sent, and telephone calls made. Some 32 completed questionnaires were returned, yielding a response rate of 35% and providing the basis to assume that the distribution of means is normal (Cooper and Schindler, 2003; Kazmier, 2003). Thus, these data could be appropriately analysed using statistical tools such as t-test, analysis of variance (ANOVA), correlations analysis and regression.

Applying purposive sampling techniques as was adopted here typically puts a restraint on the likely number of respondents. However, purposive sampling is based on informational considerations as its purpose is to maximize information (Lincoln and Guba, 1985) without violating statistical requirements. Such techniques also ensure that relevant types of people are included in the sample (Bock and Sergeant, 2002). Such studies can yield robust results from their typically small sample sizes. For example, Lingard (2001) used

a sample size of 22 respondents and Lingard and Holmes (2001) employed a sample size of 15 participants in their statistical analyses. Previous studies examining authenticity and psychological well-being (Kernis and Goldman, 2005a, 2005b) used bigger samples but their subjects were students. This study targeted organizational leaders who are typically busy and difficult to approach. Demographic details of the study participants are shown in Table 1. Most respondents had significantly long periods of experience in the industry.

Measures applied

In order to measure authenticity, 'The Authenticity Inventory' or AI:3 (Kernis and Goldman, 2005b; Kernis and Goldman, 2006a) was used. AI:3 is a self-report 45-item scale which comprises four sub-scales including: awareness, unbiased processing, behaviour and relational orientation. This scale has been refined several times and used to measure 'authenticity' and has fairly high values for internal reliability on the composite scale and all sub-scales; it has produced test–retest reliability (Kernis and Goldman, 2006a; Lakey *et al.*, 2008). Although Walumbwa *et al.* (2008) introduce a 16-item scale to measure 'authentic leadership', this scale is relatively new and has been used in only one study. Others have developed scales to measure 'inauthenticity' (see, for example, Erickson and Ritter, 2001). The construct validity of Seeman's (1960) scale for measuring inauthenticity has been called into question. Henderson and Hoy (1983) revised Seeman's inauthenticity scale and used it in their research on educational leadership. However this scale remained focused on 'inauthenticity' under the influence of conventional psychology or pathology that focused on mental illness rather than mental wellness. Therefore, the authenticity scale developed and tested by Kernis and Goldman (2005b) was adopted.

Responses were made on a five-point scale from 1 ('strongly agree') to 5 ('strongly disagree'). Some sample items on each of the sub-scales are: 'I am often confused about my feelings' [R] (awareness); 'I am very uncomfortable objectively considering my limitations and shortcomings' [R] (unbiased processing); 'I frequently pretend to enjoy something when in actuality I really don't' (behaviour); and 'I want people with whom I am close to understand my strengths' (relational orientation). The '[R]' in front of some items means that the scores should be reversed on the five-point scale in the final analysis.

Ryff's (1989) psychological well-being scales were used to measure psychological well-being. Although others have developed similar scales (for example, Kristensen *et al.*, 2002; Hess *et al.*, 2005), Ryff's (1989) scales have been widely used and validated around the world. This makes it easier to compare the results with previous findings. Although there are 14 items on each of the original sub-scales, to reduce the length of the questionnaire, nine items on each of the six sub-scales were used in this study. Responses were made on a five-point scale from 1 ('strongly agree') to 5 ('strongly disagree'). Some sample items on each of the sub-scales are: 'I tend to worry about what other people think of me' (autonomy); 'I often feel overwhelmed by my responsibilities' (environmental mastery); 'I have the sense that I have developed a lot as a person over time' (personal growth); 'In general, I feel confident and positive about myself' (self-acceptance).

Finally, to measure contingent self-esteem, the 15-item 'Contingent Self-Esteem Scale' proposed by Paradise and Kernis (1999) was employed. Other scales include that by Crocker *et al.* (2003). However, the Crocker scale is long; it comprises 35 items. The Paradise and Kernis (1999) scale comprises only 15 items, has been widely employed (Neighbors *et al.*, 2004; Kernis *et al.*, 2008) and possesses adequate internal and test–retest reliability (Kernis and Goldman, 2006a). Responses were made using a five-point scale from 1 ('Not at all like me') to 5 ('Very much like me'). Sample items for this scale are: 'An important measure of my worth is how competently I perform'; and 'My overall feelings about myself are heavily influenced by how good I look'. Ratings were summed up to obtain the final score which could range from 15 to 75, with higher scores reflecting greater contingent self-esteem.

Table 1 Demographic details of respondent managers

Demographic	Range	Frequency
a. Age	<30	3
	31–40	9
	41–50	14
	51–60	6
	Mean age	42.5
b. Gender	Males	27
	Females	5
c. Organization type	Developer	10
	Consultant/Designer	16
	Contractor	6
d. Work experience	<5 years	2
	5–10	7
	11–15	3
	16–20	9
	21–25	5
	26–30	6
	Mean experience	18.4

Table 2 Values of reliability coefficients

Scales	Cronbach alpha (N=32)
Authenticity (Composite scale: 45 items)	0.92
Awareness (12 items)	0.85
Unbiased processing (10 items)	0.75
Behaviour (11 items)	0.69
Relational orientation (12 items)	0.76
Psychological well-being (Composite scale: 54 items)	0.90
Autonomy (9 items)	0.81
Environmental mastery (9 items)	0.78
Personal growth (9 items)	0.50
Positive relations with others (9 items)	0.75
Purpose in life (9 items)	0.81
Self-acceptance (9 items)	0.76
Contingent self-esteem (15 items)	0.80

Analysis and findings

Values of Cronbach's alpha were first computed for sub-scales and composite scales employed in this study. This coefficient assesses the internal reliability of a psychometric instrument which measures how well the items of a scale measure a unidimensional latent construct. The higher the value of Cronbach's alpha, the greater is the internal reliability of the psychometric scale. Values for Cronbach's alpha shown in Table 2 are satisfactory for all the measurement scales. Particularly, reliability coefficients for composite scales of authenticity and psychological well-being suggest strong internal reliability of the measures.

Analysis of variance (ANOVA) was performed in order to check whether the respondents differed in their scores on authenticity and psychological well-being when grouped on the basis of their age, type of organization (client, designer/consultant, contractor) and overall experience. T-tests were performed to elicit any differences across genders. Table 3 shows that only psychological well-being (composite scale), and sub-scales of autonomy and environmental mastery showed significant difference at 95% confidence level ($p<0.05$). However, at a confidence level of 90% ($p<0.01$), all composite scales and sub-scales showed no difference in self-evaluations about authenticity, psychological well-being and contingent self-esteem.

Figures 1a, 1b, 1c and 1d illustrate subtle differences among respondents across gender, age group, organization type and experience. Figures 1a, 1b and 1c show that regardless of their age, gender, or type of organization, respondents gave relatively higher mean scores to psychological well-being as compared to authenticity. This can be interpreted to mean that leaders scoring high on authenticity experience higher levels of psychological well-being. Fluctuations in mean scores for psychological well-being and authenticity are synchronized across age groups, type of organization and working experience. Figure 1a shows that respondents across all age groups experience higher levels of psychological well-being compared to authenticity. Figure 1b indicates that male managers experience relatively higher levels of psychological well-being but less authenticity compared to their female counterparts. Figure 1c shows that respondents from developers' firms score higher on self-evaluations of authenticity

Table 3 ANOVA and t-test statistics

Scale description	ANOVA statistics						T-test statistics	
	Age group		Organization type		Overall experience		Gender	
	F	Sig.	F	Sig.	F	Sig.	t-value	Sig.
Authenticity	0.68	0.64	20.29	0.12	10.17	0.34	−0.31	0.75
Self-awareness	0.34	0.88	0.69	0.51	10.09	0.38	−0.71	0.47
Unbiased processing	10.45	0.23	10.34	0.27	10.02	0.42	0.27	0.78
Behaviour	10.71	0.17	20.08	0.14	20.44	0.06	−0.36	0.71
Relational orientation	0.36	0.86	20.33	0.11	0.54	0.73	−0.39	0.69
Psychological well-being	0.42	0.82	10.29	0.29	20.85	0.03*	0.15	0.87
Autonomy	10.52	0.22	0.11	0.89	10.23	0.32	0.84	0.40
Environmental mastery	0.68	0.63	10.94	0.16	20.70	0.04*	−10.12	0.27
Personal growth	10.76	0.16	10.32	0.28	40.18	0.00*	0.10	0.91
Positive relations with others	10.32	0.28	10.10	0.34	20.47	0.06	10.65	0.11
Purpose in life	0.34	0.88	10.05	0.36	20.17	0.09	−0.13	0.89
Self-acceptance	0.64	0.67	10.09	0.35	20.63	0.05	−0.49	0.62
Contingent self-esteem	20.50	0.05	0.04	0.953	10.38	0.26	−0.69	0.49

Notes: *Significant difference at 95% confidence level.

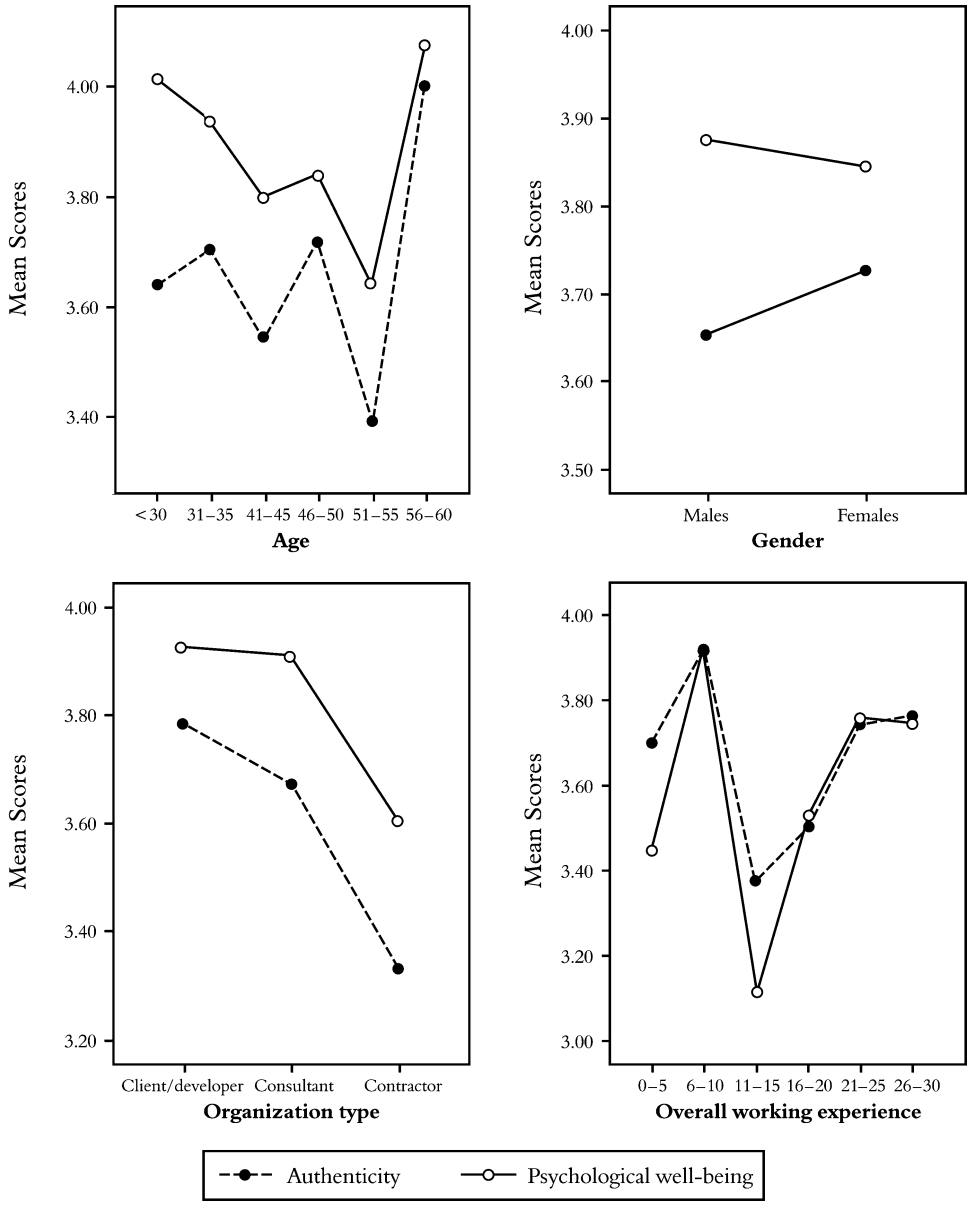

Figure 1 Authenticity versus psychological well-being

and psychological well-being, followed by consultants/designers and contractors. Figure 1d shows a minor reversal of the trend in terms of average scores of authenticity and psychological well-being. Despite having different overall working experience, respondents seem to experience relatively higher authenticity as compared to psychological well-being. Figures 1a and 1d also show that there is a drop in average scores of authenticity and psychological well-being close to the mid-career stage of the respondents. However, there is an increase in these scores for respondents who are close to retirement.

These graphical descriptions indicate that authenticity and psychological well-being are interrelated phenomena. However, in order to verify this assertion (Hypothesis 1), it is important to compute the correlations across composite as well as sub-scales of authenticity and psychological well-being.

Table 4 shows means, standard deviations and Pearson's correlation coefficients among various measures that participants completed. These zero-order correlations show that authenticity is positively, strongly and significantly correlated with psychological well-being (0.84, $p<0.01$). Also, authenticity is positively and significantly correlated with sub-scales of psychological well-being (autonomy: 0.65, $p<0.01$; environmental mastery: 0.76, $p<0.01$; personal growth: 0.42, $p<0.05$; positive relations with others:

0.40, $p<0.05$; purpose in life: 0.81, $p<0.01$; self-acceptance: 0.54, $p<0.01$). These results support Hypothesis 1. Particularly, correlations of authenticity with autonomy (0.65, $p<0.01$), environmental mastery (0.76, $p<0.01$) and purpose in life (0.81, $p<.01$) imply that leaders who score high on authenticity experience greater control over themselves and their environment and have a better sense of purpose.

Furthermore, significant correlations of awareness with autonomy (0.63, $p<0.01$), environmental mastery (0.78, $p<0.01$), purpose in life (0.70, $p<0.01$) and self-acceptance (0.58, $p<0.01$) show that awareness by leaders of their motives, feelings, desires, self-relevant cognitions, strengths and weaknesses, and emotions leads to higher levels of psychological well-being, particularly environmental mastery and purpose in life, that have also been widely noted as important factors for effective leadership performance. Table 4 also shows weak and insignificant correlations of 'positive relations with others' with awareness (0.32, $p>0.05$), unbiased processing (0.27, $p>0.05$), and behaviour (0.16, $p>0.05$) components of authenticity. On the other hand, 'relational orientation' is significantly and positively correlated with 'positive relations with others' (0.56, $p<0.01$).

Table 4 also shows correlations of contingent self-esteem with composite scales and sub-scales of authenticity and psychological well-being. Contingent self-esteem is negatively correlated with all composite as well as sub-scales of authenticity and psychological well-being. Its correlations with authenticity (-0.46, $p<0.05$) EP and psychological well-being (-0.44, $p<0.05$) are negative and significant. These results provide support for Hypotheses 2 and 3 which state that leaders' authenticity and psychological well-being are negatively associated with contingent self-esteem. Negative correlations of contingent self-esteem with sub-scales of both authenticity and psychological well-being further strengthen the grounds for a positive relationship between authenticity and psychological well-being.

Table 4 shows that all components of authenticity and psychological well-being bear significant correlation to each other. These strong inter-correlations have appeared in earlier studies (Ryff, 1989; Lakey *et al.*, 2008). There is a potential problem that the criteria may not be empirically distinctive from each other and may be measuring the same construct. However, for psychological well-being, Ryff (1989) argues that items of each sub-scale correlate more highly with their own sub-scales than with the items of other sub-scales. Hence the item pools for each sub-scale are empirically differentiated. Also, Ryff (1989) argues that each sub-scale shows varied patterns with other psychometric scales. Therefore, even if the sub-scales correlate strongly, they are different from each other and represent distinctive dimensions of their composite measures. Similar assertions were made by Walumbwa *et al.* (2008), who also found that their four components of authentic leadership were not independent as they produced high convergent validity. These components convey less unique information as they constitute a higher order construct. Similarly, in the current research, although there are high correlations among the components of authenticity, they represent substantive dimensions of the higher order construct of authenticity.

Regression analysis

To ascertain the relationship between psychological well-being and authenticity, hierarchical regression was undertaken. Psychological well-being was kept as criterion variable whereas authenticity and its sub-scales (awareness, unbiased processing, behaviour and relational orientation) were kept as predictor variables in step 1 and step 2 respectively. Table 5 shows that psychological well-being was significantly predicted by authenticity in model 1 ($\beta=0.84$, $p<0.001$). In model 2, authenticity ($\beta=0.97$, $p>0.05$), awareness ($\beta=0.26$, $p>0.05$), unbiased processing ($\beta=0.19$, $p>0.05$), behaviour ($\beta=-0.45$, $p>0.05$) and relational orientation ($\beta=0.19$, $p>0.05$) predicted the psychological well-being. These results show that authenticity as a composite measure is a better predictor of psychological well-being. Earlier results of correlation analysis also showed that authenticity is highly correlated with psychological well-being (0.84, $p<0.01$). Therefore, stronger prediction of psychological well-being is plausible by the composite measure of authenticity as compared to its components.

Discussion

The results support the hypotheses stated above, and the assertions made by Kernis and Goldman (2005a, 2005b, 2006a) for authenticity and contingent self-esteem. They also support internal reliability of measures, and predictive validity of authenticity scale (AI:3) and contingent self-esteem scale. The results are also in line with the findings of Goldman and Kernis (2002) while testing the initial versions of authenticity inventory (AI:1). The findings strengthen the notion that leaders with higher authenticity are likely to experience better psychological functioning and lower contingent self-esteem (Ilies *et al.*, 2005), and that authentic leaders are more comfortable with their authentic self and do not need validation by others.

Table 4 Correlations for authenticity, psychological well-being and contingent self-esteem

Measures	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Authenticity	3.66	0.37	1												
(2) Awareness	3.91	0.50	0.85**	1											
(3) Unbiased processing	3.51	0.51	0.79**	0.47**	1										
(4) Behaviour	3.37	0.41	0.82**	0.57**	0.72**	1									
(5) Relational orientation	3.78	0.42	0.76**	0.67**	0.38*	0.41*	1								
(6) Psychological well-being	3.87	0.36	0.84**	0.79**	0.69**	0.58**	0.65**	1							
(7) Autonomy	3.61	0.49	0.65**	0.63**	0.67**	0.55**	0.25	0.65**	1						
(8) Environmental mastery	3.86	0.46	0.76**	0.78**	0.53**	0.70**	0.46*	0.77**	0.54**	1					
(9) Personal growth	4.14	0.61	0.42*	0.39*	0.37*	0.06	0.49**	0.69**	0.34	0.25	1				
(10) Positive relations with others	3.86	0.45	0.40*	0.32	0.27	0.16	0.56**	0.52**	0.04	0.15	0.45*	1			
(11) Purpose in life	4.05	0.53	0.81**	0.70**	0.73**	0.58**	0.62**	0.89**	0.55**	0.76**	0.54**	0.39*	1		
(12) Self-acceptance	3.69	0.48	0.54**	0.58**	0.34	0.48**	0.36*	0.70**	0.31	0.66**	0.25	0.22	0.58**	1	
(13) Contingent self-esteem	48.16	7.16	−0.46*	−0.35	−0.59**	−0.53**	−0.01	−0.44*	−0.67**	−0.47**	−0.17	−0.11	−0.40*	−0.09	1

Notes: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 5 Regression analysis for authenticity and psychological well-being

	Variables	B	SE B	β
Step 1	(Constant)	0.96	0.36	
	Authenticity	0.79	0.01	0.84*
Step 2	(Constant)	1.23	0.37	
	Authenticity	0.92	2.23	0.97
	Awareness	0.18	0.58	0.26
	Unbiased processing	0.13	0.57	0.19
	Behaviour	−0.39	0.53	−0.45
	Relational orientation	−0.16	0.61	−0.19

Notes: $R^2=0.708$, $\Delta R^2=0.070$, $\Delta F=1.80$, *$p<0.001$.

Correlation and regression analyses show that authenticity is positively and significantly correlated to psychological well-being, and successfully predicts psychological well-being of leaders. Authentic leaders recognize their weaknesses. They proactively shape their contexts so that they can influence them. They are well aware of their goals and carry out their tasks with a sense of purpose.

Walumbwa *et al.* (2008) showed that authentic leadership is positively correlated to ethical leadership, organizational citizenship behaviour, organizational commitment, satisfaction with supervisor, organizational climate and job performance. Since there is evidence of employee psychological well-being resulting from transformational behaviours of their supervisors and leaders (Arnold *et al.*, 2007; Nielsen *et al.*, 2008) and that transformational leadership is correlated to authentic leadership (Walumbwa *et al.*, 2008), it can be posited that authentic leadership also engenders the well-being of followers (Ilies *et al.*, 2005). These earlier findings about authenticity of leadership and evidence from this study further strengthen the assertion that authentic leadership is a 'root construct' of all positive and effective forms of leadership (Avolio *et al.*, 2004; Avolio and Gardner, 2005; Gardner *et al.*, 2005).

Leadership is usually associated with socio-psychological constructs including goal orientation, purpose (Parameshwar, 2006; George and Sims, 2007), social intelligence, personal initiative (Barbuto and Burbach, 2006; Kerr *et al.*, 2006), self-awareness and self-regulation (Avolio and Gardner, 2005; Gardner *et al.*, 2005). These notions can be found in various components of psychological well-being. This suggests that individuals experiencing higher levels of psychological well-being are likely to be seen as effective in their workplaces and hence have higher prospects of emerging as leaders. Psychologically healthy individuals are generally seen as the ones who can be relied upon in times of difficulty. Since authenticity is significantly correlated with, and a predictor of, psychological well-being, it is likely that individuals with higher levels of authenticity are able to perform better in leadership roles.

Psychological well-being has been shown to be positively related to meaningful work (Arnold *et al.*, 2007), positive functioning and happiness (Ryff, 1989), better work aspirations and achievements (Carr, 1997), resilience (Fava *et al.*, 1998; Ryff *et al.*, 1998; Singer *et al.*, 1998) and social skills (Segrin and Taylor, 2007). Lack of psychological well-being can lead to higher stress levels (Cartwright and Cooper, 1994), reduced task performance, increased absenteeism and high turnover (Shirom, 1989). These findings from earlier research and results from this study show that psychological well-being is significantly correlated to, and predicted by, authenticity. Thus, it is plausible to conceive that authenticity will have significant influence on subjective well-being, relationships, social skills and personal performance.

The study has also shown negative correlations among two positive psychological constructs (authenticity and psychological well-being) and contingent self-esteem. This suggests that leaders with higher levels of authenticity are driven to achieve veritable performance and not to validate their self-worth by conforming to social norms. The results also suggest that authentic leaders have more self-esteem due to their well-anchored feelings of self-worth, leading to healthy psychological functioning and positive work outcomes (Kernis, 2003).

Limitations of the study and recommendations for future research

The findings support some of the basic elements of the concepts of authenticity and authentic leadership. However, they should be interpreted with caution. First, the culture in Singapore may have influenced the correlations in the analysis. Second, the study was cross-sectional in nature; therefore, the long-term

impact of authenticity on psychological well-being, self-esteem and other positive psychological outcomes is not necessarily empirically supported. A longitudinal study would help to unearth issues related to long-term benefits of authenticity. Third, the sample size in this study was not large. More studies with larger sample sizes can be conducted to further verify the results. Fourth, the current study reports self-ratings of the leaders which may have resulted in some social desirability factors. However, possible precautions were taken in the research design and data collection to reduce this through purposive nomination of 'authentic' leaders and by briefing potential respondents.

Future studies may use followers' ratings for leader's authenticity and compare the results with those of the current study. Such studies can also focus on the mediating role of some organizational factors (such as organizational structure, size and culture) on the relationship between authenticity and psychological well-being. Finally, future works can examine the relationship between authentic leadership and some industry-relevant parameters such as project performance.

Conclusions

Leaders' authenticity successfully predicts their psychological well-being and is also negatively correlated with contingent self-esteem. Results reported here support the significance of authenticity for leadership. Leaders who experience high levels of psychological well-being and secure self-esteem can be an organization's vital assets. By inspiring mutual trust, helping people find meaning in their work, arousing self-awareness, building optimism and confidence, engaging in connected relationships, and promoting transparency and ethical practices, authentic leaders can bring the best out of their teams and their organizations. Authentic leaders do not look for short-term gains or conform to social standards at the cost of their followers' well-being or organizational performance.

Authenticity of leaders in the construction industry enhances their personal autonomy, desire for positive relationships with others, sense of purpose in leadership, mastery over their environments and motivation to grow as leaders. Therefore, construction organizations can take steps to attract authentic individuals and nurture them into authentic followers and authentic leaders through specifically designed interventions, coaching and mentoring programmes, and a generally supportive environment which enhances the psychological well-being of leaders and followers. Given the empirical support for positive organizational outcomes of authentic leadership and psychological well-being, investment in such human capital development is potentially beneficial to organizations in the construction industry.

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