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Developing agency through good work: longitudinal effects of job autonomy and skill utilization on locus of control

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Longitudinal effects of job autonomy and skill utilization on locus of control

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Running head: Job Characteristics and Locus of Control

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Abstract

An internal locus of control has benefits for individuals across multiple life domains. Nevertheless, whether it is possible to enhance an individual's internal locus of control has rarely been considered. The authors propose that the presence of job autonomy and skill utilization in work can enhance internal locus of control, both directly and indirectly via job satisfaction. Three waves of data over a four-year period from the Household, Income and Labour Dynamics in Australia Survey (N = 3,045) were analyzed. Results showed that job autonomy directly shaped internal locus of control over time, as did job satisfaction. Skill utilization did not play a role in terms of affecting locus of control, and the indirect effects of both job autonomy and skill utilization via job satisfaction were weak. This study suggests the importance of job autonomy in promoting the development of an employee's internal locus of control.

Keywords: locus of control, work design, personality development, job autonomy, latent difference scores modeling

Developing agency through good work:

Longitudinal effects of job autonomy and skill utilization on locus of control

One of the most important psychological resources that individuals can have is the belief they have control over their own lives, or an internal locus of control (LOC, Rotter, 1966). Evidence from meta-analytic studies shows that, compared to believing that one has little control over one's own life, individuals high in LOC have better mental well-being and physical health, have more favourable work experiences (e.g., perceived higher autonomy and meaningfulness at work) and fewer negative work experiences (e.g., less role conflict), and they achieve greater career success (i.e., higher salary, higher organizational level) (Cheng, Cheung, Macau, Chio, & Chan, 2013; Ng, Sorensen, & Eby, 2006; Wang, Bowling, & Eschleman, 2010). The importance of LOC in shaping human beings' life has been consistently demonstrated in clinical, social, developmental, education and work psychology for over four decades.

The concept of LOC is widely treated as an enduring dispositional attribute of an individual that is static over time. However, in fact, Rotter (1954), the originator of the concept, proposed in his social learning theory (1954) that personality represents an interaction of the individual with the external environment and thus that LOC can change as the results of change in the situation. From this point of view, an

individual's LOC, or generalized expectancies of being able to influence external

events via one's actions, are shaped and developed from an individual's life

experiences (Rotter, 1960). The implication of this reasoning is that it should be

possible for an individual to enhance their LOC if and when the environment

supports personal agency. Such a developmental perspective of LOC is important

because it allows for the possibility that one's level of internal LOC can change. In

other words, internal LOC is not fixed, but is an attribute that can be developed,

even in adulthood.

This developmental perspective on internal LOC has largely been overlooked in

past studies. The limited set of studies that adopt a development view has yielded

mixed findings. On the one hand, Cobb-Clark and Schurer (2013) found that life

events (e.g., promoted at work or get married) did not predict change in internal

LOC over a period of three years. On the other hand, longitudinal studies reported

by Anderson (1977) and Andrisani and Nestel (1976), showed that higher firm

performance and occupational status, respectively, did enhance business owners' and

employees' internal LOC over a two-year period. The inconsistent findings might

reflect the focus of these studies on different aspects of life events or experiences,

which may require different levels of adjustment (Holmes & Rahe, 1967) and thus

results in variation in the magnitude and duration of their effect on attributes like

LOC. In other words, in order to change an individual's LOC, a sustained and profound environmental influence is required.

We propose that job characteristics might be an especially important environmental influence in promoting change in LOC because work is a major part of adult life, and job characteristics shape one's values, social roles and activities on a daily basis (Brousseau, 1983; Frese, 1982). Over time, experiences at work can be generalized and affect one's personality by changing one's patterns of thinking, feeling and behaving (e.g., Hudson, Roberts, & Lodi-Smith, 2012; Li, Fay, Frese, Harms, & Gao, 2014). In this study, we focus on the job characteristics of autonomy, which refers to the latitude to make decisions about day-to-day work (Hackman & Oldham, 1976), and skill utilization, which refers to using and developing skills and ability at work (O'Brien, 1982). These two job characteristics give rise to experiences of self-agency at work, which we argue will reinforce internal LOC in the long run. As we elaborate below, we propose that job autonomy and skill utilization will enhance internal LOC both directly and indirectly via job satisfaction.

Impact of job autonomy and skill utilization on internal LOC

We propose that job autonomy will enhance internal LOC directly because individuals have volitional control over the work situation, leading them to see that

their choices can influence events. In other words, in autonomous jobs, individuals

can make their own decisions about work activities rather than have them imposed

by technology or the supervisor, and will therefore attribute the causality of work

events to internal rather than external factors (Jones & Davis, 1965). High autonomy

jobs also allow employees to set goals according to personal values and interests

(Sheldon & Elliot, 1999), which are stable internal causes. Accordingly, we suggest

that job autonomy will enhance one's tendency to make an internal attribution when

explaining the causality of work events. Although this influence is situational when

specific work events are interpreted, over a longer time period, we propose this

attribution tendency will be consolidated as a part of one's self-schema concerning

the link between one's behavior/attributes and external events (Markus, 1977), thus

resulting in an increase in internal LOC.

Skill utilization focuses on individuals' sense that they are fully utilizing their

skills and abilities in the job (O'Brien, 1982). Higher skill utilization will enhance

internal LOC because individuals can see that they can rely on their ability and skills,

rather than other unstable factors, to carry out their work. Ability and skill are

internal factors: they are a part of one's self-identity that defines what an individual

is capable of doing (O'Brien, 1982). Although changeable over time, ability and skill

are relatively stable and do not change moment by moment. Accordingly, when

individuals fully use their abilities and skills at work, they are more likely to make an internal attribution to explain the causality of positive work outcomes. When such attributions are made repeatedly over time in the course of carrying out one's work, these beliefs will be extracted as a cognitive representation of self-schemata and become an enduring dispositional characteristic. As such, skill utilization can help to increase internal LOC over a reasonably long time period.

In addition to their direct effects, job autonomy and skill utilization will also help to enhance internal LOC indirectly via their impact on job satisfaction. Job autonomy and skill utilization can lead to higher job satisfaction, an overall appraisal of work experiences that signals work success (Judge & Hurst, 2008) because they provide opportunities for growth and meaning (e.g., Hackman & Oldham, 1976) and function as resources at work that help individuals to deal effectively with job demands (Karasek, 1979). Job satisfaction could thus enhance one's internal LOC because people tend to make an internal attribution when explaining the causality of desirable outcomes (Shepperd, Malone, & Sweeny, 2008), such as having a feeling of contentment at work.

The present study

We conducted a longitudinal analysis based on data from the Household, Income and Labor Dynamics in Australia (HILDA) Survey (Summerfield, 2010) to

examine the hypothesized effects. In order to certify the hypothesized directional effects, we account for the reciprocal process in which internal LOC shapes job autonomy, skill utilization and job satisfaction such that people having a higher internal LOC will tend to request, seek out, or create favorable work environments and work accomplishment (e.g., Judge, Bono, & Locke, 2000; Wu & Griffin, 2012). We also consider the reciprocal effect of job satisfaction on job autonomy and skill utilization as higher job satisfaction can prompt a sense-making process that influences individuals' perception of their work environment (Wong, Hui, & Law, 1998). We therefore examine our hypotheses using a longitudinal reciprocal model. Figure 1 presents the conceptual research model.

We used a longitudinal design involving three waves with all measures assessed on all occasions. Because internal LOC captures a generalized expectancy that is not easy to alter, a reasonably long time period is required in order to observe developmental change. The HILDA Survey provides data from three waves across four years with two different time lags (one year and three years) to help us explore the role of time in shaping the associations between our research variables (Gollob & Reichardt, 1987). As previous studies have indicated that work-related experiences can shape changes of internal LOC in two years (Anderson, 1977; Andrisani & Nestel, 1976), the two different time lags help to explore the timing of

effects on changes of internal LOC.
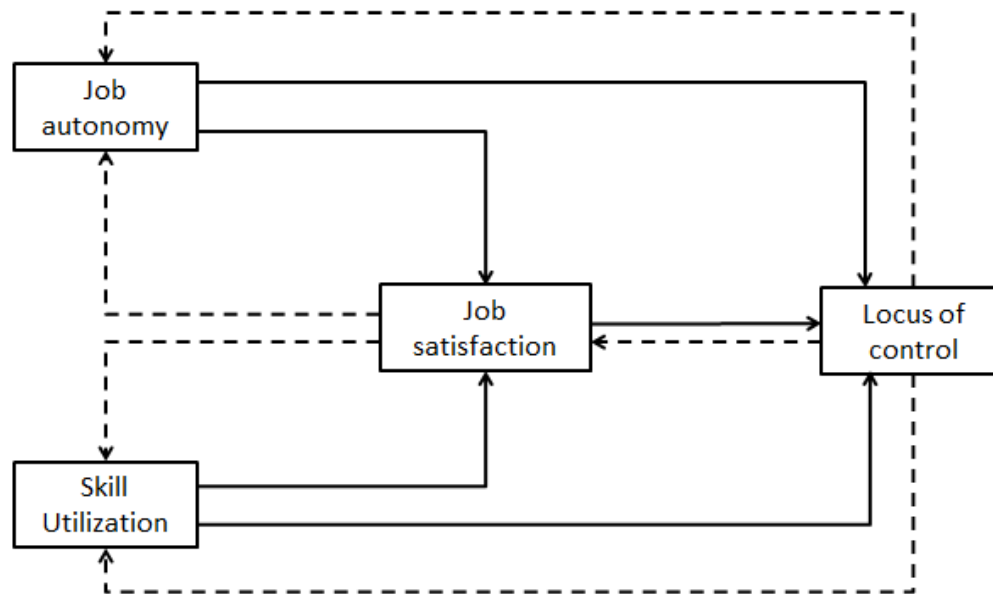
Figure 1. The research model

Note: Effects represented by the dash lines are controlled for in order to certify the

hypothesized directional impact represented by the solid lines.

Method

The HILDA Survey

As mentioned earlier, data from the HILDA Survey were used. HILDA is

conducted annually with a nationally representative sample recruited in 2001. We

used data from 2003, 2004, and 2007 (denoted as Time 1, Time 2, and Time 3)

because LOC was only assessed in these years. The HILDA survey is mainly

conducted through face-to-face interviews. Telephone interviews are conducted for a

small proportion of the sample when face-to-face interviews are impossible (please

see Watson & Wooden, 2007, for details). After the interview section, a

self-completion questionnaire is provided by interviewers for the respondents in a

given household, and then it is either collected by interviewers at a later date or

mailed (if telephone interviews were conducted, the self-completion questionnaire is

mailed to respondents). In our study, data for job satisfaction were collected in the

interview section, whereas data for job autonomy, skill utilization and internal LOC

were assessed via the self-completion questionnaire.

Participants in HILDA used in the current study included those who: (a) were

employees (self-employed participants were not included), (b) had complete data

points in the three years, and (c) had complete demographic data on sex, age, and job

type (i.e., full time or part time). On the basis of these three criteria, 3,045 participants

were included in the analysis, of whom 1,557 were male (51.1%) and 1,488 were

female (48.9%). Age in 2003 ranged from 15 to 74 years, with a mean of 38.33 and a

standard deviation of 11.51. In 2003, there were 91 (3%) participants under the age of

18 (aged 15–17), and 12 participants older than 65 (0.3%). We kept these older and

younger participants in our analyses because they were working (in part-time jobs)

during the survey period. Excluding these participants did not change the results.

Measures

Job autonomy and skill utilization. Three items were used to measure job autonomy: "I have a lot of freedom to decide how I do my own work," "I have a lot of say about what happens on my job" and "I have a lot of freedom to decide when I do my work." These items have been used in past studies for measuring job autonomy (e.g., Karasek, 1979). Two items were used to measure skill utilization: "My job often requires me to learn new skills" and "I use many of my skills and abilities in my current job." These two items have been used in past studies for measuring skill utilization (e.g., Karasek, 1979). Participants used seven-point scales from 1 (strongly disagree) to 7 (strongly agree) to rate themselves on these items. Cronbach's alpha coefficients for the three items of job autonomy were all .80 for all time periods, and coefficients for the two items of skill utilization were .79, .81, and .80 for Times 1, 2, and 3, respectively.

We used subjective (perceptual) measures to assess work design. Theoretically, because subjective interpretations play a central role in shaping attributions and LOC, we expected subjective measures of job autonomy and skill utilization to be more proximal than objective measures (Spector & Jex, 1991) and therefore appropriate for our research context. As an added validity check within our study, because each

participant indicated his or her occupation, for each year we correlated our measures of job autonomy and skill utilization with an objective skill-level indicator of occupation based on the ISCO-88 two-digit code (the International Standard Classification of Occupations). Four levels of skills are classified by the ISCO-88 two-digit code (Elias, 1997). For example, professionals have the highest skill level (level 4), followed by technicians and associate professionals (level 3), followed by clerks, service workers, and related occupations (level 2), and finally elementary occupations (e.g., elementary sales and services; laborers in mining, construction, manufacturing, transport; level 1). For those individuals whose occupations could be converted into one of the four levels of skills (n = 2496), job autonomy was positively related to the ISCO-based skill level (r = .20, .21, and .14 for each year), as was skill utilization (r = .33, .34, and .34 for each year). Moreover, as skill utilization and ISCO-based skill level both focus on the skill dimension of jobs, the finding that skill utilization had a stronger correlation with ISCO-based skill level supports the discriminant validity of our measures.

Job satisfaction. Job satisfaction was measured by two items for overall job satisfaction and satisfaction with work itself. Participants used eleven-point scales from 0 (totally dissatisfied) to 10 (totally satisfied) to rate these items. Cronbach's alpha coefficients for these two items were .80, .81, and .82 for each year.

Locus of control. Seven items from Pearlin and Schooler's (1978) study were used to measure LOC as a general personality characteristic. The items measure "the extent to which one regards one's life changes as being under one's own control in contrast to being fatalistically ruled" (Pearlin & Schooler, 1978, p.5), which is consistent with the definition of internal LOC (Rotter, 1966). This measure has been used to indicate general LOC in several past studies (e.g., Christie & Barling, 2009) including a meta-analytic study (Wang et al., 2010). Sample items are "I have little control over the things that happen to me" (reversed item), "What happens to me in the future mostly depends on me," and "I can do just about anything I really set my mind to do." Participants rated themselves on the items using seven-point scales from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha coefficient for these items was .83 for each year.

Control variables. We included gender and age as time-invariant control variable to predict all variables in the analyses and job type (part time vs. full time) as a time-variant control variable to predict variables assessed in the same year.

Data analysis

Because our goal is to understand whether an individual's job characteristics/experiences shape her/his internal LOC over time and vice versa, we used latent differences score modeling (LDSM) (McArdle, 2009) for data analysis. A

LDSM focuses on within-individual change of variables between adjacent time points

and individual differences in such within-individual change, enabling us to examine

development of internal LOC and changes of job characteristics and job satisfaction

for each individual (Little, Bovaird, & Slegers, 2006; McArdle, 2009; Selig &

Preacher, 2009). For example, a LDSM approach creates latent difference scores

between variables measured at adjacent time points and then examines how variables

measured at previous time points (e.g., job autonomy and skill utilization at Time 1)

can shape within-individual changes over two adjacent time points (e.g., changes of

internal LOC from Time 2 to Time 3). Because difference scores are operated as latent

variables, latent-difference scores do not suffer from the issues associated with

measurement error or highly restrictive assumptions when difference scores are

obtained by subtraction (Little et al., 2006).

A LDSM approach is more appropriate than a cross-lagged modeling (CLM)

approach for our research purpose because CLM focuses on rank-order stability at the

inter-individual level and does not consider changes occurring at the within-individual

level nor individual differences around within-individual change. For example,

stability in rank order over time can result from different change mechanisms at the

within-individual level such that "individuals are not changing and therefore

individual differences are stable, that individuals are changing to a notable degree but

all following a similar trajectory, or that individuals are changing but the magnitude of that change is small relative to the differences among individuals" (Selig & Preacher, 2009, p.149). Although a latent growth curve modeling (LGCM) approach also focuses on within-individual change and individual differences in such within-individual change, a LDSM approach is preferred because it considers changes between adjacent time points rather than changes over the whole time period, which we value because it helps examine effects of time (i.e., one-year lag and three-year lag) on the hypothesized change process. Models were estimated using Mplus (Muthén & Muthén, 2007). Taking into account the non-normality of the data, we used a maximum likelihood estimator with Satorra-Bentler robust standard errors (the MLM estimator in Mplus).

Results

Table 1 presents means, standard deviations, and correlations among the variables. Proportions of intra-individual variances across three waves of job autonomy (56.2%), skill utilization (50.8%), internal LOC (55.4%) and job satisfaction (52.8%) were all substantial, supporting our focus on intra-individual change.

Before examining our hypotheses, we tested the discriminant validity of our measures in each wave and also tested the invariance of factor loadings and item

intercepts within the same constructs over time. These tests were helpful in ensuring

that the change phenomena upon which we rely in the following longitudinal

analysis relates to changes in constructs (true or alpha change), rather than changes

resulting from scale re-calibration (beta change) or construct re-conceptualization

(gamma change) (Golembiewski, Billingsley, & Yeager, 1976). Results of these

analyses are available from the first author. Below we present analyses for

hypothesis testing using different approaches.

Table 1

Descriptive Statistics of Research Variables (n = 3045)

	M	SD	Correlations														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Sex (Female)	0.49	0.50																
2. Age (Time 1)	38.33	11.51	.02															
3. Job type (Time 1)	1.29	0.46	.38	-.11														
4. Job type (Time 2)	1.28	0.45	.39	-.06	.78													
5. Job type (Time 3)	1.24	0.43	.36	.07	.53	.59												
6. Job autonomy (Time 1)	3.98	1.52	-.09	.15	-.12	-.11	-.05											
7. Job autonomy (Time 2)	4.00	1.47	-.10	.11	-.11	-.11	-.06	.64										
8. Job autonomy (Time 3)	4.07	1.43	-.10	.03	-.13	-.11	-.08	.50	.55									
9. Skill utilization (Time 1)	4.95	1.45	-.04	.08	-.19	-.15	-.11	.26	.18	.10								
10. Skill utilization (Time 2)	4.96	1.40	-.02	.08	-.15	-.16	-.12	.18	.22	.11	.60							
11. Skill utilization (Time 3)	5.06	1.31	.00	-.02	-.08	-.08	-.17	.13	.12	.19	.44	.48						
12. Job satisfaction (Time 1)	7.67	1.61	.03	.09	.01	.02	.05	.30	.18	.13	.22	.15	.12					
13. Job satisfaction (Time 2)	7.67	1.58	.02	.08	.01	.00	.02	.21	.27	.16	.15	.24	.10	.50				
14. Job satisfaction (Time 3)	7.70	1.51	.04	.12	.00	.02	.03	.19	.18	.30	.13	.14	.24	.37	.42			
15. LOC (Time 1)	5.49	1.00	.02	-.06	.01	.01	.00	.14	.13	.14	.12	.10	.12	.20	.18	.19		
16. LOC (Time 2)	5.51	0.99	-.01	-.08	-.01	.01	-.03	.11	.16	.13	.08	.11	.11	.15	.20	.17	.59	
17. LOC (Time 3)	5.54	1.00	-.01	-.04	-.03	-.02	-.04	.13	.15	.16	.09	.10	.14	.15	.19	.25	.51	.56

Note. $|r| > .04$, $p < .05$

We analyzed data using latent difference score modeling. We created latent difference scores of all constructs between Time 1 and Time 2 and between Time 2 and Time 3. According to McArdle (2009), a latent difference score is created by fixing and freeing specific estimates for parameters involving variables assessed at two adjacent time points (i.e., internal LOC at Time 1 and internal LOC and Time 2). For example, the latent difference score of internal LOC between Time 1 and Time 2 can be ascertained by specifying (a) the predictive effect of internal LOC at Time 1 on internal LOC at Time 2 as 1, (b) the factor loading of internal LOC at Time 2 on the latent difference score of internal LOC as 1, and (c) the variance of internal LOC at Time 2 as 0. The same rule was applied to create other latent differences scores.

We allowed each latent difference score to be predicted by the construct's earlier level to account for the fact that people with a lower initial level at a given time have more scope for change than those with a higher initial level. Thus, controlling levels before change provides a more stringent test of hypotheses involving within-individual changes. As such, internal LOC at Time 1 was specified to predict the latent difference score of internal LOC between Time 1 and Time 2. Similarly, internal LOC at Time 2 was specified to predict the latent difference score of internal LOC between Time 2 and Time 3. At the same time, for the same construct, we allowed the latent difference score between Time 1 and Time 2 to predict the latent difference score between Time 2 and Time 3 to acknowledge the autoregressive effect of

changes resulting from the effect of regression to the mean. The same specification rules were

applied to other constructs.

In order to test effects across different constructs over time, we used variables at Time 1

to predict latent change scores between Time 1 and Time 2 and used variables at Time 2 to

predict latent change scores between Time 2 and Time 3. We included correlations between

constructs at Time 1 to acknowledge their cross-sectional relationship and correlations

between latent differences scores of constructs in the same time period to acknowledge

associations between changes of different constructs. This model fit the data well (MLM-χ^2 =

112.95, df = 40; CFI = .99; TLI = .98; RMSEA = .024; SRMR = .012). Table 2 presents

estimates of the model.

In terms of the hypothesized direct effects, job autonomy at Time 1 positively predicted

the latent differences score of internal LOC between Time 1 and Time 2 (b = .02; β = .04, p

< .05), and job autonomy at Time 2 positively predicted the latent differences score of internal

LOC between Time 2 and Time 3 (b = .02; β = .04, p < .05). Skill utilization did not predict

the latent differences score of internal LOC between Time 1 and Time 2 (b = .00; β = .00, p

> .05) or between Time 2 and Time 3 (b = .02; β = .01, p > .05). Job autonomy at Time 1

positively predicted the latent differences score of job satisfaction between Time 1 and Time 2

(b = .05; β = .05, p < .01), and job autonomy at Time 2 positively predicted the latent

differences score of job satisfaction between Time 2 and Time 3 (b = .05; β = .04, p < .01).

Skill utilization at Time 1 or Time 2 did not predict the latent differences score of job satisfaction between Time 1 and Time 2 ($b = .02$; $\beta = .02$, $p > .05$) or between Time 2 and Time 3 ($b = .03$; $\beta = .03$, $p > .05$). Job satisfaction at Time 1 did not predict the latent differences score of internal LOC between Time 1 and Time 2 ($b = .02$; $\beta = .03$, $p > .05$), but job satisfaction at Time 2 positively predicted the latent differences score of internal LOC between Time 2 and Time 3 ($b = .03$; $\beta = .05$, $p < .01$). These findings suggest again that job autonomy, but not skill utilization, can have a positive impact in increasing internal LOC via increasing job satisfaction. However, the indirect effect from job autonomy at Time 1 to internal LOC at Time 3 via paths involving job satisfaction was very small (indirect effect $= .001$, $p < .05$).

Overall, we found that job autonomy positively predicted an increase of internal LOC over time. Skill utilization did not have a significant effect on an increase of internal LOC over time. The proposed indirect effect via job satisfaction was also weak. Results also suggest that the observed time-lagged effects were similar over the different time intervals. In other words, the observed predictive effects of job autonomy were neither stronger nor weaker with the longer time interval.

Table 2

Unstandardized/Standardized Estimates of the Predictive Effect of Time-point Variables on Latent Differences Scores

Dependent/Independent variable	Job autonomy		Skill utilization		Job satisfaction		LOC	
	T1	T2	T1	T2	T1	T2	T1	T2
Differences of job autonomy (T2-T1)	-.39/-.47***		--		-.02/-.02		.07/.06***	
Differences of job autonomy (T3-T2)		-.40/-.42***		--		.00/.00		.06/.04**
Differences of skill utilization (T2-T1)	--		-.44/.50***		.01/.02		.04/.03	
Differences of skill utilization (T3-T2)		--		-.48/.48***		-.02/-.02		.07/.05***
Differences of job satisfaction (T2-T1)	.05/.05**		.02/.03		-.55/-.56***		.14/.09**	
Differences of job satisfaction (T3-T2)		.05/.04**		.03/.00		-.55/-.52***		.12/.07**
Differences of LOC (T2-T1)	.02/.04*		.00/.00		.02/.03		-.43/-.47***	
Differences of LOC (T3-T2)		.02/.04*		.00/.01		.03/.05**		-.34/-.37***

*$p < .05$, ** $p < .01$, *** $p < .001$

Discussion

This study highlights a developmental perspective in regard to the important individual attribute of LOC. In line with Rotter's social learning theory (1954), we found that an individual's internal LOC is shaped by their environment and can be enhanced. More specifically, our findings support the idea that job autonomy promotes internal LOC. Autonomy is one of the most important characteristics of work and hundreds of studies have demonstrated its positive association with more state-like outcomes such as job attitudes and work motivation (Humphrey, Nahrgang, & Morgeson, 2007). Our study goes further to suggest a more enduring outcome that arises through the interaction of the individual and their work context: the development of an internal LOC, or the belief that one has agency over one's life. Increasing job autonomy, such as via empowerment programs, self-managing teams, and similar work design interventions, is thus a strategy for promoting personal growth. Our findings align with Parker (2014, p. 685), who advocated that enriched work design has "untapped potential" as a vehicle for adult learning and development. Skill utilization was not important for enhancing internal LOC, perhaps because employees might be required or coerced to utilize their skills to do their jobs, without a sense of volitional control, thereby mitigating any positive effect on internal LOC.

The developmental perspective considered in this paper is especially significant

when the full set of findings is considered. That is, our longitudinal reciprocal analysis

showed that those with a higher internal LOC tend to increase job autonomy and job

satisfaction over time, which in turn leads to an increase in internal LOC. Moreover,

with standardized path coefficient as an estimate of effect size, our finding reveals that

reciprocal effects between LOC and work characteristics/job satisfaction are of

similar magnitude. In essence, our findings suggest a positive spiral in which

individuals and their work environment can shape each other in a reciprocal and

dynamic process.

One question about our study pertains to the effect size, which is relatively small.

Such small effect size is observed in personality development studies (e.g., Li et al.,

2014). Our examination makes the relatively small effect more noteworthy because

LOC, though changeable, may not be easy to change. Moreover, our longitudinal

study was much more stringent than many empirical studies because we measured

stability and reciprocal effects of variables over time. We suggest that an increase in

internal LOC is practically very important, even a relatively small increase, because

of prior research showing the many positive benefits for well-being, work attitudes

and career success of internal LOC. As such, this small effect size in terms of change

can still be of substantial practical importance, which should be considered separately

from the statistical value of effect sizes (Aguinis et al., 2010).

Our study particularly brings a managerial implication on how to promote employees' internal LOC and thus their work attitudes and work success. Instead of emphasizing an approach to recruit and select people in the workplace who have higher internal LOC based on a disposition-determined perspective, our investigation highlights a way to develop employees' LOC via job design. Specifically, our study suggests that designing work with high levels of job autonomy will promote a stronger sense internal LOC among individuals, with potential positive spin off consequences for many other aspects of individuals' lives, in and outside of work.

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