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RESEARCH PAPER

The Happy-Productive Worker Thesis Revisited

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Abstract Despite extensive research on the subject spanning over 70 years, uncertainty still remains as to whether happier workers are in fact more productive. This study combined longitudinal prospective and experience sampling methods to examine the relationship between happiness and self-reported productivity among Directors employed in the public and private sectors. Analyses at a trait level suggested happy people were more productive. Similarly, at the state level of analysis, people were more productive when they were happier. Among the happiness indicators examined (job satisfaction, quality of work life, life satisfaction, positive affect, and negative affect) positive affect was most strongly, but not exclusively, tied to productivity at both the state and trait levels. Discussion focuses on reconciling a long history of mixed findings regarding the happy-productive worker thesis.

Keywords Productivity · Positive affect · Negative affect · Job satisfaction · Life satisfaction · Quality of work life · Happiness · Emotions · Personality · Experience sampling

1 Introduction

Since the 1930s there has been a great deal of interest in the relationship between employee well-being and productivity. Hersey (1932) reported a positive relationship between daily emotions and performance, whereas Kornhauser and Sharp (1932) reported that worker

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attitudes (more cognitive assessments of happiness) were altogether unrelated to efficiency. Knowing whether or not happiness in the workplace promotes productivity has important implications for management and strategies for workplace improvements. Despite considerable research on the subject, uncertainty remains today as to whether happier workers are indeed more productive (see Wright and Cropanzano 2004). Researchers have suggested that inconsistent findings linking happiness and productivity may be due to inconsistent measurement. Most often in studies of happiness and productivity, happiness has been operationalized as job satisfaction (e.g., Brief and Weiss 2002). However, job satisfaction may not be an effective proxy for happiness.

The term 'happiness' lacks scientific precision, and some researchers refer to *subjective well-being (SWB)* instead. SWB is also an inclusive term comprised of multiple, empirically distinct constructs. For example, emotional experience (often operationalized as the independent dimensions of positive affect and negative affect) is correlated with, yet distinct from, more cognitive appraisals of subjective well-being such as life satisfaction (at a global level) or various domain satisfactions, such as job satisfaction (see Diener 2005; Kim-Prieto et al. 2005). We retain the term happiness for its historical and commonsense value in discussing the happy-productive worker literature, and view it as a broad term akin to SWB. However, it is important to recognize that happiness has meant different things to different researchers, and more specific statements (i.e., about a particular indicator) necessarily qualify broader statements about happiness. Our empirical approach recognizes the many facets of happiness (or SWB) by employing multiple happiness indicators and comparing them.

There is also growing recognition that research on the happiness-productivity link must distinguish between *state* and *trait* levels of analysis (Coté 1999; Fisher 2003; Wright et al. 2004). That is, it is different to ask, "Do fluctuations in happiness covary with (or cause) short-term differences in productivity?" (a state approach), than, to ask, "Are happy people more productive over long periods of time?" (a trait approach). These two questions may have different answers, and may suggest different processes linking happiness and productivity. In this study we employ longitudinal prospective and experience sampling approaches with multiple happiness indicators to examine both state and trait associations between happiness and self-rated productivity among Canadian middle managers (i.e., Directors).

1.1 Rationale for the Happy/Productive Worker Hypothesis

Theory Y management suggests that happier people will be more productive, and many empirical findings are consistent with this idea. For example, Bolger and Schilling (1991) found that employees who were more prone to negative emotions were more likely to use contentious interpersonal tactics and thus provoke negative reactions from co-workers. According to Cropanzano and Wright (2001), less happy employees are more sensitive to threats, more defensive around co-workers, and more pessimistic. Conversely, happier employees are sensitive to opportunities, more helpful to co-workers, and more confident. Truly miserable employees, those who are depressed, are likely to display little energy or motivation, and, thus, accomplish little.

Fredrickson (1998, 2001) suggests that positive emotions function to 'broaden and build' skills and social bonds. For example, individuals in positive mood states are more cooperative, more helpful, and less aggressive (Isen and Baron 1991), likely improving productivity in social or collaborative work contexts. In addition, positive emotions may

lead to better performance in more complex jobs by enhancing creative problem solving (Estrada et al. 1997; Madjar et al. 2002). Beyond their immediate effects (i.e., on creativity or social facilitation), positive emotions may also aid in building resources for future performance. That is, positive emotions likely foster new skill acquisition and the building of social capital that may be utilized at a later time (Fredrickson 2001). This suggests that trait measures of happiness (particularly positive emotions) could predict long-term productivity, even if happy states were unrelated (or even negatively related) to short-term productivity.

Although positive emotions likely foster productivity under many conditions, this effect is probably not ubiquitous. That is, just as pleasant emotions bias cognition and behavior in some ways (e.g., fostering creativity and sociability), unpleasant emotions bias cognition and behavior in other ways that may be useful under some circumstances. For example, negative moods seem to bias people's attention towards details rather than global meaning (Gasper and Clore 2002), improving task performance when a detailed level of analysis is required. Complicating things further, the valence of moods may interact with people's motivations or instructions. For example, Martin et al. (1993) showed that positive moods predicted persistence when people were told to work until they felt like stopping, whereas negative moods predicted persistence when people were told to work until they could do no more. Even these interactive effects may further depend on the person's accountability (Sanna et al. 1996).

In sum, particular sets of emotions, motivations, personalities, tasks, etc. will combine in very complex ways to predict performance. However, across the various tasks typically required of employees, happiness will, on balance, likely benefit overall productivity. In this study we investigate whether the relationship depends on the particular happiness indicator or the timeframe (state vs. trait) in question.

1.2 Productivity and Job Satisfaction

Weiss and Cropanzano (1996) referred to the search for a relationship between job satisfaction and job performance as the 'Holy Grail' of organizational behavior research, and the happy-productive worker hypothesis has been extensively studied (e.g., Judge et al. 2001; Ledford 1999; Staw and Barsade 1993). The common theme running through these studies is the belief that employees who are happier or more satisfied with their job will also be better performers on those jobs. Despite the emotional flavor of lay conceptions of 'happiness,' job satisfaction scales do not typically focus on emotions, instead asking employees to rate their satisfaction with their pay, working conditions, job as a whole, etc. (e.g., Brayfield and Rothe 1951; Quinn 1979). Fisher (2000, 2003) suggests that this measurement decision contributes to weak or inconsistent findings. For example, even among meta-analyses, findings are somewhat inconsistent. In an early meta-analysis, Vroom (1964) reported a median correlation between job satisfaction and performance of 0.14. More recently Iaffaldano and Muchinsky (1985) reviewed 74 studies and reported a mean corrected correlation between the two variables of 0.17. In contrast, Petty et al. (1984) reported a mean correlation of 0.31 from their meta-analysis, only 1 year earlier. Judge et al. (2001) estimated an underlying correlation between the two variables of about 0.30. Although all these analyses suggest at least some positive relationship between job satisfaction and productivity, there remains disagreement on its magnitude.

Wright and Cropanzano (2004) argue that the relationship between happiness and productivity would be stronger if happiness were operationalized more broadly than job

satisfaction. They state, "recent research has consistently demonstrated that high levels of… well-being can boost performance on the job" (p. 341). In a review of research into the happy/productive worker thesis, Cropanzano and Wright (2001) argue that in such studies, happiness has been inconsistently operationalized as the presence of positive affect, the absence of negative affect, lack of emotional exhaustion, and as job satisfaction. They suggest that although some of these constructs are meaningfully associated with performance, others may not be as central.

1.3 Productivity and other Measures of Happiness

Recent reviews and theorizing have suggested that affect, especially positive affect, will be particularly important to productivity (Coté 1999; Lucas and Diener 2003; Lyubomirsky et al. 2005), but findings are nonetheless mixed. For example, Staw et al. (1994) offer compelling evidence for an association between affective experiences at work and productivity. The authors employed a longitudinal design and found that reports of affect and depression predicted both pay and performance evaluations some 18 months later. In addition, Fisher (2003) found that affect predicted job performance better than job satisfaction did. However, some studies have failed to find an association between affect and performance (e.g., Wright and Staw 1999) and others have disagreed over whether positive affect (e.g., Staw and Barsade 1993) or negative affect (e.g., Wright et al. 2004) is a stronger predictor of performance.

In addition, some studies suggest that state, rather than dispositional, measures of affect are more strongly related to performance. Wright and Cropanzano (1998) and Wright and Staw (1999), utilizing dispositional measures of affect, found no association between either positive or negative affect and performance. George (1991) reported that recent experience of positive affect at work (i.e., state affect) predicted supervisor ratings of customer service, whereas trait affect failed to predict customer service (a proxy measure of productivity). Similarly, Fisher (2003) found that productivity was more strongly related to some happiness indicators at the state, rather than trait, level of analysis, but that trait positive affect was still a good predictor.

Emotional exhaustion, the converse of vitality and a component of burnout, is another (un)happiness indicator one would expect to negatively relate to performance; however, even here findings are unclear. Both Wright and Cropanzano (1998) and Wright and Bonnet (1997a) did find that emotional exhaustion was negatively related to performance, but Wright and Bonnet (1997b) failed to find an association between the two.

1.4 The Present Study

Although the bulk of research suggests some association between happiness and productivity, the details of this relationship remain unclear. Central issues include the many ways happiness has been operationalized, and whether *state* and/or *trait* happiness predicts productivity. To address these questions we conducted a study utilizing multiple happiness indicators, assessed as both states and traits.

We selected happiness measures that would cover both cognitive and emotional approaches to assessment, with an eye towards measures commonly used in past research. Job satisfaction (Quinn 1979) was a clear choice as the majority of research on the happy-productive worker thesis has used it. Job satisfaction is a primarily cognitive approach (i.e., based on judgements of conditions) to domain specific items (i.e., satisfaction with pay,

support, opportunities, etc.). Our second measure, life satisfaction (Diener et al. 1985), is also a cognitive assessment, but much more general in that it encompasses all aspects of life, and does not assess specific domains. That is, it is assumed that respondents consider domains and weights idiosyncratically to make judgments about the conditions of their lives in general. Therefore, life satisfaction provides the broadest test of the happy-productive worker hypothesis as the happiness may be completely unrelated to work. Drawing on the logic behind the life satisfaction measure (i.e., asking generally to allow for individual variation in what comprises important aspects and relative weights), we also included our own single-item measure of work-life quality (i.e., "Overall how would you rate the quality of your work life?").

Although modestly correlated with cognitive assessments of happiness, measures of affect are conceptually and empirically distinct (Lucas et al. 1996). We assessed trait positive and negative affect in two similar ways. The commonly used PANAS questionnaire (Watson et al. 1988) includes two dimensions of *activated* (high arousal) pleasant and unpleasant emotions termed positive affect and negative affect, and was used to assess trait emotion. In the experience sampling portion of our study, we asked participants to rate a similar (though not identical) set of emotion adjectives. In sum, the present study examines which of these happiness components, if any, are associated with productivity. Additionally, if multiple happiness indicators predict productivity, do they do so independently, or because they share common features?

Most definitions of productivity draw on a manufacturing model of inputs and outputs (Cleveland 1999; Vora 1992), but inputs and outputs are extremely difficult to measure in organizational research on individuals, particularly when objective indicators (e.g., units produced) are not applicable or accrue only after long periods of time (e.g., publications). In the field of organizational behavior, work performance has been a variable of great interest as the goals and objectives of organizations are measured in terms of performance outputs. Performance includes all of the actions that are relevant to the achievement of organizational goals and can be measured in terms of each individual's productivity (Campbell et al. 1993). In other words, individual productivity is the degree to which an employee executes his or her role with reference to certain specified standards set by the organization.

Unsurprisingly, organization researchers have acknowledged some measurement difficulty with productivity (Dobni 2004; Hodgkinson 1999). Yet despite the dearth of clear, objective productivity indicators, individuals have a good sense of their own productivity, and may be in the best position to report on it. Self-report measures of productivity have been utilized in management research for decades (Landy and Farr 1983). Landy and Farr suggested that self-report measures can be an effective way of tapping into employee perceptions. Self-reported productivity can be in the form of a general question (as was the case in our study), or broken into various facets of the work environment. In order to effectively tap into the latter, researchers would require a fairly intimate understanding of the job-specific characteristics of respondents, along with a fairly homogenous group of respondents for that particular measure. Self-reported productivity raises questions about biased responding, but has provided results similar to other indicators (Butler et al. 2007). This generally suggests its validity, but self-reported productivity is most reliable when recall bias is minimized. For instance, Stewart et al. (2001) showed that a 4-week recall period was associated with significant recall bias compared with a 1-week period. (Our study uses a 3-day period.)

Still, some researchers have tried to examine more objective measures of productivity (e.g., Burton et al. 1999) that employ computer-based tracking systems to monitor and

measure employee productivity. These systems track productivity, typically independent of the subject, and thereby preventing a biased response. It should be noted that objective measures of productivity are not without their own inherent difficulties. Most modern, dynamic workplaces are not amenable to simplistic output measures of quantitative performance as the sole indicator of how well a person is performing their job (e.g., how does one objectively assess the performance of a manager that has to try to calm a volatile situation involving his/her direct reports?). Second, work productivity includes both quality and quantity and the quality aspect has proven difficult to quantify in many tasks. Third, there is the issue of whether the objectives measures should be absolute (e.g., calls taken at a call center) or comparative (calls taken relative to the shift average that day). In weighing the pro's and con's of subjective and objective measures, Prasad et al. (2004, p. 241) concluded that "There is no way of indicating *a-priori* which is a better index of productivity for a given job." We have followed other productivity researchers (e.g., Eaton 2003; Fisher 2003; Loeppke et al. 2003) in using the self-report method in this study.

To examine both state and trait happiness as predictors of productivity, we used an experience sampling method (ESM) combined with a prospective baseline assessment of dispositions. That is, happiness indicators were first assessed with standard trait instructions, providing a set of prospective trait indicators. Over the next 8 weeks, participants rated their happiness and productivity bi-weekly. This allows us to calculate both average levels (i.e., between-subjects or trait level of analysis) as well as individual variation over time (i.e., within-subject or state level of analysis). ESM makes it possible to examine both the question: "Do people who tend to be happier also tend to be more productive?" (between-subjects), as well as the question: "Are people more productive on days when they are happier?" (within-subject). Finally, combining the baseline measures of happiness with ESM data allow us to predict average productivity *prospectively* over 8 weeks.

The literature on the happy-productive worker thesis is rife with inconsistent findings, but overall, it suggests a general positive relationship between the two constructs. As a result, we predict that most happiness indicators will correlate with self-reports of productivity at all three levels of analysis (prospectively, between-subjects, and within-subject). However, recent findings and theorizing suggest a few more refined hypotheses:

1. Positive affect has the strongest theoretical links with performance (see Lyubomirsky et al. 2005), and captures the emotional flavor of happiness better than satisfaction measures (Fisher 2000). Therefore, we predict that positive affect will be the best predictor of productivity. Because positive affect can have both short-term and long-term benefits (Fredrickson 1998), we predict that it will be the best predictor at both the state and trait levels of analysis.
2. Because job satisfaction measures dictate aspects of work life that may or may not actually be important to individual employees, we predict that our single item QWL measure (i.e., that allows participants to consider work life quality as they wish) will predict productivity better than more standard measures of job satisfaction (at both state and trait levels).
3. Day-to-day variations in life satisfaction will encompass much more than changes in work life. As a result, we expect that life satisfaction will only predict productivity at the trait level (i.e., prospectively and between-subjects, not within-subject). In other words, we predict that generally happy people (assessed with SWLS) will be more productive, but global satisfaction will not covary with short-term productivity.

2 Method

2.1 Participants and Procedure

Participants were 75 Directors employed in the private sector and the Canadian federal government drawn from data involving a larger study of 143 (response rate of 57% from the larger study). Given that the sample consisted exclusively of Directors, participants had similar levels of authority and numbers of subordinates. That is, participants typically reported to a junior VP (or public sector equivalent), and had both budgetary and human resources management responsibilities with an average of nine direct subordinates. Participants had a mean age of 43.51 (SD = 8.07) and 48 (64%) were male. Fifty-five (73%) were married or in common law relationships and 38 (49%) had children. Participants who completed this study ($n = 75$) were compared to non-completers in the full sample ($n = 68$) on baseline measures (trait happiness indicators) and demographic variables, and only one difference approached statistical significance; completers were marginally significantly older ($p = .09$; all other p's $> .3$).

In order to evaluate the relationship between various facets of happiness and productivity, an experience-sampling methodology (ESM) was employed. Participants were instructed to complete a short self-report questionnaire online every Monday and Thursday for 8 weeks and to consider only the three previous days in formulating their responses. Each questionnaire assessed emotional experience at work, QWL, job satisfaction, life satisfaction, and productivity. Prior to the experience sampling phase of the study, all participants completed a battery of baseline measures online, including dispositional measures of emotional experience, job satisfaction, and life satisfaction.

Analyses involved only participants who completed the ESM questionnaire at least five times ($n = 75$) in order to preserve the integrity of the experience-sampling method. These participants provided an average of 10.19 (SD = 3.63), and a total of 715 reports. Scores for missing reports were not imputed. Between-subjects analyses were performed on data after calculating a mean score per variable, per participant from the reports provided over the 8 weeks. Aggregating over 2 months provides scores akin to a dispositional assessment (Epstein 1983). Within-subject analyses were conducted by examining relationships between day-to-day reports of happiness and productivity. More specifically, each rating was converted to a z-score where the 'population' of scores includes only other occasions where the same participant made the same rating. As a result, these z-scores control for mean-level individual differences, and reflect variation due to differences in time/situations (Scollon et al. 2003; Zelenski and Larsen 2000). In other words, within-subject correlations reflect covariation in 3-day timeframes independent of dispositional contributions.

2.2 Measures

In the ESM phase, emotional experience at work was assessed by asking participants to indicate the extent to which they experienced six positive emotions (elated, enthusiastic, excited, happy, joyous, and lively) and nine negative emotions (angry, annoyed, anxious, disgusted, distressed, embarrassed, jittery, nervous, and sad). A six-point scale ranging from *none* to *extremely* was provided. Scores for the positive and negative

Table 1 Means, variance and internal consistency

Construct	Mean	Standard deviation	Internal consistency
Positive affect	2.03	0.88	0.95
Negative affect	0.76	0.49	0.90
Job satisfaction	3.39	0.63	0.88
Quality of work-life	3.63	0.62	N/A
Life satisfaction	3.46	0.77	0.94
Productivity	3.32	0.45	N/A

Note: Descriptive statistics have been adjusted to a five-point scale

emotions were averaged to obtain a single figure for positive affect and one for negative affect.[1]

The baseline survey assessed average (dispositional) emotional experience with the PANAS (Watson et al. 1988). The PANAS measures the two dimensions of positive affect and negative affect by asking participants to rate the extent to which they experience 20 emotions *on average* using a five-point scale ranging from *not at all* to *extremely*.

Quality of Work Life (QWL) was assessed by a single item that read: "Overall how would you rate the quality of your work life?" accompanied by a five-point scale ranging from *poor* to *excellent* (ESM phase only).

Job satisfaction was assessed by the Job Satisfaction Scale (Quinn 1979). Using a five-point scale ranging from *very dissatisfied* to *very satisfied*, participants were asked to indicate their satisfaction with nine items including "Your job in general" and "The tasks you perform on the job". Job satisfaction was assessed in both the baseline and ESM phases (with instructions altered to include only a 3-day time frame in the ESM phase).

Life satisfaction was assessed via the Satisfaction With Life Scale (SWLS, Diener et al. 1985) that presents participants with five statements including "The conditions of my life are excellent" asking them to indicate, using a six-point scale, their agreement with each item. Life satisfaction was assessed in both the baseline and ESM phases (with instructions altered to include only a 3-day time frame in the ESM phase).

Productivity at work was assessed by asking "How productive were you in your work role?" A five-point scale ranging from *not very productive* to *exceptionally productive*, with a mid-point of *average productivity*, was provided (ESM phase only).

3 Results

In the ESM phase, participants reported being somewhat satisfied with their jobs and their lives as a whole. Typically participants rated their quality of work-life as 'good'. Participants reported experiencing, on average, a very low level of negative affect at work and a somewhat low level of positive emotion, although the variance was considerable (see Table 1). As one might expect, participants reported average levels of productivity.

[1] We included the terms 'happy' and 'sad' in these scales because they increase the face validity of assessing the *happy*-productive worker thesis. This choice is not entirely consistent with strict definitions of positive affect and negative affect, e.g., as operationalized in the PANAS. Because of this discrepancy, we also calculated emotion scales that omitted 'happy' and 'sad'. These scales correlate .99 to .97 (across PA and NA, between- and within-subject) with their equivalents reported here, and the variation in scoring has virtually no impact on further analyses (correlations or regressions).

Table 2 Correlation matrix of happiness and productivity (between-subjects)

Variables	1	2	3	4	5	6
1 Positive affect	1					
2 Negative affect	−.04	1				
3 Job satisfaction	.27*	−.13	1			
4 Quality of work-life	.38**	−.18	.78**	1		
5 Life satisfaction	.42**	−.19	.51**	.51**	1	
6 Productivity	.36**	−.05	.22*	.32**	.25*	1

* Significant at $p < .05$

** Significant at $p < .01$

Table 3 Correlation matrix of happiness and productivity (within-subject)

Variables	1	2	3	4	5	6
1 Positive affect	1					
2 Negative affect	.07	1				
3 Job satisfaction	.25*	−.16*	1			
4 Quality of work-life	.25*	−.30*	.38*	1		
5 Life satisfaction	.18*	−.20*	.34*	.23*	1	
6 Productivity	.36*	−.04	.19*	.35*	.07	1

* Significant at $p < .01$

Between-subjects correlations among the various constructs appear in Table 2, within-subject correlations in Table 3. Not all correlations were statistically significant, but all were positive, except those involving negative affect, as expected. Finally, it is worth noting that although most of the happiness indicators were significantly intercorrelated, the relationships were not so strong so as to suggest complete redundancy (r's from −.05 to .78).

Roughly consistent with predictions, between-subjects positive affect and QWL demonstrated moderate correlations with productivity ($r = .35$, .32, respectively, $p < .01$), whereas job satisfaction and life satisfaction demonstrated slightly weaker but statistically significant correlations with productivity ($r = .22$, .24, respectively, $p < .05$). Contrary to expectations, negative affect was not significantly associated with productivity. In short, across most indicators, happy people tended to be more productive than unhappy people.

Within-subject positive affect and QWL demonstrated moderate correlations with productivity ($r = .36$, .35, respectively, $p < .01$), whereas job satisfaction demonstrated a weaker but statistically significant correlation with productivity ($r = .19$, $p < .01$). Daily variations in life satisfaction and negative affect were not significantly associated with productivity (Table 3). Therefore, productivity covaried with happiness on a day-to-day basis across many of the happiness indicators. That is, people were more productive on days when they were happier compared to days when they were less happy.

Although the various happiness indicators are conceptually distinct, they were also intercorrelated with one another. To determine whether or not different components of happiness independently predict productivity, we conducted two linear regression analyses where happiness indicators (i.e., 2-month average scores for between-subjects and z-scores for within-subject equations) were entered simultaneously to predict productivity

Table 4 Regression equation predicting productivity (between-subjects)

Predictor	Beta	*T*	*p*	*R*	R^2
Positive affect	.27	2.16	.03		
Negative affect	.00	.01	.99		
Job satisfaction	−.05	−.30	.77		
QWL	.24	1.27	.21		
Life satisfaction	.04	.26	.79		
				.41	.17

(between-subjects or within-subject scores as above). Table 4 reports the results of the between-subjects regression. Together, the happiness indicators explained 17% of the variance in productivity, but positive affect was the only significant predictor in this equation ($\beta = .27$). Although not statistically significant, QWL's predictive power was of similar magnitude ($\beta = .24$). Nonetheless, although most bivariate correlations were significant, happiness indicators were largely redundant at the between-subjects level, with positive affect capturing the majority of the variance.

Table 5 reports the results of the within-subject regression. Together, the happiness indicators explained 23% of the variance in productivity. Both positive affect and QWL independently predicted productivity ($\beta = .32, .29$ respectively), but other indicators were not statistically significant. Although the bivariate correlation between job satisfaction and productivity was significant, job satisfaction did not account for any significant increase in the variance explained by positive affect and QWL at the within-subject level. Similar to the between-subjects regression, positive affect was the best predictor of productivity.

The between-subjects and within-subject analyses focus on different time frames (trait vs. state), but both sets of analyses are based on measures of happiness and productivity collected concurrently. To see if happiness could predict productivity prospectively, we correlated baseline assessments of happiness with average productivity assessed during the following 2 months (i.e., during the ESM phase). These correlations are reported in Table 6. Positive affect and life satisfaction were both significant predictors of productivity (r's = .33 and .27, respectively). Although job satisfaction and negative affect were not significantly related to productivity, the correlations were in the predicted directions.

Finally, to examine the relative predictive power of baseline measures, we ran a linear regression where all happiness indicators were entered simultaneously and used to predict average productivity (i.e., the same productivity score as the between-subjects analyses, see Table 7). Together, the happiness indicators explained 15% of the variance in

Table 5 Regression equation predicting productivity (within-subject)

Predictor	Beta	*T*	*p*	*R*	R^2
Positive affect	.32	7.59	.01		
Negative affect	.04	.85	.40		
Job satisfaction	.02	.32	.75		
QWL	.29	6.67	.01		
Life satisfaction	−.02	−.53	.59		
				.48	.23

Table 6 Correlation matrix of productivity and happiness (baseline)

Variables	1	2	3	4	5
1 Positive affect	1				
2 Negative affect	−.35**	1			
3 Job satisfaction	−.09	.10**	1		
4 Life satisfaction	.52**	−.38**	.06	1	
5 Productivity	.33**	−.19	.14	.27*	1

* $p < .05$

** $p < .01$

Table 7 Regression equation predicting productivity (baseline)

Predictor	Beta	*T*	*p*	*R*	R^2
Positive affect	.28	2.08	.04		
Negative affect	−.07	−.58	.56		
Job satisfaction	.17	1.51	.14		
Life satisfaction	.09	.65	.52		
				.39	.15

productivity. Similar to the between-subjects and within-subject analyses, positive affect again emerged as the best (and only significant) predictor of productivity.

In sum, happier people were indeed more productive, and this was especially true when happiness was conceptualized as the frequent experience of positive emotions.

4 Discussion

This investigation revisited the happy-productive worker thesis with special attention to three factors. The state-trait distinction, alternative conceptualizations of happiness, and causal direction were explored using an experience sampling method, multiple happiness indicators, and a prospective design. In its general form, the happy-productive thesis received support. However, the extent of that support depended on what is meant by 'happiness'. For example, positive affect showed a robust relationship with productivity, but negative affect showed no significant relationship. In addition, productivity was related to happiness across methodological contexts. That is, happiness (especially positive affect) was associated with productivity at both the state and trait levels of analysis. Moreover, trait measures of happiness collected *before* the experience sampling phase predicted average productivity, suggesting that happiness may cause higher productivity (though our results do not rule out a reciprocal relationship or a third variable explanation).

Based on recent speculation and research, we hypothesized that positive affect would be an especially important contributor to productivity (Lucas and Diener 2003; Lyubomirsky et al. 2005). Our findings clearly support this idea, as have those of Staw and Barsade (1993), Harter et al. (2003), and Fisher (2003). Notably, the relationship between positive affect and productivity was consistent across three methodological contexts (prospective, between-subjects, and within-subject) suggesting that people who typically experience more positive affect are more productive, and that people have their greatest productivity

while experiencing positive moods. Our multi-method approach allows us to argue against some alternative explanations. For example, it would be possible for positive affect to facilitate later productivity even if it hindered current output. That is, when in positive moods, people may socialize more or take more creative or risky approaches to tasks diminishing immediate payoff, but facilitating long-term performance. Although a reasonable hypothesis, our data suggest that the payoff of positive affect comes quickly as productivity covaried with positive affect at the within-subject level. In other words, positive affect seemed to facilitate fairly immediate productivity.

Because we used a 3-day window for ESM reports, it is possible that productivity and positive affect were not experienced simultaneously, but instead, at different times during the 3-day periods. Although possible, an alternative hypothesis would have to account for the reliable within-subject covariation. Therefore, the most reasonable alternative is the reverse causal hypothesis. That is, rather than positive affect causing productivity, high productivity may cause positive affect. It is difficult for our data to rule out this explanation at the state level of analysis, but future research could help resolve the issue with experimental mood manipulations (at the risk of low generalizabiltiy) or with more frequent experience sampling (e.g., hourly) and lagged correlations to investigate whether positive affect precedes productivity or vice versa. Even without this data, a reciprocal relationship seems most plausible (c.f., Coté 1999). Unless the work holds no value for a person, productivity will likely elevate mood. In addition, the experimentally demonstrated effects of positive mood states, such as creativity, sociability, and coping resources (Fredrickson 1998), are very plausibly linked with increased productivity. However, this may depend on the particular demands of the job (Lucas and Diener 2003).

Although the causal direction remains uncertain at the state level of analysis, our data suggest that trait happiness may indeed cause increased productivity when considering the baseline measures. That is, the causal claim is strengthened by the fact that happiness indicators (positive affect and life satisfaction) predicted workers' productivity over the following 2 months. It is possible that a third variable (e.g., past productivity) caused trait happiness to increase to high levels and also facilitated future productivity, but this seems unlikely without better evidence for productivity (or another plausible third variable) having long-term influences on trait happiness. Given the relative stability of trait happiness indicators, it is unsurprising that other research has shown happiness predicting productivity further into the future (Staw et al. 1994), and had we measured productivity longer, we may have observed a continued relationship.

Positive affect consistently predicted productivity, but this was not true of all happiness indicators. For example, contrary to the findings of Wright et al. (2004) and Coté (1999), negative affect was unrelated to productivity across all three methodological approaches (i.e., between-subjects, within-subject, and prospectively). Our results are more consistent with the findings of Wright and Cropanzano (1998), Wright and Staw (1999), and Fisher (2003). When interpreting this null result, it is important to keep in mind that our participants reported experiencing very low levels of negative affect, which precludes the conclusion that high levels of negative affect do not interfere with productivity. Presumably, some employees can experience low levels of anxiety, nervousness, etc. without it impacting their ability to perform. However, strong negative emotions, particularly when manifest as stress-related disorders such as depression, may be more likely to cause low productivity.

We observed bivariate correlations between job-satisfaction and productivity roughly equivalent to meta-analytic estimates drawn from a large literature, that is, in range of 0.14–0.30 (Vroom 1964; Judge et al. 2001). Although job satisfaction was a significant

predictor at both between-subjects and within-subject levels of analysis, it was not among the strongest predictors, and job satisfaction did not predict productivity significantly when other happiness indicators were taken into account.

It is interesting to contrast the job-satisfaction results with those of our other cognitive judgment of work-related happiness, the single-item QWL assessment. We hypothesized that the QWL measure would predict productivity better than job satisfaction, and results supported this prediction. That is, the QWL bivariate correlations with productivity were stronger than those of job-satisfaction, and QWL was a better predictor than job-satisfaction when considered simultaneously in regression analyses at both between-subjects and within-subject levels. (Unfortunately, we did not include a prospective measure of QWL.) Although the job-satisfaction measure was longer (and thus presumably more reliable), the QWL measure may do a better job of capturing the aspects of work-life that are most important to people. That is, the QWL measure allows individuals to consider anything they like in arriving at their estimates of quality. In contrast, the job satisfaction measure prescribed the domains under consideration (e.g., pay and opportunities for advancement). It is possible that individuals' QWL judgments included evaluations of their emotional experience (c.f., positive affect was the best predictor of happiness). However, this cannot fully account for QWL's better prediction because QWL remained a significant predictor even when controlling for affect. Therefore, it seems likely that the job satisfaction measure misses aspects of work life potentially important to productivity.

We expected that happiness indicators specific to work-life would be related to changes in productivity, but a variable as broad as life satisfaction, encompassing so many other areas of life, might not be significantly associated with short-term variations in productivity. Results were consistent with this hypothesis. Life satisfaction did predict average levels of productivity between-subjects and prospectively, consistent with the idea that happy people are more productive people. At the same time, day-to-day variation in life satisfaction was not related to changes in productivity as evidenced by a lack of correlation within-subject. Instead more proximal changes in work-related happiness indicators (emotions, job satisfaction, QWL) predicted productivity, indicating some degree of domain specificity when considering state variations. Finally, life satisfaction was not an independent predictor of productivity in regression analyses, suggesting that the positive affect that contributes to life satisfaction judgments explains the higher productivity they predict.

Taken together, our results suggest that happiness, particularly positive affect, may contribute to high productivity. Such a conclusion begs the question, should organizations invest in increasing the happiness of their employees? The trait-level findings suggest that happy people are more productive people. To the extent that (un)happiness is a disposition that resists change, organizational efforts to increase happiness may be unlikely to payoff in productivity gains. However, we also found that short-term variations in happiness predicted short-term variations in productivity. That is, even after statistically removing stable individual differences in happiness, people were more productive when they were in good moods. Therefore, organizations do stand to benefit by creating work environments that promote better moods, even for dispositionally unhappy members. (It may also be possible to increase happiness long-term with fairly minimal interventions, see Seligman et al. 2005). Our results also suggest that such efforts be directed at increasing the experience of positive emotions, as they were consistently the strongest predictors of productivity. For example, a pay increase could increase job satisfaction (pay is typically an item on job satisfaction assessments), but if this pay increase does not also lead to positive affect, the impact on productivity may be minimal.

A limitation of the present study is that productivity was self-rated with a single item. Others have discussed the advantages of single item measures in organizational research, particularly when constructs are difficult to define objectively but are well understood by informants (e.g., Eaton 2003; Nagy 2002; Rossiter and Bergkvist 2007). For example, adding near synonyms may increase reliability from a classic psychometric perspective, but additional items may actually dilute content validity. Indeed, the presence of statistically significant predicted relationships lends some support to the measure's reliability and validity.

The self-report format raises the possibility that happiness and self-reported productivity co-varied because of a social desireablity effect with some participants rating all aspects of their lives favorably regardless of actual experience. However, this seems unlikely for two reasons. First, it would be difficult for such an effect to explain the within-subject (day-to-day) covariation between positive affect and productivity. In addition, we found that the associations between happiness and productivity depended on the particular happiness indicator. That is, social desireablity would have created significant correlations between productivity and *all* measures of happiness, but we did not observe this. Although a 360-degree assessment would have been ideal, we believe that self-rated productivity is among the best single indicators for our sample. Because our participants were all Directors, it would be difficult to obtain a purely objective measure (e.g., number of widgets produced). Supervisor or peer ratings of productivity could provide useful information, but such ratings are susceptible to halo effects where likeable people are rated as more productive. Moreover, individuals are likely in the best position to report on their own short-term variations in productivity, as assessed by our experience sampling method (see Fisher 2003). Mastering an important skill or developing a powerful strategy might indicate exceptional productivity, but be completely unobservable on the day it occurs. Finally, we assessed productivity in 3-day windows and created actual averages for trait level analyses (i.e., rather than mental averages typical of non-ESM questionnaires). Robinson and Clore (2002) have demonstrated that short-term reporting windows solicit episodic knowledge (i.e., actual occurrences) rather than general beliefs (semantic knowledge) less tied to recent objective (or even 'subjective') reality. As a result, the ESM method may further contribute to the validity of our productivity measure because participants are able to accurately assess their productivity over short periods of time.

In sum, there are good reasons to think that a single item self-report measure of productivity is valid. Nonetheless, our results and conclusions must be interpreted with the caveat that this particular measure has not been validated against other indicators of productivity, and future studies would benefit from using additional productivity indicators.

Although our findings were quite clear and consistent across methodological contexts, this stands in contrast to a literature full of mixed findings. Cropanzano and Wright (2001) have highlighted the fact that some of this inconsistency could be due to differences in the happiness indicators employed by different researchers, and Fisher (2003) suggests that within-subject variation may be stronger than the more typically studied between-subjects variation. We addressed these issues by including five indicators that assessed multiple conceptualizations of happiness at both state and trait levels of analysis. Most of these indicators were associated with happiness at both levels, but the strength of the relationships did differ by indicator. Therefore, it is possible that some inconsistency in the literature is due to different assessment tools (combined with low power in the case of null results). However, this explanation is also clearly limited. As one of many possible examples of direct contradiction, we found that positive affect consistently predicted

productivity, but that negative affect was consistently unrelated to productivity. This pattern is at odds with a recent study showing the exact opposite pattern, (i.e., negative affect, but not positive affect, predicting productivity, Wright et al. 2004). Moreover, where Fisher (2003) found stronger within-subject relationships with most happiness indicators, we did not see much difference across levels of analysis. Therefore, future research will need to examine additional potential moderators of the happiness-productivity link (e.g., type of work, see Lucas and Diener 2003 for informed speculation on job characteristics as moderators). It follows that our findings must be taken with a strong caveat; we assessed Canadian Directors, and caution must be exercised before applying these results to other populations and occupations.

5 Summary and Conclusion

This investigation included a number of unique strengths, specifically multiple measures of happiness, repeated measures (experience sampling), and prospective happiness measures allowing for analyses at both state and trait levels of analysis. These strengths allowed us to address a number of important distinctions emerging in work on the happy-productive worker thesis. Our results suggest that happiness may indeed foster productivity. Findings were consistent at both the trait level of analysis (happy people are productive people) and at the state level of analysis (people are more productive when in happy moods). However, the extent of support for the happy-productive worker thesis may depend on what is meant by 'happiness'. Of the many ways to conceptualize happiness, positive affect was consistently most strongly linked with productivity. Although there are strong theoretical reasons and an emerging literature suggesting positive affectivity's importance in productivity (Lyubomirsky et al. 2005), the relationship is unlikely to be ubiquitous across occupations and tasks.

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