The effect of occupational self-efficacy on work performance through intrinsic work motivation

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Abstract

Purpose – Today, organizations work hard to improve the motivation of their employees and related knowledge, skills and abilities to enhance work performance. Among many other variables, self-efficacy proved to have an influential role in work performance. The main purpose of the current study is to investigate the role of occupational self-efficacy on work performance through intrinsic motivation by using a longitudinal analysis.

Design/methodology/approach – Participants were 76 employees from diverse organizations operating in an organized industrial region in Turkey. Participants filled in a weekly questionnaire during ten consecutive weeks.

Findings – Results of multilevel analyses confirmed our hypotheses by showing that occupational self-efficacy and intrinsic motivation have a significant influential role over work performance, and intrinsic motivation serve as a partial mediator in this relationship.

Originality/value – The study findings also reveal important information for organizational and managerial practices to improve employee motivation and performance.

Keywords Turkey, Work performance, Intrinsic work motivation, Longitudinal design, Occupational self-efficacy, Mediation analysis, Organizational theory and behavior

Paper type Research paper

In today's work environment, increasing the motivation of employees has become almost like a human resources (HR) norm. Many organizations are trying to develop, maintain and improve their HR strategies so that their employees become more motivated, therefore high performing and successful in both the short and the long run. In terms of research, many predictor variables, including organizations themselves and related support systems were in focus. As obvious examples, we can list increasing the quality of feedback systems (Fleming and Sulzer-Azaroff, 1989; Whitaker and Levy, 2012) improving the performance management process (Lakshman, 2014), enabling autonomous work environments (Hackman and Oldham, 1980), applying job enrichment methods (Pan and Werblow, 2012; Parker, 1998), introducing job rotation programs and many others.

In terms of research, recent years have shown an increasing interest in the role of personal variables on human motivation, performance and related outcomes. As an example, Barrick and Mount (2005) suggested that personality as an individual factor has gained popularity as a predictor of work outcomes such as performance. Here, they have strongly argued that motivation has a major mediating role between personality (as a distal

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motivational actor) and performance meaning that personality influences behavior through performance motivation (proximal) agents such as goals, self-efficacy and expectancies.

By definition, occupational self-efficacy represents judgments made regarding individual capabilities necessary to perform in their jobs (Jungert *et al.*, 2013). In their analysis, that explored the roles of self-efficacy and intrinsic interest through proximal self-motivation over competence, Bandura and Schunk (1981) put forward that personal efficacy is possibly able to generate greater interest in the activity itself, compared to when the person feels the opposite, meaning perceived inefficacy. Gist (1987), in her analysis of the role of self-efficacy considering organizational behavior research and HR management, also stated that short-term goals might have a role in interest development. In the current study, we are approaching self-efficacy as a critical resource for individuals in workplaces that might provide a possible internal environment for intrinsic motivation to take place.

We have designed the current study based on the available research that includes self-efficacy and motivation as processes, which result in related performance outcomes. Operationally, we have picked occupational self-efficacy, intrinsic motivation and perceived organizational performance as variables for our research model while using a longitudinal design composed of ten consecutive weekly measures. In addition to conducting our study with the strength of a longitudinal design, we are aiming to demonstrate the importance of occupational self-efficacy for job performance through increase in intrinsic motivation. Our sample is composed of Turkish blue-collar employees. As majority of research around self-efficacy and motivation concentrate on the Western populations, we are hoping we can prove suggested model relationship in a non-Western population. In addition, as the maintenance and the motivation of high-performing employees are very crucial in today's business environment, we are thinking that with the help of our findings we would bring the importance of our study constructs to the attention of organizational managers and leaders.

Theoretical framework and findings from the literature

Deci and Ryan (1985) introduced the self-determination theory (SDT) that represented more of a personality and human needs approach to motivation. For basic human needs, they have listed the basic needs of competence, autonomy and relatedness. As part of this theory, they have introduced intrinsic and extrinsic motivation terms. They have described intrinsic motivation as an innate inclination to expand one's capacity, to seek the new and the challenging, and to explore and to learn. This type of motivation derives from carrying out the activity for the sake of itself, meaning that the individual feels satisfaction from just by doing the activity itself. In contrast, extrinsic motivation leads the individual to perform to achieve an external result. In other words, the activity itself does not produce any satisfaction, but the result of it does. Therefore, the individual carries it out to reach that desirable outcome (Ryan and Deci, 2000).

Introduction of a cognitive capacity variable: Self-efficacy on motivation and performance

According to Bandura and Schunk (1981), self-evaluative reactions to one's own behavior can be important determinants for self-motivation. Relatedly, self-efficacy represents judgments of how well the person can perform actions, which in turn might affect individual's choices of action, how much effort he or she will spend, and how long he or she will persist in difficult situations (Bandura, 1977a, 1977b; as cited in Bandura and Schunk, 1981). In a similar vein, as part of the SDT, Deci and Ryan (1985) introduced the cognitive evaluation theory (as cited in Deci and Ryan, 1985) which mainly posited that the social and the environmental factors were critical in terms of their facilitating or undermining roles for intrinsic motivation. In organizational terms, they have listed rewards, feedback and other

external agents that increased especially the competence component of intrinsic motivation. Given the importance of these social-environmental factors, Deci and Ryan (1985) mentioned research evidence that demonstrated also the importance of the sense of autonomy and internal perceived *locus* of causality (Fisher, 1978; Ryan, 1982; deCharms, 1968) which are all strongly related constructs with self-efficacy (Den Hartog and Belschak, 2012; Judge and Bono, 2001; Nauta *et al.*, 2010; Pettijohn *et al.*, 2014; Phillips and Gully, 1997; Sousa *et al.*, 2012).

Research concerning motivational outcomes

In his earlier article, Schunk (1981) had addressed the necessity of future research that would tap the influence of self-efficacy on motivational outcomes. In the following years, self-efficacy and related constructs have been studied either as independent or mediator variables in research models that located motivation as an outcome variable. As an example, Burr and Cordery (2001), in their study carried out with employees working in a wastewater treatment plant, have come up with the finding that task-related efficacy beliefs completely mediated the relation between work method control and task motivation. Here they have approached their findings from a job design perspective where the increase in work motivation would be depending on the development of job designs.

In their study, looking at the possible relations between the regulation of self-efficacy and attributional feedback on motivation, Zhang and Lu (2002) found that self-efficacy and attributional feedback had both main and interaction effects of motivation. Similarly, locating self-efficacy as a key variable in a model of motivation hub (Locke, 1991; as cited in Fu *et al.*, 2009), Fu *et al.* (2009), while studying the antecedents to selling effort and new product sales, found that self-efficacy increased new product sales indirectly through effort and self-set goals. However, the researchers were unable to find a significant relationship between self-efficacy and performance.

In a Malaysian retail industry study carried out with full-time employees working in supermarkets and department stores, Ayupp and Kong (2010) found a direct influence of self-efficacy on employees' cooperation and effort behaviors which led them to conclude that self-efficacy involves a motivational potential toward work behaviors which were mainly contributive to their organizations.

For maximizing training motivation among a participant group of health-care workers in the UK, Carter (2008), using a survey data, has come up with the conclusion that positive self-efficacy beliefs were strongly associated along with high levels of support from a supervisor, low task constraints, influence over decisions or an understanding of role expectations.

With the theoretical support from Bandura's social cognitive theory on human motivation and SDT by Deci and Ryan we can confidently suggest that self-efficacy can have a predictive relationship with intrinsic motivation. In addition, the available research evidence demonstrates that relationship by studies carried out in different professional, cultural and relational contexts.

Therefore, we have developed our first hypothesis as follows:

H1. Occupational self-efficacy leads to an increase in intrinsic motivation.

Theory and research concerning performance outcomes

Perhaps one of the most succinct theoretical attempts for explaining this type of relationship is core self-evaluations theory by Judge *et al.* (1997; as cited in Joo *et al.*, 2010). This theory posits that core self-evaluations represent an individual's evaluation of his or her own

personal characteristics that involve four traits (self-esteem, generalized self-efficacy, *locus* of control and emotional stability) that result in various work outcomes including performance and motivation (Bono and Judge, 2003; as cited in Joo *et al.*, 2010). Regarding empirical research carried out concerning core self-evaluations, there are important findings. For example, in their analysis of the relationship between core self-evaluations to goal setting, motivation and performance, Erez and Judge (2001), in three studies carried out in university student populations, first found that motivation mediated the relationship between performance and core self-evaluations partially. Overall, compared to the individual traits in question, core self-evaluations as a construct itself had more predictive power of job behaviors that included rated and task performance.

In general, studies report that self-efficacy and performance are strongly associated. As an example, Stajkovic and Luthans (1998) conducted a thorough meta-analysis that included 114 studies that examined the relationship between self-efficacy and work-related performance. Overall, the meta-analyses results have demonstrated that self-efficacy was strongly and positively related to work-related performance. For the moderators, the studies located task complexity and *locus* of performance and the authors deemed these variables to be part of situational factors in work environments.

Some very recent studies also reported positive predictive relationships between self-efficacy and performance. As a first example, Alessandri *et al.* (2015), in their study with a sample of male security agents, found that self-efficacy beliefs in addition to work engagement served as a key mechanism that moderated the relationship between positive orientation and job performance relationship. As a second example, Bastos Monteiro and Afonso Vieira (2016), in their study with sales teams as a sample, and using multilevel analyses, found that self-efficacy along with adaptability explained subjective performance. Self-efficacy also served a mediator role in the relationship between team potency and individual performance. Finally, in their meta-analysis study concerning over 5,000 businesses and their entrepreneurs, Miao *et al.* (2017) came up with the conclusion that there was a considerably significant positive relationship between entrepreneurial self-efficacy and firm performance.

Given the positive implications derived from core-self evaluations theory and supporting research evidence about the self-efficacy and work performance relationship, we have formed our second hypothesis:

H2. Occupational self-efficacy leads to an increase in work performance.

Mediating role of intrinsic motivation

Previously, job characteristics model by Hackman and Oldham (1980) mainly contributed to improving the "task at hand" for the individual employee. They stressed the importance of skill variety and task identity including task significance, autonomy and feedback coupled with certain psychological states such as meaningfulness of work, experienced responsibility for the outcomes and knowledge of work results. In this model, increasing the motivation regarding the task itself required many interventions especially at the managerial and organizational levels, while increasing psychological states also depended on the individual employee albeit partially as experienced responsibility for the outcomes and knowledge of work results also depended on task structure, design and managerial behaviors. Here the role of personal variables reminded us of the possible influence of self-efficacy that might demonstrate itself as heightened responsibility for the outcomes and knowledge of results (Panatik *et al.*, 2011).

Separately, in their analysis of core self-evaluation relationship to goal setting, motivation and performance, Erez and Judge (2001) found that task motivation served as a

mediator in the relationship albeit partially. Similarly, study by Joo *et al.* (2010) had also demonstrated a partial mediating role of intrinsic motivation in the relationship between core self-evaluations and in-role job performance. Here, the authors also noted the importance of carrying out this type of study in a non-Western context as there is not much research carried out in this part of the world. Finally, Tims *et al.* (2014) found a mediator role for work enjoyment while trying to predict the effects of self-efficacy and daily job crafting on work performance. Here, it is important to mention that intrinsic motivation differs from work enjoyment in terms of being the outcome vs the process of an activity carried out. Intrinsic motivation happens because of the result of carrying out a specific activity (Tims *et al.*, 2014), whereas work enjoyment mostly represents flow experience (Bakker, 2008; as cited in Tims *et al.*, 2014).

As we proposed the positive relationships between self-efficacy and motivation, between self-efficacy and performance with important explanatory contributions from social cognitive theory, SDT and core self-evaluations theory, in a similar vein, with the support from job characteristics model and the available research, we felt confident in also proposing that intrinsic motivation might serve as a mediator between self-efficacy and performance as an important workplace outcome. Therefore, our third and the last hypothesis is:

H3. Intrinsic motivation serves as a mediator in the self-efficacy-performance relationship.

In terms of the relationship between self-efficacy and performance, we are approaching two variables in line with the previous studies; however, we have decided to measure intrinsic motivation and work performance weekly rather than measuring them at one single time. Because the cross-sectional designs put the theory's variables and their relations in static form, and make it difficult to understand the existing casual explanations about variables and associations between them, it is much more informative to use dynamic procedures such as longitudinal research designs (Ployhart and Vandenberg, 2010). The main advantages of the longitudinal designs are proposed as:

- The multiple measurements from a single subject provide more objective results than a single measurement from a single subject.
- Determining the between-subject variability decreases the measurement error, which results in more efficient effects by comparison with cross-sectional designs.
- They allow to separate aging effects (changes over time within individuals), from cohort effects (differences between subjects at baseline).
- The longitudinal data provide information about individual change to better understand the determinants of individual development or heterogeneity in the population (Hedeker and Gibbons, 2006).

Method

Data and sample

Study participants were employees from diverse organizations operating in an organized industrial region in Turkey. The inclusion criteria were performing typically a blue-collar job in manufacturing industry while volunteering for this research. We informed participants that their responses would remain anonymous and confidential. We emphasized that data collection would include responding to a questionnaire at the beginning of the study, and ten weekly questionnaires to be responded to on Friday afternoons during ten consecutive weeks. We distributed the questionnaires to 100 blue-

collar employees who agreed to participate in the study. At the beginning of the study, participants provided demographic information and completed occupational self-efficacy scale. Questionnaires during subsequent weeks included intrinsic motivation and perceived work performance scales. After ten weeks, 24 participants failed to complete the necessary data or did not respond to the weekly questionnaire. As a result, 76 participants (79 per cent of them were male) filled out the questionnaires (response rate was 76 per cent). The average age of participants was 34.60 years (ranged 24-59 years, SD = 6.68).

Measures

Occupational self-efficacy. Participants' self-efficacy was measured by Rigotti *et al.* (2008)'s short version of the occupational self-efficacy scale. The scale consists of six items (e.g. "When I am confronted with a problem in my job, I can usually find several solutions"). Authors translated the scale into Turkish based on cross-cultural translation method (Brislin *et al.*, 1973) by using a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). High values reflected increased occupational self-efficacy. The internal consistency was 0.78.

Intrinsic motivation. Participants completed a part of the extrinsic and intrinsic work motivation scale (Tremblay *et al.*, 2009). This scale consists of 18 items with six subscales (i.e. intrinsic motivation, integrated, identified, introjected and external regulations and amotivation) based on the SDT (Deci and Ryan, 1985). Authors translated the scale into Turkish based on cross-cultural translation method (Brislin *et al.*, 1973) by using a five-point Likert-type scale ranging from 1 (does not correspond at all) to 5 (corresponds exactly). We asked participants to give a self-evaluation of their motivation by using the three-item intrinsic motivation subscale (e.g. "Why do you do your work? Because I derive much pleasure from learning new things") thinking about their last work week. The items represent the reasons participants are presently involved in their work. High scores reflected high intrinsic motivation. The internal consistency was 0.83.

Work performance. Participants' work performance was measured with four-item Perceived Job Performance Scale (Carmeli *et al.*, 2007). The regulated four items were; "I am fulfilling the organizational rules and procedures", "Reports submitted by me are reliable and trustworthy", "I produce a high quality of work outcomes", and "I am strict about doing the job right the first time." Tüzün *et al.* (2014) translated and adapted the items into Turkish by using a five-point Likert style ranging from 1 (much worse than the competitors) to 5 (much better than the competitors). We asked participants to give a self-evaluation of work performance by thinking about the last work week. The Cronbach's alpha for this study was 0.86.

Analytic procedure

For each participant, hierarchical structure of data was available at the first level (intrinsic motivation and work performance variables, $N = 690$) and at the second level (occupational self-efficacy variable, $N = 76$) with the within-subject data being nested within the between-subject data. Data were analyzed with hierarchical linear modeling (HLM) by using computer program HLM (Raudenbush *et al.*, 2010) for dealing with structured data sets. In the analysis, occupational self-efficacy and intrinsic motivation were grand-mean centered and we used random intercept and random slope modeling (Hox, 2002). The mediation procedure suggested by Baron and Kenny (1986) for mediational analysis and multilevel equations (Zhang *et al.*, 2009) were used, which required three separate analyses.

Results

Table I presented the descriptive statistics and relations of variables at the individual level. An examination of correlations revealed significant associations among variables.

Before testing hypothesis, we performed a one-way analysis of variance for determining the differences at the group level on the work performance, and for confirming whether HLM is applicable. We situated work performance as a dependent variable and intrinsic motivation as an independent variable in Level-1 and occupational self-efficacy as independent variables in Level-2. The chi-square estimates for variation in the changes in work performance ($\chi^2 = 904.45$; $df = 75$; $p < 0.001$) between individuals were significant. The intra-class correlation was 0.53, suggesting that 53 per cent of the variance in work performance is at the between-subject level and 47 per cent of the variance in work performance is at the within-subject level. This suggested that over half of the overall variance was at the between-subject level, suggesting that individuals differed from each other somewhat more than they differed about their usual level. Thus, the amount of within person variability was appropriate to utilize HLM.

Following the recommendations of Baron and Kenny (1986), we constructed three different conditions for testing the research hypotheses. Baron and Kenny (1986) suggested that the mediating role of a variable can be understood from three conditions:

(1) First, the independent variable significantly has an effect on the dependent variable;

(2) Second, the independent variable significantly has an effect on the mediator variable; and

(3) Third, the mediator variable significantly has an effect on dependent variable with the effect of the independent variable on dependent variable.

After these conditions are met, then the effects of independent variable on dependent variable should be significant (*partial mediation*) or insignificant in the third condition (*full mediation*).

Following our research hypotheses and explanations below, we constructed three conditions. In Condition 1, occupational self-efficacy was entered as a predictor of weekly work performance. In Condition 2, occupational self-efficacy was entered as a predictor of weekly intrinsic motivation. In Condition 3, intrinsic motivation was added in the analysis with the effects of occupational self-efficacy on work performance (Table II).

H1 assumed that occupational self-efficacy leads to an increase in intrinsic motivation. The results of the Condition 2 showed that person-level occupational self-efficacy increased week-level intrinsic motivation significantly ($\gamma = 0.31, p < 0.01$), and supported *H1*.

Study variables	*M*	*SD*	(1)	(2)	(3)
1. Self-efficacy	3.96	0.91	(0.78)		
2. Intrinsic motivation	3.28	0.99	0.28*	(0.83)	
3. Work performance	4.40	0.61	0.52**	0.29*	(0.86)

Notes: *$p < 0.05$, **$p < 0.01$; The statistics in this table are based on the person-level data ($n = 76$). Weekly data (intrinsic motivation and work performance) were averaged across person level. Values in the parentheses display scale reliabilities (α)

Table I.
Descriptive statistics and correlations

H2 proposed that occupational self-efficacy leads to an increase in work performance. Based on the results of the Condition 1, person level occupational self-efficacy influenced week-level work performance positively ($\gamma = 0.22, p < 0.05$), thus supporting *H2*.

H3 predicted that intrinsic motivation serves as a mediator in the self-efficacy-performance relationship. For testing the mediator role, we added week-level intrinsic motivation as a predictor in the analysis with the effects of person-level occupational self-efficacy on week-level work performance in the Condition 3. The results showed that week-level intrinsic motivation significantly increased the week-level work performance ($\gamma = 0.27$, $p < 0.01$), and the significant positive interaction between occupational self-efficacy and work performance somewhat declined after intrinsic motivation was added into the analysis (from $\gamma = 0.220, p < 0.05$ to $\gamma = 0.165, p = 0.05$). For determining the mediational relations, we used product-of-coefficients method (Zhang *et al.*, 2009) and a Sobel *z*-statistic (Sobel, 1982). The mediated contribution of self-efficacy was 0.086 and Sobel *z* statistic was 2.614 ($p < 0.05$). In sum, *H3* was partially supported.

Discussion

Our results supported most of our hypotheses in relation to the occupational self-efficacy and intrinsic motivation effects over work performance. Our *H3* regarding the mediator role of intrinsic motivation was supported only partially.

There are many studies (Chen *et al.*, 2000; Erez and Judge, 2001; Joo *et al.*, 2010; Judge and Bono, 2001; McDonald and Siegall, 1992) that support the positive relationship between self-efficacy and intrinsic motivation. However, there are also studies that looked at the nature of this relationship in combination with certain contextual variables such as task complexity and task and job performance. As one example, Judge *et al.* (2007), in their meta-analytic study investigating the role of several individual difference variables (mental ability, the big five personality factors, emotional stability and experience), found that other individual differences were as important as self-efficacy. In another meta-analysis study demonstrating the contextual variables that weaken the relationship between self-efficacy and performance, self-efficacy positively and strongly predicted performance with the moderation roles of task complexity and focus on performance (Stajkovic and Luthans, 1998). From an individual level, Judge *et al.* (2007) stated that although self-efficacy separately has a predictive validity on job performance, the strength of this interaction diminishes with the effects of the individual traits (general mental ability, big five personality and experience). Tims *et al.* (2014) also contended that available literature about

Table II.
Multilevel results predicting job performance with the mediating role of intrinsic motivation

	Dependent variables								
	Work performance *Condition 1*			Intrinsic motivation *Condition 2*			Work performance *Condition 3*		
Independent variables	Coefficient	SE	*t* ratio	Coefficient	SE	*t* ratio	Coefficient	SE	*t* ratio
Intercept	2.508	0.30	8.113***	2.177	0.43	5.059***	3.371	0.05	6.923***
Occupational self-efficacy	0.220	0.08	2.563*	0.311	0.11	2.692**	0.165	0.07	2.130*
Intrinsic motivation							0.272	0.04	6.070***
$\sigma 2$	0.232			0.216			0.218		
τ_{00}	0.247			0.479			0.248		
df	74			74			74		
$\chi 2$	908.94***			854.99***			1,428.28***		

Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; Level 1 $N = 690$. Level 2 $N = 76$. *SE* = standard error

the relationship between self-efficacy and performance are mostly assuming that there is an intra-individual stability, meaning that they mostly examine the constructs using between-person methods. Thus, there is an arising need for understanding within-individual variations in exploring the relationship between self-efficacy and work performance within individual level.

In general, our study with a longitudinal design demonstrated that self-efficacy predicted overall work performance. For this type of relationship, we can argue that self-efficacy improves performance because those individuals feeling high self-efficacy will spend more effort and persist longer on their tasks. This type of behavior would increase the possibility of success (Tims *et al.*, 2014).

For the finding related to the prediction of motivation by self-efficacy, there is also a research support although from studies not using the same model and variables as ours. In their study on the regulation of self-efficacy and attributional feedback on motivation, Zhang and Lu (2002), in a participant group of university students have found that there was a direct effect of self-efficacy on motivation. In another study, self-management efficacy served as a mediator in the relationship between job design and employee motivation (Burr and Cordery, 2001). Here, it is important to note that job design might be one variable to have an effect over self-efficacy and task motivation. This is a variable we did not consider.

Concerning our results regarding the mediating role of intrinsic motivation between self-efficacy and work performance relationship, most research support belongs to the ones carried out by the core self-evaluations theory by Judge *et al.* in 1997.

In a study that investigated the role of core self-evaluations, job autonomy and intrinsic motivation on in-role job performance, Joo *et al.* (2010) concluded that intrinsic motivation partially mediated the relationship between core self-evaluations and job performance, and had a full mediator role in the relationship between job autonomy and job performance. Right after the publication of Joo *et al.* (2010) study, in an invited essay, Collins (2010) disputed that the results are questionable as the study itself was cross-sectional that prevent anyone to infer causal relations. Therefore, Collins (2010) suggested using a lagged data, which might yield better results. In addition, he argued clearly that the core self-evaluations correlate strongly with in-role performance as well as intrinsic motivation. These high correlations, coupled with using self-report data might lead one to question the directionality of the variables in the model.

Concerning our finding for the partial mediating role of intrinsic motivation, besides the positive effect that intrinsic motivation has over the relationship, there may also be some other variables which might be playing a role. In their study, where they were investigating the moderating role of rewards in self-efficacy-performance relationship, Stirin Tzur *et al.* (2016) came up with the finding that the relationship between self-efficacy and performance changed according to rewards being high or low. When reward was high, the effect was positive, in contrast, when it was low, the effect of self-efficacy on performance was negative. This shows that external as well as internal factors such as rewards can be one other source of influence in that relationship.

In their study, where they looked at the relationship between self-efficacy and performance through the model of a distal-proximal mediation, Yang *et al.* (2011) argued that self-efficacy might be serving a proximal motivating factor all by itself where the individual personality traits such as conscientiousness and extraversion might be distal determinants over sales performance. Deriving their research model from the theoretical framework by Kanfer (1990) who put forward the role of personality based theories of motivation which are mainly classified as being stable, Yang *et al.* (2011) suggested that self-efficacy might only be acting as a proximal agent having an effect over performance.

Therefore, concerning our findings, there might also be some proximal variables at play so that self-efficacy and intrinsic motivation might only be serving the proximal part of that effect and not mainly representing the whole influential equation.

Other factors that might have mediating influence could be innovation and perseverance. Self-efficacious individuals are known for their high perseverance (Sherer *et al.*, 1982) and that their persistance in difficult situations might already be bringing them high success. In addition, self-efficacious individuals might be working hard toward innovative solutions in their organizations therefore their innovative ideas might be increasing their performance directly (see Boddington and Berg, 2014 for entrepreneurs).

Our results are also important considering the place of the study and participant characteristics. Chaudhary *et al.* (2012) argued that cultural values also play a significant role in self-efficacy beliefs and related outcomes. For example, people from collectivist cultures were more motivated and highly performing even though they had low self-efficacy (Ottingen and Zosuls, 2006; as cited in Chaudhary *et al.*, 2012). Relatedly, Lewis (2011) talks about the social identity theory of work motivation. In collectivist cultures, individuals are more inclined to work for more group rather than individual goals. While Turkey is also a collectivistic society (Hofstede, 1980), our results revealed findings like Western contexts in relation to self-efficacy, motivation and work performance. It might be also because our sample was in metropolitan areas, therefore, more individualistic values might have been at play. Whatever our results might imply, it is still important to add cultural factors as a variable in these types of studies.

Practical implications

Our study has important practical implications for HR management strategies, managerial practices and subordinates' personal development efforts. As for the HR recruitment practices, it might be important to look for candidates with high self-efficacy characteristics in addition to their related education and background. For training and development programs, it might prove valuable to introduce programs that support self-efficacy development and cultivation (for an example see Gist, 1989). It might even be more useful to introduce those programs before targeting any motivation related issues related to any employee. For performance management interventions, it might also be worthwhile to consider self-efficacy related problems before making motivation related judgments. Usually, it is common for managers to jump to motivation related concerns when an employee is underperforming. However, given the suggested relationship between self-efficacy and intrinsic motivation, it might prove beneficial for managers to investigate any dysfunctional self-efficacy related beliefs held by the employee under performance review. As self-efficacy relates to beliefs about competent completion of a task, it seems crucial to understand whether the employee has gone into a dysfunctional belief cycle and therefore is undergoing a motivation problem or not. Relatedly, before making any inferences about an employee performance, it might also be valuable to look for any problems in person-job fit. As an example, the job demands may overwhelm employee's current abilities and therefore he or she might lose the belief in his or her competence level. In other words, problems in person-job fit might negatively influence the self-efficacy of an employee. In fact, in a study that investigated the mediating role of self-efficacy between person-job fit and satisfaction Peng and Mao (2015) have found significant results. Finally, for the employees, we are suggesting that knowledge of their beliefs in their capacity that adds to their awareness of their own capabilities, talents and skills would really open the way toward choosing work environments and jobs that hold the potential for their increased motivation therefore performance. In short, before applying for job after job, considering their own self-efficacy

related strengths and challenges would be leading them to move more healthily toward their conscious choices of career (Bao and Luo, 2015; Fort *et al.*, 2011).

Limitations of our study and suggestions for future research

Although our study adds valuable findings to the available literature on self-efficacy, intrinsic motivation and work performance, we should also mention certain limitations that might be important for future researchers dealing with the same topic. First, despite using data from weekly surveys and mixing the order of the questions, the intrinsic motivation and work performance was measured at the same point in time by self-reports. For future studies, taking into consideration to use multi source data from supervisors or coworkers and to use different measurement points for each variable may decrease the possible effects of common method issues. Second, the sample from diverse organizations operating in an organized industrial region of Turkey may raise the questions of generalizability of the results. It needs future studies including diversified samples from other professions, sectors or cultures to support or oppose the results. Third, despite existing study used a longitudinal design to explore the relationship among individual variables, the associations determined in between variables over time should be dealt with carefully. There may be many potential individual-related variables which might influence work performance together with self-efficacy. As mentioned above, one of the purposes of this study is to explore the mediating role of intrinsic motivation in the relationship between self-efficacy and work performance. Future studies should examine the state-like (i.e. psychological capital) individual variables for testing the other possible factors that are of central in the relationship between self-efficacy and work performance.

Moreover, while our study demonstrated the significant effect from self-efficacy to performance through intrinsic motivation, other studies looked at relationship from an opposite direction. As an example, Cunningham and Mahoney (2004) while trying to investigate the role of organizational commitment, valence of training and training motivation in a group of college athletics, found that training motivation served as a mediator between commitment and valence and post-training self-efficacy. Here, motivation had an influential role over self-efficacy. This means that the constructs, although different in definition and scope, can be changing their roles in terms of influence from one study to another. In a similar vein, Limbu and Kay (2010), in their study with pharmaceutical sales representatives, found a moderating role of self-efficacy between selling styles and job performance.

On the other hand, the relationship between self-efficacy and motivation may not always be positive. Vancouver and Kendall (2006), in their study with undergraduate students concerning performance in their class examples, found a negative relationship between self-efficacy and motivation at the within-person analysis level, while they found a positive influence of self-efficacy over performance at the level of between-persons.

Other variables might also be more important apart from self-efficacy in explaining motivation-performance or just self-efficacy–performance relationship. Judge *et al.* (2007) took the big-five personality traits in addition to mental ability construct to predict work-related performance through self-efficacy. Their results suggested that individual difference variables such as personality and mental ability were as important as self-efficacy. In this study, self-efficacy's mediating role was only partial. Barrick and Mount (2005) also stated that personality factors such as conscientiousness and emotional stability might have an important influence on self-efficacy and performance motivation, which would all predict performance. For future research, adding personality dimensions to the self-efficacy–motivation–performance equation might prove valuable.

Overall, our study made an important contribution to the available literature mainly by offering a better methodology compared to a cross-sectional study and by including variables that are very fundamental for all work environments that are aiming toward high employee motivation and performance made possible by a talented workforce.

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Further reading

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Appendix

Occupational self-efficacy scale (Rigotti *et al.*, 2008)

Items:

- I can remain calm when facing difficulties in my job because I can rely on my abilities.
- When I am confronted with a problem in my job, I can usually find several solutions.
- Whatever comes my way in my job, I can usually handle it.
- My past experiences in my job have prepared me well for my occupational future.
- I meet the goals that I set for myself in my job.
- I feel prepared for most of the demands in my job.

Intrinsic motivation scale (Tremblay *et al.*, 2009)

Using the scale below, please indicate to what extent each of the following items corresponds to the reasons why you are presently involved in your work. Why do you do your work?

Items:

- Because I derive much pleasure from learning new things.
- For the satisfaction I experience from taking on interesting challenges.
- For the satisfaction I experience when I am successful at doing difficult tasks.

Work performance scale (Carmeli *et al.*, 2007)

Items:

- I fulfil the organizational rules and procedures.
- Reports submitted by me are reliable and trustworthy.
- I produce a high quality of work outcomes.
- I am strict about doing the job right the first time.

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