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MANAGING CREATIVITY AT WORK: THE RELATIONSHIPS BETWEEN DIFFERENT ASPECTS OF WORKPLACE FUN AND EMPLOYEE CREATIVITY

Doktora Tezi

WICHAKORN SEKARAWISUT

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DANIŞMAN: Prof. Dr. E. SERRA YURTKORU

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ÖZET

İşyerinde eğlence, çalışanların yaratıcılığını artırmak için hem popüler medyada hem de akademik araştırmalarda sıkça öne sürülen edilen unsurlar arasında yer almaktadır. Ne var ki bu konuda destekleyici yeterince çalışmaya literatürde rastlanmamaktadır. Bunun nedeni, işyeri eğlencesini yaratıcılıkla ilgili olarak inceleyen geçmiş çalışmaların sınırlı ve büyük ölçüde teorik olması ve önceki ampirik araştırmalarda, işyeri eğlencesinin farklı yönlerinin dikkate alınmamış olmasıdır.

Bu çalışma, bu konudaki açığı kapatmak için işyeri eğlencesinin dört bileşeninin, yani eğlence için yönetici desteği, iş arkadaşlarının sosyalleşmesi, eğlenceli aktiviteler ve eğlenceli iş sorumluluklarının çalışan yaratıcılığı ile ne ölçüde ilişkili olduğunu değerlendirmeye odaklanmıştır. Ayrıca, bu ilişkilerden bazılarında iş yükünün düzenleyici etkisi olup olmadığı ve iş arkadaşlarından ve psikolojik güvenlikten alınan bilgiler tarafından aracılık edilip edilmediği de araştırma modeline eklenmiştir.

Türkiye'de start-up şirketlerde çalışan 254 çalışandan oluşan bir örneklem üzerinde gerçekleştirilen analizler iki aşamadan oluşmaktadır. Birinci aşama, çalışmada kullanılan ölçüm modellerini değerlendirmek için gerçekleştirilen çoklu doğrulayıcı faktör analizlerinden oluşmaktadır. İkinci aşama, varsayılan doğrudan etkileri, aracılık ve düzenleyiciliği yapısal eşitlik modellemesi ile test etmekten oluşmaktadır.

İlk aşamadan elde edilen sonuçlar, çalışan yaratıcılığı, yöneticinin eğlenceye desteği, iş arkadaşlarının sosyalleşmesi, eğlenceli aktiviteler, eğlenceli iş sorumlulukları, iş arkadaşlarından gelen bilgiler ve iş yükü için ölçüm modellerinin geçerli, güvenilir ve verilere yeterince uygun olduğunu göstermiştir. Ancak psikolojik güvenlik için ölçüm modelinin tatmin edici olmayan yakınsak geçerliliği vardı ve bu nedenle daha ileri analizlerin dışında tutulmuştur. İkinci aşamanın sonuçları, iş arkadaşlarının sosyalleşmesi ve eğlenceli iş sorumluluklarının çalışan yaratıcılığını önemli ölçüde olumlu etkilediğini, eğlenceli ve eğlenceli aktiviteler için yönetici desteğinin ise anlamlı bir etkisinin olmadığını ortaya koymuştur. İşyeri eğlencesinin dört bileşeni arasında, eğlenceli iş sorumlulukları en güçlü etkiye sahip olarak göze çarpmaktadır. Ayrıca iş arkadaşlarından alınan bilgilerin ve iş yükünün herhangi bir ilişkide sırasıyla aracı ve düzenleyici olmadığı bulunmuştur.

Teorik olarak, bu çalışmanın bulguları işyeri eğlencesinin dört bileşeninin çalışan yaratıcılığını nasıl etkilediğine ışık tutmakta ve aynı zamanda işyeri eğlencesinin farklı yönlerini incelemenin önemini vurgulamaktadır. Ayrıca bulgular, kuruluşlarında yaratıcılığı teşvik etmek isteyen yöneticilerin, çalışanlar arasında sosyalleşmeyi kolaylaştırması ve onları kişisel olarak keyif aldıkları roller ve görevlerle eşleştirmesi gerektiğini ortaya koymuştur.

GENERAL KNOWLEGE

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ABSTRACT

Fun in the workplace is among the factors that have been frequently claimed in both the popular media and academic research to enhance the creativity of employees. Yet, the evidence of their connection is very limited. This is because past studies examining workplace fun in relation to creativity have been scarce and largely theoretical. And prior empirical investigations have overlooked the various aspects of workplace fun.

In efforts to advance our understanding on this topic, the present study focused on assessing the extent to which four components of workplace fun, namely, manager support for fun, coworker socializing, fun activities and fun job responsibilities were related to employee creativity. Furthermore, it was designed to investigate whether some of these relationships were moderated by workload and mediated by information from coworkers and psychological safety.

There were two phases of analyses, which were conducted on a sample of 254 employees who were working in start-up companies in Turkey. The first phase comprised multiple confirmatory factor analyses carried out in order to evaluate the measurement models used in the study. The second phase involved structural equation modelling for testing the hypothesized direct effects, mediation, and moderation.

The results from the first phase indicated that the measurement models for employee creativity, manager support for fun, coworker socializing, fun activities, fun job responsibilities,

information from coworkers and workload were valid, reliable, and adequately fit to the data. But the measurement model for psychological safety had unsatisfactory convergent validity and hence was excluded from further analyses. The second phase's results revealed that coworker socializing and fun job responsibilities significantly, positively affected employee creativity, while manager support for fun and fun activities had no significant effect. Among the four components of workplace fun, fun job responsibilities had the strongest impact. Also, it was found that information from coworkers and workload were not a mediator and a moderator, respectively, of any of the relationships.

Theoretically, the findings of this study shed light on how the four components of workplace fun influenced employee creativity and at the same time highlighted the importance of examining different aspects of workplace fun. In addition, the findings suggested that managers who desire to foster creativity in their organizations should facilitate socialization among employees and match them with roles and tasks they personally enjoy.

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ABBREVIATIONS

AVE	Average variance extracted
CFA	Confirmatory factor analysis
CFI	Comparative fit index
C.R.	Critical ratio
df	Degree of freedom
MSV	Maximum shared variance
N	Sample size
RMSEA	Root mean square error of approximation
TLI	Tucker-Lewis index
SRMR	Standardized root mean square residual

1: INTRODUCTION

Fostering creativity at work is climbing to the top of many corporate agendas. Companies have begun to recognize that creativity is crucial for creating and sustaining competitive advantage in the modern business world, where the environment rapidly changes and the competition has reached an unprecedented scale. Scholars pointed out that creativity is a necessary first step toward innovation, which is considered as one of the key determinants of organizational success (e.g. Zhou & Hoever, 2014; Zhuang, Williamson & Carter, 1999). Apple Inc. and Google LLC are good examples of those successful companies that are generally known to place great importance on creativity and are recognized as being among the most innovative companies.

As creativity has become critical to today's businesses, both researchers and managers are increasingly interested in how companies can cultivate creativity at work. Workplace fun is one of the factors that have been claimed to improve creativity of employees in the popular media (e.g. Clarkson, 2018, March 29; Ditkoff, 2013, February 5; Fox News, 2012, October 15) as well as academic research (e.g. Bolton & Houlihan, 2009; Ford, McLaughlin, & Newstrom, 2003; Mainemelis & Ronson, 2006; Michel, Tews, & Allen, 2019). Many companies, which are notable for their creativity and innovations, are also renowned for their fun work environment. For example, Google's East Coast headquarters is generally recognized as a fun place to work, having play areas, Broadway themed conference rooms, standing desks with treadmills under them, conversation areas which look like classic rail cars, etc. (Stewart, 2013, March 15). Facebook's office in London is another example of a fun workplace, where workers can have fun with their colleagues in a room dedicated to games and enjoy a great variety of free foods in the canteen as well as a small kitchen in each floor (Tech Insider, 2018, December 19). Such fun perks offered by famous creative companies seem to contribute to the association of creativity with fun at the workplace.

Despite the many claims made about the positive impact of fun in the workplace on employees' creativity, our understanding and evidence of their connection are still very limited. Fluegge's research (2008; 2014) is one of the few attempts to investigate workplace fun in relation with creativity. Her findings supported the claims that workplace fun enhances creativity of employees. Properly speaking, she found a positive indirect relationship between fun at work and employees' creative performance, mediated by work engagement. Nevertheless, three issues need to be considered. Firstly, workplace fun is a multidimensional

construct (Michel et al., 2019), and based on a review of the literature, the relationship between each dimension of workplace fun and creativity has yet to be examined. Secondly, investigation into mediators between creativity and workplace fun is still lacking. Further research on mediating factors and their effects on the relationship of creativity with each dimension of workplace fun is needed. Finally, past research has shown that the relationship between creativity and its determinants is not always straightforward. For instance, extrinsic incentive was observed to positively impact creativity if it was viewed favorably (Hennessey, 2000), and negative mood was found to enhance creativity when the task had a high instrumental value (Abele, 1992). The effect of workplace fun on creativity may be as well subject to certain conditions, which need to be investigated.

This study aimed to address the three issues mentioned above. It was expected to provide a theoretical as well as empirical contribution to the workplace fun and creativity literatures in three important ways. First, it shed more light on the individual effect of each dimension of workplace fun (i.e. manager support for fun, coworker socializing, fun activities, and fun job responsibilities) on employee creativity. Second, it investigated additional factors that may serve as potential mediators (i.e. psychological safety and information from coworkers) and a moderator (i.e. workload) between workplace fun and employee creativity. Third, it produced more empirical evidence on the positive impact of workplace fun on employee creativity. In addition, findings from this study would give directions to managers as to how they can create a fun work environment to boost staff creativity.

The outline for this dissertation is as follows. Section 2 presents a literature review of creativity. It reviews prior research on creativity in organizations, especially start-up companies, the conceptualizations of the concept, the existing theories, and the antecedents of creativity within the context of organizations. Section 3 concerns fun in organizations. It focuses on the definitions of workplace fun and other similar concepts, the components of the workplace fun concept and the outcomes of fun at work. Section 4 deals with the theoretical model and hypotheses, centering on the relationship between fun at the workplace and employee creativity. Section 5 gives information about the research methods and the measurements. Section 6 provides details of the data analysis and hypothesis testing. Section 7 discusses the results of this study in light of the literature on creativity and workplace fun, theoretical and managerial implications, limitations of this study and directions for future research.

This section has provided the background of the problems regarding the linkage between workplace fun and creativity that needs to be addressed. In the next sections, the literature pertaining creativity and fun in the workplace is reviewed to address concepts, theories and other important issues that are related to the topic.

2: CREATIVITY IN ORGANIZATIONS

2.1 Background of Creativity in Organizations

Creativity is widely considered to be crucial for companies' competitiveness in today's rapidly changing environment. The success of many companies, such as Apple Inc., Google LLC and Tesla Inc., are usually attributed to their outstanding creativity and innovativeness. The recognition of the importance of creativity in organizations is not limited to the media or general opinion. Many academicians are also keen on comprehending the role of creativity in organizations. Indeed, the studies of creativity in organizations can be traced back to as early as the 1960s (Barron & Harrington, 1981).

In early academic work pertaining creativity, creativity was often associated with personality characteristics of individuals. Research interests were oriented towards understanding what characterized creative people, and actor-centered research approaches were generally applied (Zhou & Hoever, 2014). Consequently, personality characteristics of individuals of different professions were studied. These include college teachers (Chambers, 1973), artists (Amos, 1978), writers (Helson, 1973; Helson, 1977), psychologists and chemists (Chambers, 1964), as well as other professions (Gough, 1979).

Research on the personality characteristics of creative individuals over a decade showed a consistent pattern of characteristics. To name a few, self-confidence, autonomy, and broad interests emerged as core characteristics as they were commonly found in creative people (Barron & Harrington, 1981). This led to the emergence of creative personality scales for measuring creativity of individuals. The attempts to develop creativity scales were prevalently based on Gough and Heilbrun's (1965 as cited in Gough, 1979) Adjective Check List (ACL). Using the ACL as a measure of creativity, Schaefer (1973) identified sets of characteristics that distinguished creative students in different fields of study. Gough (1979) also utilized the ACL to study individuals of various professions, including architects, mathematicians, research scientists, and students. Based on the findings, he proposed a creative personality scale containing 30 items, which were composed of 18 positive items (e.g. confident, interests wide and humorous) and 12 negative items (e.g. cautious, conservative and interests narrow). Harrington (1975) provided empirical evidence for a correlation between an ACL creative personality scale and students' ability to produce creative uses.

However, there were also other measures of creative personality that were developed in early creativity research. In addition to the ACL, Barron and Egan (1968) used descriptive phrases to characterize creative managers. The results showed, for example, that "values own independence and autonomy," "has high aspiration level for self" and "is verbally fluent; can express ideas well" were among the phrases that emerged as most characteristic of the participants. Hocevar (1979) developed Creative Behavior Inventory (CBI), which is composed of a list of activities and accomplishments that are considered to be highly creative in different fields, such as art, music and literature. Creativity is measured by respondents indicating how often they have engaged in those creative activities and accomplishments. The emergence of these different creative personality scales highlighted the attempts by early creativity researchers to understand what personality characterized creative individuals.

Research interests, which initially centered on creative personality of individuals, have been subsequently extended to include the context surrounding them. Since the 1990s, attention has increasingly been drawn to creativity in organizations (Zhou & Hoever, 2014). As an illustration, there were 31 peer-reviewed studies that mentioned "organizational creativity" in 1990, and the number increased to 357 in 2000 and to 2,430 in 2010 (Blomberg, Kallio, & Pohjanpää, 2017). The increasing interest in creativity in organizations is argued to be driven by the rapidly changing business environment (Shalley & Gilson, 2004). Creativity has been viewed as a vital source of distinct competitive advantage, enabling organizations to succeed in such an environment (Anderson, Potočnik, & Zhou, 2014; Zhou & Hoever, 2014).

Some management scholars have put effort into identifying the outcomes of creativity in organizations. Basadur (1993) theorized that organizations that nurture creativity can expect both economic outcomes and people outcomes. The former include efficiency, adaptability, lower turnover, and lower absenteeism, and the latter include job satisfaction, improved strategic thinking, motivation and more rational decision-making. Some researchers have empirically tested the impacts of creativity in organizational settings. Various positive outcomes have been evidenced at different levels, including individual performance (e.g. Michinov, Jamet, Métayer, & Hénaf, 2015; Oldham & Cummings, 1996), team performance (e.g. Eryiğit & Uslu, 2016; Yang & Choi, 2008) and organizational performance (e.g. Alnidawi & Jaffal, 2018; Hassan, Malik, Hasnain, Faiz, & Abbas, 2013).

Other studies have been focused on the relationship between creativity and innovation. It is commonly accepted that creativity and innovation are two different concepts that are

closely related. Creativity is argued to be a precursor of innovation (Amabile et al., 1996; Khessina, Goncalo, & Krause, 2018). A number of empirical studies have been conducted to examine the impact of creativity on innovation (e.g. Çekmecelioğlu & Günsel, 2013; Hassan et al., 2013; Sarooghi, Libaers, & Burkemper, 2015; Sohn & Jung, 2010), which, in turn, is argued to have consequences for the performance and survival of organizations (Khessina et al., 2018).

Having realized the importance of organizational creativity, management and organization researchers have been recently conducted studies concentrating more on investigating the antecedents of creativity in organizations. These studies deal with not only individuals' creativity (e.g. Bornemisza, 2013; Fluegge, 2008; Joo, Yang & McLean, 2014; Khazanchi, 2005), but also creativity at the group level (e.g. Handzic & Chaimungkalanont, 2004; Klein & Speckbacher, 2020; Li, Li, Li, & Li, 2020; Paulus, 2000; Ye, Liu, Gu, & Yang, 2020) and the organization level (e.g. Gazzaroli, Gozzoli, & Sánchez-Gardey, 2019; Jarvenpaa & Välikangas, 2020; Sankaran, 2020; Smith & Green, 2020; Sözbilir, 2018). Likewise, antecedents of organizational creativity are not limited to personal characteristics. Indeed, many social and contextual factors have been linked with creativity in the workplace. These include job autonomy (e.g. Chen & Yao, 2010; Joo, et al., 2014), transformational leadership (e.g. Henker, Sonnentag, & Unger, 2015; Qu, Janssen, & Shi, 2015), psychological safety (e.g. Bornemisza, 2013; Edmondson, 1999) and knowledge sharing (Ma, Cheng, Ribbens, & Zhou, 2013; Sheikh, Ishag, & Inam, 2019; Zeb, Hazana, Hussain, & Safi, 2019), among others.

It can be seen that even though the literature on creativity in organizations has a relatively short history, the topic has quickly become one of the major interests of management and organization scholars, particularly in the past decade. Especially, effects of many different factors on creativity have been investigated. While this body of research has significantly added to our understanding of creativity in the workplace, some factors still need more investigation. Among these is workplace fun, whose influence on creativity was examined in the current study.

2.2 Creativity in Start-up Companies

The recent development of new technologies has created ecosystems of start-up companies, whose business strategies center on innovation (Palos-Sanchez, Saura, Grilo, & Ramirez, 2020). It is argued that the success of these companies depends on their creativity and innovation (Ven, Hudson, & Schroeder, 1984). They are often supported financially by

business incubators and accelerators who need to be interested and thus invest in their innovations (Lange & Johnston, 2019; Saura, Palos-Sanchez, & Grilo, 2019). Also, their strategies have to be creative in order for their novel business model to be successful (Palos-Sanchez et al., 2020).

The literature pertaining creativity in start-up companies generally concerns the influence of creativity on the development and success of start-ups. Existing research has suggested that creativity plays an important role even before the formation of a start-up. Mazzarol, Volery, Doss and Thein (1998) attempted to identify the factors that motivated nascent entrepreneurs to set up a new start-up. The results of their study showed that creativity was considered among entrepreneurs as the most important motivation for new business formation.

Past research has also shown that creativity continues to influence start-up companies as they grow. Almeida, Dokko and Rosenkopf (2003) researched into the size of start-up companies and their external learning. They pointed out that start-ups obtain funding because of their creativity and innovation. Such an opportunity is more sought after by smaller start-up companies. This together with other conditions such as the limited internal resources lead smaller start-up companies to be more oriented towards sourcing creative input externally. Chu, Kolodny, Maital and Perlmutter (2004) focused their study on the reconciliation between creativity and discipline. According to these authors, there is a trade-off between creativity and discipline. The success of start-up companies is driven by creativity. As they grow, they often introduce more discipline to deal with the increasing complexity. However, this results in diminishing creativity as the bureaucracy churns creative people. Based on case studies of successful companies, the authors suggested different approaches to reconciling creativity and discipline. Ensley, Hmieleski and Pearce (2006) looked into the importance of vertical leadership and shared leadership in the development and growth of start-up companies. They found that shared leadership positively influenced revenue growth as well as employee growth to greater extents than vertical leadership. They explained that shared leadership is particularly beneficial when the tasks require high levels of creativity, interdependence and complexity, which characterize the start-up context.

Research attention has also been paid to what influences creativity in start-up companies. Helbert (2016) examined how crisis influenced the creative climate by studying a start-up company before and during a crisis. The author found that before the crisis occurred,

there was high intensity of climate factors that were favorable to creativity, such as autonomy, freedom, support and recognition for idea generation, resources that enabled creativity. On the contrary, when the company was facing the crisis, the author observed the opposite outcomes. Robina-Ramírez, Fernández-Portillo, and Díaz-Casero (2019) developed a theoretical model to understand the attitudes of green start-up companies towards the environment when complying with environmental regulations. Their model suggested that the start-up companies' creative ideas and their support for creative processes were among the indicators of their innovativeness and competitiveness, which were found to be positively influenced by their environmental value.

2.3 Definitions of Creativity and Innovation

The terms "creativity" and "innovation" are frequently used interchangeably (Man, 2001). Yet, they are not the same concept and should be clearly differentiated (Shalley & Gilson, 2004). In order to form a basic understanding of their differences, it is important to firstly discuss their definitions.

Creativity has been defined differently as it has been used in various contexts. Broadly, Amabile, Conti, Coon, Lazenby and Herron (1996) defined creativity as "the production of novel and useful ideas in any domain" (p. 1155). Woodman, Sawyer and Griffin (1993) offered a definition, which has been frequently used in working contexts. They defined creativity as "the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system" (p. 293). These definitions of creativity are consistent with Stein's (1953) definition of creative work—"a novel work that is accepted as tenable or useful or satisfying by a group in some point in time" (p. 331). All of the above definitions imply that creativity requires not only newness but also usefulness. The importance of including usefulness in the definition of creativity was also emphasized by Amabile (1997) and Runco and Jaeger (2012).

Like creativity, various definitions have been given to innovation in different contexts. A broad definition that has been often used in the literature pertaining organizations was provided by West and Farr (1990 as cited in West & Anderson, 1996). According to these authors, innovation is "the introduction and application, within a group, organization, or wider society, of processes, products, or procedures new to the relevant unit of adoption and intended to benefit the group, individual, or wider society" (p. 681). Other organizational scholars also offered similar definitions. For example, Amabile et al. (1996) defined innovation as "the

successful implementation of creative ideas in an organization" (p. 1155). From these definitions, it can be implied that innovation requires application in addition to introduction of new ideas, and this distinguishes innovation from creativity.

To differentiate creativity from innovation more clearly, it is useful to also investigate the relationship between them. Creativity can be seen as a subset of innovation (Woodman et al., 1993). While the former involves idea production, the latter includes both production and implementation of ideas (Zhou & Hoever, 2014). Creativity is also understood as a precursor of the innovation. According to Amabile et al. (1996), creativity is a necessary, but not sufficient, condition for innovation. Zhuang, et al. (1999) suggested that when combined with an innovation culture, creativity could become innovation. Similarly, Glynn (1996) hypothesized that individual creativity can result in organizational innovation under three conditions: first, there is opportunity to express creative ideas without constraints; second, there are adequate resources and support for idea creation; and third, there are strong intrinsic incentives.

From the literature above, it can be concluded that creativity and innovation are two different concepts, which are closely related. In line with this conclusion, this study distinguishes creativity from innovation, and focuses on individual creativity. In the next section, the literature pertaining creativity in organizations is reviewed.

2.4 Theoretical Perspectives of Creativity

Since the emergence of research on organizational creativity, a considerable number of theories have been developed. Among the existing theories, two theories are considered to have the major influence in the organizational creativity literature: Amabile's (1983) componential theory and Woodman et al.'s (1993) interactionist theory. These two theories are used as frameworks in many studies concerning creativity in organizations (Anderson, Potočnik, & Zhou, 2014; Zhou & Shalley, 2003). Their major contribution lies in the introduction of a variety of factors beyond individual differences that potentially influence creativity. Given the importance of these two theories, they are discussed in this section. Other important theoretical perspectives, including individual creative action, sensemaking, timelessness, social network and sociocultural perspective are also reviewed.

2.4.1 Componential Theory of Creativity

The componential theory of creativity is recognized as one of the first comprehensive theories of creativity (Zhou & Shalley, 2003). This theory was initially developed as a working theory by Amabile (1983) based on a set of observations and assumptions about creativity. Subsequently, it has been tested and updated in several studies (e.g. Amabile, 1997; Amabile & Pratt, 2016). The initial version of the theory suggests that creativity is composed of three main components, namely, domain-relevant skills, creativity-relevant skills, and task motivation. Domain-relevant skills refer to factual knowledge, technical skills and special talents related to the domain being considered. Amabile (1983) explained that domain-relevant skills function as a set of cognitive pathways for solving problems and doing tasks. A larger set of different pathways provides more alternatives that can be used for creating something new. According to Amabile, domain-relevant skills depend on innate abilities and skills, and can be obtained through education.

Creativity-relevant skills, which was later called creativity-relevant processes, include three sub-components. The first is the appropriate cognitive style. There are a number of cognitive styles that are linked to creativity. For example, it is argued that people who categorize information in wide rather than narrow categories may have a higher tendency to generate creative ideas (Amabile, 1983). The second sub-component is the knowledge of creativity heuristics, which refer to ways of solving problems that can lead to novel ideas. And the third is the work style that is helpful for creative production. According to Amabile (1983), persistence in difficult times, high energy and willingness to work had are among the features of ideal work style for creativity. Creativity-relevant skills are dependent on personality characteristics, experience, as well as training.

Finally, task motivation comprises the attitude toward a given task and the perception of one's own motivation for undertaking the task. It is explained that individuals' task motivation is influenced by their attitude toward the task, which depends on the extent to which the task matches their interests and preferences. The level of task motivation is also argued to be based one's own intrinsic motivation to engage in a task and extrinsic constraints—external social and environmental factors that limit the performance of that task.

Recently, the componential theory of creativity has been updated by Amabile and Pratt (2016) and the name of the theory has been changed to the dynamic componential theory of creativity and innovation. In the updated version of the theory, three more components at the

organizational level, namely motivation to innovate, resources in the task domain, and skill in innovation management, are added to the three original components at the individual level. This new version also connects individual creativity with organizational innovation. It posits that the organizational components are necessary for organizational innovation, which impacts individual creativity. On the other hand, the individual components drive individual creativity, which feeds organizational innovation.

The componential theory of creativity has important implications for subsequent research. For one thing, it is important for a person to also be motivated to engage in the task in order to produce creative ideas. For another thing, there are contextual factors that can positively or adversely impact creativity. That is to say, this theory has directed researchers to investigate a wider range of factors influencing creativity, including those beyond individuals' creative attributes.

2.4.2 Interactionist Theory of Creativity

The interactionist theory of creativity is another major theory that has influenced research on creativity in organizations. The development of this theory started when Woodman and Schoenfeldt (1989) introduced the interactionist model of creative behavior, which was used to understand individual differences in creativity. According to this model, creativity is a product of interaction among factors that inhere in the actor and the situation. Antecedent conditions, such as background characteristics and past experience, influence the cognitive abilities and personal traits of individuals, which in turn determine their creative behavior. The accomplishment of creative behavior is facilitated or inhibited by contextual and social influences, such as culture, responsibilities, time constraints, rewards, evaluation, and role models.

Building on the previous model, Woodman et al. (1993) developed the interactionist model of organizational creativity to specifically explain creativity in organizations. In this model, the group-level creativity and the organization-level creativity are included. Like an individual's creativity, the creativity of a group is a function of creative behavior of individuals in the group, group composition, group characteristics, group processes, and contextual influences, such as the larger organization. Similarly, the creativity at the organization level is an outcome of interaction between creative outputs from the groups and contextual influences, such as resource constraints and the environment outside the organization. The model also puts

forward the reciprocal influence. It explains that over time the creative behavior of individuals and groups influences the situation in return.

Both Woodman et al.'s (1993) and Amabile's (1983) models incorporate personality, cognition, and social psychology in explaining organizational creativity and highlight the importance of contextual factors. However, unlike Amabile's (1983)'s model, Woodman et al.'s (1993) model emphasizes the interaction between the actor and the situation. In addition, it addresses contextual influences across levels of organizations. This is argued to be essential in understanding creativity in complex social systems like organizations.

2.4.3 Theory of Individual Creative Action

Ford (1996) introduced the theory of individual creative action, which combines psychological and sociological approaches to explain creative behavior of individuals in different domains including organizations. According to this theory, individuals have two competing behavioral options: one involves creative actions, and another involves habitual actions. People tend to favor the habitual option because of the past success, certainty and ease. They are less likely to choose the creative alternative unless it is expected to lead to more consequences that are desirable.

The theory also suggests that individual actions result from interactions among influences of three processes: (1) sensemaking, (2) motivation and (3) knowledge and ability. These influences can either facilitate or constrain creative actions as well as habitual actions. For example, interpretation of a problem in an unusual way, intrinsic motivation, and knowledge in the domain in question are argued to contributors to creative actions. Ford (1996) argued that there are interactions between the three processes mentioned above. To illustrate, without necessary knowledge, intrinsically motivated individuals may fail to pursue the intended creative action.

2.4.4 Sensemaking Theory of Creativity

Creativity is often treated as an output of individuals, groups and organizations (e.g. Amabile, 1997; Amabile & Pratt, 2016; Ford, 1996; Perry-Smith & Shalley, 2003). However, Drazin, Glynn and Kazanjian (1999) proposed that creativity can be also viewed as a process. They offered a multi-level model of creativity that was built on a sensemaking framework. Rather than the traditional levels of analysis (individual, group and organization levels), this

model explains the creativity process at three different levels, namely intrasubjective, intersubjective and collective levels.

At the intrasubjective level, each individual develops a meaning for creativity and engages in creative acts according to that meaning. At the intersubjective level, individuals within the community, who are engaged in similar tasks and goals, may form a shared meaning of creativity that differs from that of other communities. Drazin et al. (1999) gave an example of a technical staff community and a project manager community. For the technical staff, creativity may take the form of experimenting, whereas for the project managers, it may take the form of finding ways to satisfy the senior managers. At the collective level, there may be conflicts between communities and crises, the resolution of which will affect the creative process of the collective structure. For instance, when there is a crisis related to costs, the project managers' meaning of creativity will be favored due to their capability to resolve the crisis. As a result, the project managers will be engaged more in their own form of creativity. Thus, from this sensemaking perspective, creativity in organizations results not only from individuals but also from the dynamic process of sensemaking.

2.4.5 Timelessness Theory of Creativity

Timelessness, or "flow", is described as a focused state of consciousness, where individuals who are experiencing it temporarily lose the sense of time and self-consciousness (Csikszentmihalyi & Asakawa, 2016). The role of timelessness in organizations was highlighted and theorized by Mainemelis (2001). He proposed a model that explains the conditions that allow individuals to become engrossed in their tasks and experience timelessness, and the influence of timelessness on their creativity. His model suggests that timelessness has four experiences: (1) the feeling of being immersed in the task at hand, (2) the unconsciousness of time, (3) a sense of peak performance and (4) a sense of transcendence. These four experiences can be facilitated or hindered by certain personal, task and work environment factors. For example, the likelihood that a person will experience timelessness increases when the person is intrinsically motivated, the task is optimally challenging, and there is no workload pressure. Also, according to the model, the state of timelessness benefits individual creativity. Specifically, frequent and long experience of timelessness is argued to increase the likelihood of individuals to be creative.

2.4.6 Social Network Theory of Creativity

Social networks have been used to explain a wide range of organizational phenomena, for example, firms' internationalization (Welch & Welch, 1996), employees' commitment to the organization (Krackhardh & Porter, 1985), organizational survival (Uzzi, 1996) and intergroup conflict (Labianca, Brass, & Gray, 1998). There have also been attempts to understand creativity in organizations from social network perspectives. Brass (1995 cited in Perry-Smith & Shalley, 2003) first put forward the idea that creativity may be influenced by social networks. This idea was later conceptualized by Perry-Smith and Shalley (2003). These authors utilized different concepts of social network, including tie strength and network position, to explore the connection between social relationships and creativity of individuals.

The strength of interpersonal ties is determined by the amount of time of interaction, the intimacy, the emotional intensity and the reciprocity between two persons (Granovetter, 1973). According to Perry-Smith and Shalley (2003), weaker ties provide more non-redundant information, more diverse perspectives and more autonomous thinking, all of which are argued to be beneficial to creativity. The authors also argued that individuals who are in a less central position in their network and have a larger number of ties outside their network should possess more creativity because of their accessibility to more diverse information. Nevertheless, there is reciprocal causation between centrality and creativity. When individuals are known for their creative work, they are sought out for their advice, input, and subsequently become more central in their network. As the creative individuals and those around them spend more time together, their thoughts and ideas become more convergent and their ties become stronger. Eventually, centrality will become a constraint on creativity.

2.4.7 Sociocultural Theory of Creativity

Sociocultural theory essentially holds that people have different physical, social and symbolic positions in the world, which influence their perception, thought and action, and that their positioning is determined by themselves, others as well as circumstances (Martin, 2006). Glăveanu (2020) formulated a theory of creative process grounded in sociocultural notions such as position, perspective, and affordance. His theory puts forward four propositions, which together explains the creative process. First, different perspectives are crucial for creativity. Glăveanu argued that holding various perspectives allows individuals to think and act in divergent ways. Second, individuals as well as groups can foster the creative process by exchanging positions and taking others' perspectives. Third, less familiar positions and less

conventional perspectives provide more possibilities for action, or what Gibson (1979) called "affordances", and prevent one from thinking in a singular way. Finally, the discovered affordances are argued to lead to new perspectives. Thus, the creative process is not a linear path starting from creative individuals and ending with creative outputs, but it is a back-and-forth movement between the perspectives of individuals or groups and the affordances those perspectives reveal.

2.5 Determinants of Individual Creativity

Individual creativity is of great importance for creativity in organizations. Creativity at the individual level is argued to be a necessary condition for creativity at the collective level. Parjanen (2012) stated that collective creativity could occur when individuals with different perspectives, ideas and experiences interact with one another. It is also suggested that creativity of the group and the entire organization can be improved by encouraging creativity of individual members (McAdam & McClelland, 2002). Nevertheless, individual creativity on its own is not sufficient to result in the creative performance of the organization. The supporting organizational context must be present in order for creative individuals to produce collective creative outcomes (Boënne, 2014).

This section reviews empirical studies of determinants of individual creativity. These studies generally follow an actor-centered approach or a context-centered approach (Zhou and Hoever, 2014). An actor-centered approach focuses on investigating the effects of individual differences such as personality attributes on creativity, whereas a context-centered approach concentrated on contextual influences such as people around the actor. There is also interactionist approach, which combines two previous approaches (e.g. Woodman et al., 1993; Woodman & Schoenfeldt, 1989). Based on these approaches, this study separates determinants of individual creativity into two broad categories: individual determinants and contextual determinants.

2.5.1 Individual Determinants

A considerable number of researchers have been attempting to identify determinants for creativity of individuals by taking the actor-centered approach. Their research work has been largely based on knowledge from psychological fields (Klijn & Tomic, 2010) and has focused particularly on personality, cognitive style, intelligence, motivation, and affect.

Early research on creativity viewed creativity as an attribute of a person and focused on distinctive personality traits associated with creative people. Many different traits have been identified in past research work, including independence of judgment, high energy, intuition and attraction to complexity, among others (Barron & Harrington, 1981). A number of creative personality scales have been developed to measure creativity of individuals. For example, Gough (1979) offered a widely used scale for the adjective check list. The scale contains thirty adjectives (e.g. informal, submissive, confident, and reflective) which are either positive or negative indicative of creative potential.

Another stream of research views creativity as cognitive style. Creative cognitive style is described as the manner in which individuals use their creativity (O'Shea & Buckley, 2007). Kirton (1976 as cited in Kirton 1984) developed the adaption-innovation theory, which offers two creative styles. According to this theory, individuals can be located on a continuum, the ends of which are labelled adaptive and innovative. Adaptors, or those who are characteristically adaptive, are more concerned with doing things better and resolve problems by adapting tried and understood methods, while innovators, or those who are characteristically innovative, are more concerned with doing thing differently and seek different thoughts, paradigms and viewpoints to come up with solutions to problems. Divergent thinking and convergent thinking are also cognitive styles that have been frequently studies in research pertaining creativity (Basadur & Hausdorf, 1996). Divergent thinking refers to the generation of various ideas to solve a problem, whereas convergent thinking is the process of thinking that narrows down different possibilities to reach a definite solution (Chen, Chang, & Lo, 2015).

Intelligence has long been studied in relation with creativity. In early discussions on the relationship between intelligence and creativity, it was argued that intelligence is a necessary but not sufficient condition for creativity (Klijn & Tomic, 2010). Nevertheless, after decades of research, there has still been no consensus on how the two constructs are related (Jauk, Benedek, Dunst, & Neubauer, 2013). Their correlation has been found to be insignificant in some studies but significant in the others (Barron & Harrington, 1981). Some research suggests that there is a threshold, which is usually set to an IQ of 120 or lower, where intelligence has an effect on creativity (Jauk et al., 2013). That is to say, there is a correlation between intelligence and creativity only when intelligence is lower than the threshold.

Motivation is one of the factors, which have been frequently associated with creativity of a person. Much research attention has been paid to two motivational orientations, namely

intrinsic motivation and extrinsic motivation. The former refers to the motivation to do something because of the pleasure and enjoyment of the activity itself, whereas the latter is the motivation to do something in hopes of achieving an external goal (Hennessey, 2003). According to the intrinsic motivation principle of creativity, people are most creative when they are motivated intrinsically, not extrinsically (Amabile et al., 1996). Also, extrinsic motivation is frequently regarded as having negative influence on intrinsic motivation as well as creativity (Klijn & Tomic, 2010). However, Hennessey (2000) argued that extrinsic motivation does not necessarily undermine intrinsic motivation or creativity. In fact, her research suggests that extrinsic and intrinsic motivation have a synergistic effect on motivation under certain conditions.

The influence of affective factors on individual creativity is another main research topic. But the results of multiple previous studies have been seemingly contradictory. In several studies, positive affect and moods were found to positively affect creativity. Isen, Daubman and Nowicki (1987) found that persons in whom positive affect had been induced had better performance on tasks that required creative problem solving. Similarly, Vosburg (1998) demonstrated that persons in positive moods performed better in divergent-thinking tasks than those in negative moods. However, Abele (1992) observed that not only positive mood enhanced creativity; negative mood also had the creativity enhancing effect under a certain condition, that is, when the task was instrumentally interesting.

2.5.2 Contextual Determinants

In empirical research pertaining individual creativity as an outcome, many different factors in the environment of employees have been examined. Based on a review of the literature, these factors can be classified into three main groups: coworker-related factors, supervisor-related factors and organization-related factors.

2.5.2.1 Coworker-Related Factors

The influence of others on individuals' creativity has attracted some research attention. A number of studies have focused on the effect of the presence of others on the level of creativity. Shalley (1995) argued that people can be distracted and their performance may be disrupted by others. She carried out an experiment to examine the effects of coaction, i.e. working in the presence of others, on creativity. Individuals who worked alone were observed to generate more creative solutions to problems than those who worked with others. The same

author conducted another study where more experimental conditions were assigned. The results suggested that the highest creativity happened when individuals worked alone, expected to be evaluated and had the goal to be creative. However, individuals who worked in the presence of others were found to be more creative than the ones who worked alone under certain conditions. Specifically, those working when others were around showed more creativity when they expected to be evaluated but had no creativity goal, and when they did not expect evaluation but had a creativity goal.

Characteristics of others seems as much important as their presence. Zhou (2003) posited that creative individuals can be role models and transfer creativity-relevant skills and strategies. She went on to examine the level of employees' creativity when coworkers who had creative personalities were present. The findings indicated that in the presence of creative coworkers, employees exhibited more creativity when the supervisors less engaged in close monitoring. In addition, employees with less creative personalities were found to benefit more from the joint condition of the presence of creative coworkers and supervisors' low close monitoring. Shalley and Oldham (1997) studied the presence as well as the visibility of competitors, whose performance was assessed in relation with that of the focal actor. They found that levels of creativity were relatively high when the participants were in the room with their competitors but were not able to see them. Lower levels of creativity were observed when the competitors were present as well as visible, and when there was no competition. The authors explained that the presence of competitors challenges individuals to complete the task well, whereas the visibility of competitors directs their attention to wining the competition rather than the task itself.

2.5.2.2 Supervisor-Related Factors

Some researchers who looked into the influence of others on individual creativity focused on leaders and supervisors in particular. Indeed, leadership is one of the most common themes in the literature pertaining creativity in organizations (Blomberg et al., 2017). Certain leadership styles can be important drivers of creativity in organizations. Past research has shown that transformational leaders—who typically inspire and motivate others to achieve more than originally expected—had positive influence on the followers' creativity (Arendt, 2009; Henker et al. 2015; Qu et al., 2015; Shin & Zhou, 2003). Nevertheless, the positive impact of transformational leadership may not apply to some cultures. There is empirical evidence that in some Eastern cultures, centralized directive leadership, rather than

decentralized, participative leadership, may have a greater positive impact on the creativity of employees (Zhou & Su, 2010). Democratic leadership is also argued to enhance employee creativity as it encourages unconventional behavior and experimentation rather than conformity (Pech, 2001).

Apart from leaders' characteristics mentioned previously, their relationship with employees has also been found to determine the creativity of their employees. Tierney, Farmer and Graen (1999) adopted the leader-member exchange theory (LMX) in their study of antecedents of employees' creativity. The results showed that the quality of the leader-employee relationship significantly affected the employees' creativity. Khazanchi and Masterson (2011) found that the relationship between leaders and employees promoted information sharing, which in turn positively influenced creativity.

2.5.2.3 Organization-Related Factors

Many factors which have been identified as drivers for creativity are related to the culture of organizations. Among these, employees' autonomy, freedom or discretion has frequently been associated with their creativity. Scholars have argued that individuals need the freedom to play with ideas and expand their thinking in order to be creative (Shalley, 1991). Indeed, empirical research has suggested the link between autonomy and creativity. A study conducted by Liu, Chen and Yao (2010) showed that the support for autonomy from the team as well as from the work unit or the branch positively affected the team member's creativity through harmonious passion for work. The author also found that the unit autonomy support was more influential when the team autonomy support was weak. Other studies showed that autonomy interacted with other factors affecting creativity. In Shalley's (1991) study, personal discretion was found to have different interaction effects with creativity goal setting. For instance, individuals who had lower personal discretion and no creativity goal had lower levels of creativity than those who had higher personal discretion and were told to be highly creative. In addition, in another study, Wang and Cheng (2010) observed that when job autonomy was high, the positive relationship between benevolent leadership and employees' creativity was stronger. However, autonomy may not always be beneficial to the creativity of employees. It has been pointed out that too much autonomy may result in people spending time on tasks, which were not aligned with the main objectives (Blomberg et al., 2017).

It is generally acknowledged that other individuals are sources of diverse information, which is used as input for new idea generation. Knowledge sharing is a process, which allows

people to transfer different knowledge and expertise to one another (Nanoka, 1994) and, thus, is crucial for creativity. Organizational research has continuously provided evidence of the connection between knowledge sharing among coworkers and their creativity. More specifically, several empirical studies revealed that knowledge sharing had a positive effect on the creativity of employees (e.g. Ma et al., 2013; Sheikh et al., 2019; Zeb et al., 2019). He, Cho, Qi, Xu, and Lu (2013) researched further into two types of knowledge that people share: explicit knowledge and tacit knowledge. The former refers to knowledge that can be easily expressed and documented, whereas the latter is knowledge that is difficult to communicate, such as personal experience and know-how. The authors found that only explicit knowledge sharing had a significant, positive impact on employees' creativity. Thus, the type of knowledge being shared is as well an important factor effecting individual creativity.

Evaluation and feedback are also considered to be crucial for improving employee performance. Research pertaining creativity has showed that there is relationship between these factors and creative performance. Shalley and Perry-Smith (2001) found that employees had a higher level of creativity when they were anticipating to receive evaluation that would provide information to improve their performance rather than information to gauge how well they performed. Similar results were reported in Zhou's (1998) study, where employees who obtained feedback that was informational and positive were found to exhibit greater creativity than other employees were. Another study conducted by Zhou (2003) showed that when employees worked with creative coworkers, the more their supervisors provided information that enabled learning and development, the more they possessed creativity. In addition, Zhou and Oldham (2001) discovered that development-oriented self-assessment was more effective in enhancing creativity than assessment conducted by others. The studies mentioned above similarly underlined the importance of the style of performance evaluation and feedback in influencing employee creativity.

There has been an ongoing debate about the influence of rewards on employees' creativity. Rewards are sometimes argued to reduce one's creativity, particularly by shifting his or her interest from the task to the rewards (Eisenberger & Armeli, 1997); however, a substantial amount of research has produced results contrary to this view. Abbey and Dickson (1983) examined the relationship between work climate and innovation in research and development (R&D) units and found that a reward system that was based on performance characterized the work climate of innovative R&D units. Eisenberger and Armeli (1997) argued that salient rewards strengthen creativity rather than reducing it.

Various elements of organizational structure have been argued to enhance or inhibit individual creativity. Walton (2003) pointed out that a rigid, hierarchical organizational structure may act as a barrier to the creativity of employees. For one thing, those in positions of low power are likely to adopt a careful information processing style. For another, low power may result in limited access to information. On the other hand, Pryor, Singleton and Taneja (2010) argued that a flat organizational structure eliminates barriers between employees and top management, and encourages the former to forward creative ideas to the latter. Empirical research has found that an organic organizational structure, which is characterized by 'extensive decentralization and a healthy flow of lateral and vertical communications (Wood, Franzak, Pitta, & Gillpatrick., 2011, p.39)' facilitated employees' creativity and innovation (P. Cooper, 2005).

Not only social structure, but also physical structure was found to influence creativity of individuals. Martens (2011) interviewed creative professionals and learned that the physical workplace could affect creativity in several respects including the process of generating creative ideas, creative thinking, knowledge sharing, and creative culture. The study suggested that too much noise, too high temperatures or not enough space could inhibit creative behavior.

In addition, it is commonly accepted that adequate resources are required for producing creative outputs (Blomberg et al., 2017). There are a wide range of resources that have been argued to be necessary for creativity. These include time, funds, materials, systems and processes, and information (Amabile, 1997). Individual employees could use diverse resources provided by weak ties for their creativity (Zhou et al., 2009). Lack of resources can hinder creativity.

Figure 1 below illustrated the determinants of employee creativity previously discussed. To summarize, based on a review of the literature, factors, which were argued and found to influence the creativity of employees can be categorized into two broad categories, individual factors and contextual factors. In addition, within the contextual category, three main groups can be derived from past research: coworker-related factors, supervisor-related factors and organization related factors.

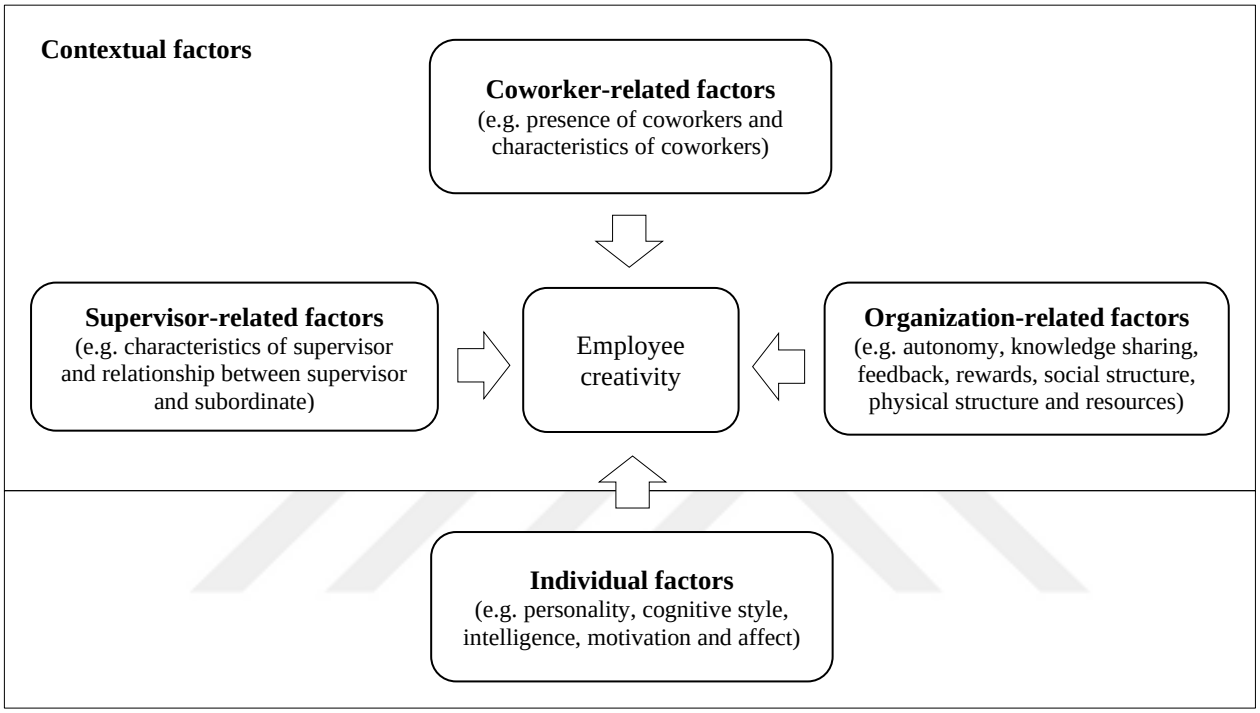


Figure 1: Factors Influencing Employee Creativity

The next part of the literature review deals with the definitions, components, and determinants of fun in the workplace.

3: FUN IN ORGANIZATIONS

3.1 Background of Fun in Organizations

Fun has not always been considered relevant in the business world. In fact, most companies in the past paid minimal or no attention to fun in the workplace (McDowell, 2004). Fun activities were clearly separated from work activities (Stebbins, 2018). Moreover, having fun was viewed as antithetical to working (Butler, Olaison, Sliwa, Sørensen, & Spoelstra, 2011).

It was not until recently that people started to be interested in fun in the workplace. Ford et al. (2003) surveyed human resource managers' perception on fun at work and found that the great majority of them expected employees to experience more fun. Another survey conducted by Karl, Peluchette, Hall and Harland (2005) suggested that employees in the private, public and non-profit sectors reported considered workplace fun as important, desirable and appropriate, and believed that it would lead to positive outcomes. Research attention has also begun to examine the consequences of employees having fun in the workplace. A considerable number of studies have reported various positive outcomes of workplace fun, for example, employees' commitment (McDowell, 2004), job satisfaction (McDowell, 2004; Peluchette & Karl, 2005), performance (Fluegge, 2014) and job engagement (Müceldili & Erdil, 2016).

At present, the relevance of workplace fun in organizations is generally recognized. Many highly successful companies such as Google, Apple and Facebook are praised for their fun work environment and are considered role models for other companies especially startups. Nonetheless, research on workplace fun is relatively new. There are still many claimed benefits of workplace fun that has yet to be thoroughly investigated.

3.2 Definitions of Workplace Fun, Play, and Humor

At first glance, the concept of fun at work may seem to be straightforward; however, different definitions found in the workplace literature have shown some inconsistencies. One is related to the types of activities where individuals can have fun in the workplace. On the one hand, McDowell (2004) viewed that fun at work refers to those activities that are "not specifically related to the job that are enjoyable, amusing, or playful (p. 9)." On the other hand, Fluegge (2008) provided a broader definition, which includes task activities as another aspect of workplace fun. To be precise, she defined fun at work as "any social, interpersonal, or task activities at work of a playful or humorous nature which provide an individual with amusement, enjoyment, or pleasure (p. 15)."

Another difference in the definitions of fun at work concerns how fun occurs. According to Ford et al. (2003), a work environment is fun when it "intentionally encourages, initiates, and supports a variety of enjoyable and pleasurable activities that positively impact the attitude and productivity of individuals and groups (p. 22)." Activities of this kind include social events, celebrations and contests that are organized by the management. However, Bolton and Houlihan (2009) argued that these fun activities, or what they termed "packaged" or "managed" fun, are just one form of workplace fun. According to these authors, workplace fun can be in another form, which is named "organic" fun. This type of fun does not come from managerial initiatives but is inherent in the work that workers do.

Drawing on the prior literature, Michel et al. (2019) offered a more comprehensive definition, which encompasses the different aspects of fun in the workplace. They defined it as "characteristics or features of the work environment of a social, playful, and humorous nature, which have potential to trigger positive feelings of enjoyment, amusement, and lighthearted pleasure in individuals (p. 99)." The present study adopts this definition, considering workplace fun as including work-related as well as non-work-related activities, and as encompassing packaged fun as well as organic fun.

In order to understand its meaning, differentiation between fun at work and similar concepts is also important. The concepts of fun, play, and humor are closely related and are often confused, but there are distinct differences. In the workplace literature, play is defined as "an intrinsically motivated, fun activity, carried out recursively in the form of a practice, typically in the context of social relationships (Statler, Heracleous, & Jacobs, 2011, p. 238)." Following this meaning, play and fun at work are similar as both of them involve activities that are enjoyable. Also, like workplace fun, there are more than one form of play at work. Mainemelis and Ronson (2006) identified two manifestations of play: play as a form of diversion from work tasks and play as a form of engagement with those tasks. However, Michel, et al. (2019) pointed out that play at work is a more focused concept and is a subset of fun at work. That is to say, fun at work includes play activities, such as playing computer games with colleagues and participating in an office beer pong tournament; but not all activities of workplace fun are considered play, for instance, birthday celebrations, team meals and company outings.

Humor in organizations, as defined by C. D. Cooper (2005), is "any event shared by an agent (e.g. an employee) with another individual (i.e. a target) that is intended to be amusing

to the target and that the target perceives as an intentional act. (pp. 766–767).” Humor can be in the form of verbal expressions, such as making jokes and using sarcasm, as well as in the form of non-verbal expressions, including sharing comical messages or images (C. D. Cooper, 2005). Humor at work shares some similarities with fun at work. For one thing, both humor and fun provide amusement feelings. Yet, it is arguable that humor is a distinct concept. Michel, et al. (2019) stated that, like play, humor is a sub-component of workplace fun and includes a narrower range of interactions and activities.

3.3 Components of Workplace Fun

Prior research has suggested different typologies of fun in the workplace based on different focuses and perspectives. Many researchers have examined fun at work as one single construct and some have concentrated on fun activities in particular. For example, Ford et al. (2003) attempted to determine what activities contribute to fun working environments. Ten categories were identified from the non-academic literature and a survey of managers in human resource departments. These are recognition of employees’ milestones, social events, celebrations, community volunteerism, stress-reducing activities, humor, games, friendly employee competition, opportunities for self-development, and entertainment (e.g. theatrical plays and musical bands). Some activities were reported to be used more frequently and contribute to fun working environments more than the others. Similarly, Karl et al. (2005) grouped fun activities in companies based on popular books and an empirical study. According to these authors, fun activities consist of eight categories, namely, food, contests, games, outings, gifts, prizes/awards, wild and wacky (e.g. awarding prizes for outrageous clothing and hula hoop marathon), and celebrations. Another categorization was offered by Chan (2010). Adopting a grounded theory methodology, the author discovered four groups of workplace fun activities. The first group is called “staff-oriented workplace fun”, which include such activities as celebrating anniversaries of employment and birthdays. The second group is “supervisor-oriented workplace fun”. Examples of activities under this group are meals with supervisors and informal gatherings between subordinates and supervisors. The third group, “social-oriented workplace fun”, involves social activities that are organized by the organization, for example, New Year parties and company trips. And the fourth group is named “strategy-oriented workplace fun”. It includes activities that are part of the company’s policies, for instance, food and refreshments and sharing sessions with upper management.

A different line of research has established that fun in the workplace is multidimensional but has still examined it as one construct. McDowell (2004) developed a framework of workplace fun by conducting a quantitative study which included four dimensions, namely, "socializing with coworkers", "celebrating at work", "personal freedoms" and "global fun". These different dimensions were however combined into an overall measure of workplace fun, which was found to be related with the outcomes of organizational commitment and turnover intention. Fluegge (2008) adopted the same framework in her study of the effects of workplace fun on different performance outcomes. Similar to the previous study, the impacts of the individual workplace fun dimensions were not focused.

Some scholars have called for research to examine different aspects of workplace fun and measure their outcomes rather than aggregating them into just one construct. Research following this call has offered various sets of aspects. Tews, Michel and Bartlett (2012) focused their study on three aspects, namely, "fun coworker interactions", "fun job responsibilities" and "formal fun activities". Their findings demonstrated that different aspects of workplace fun affected outcomes pertaining applicant attraction to jobs to different extents. There are also other studies that focus on individual dimensions of workplace fun. For example, Tews, Michel and Stafford (2013) examined "fun activities" and "manager support for fun"; Tews, Michel and Allen (2014) examined "fun activities", "manager support for fun" and "coworker socializing"; Tews, Michel, Xu and Drost (2015) examined "fun activities", "manager support for fun", "coworker socializing" and "fun job responsibilities". These studies showed that different dimensions of workplace fun had different effects on various outcomes. To illustrate, "manager support for fun" was found to be negatively related to employee turnover but did not affect the performance of employee, whereas "fun activities" was not related to turnover but had a positive impact of performance (Tews et al., 2013). This emphasizes the significance of assessing individual aspects of workplace fun rather than combining them into a single construct.

More recently, a more inclusive framework that encompasses the diverse aspects of workplace fun has been introduced by Michel et al. (2019). Based on a review of the literature pertaining fun in the workplace, these authors identified two broad types of workplace fun: one is "support for fun" and another is "fun events". "Support for fun" consists of "personal freedoms" and "manager support for fun", and "fun events" comprises "coworker socializing", "fun job responsibilities" and "fun activities".

This study drew on Michel et al.'s (2019) workplace fun framework. Specifically, it examined four aspects of fun in the workplace, including "manager support for fun", "coworker socializing", "fun activities" and "fun job responsibilities". "Personal freedoms" were considered part of "manager support for fun" as Michel et al. (2019) suggested that the two constructs are similar and can be considered as one construct.

3.4 Outcomes of Workplace Fun

Fun at work has been often advocated in the popular press to have various benefits. The topic of workplace fun however has not been researched extensively. Indeed, just recently academic research has begun to examine work-related outcomes of fun. The research on this topic has included both quantitative and qualitative studies. Among the quantitative studies, some have examined fun as a single construct, either unidimensional or multidimensional, while others have focused on its various aspects.

Many quantitative studies of workplace fun as a unidimensional construct have been conducted by Karl, Peluchette and colleagues. Peluchette and Karl's (2005) used the term "experienced fun" to refer to a person's perception of the presence of fun at work. Their study showed that experienced fun had a positive impact on job satisfaction among healthcare workers. Experienced fun has been later assessed in relation to other outcomes. Karl, Peluchette and Harland (2007) also examined the role of experienced fun in a healthcare environment. They found that the level of experienced fun was negatively related to emotional exhaustion. Outside healthcare contexts, Karl and Peluchette (2006b) demonstrated that there was a positive relationship between experienced fun and employees' perceptions of customer service quality. In another study, Karl, Peluchette and Hall (2008) discovered that volunteers who experienced higher levels of fun at work had lower intentions to quit their volunteer jobs. In addition, experienced fun was found to have an interaction effect with emotional exhaustion on job satisfaction of healthcare workers (Karl & Peluchette, 2006a). To be specific, emotional exhaustion had a weaker negative impact on job satisfaction for those who experienced greater levels of fun at work.

Early quantitative investigations of fun at work as a multidimensional construct included McDowell's (2004) study. The author developed a measure of fun at work which comprises four dimensions, including socializing with coworkers, celebrating at work, personal

freedoms, and global fun. Based on a sample of employees in an oil company, her study showed that fun at work was significantly related to the employees' affective commitment to the company, their intention to leave and their satisfaction with the job. Using the same measure of fun, Fluegge (2008) examined the influence of fun at work on three aspects of job performance, namely, task performance, organizational citizenship behaviors and creative performance of working individuals. She found that fun at work had a positive and direct effect on the organizational citizenship behavior while having positive and indirect effects on the task performance and the creative performance. Both of these studies merged the four dimensions of fun at work into one measure. Consequently, the impact of each dimension was not assessed.

More recently, researchers, particularly Tews and his fellow researchers, have shifted research focus to the various dimensions of fun in the workplace. Tews et al. (2012) demonstrated that three dimensions of workplace fun, namely "fun coworker interactions", "fun job responsibilities", "formal fun activities" positively impacted different applicant attraction outcomes, including perceived fun, perceived person-organization fit and offer acceptance intentions. Their study also showed that "fun coworker interactions" had a stronger effect on applicant attraction than the other two dimensions of workplace fun. Tews et al. (2013) revealed that "manager support for fun" had a negative effect on volunteers' turnover, while "fun activities" had a positive effect on their performance. In addition to "manager support for fun", Tews et al. (2014) observed that "coworker socializing" was as well negatively related to employees' turnover. Also, "coworker socializing" and "manager support for fun" were reported to have positive effects on job engagement in Müceldili and Erdil's (2016) study.

A relatively small amount of research related to outcomes of fun at work used qualitative methods. Among the qualitative studies, Studholme (2014) conducted an ethnography on the culture of startups. Her report suggested that fun perks such as frequent company outings and gyms offered by startup companies had some benefits, including keeping up employees' morale and attracting talents. However, these fun perks were not always favored as some people perceived them as a means to keep employees at the company longer. Similar findings were reported in Redman and Mathews' (2002) study. The authors conducted a case study of a retail store, which was attempting to create a fun culture in the organization. They found that instead of benefiting from employees having fun, the company faced some negative repercussions such as the resistance from the staff who refused to embrace the introduced fun

culture. These studies highlighted that the relationships between workplace fun and its outcomes are not always as straightforward as it may seem.

The above review of the literature suggests that additional research is still needed to evidence the frequently claimed connection between fun in the workplace and creativity of employees. As prior research has demonstrated that not all aspects of workplace fun were predictors of the same outcomes and some had stronger impacts than others did, it is necessary to assess the influence of the different aspects on employee creativity.

4: RELATIONSHIPS BETWEEN WORKPLACE FUN AND EMPLOYEE CREATIVITY

4.1 Workplace Fun and Employee Creativity

As employee creativity has been generally considered as a crucial asset to organizations, factors which may have an impact on it have been of great interest to scholars as well as practitioners. Workplace fun is among the factors that have been claimed to enhance creativity of employees. However, research on and evidence of the link between workplace fun and creativity are still very limited.

Among the small number of researchers who link workplace fun with creativity, Michel, et al. (2019) theorized that creativity is one of the long-term benefits of fun in the workplace. Their theory is consistent with an empirical study conducted by Fluegge (2008), who examined relationships between workplace fun and several performance outcomes by using a sample of university students who were employed in different organizational roles. She found that workplace fun had a positive effect on work engagement, which in turn positively affected creative performance. She adopted Mcdowell's (2005) framework of workplace fun, which includes the dimensions of socializing with coworkers, celebrating at work, personal freedoms, and global fun at work. Although Fluegge's (2008) study did not differentiate the effects of different dimensions of workplace fun as all dimensions were aggregated into an overall measure, it provided initial evidence for the link between workplace fun and creativity, and paved the way for future research to further probe into the topic.

Michel et al. (2019) posited that each dimension of fun in the workplace is theoretically as well as practically distinct. Each dimension is not necessarily a predictor of the same outcome as another dimension. For example, Tews et al. (2013) learned that "manager support for fun" adversely affected turnover, while "fun activities" had no impact on it. Also, the effects of different dimensions of workplace fun on the same outcome are not necessarily equal. For instance, Tews et al. (2014) observed that the influence of coworker socializing on constituent attachment and turnover was significantly stronger than that of fun activities. Therefore, it is important to distinguish different dimensions of workplace fun and determine the similarities and differences among them.

Given that different dimensions of workplace fun may affect employee creativity differently, the present study examined them as distinct constructs. It drew on Michel et al.'s

(2019) model of workplace fun due to the inclusiveness of various aspects of factors influencing employee creativity. Specifically, it examined four constructs of workplace fun, namely "manager support for fun", "coworkers socializing", "fun activities" and "fun job responsibilities". These four constructs of workplace fun can be categorized into the four groups of determinants of employee creativity as the literature review suggested. That is to say, "manager support for fun" is a supervisor-related factor, "coworkers socializing" is a coworker-related factor, "fun activities" is an organization-related factor, and "fun job responsibilities" is an individual factor. The relationships between these four constructs and employee creativity are discussed in the following sections.

4.2 Manager Support for Fun and Employee Creativity

Managers play a key role in endorsing or opposing fun in the workplace (Karamfilov, 2018). Managers who support workplace fun would provide autonomy, which allows employees to play around with their work (Tews et al., 2014). Such autonomy gives the opportunity for employees to consider different approaches to work, which should lead to higher levels of creativity (Amabile et al., 1996). Joo et al. (2014) investigated the impact of different organizational factors on the creativity of knowledge workers. They found that job autonomy was positively related with employee creativity. Based on the notion that manager support for fun is a kind of job autonomy, it should as well affect employee creativity.

Transformational leaders are those managers who value autonomy and allow or even encourage their followers to have fun on the job. Research examining transformational leadership similarly suggests the connection between transformational leaders and their followers' creativity. Henker et al. (2015) investigated the creativity of employees in various fields in relation to their supervisors. They discovered that transformational leaders indirectly had positive influence on the subordinates' creativity. Similar findings were reported by Qu et al. (2015). These researchers found in their study that transformational leadership of the team leaders was positively related to the creativity of the followers.

The aforementioned studies lead to the conclusion that employees should be more creative when their managers support having fun on the job. Thus, the following hypothesis is offered.

H1: Manager support for fun positively affects employee creativity.

4.3 Coworker Socializing and Employee Creativity

Socializing with coworkers is a common fun activity in which people engage during their working day. Although it may be viewed as a diversion from the core work of the organization, Mainemelis and Ronson (2006) argued that such activity allows people to develop social bonds which can help them to gain inputs that are useful for the creative process from others. Handzic and Chaimungkalanont (2004) provided empirical evidence that socialization had a direct effect on creativity at the group level by surveying IT professionals. Given that socialization takes place through interaction between individuals who can benefit from the flow of information, it should also influence creativity at the individual level.

Socialization is one way to expand one's social network. It increases the chance of connecting with people who possess different information and knowledge, which can be used for generating new ideas (Mainemelis & Ronson, 2006). There is empirical evidence that diversity is related to creativity. Shin, Kim, Lee and Bian (2012) studied the relationship between cognitive team diversity and the creativity of individual team members. They found that under transformational leadership, the more team members were different in thinking styles, skills, knowledge, beliefs, and values, the more they exhibited creativity. Baer (2010) examined social networks beyond work teams in relation to the creativity of employees. He similarly discovered that employees who had a more diverse set of network members and were more open to new experience were found to be more creative. Since socialization can lead to diversity in social networks, it should have positive influence on employee creativity.

To conclude from the literature, socialization can help employees to develop social bonds with their colleagues as well as expand their social networks. This provides access and exposure to a wide range of information, which is an important source for creative ideas. Therefore, the following hypothesis is formed:

H2: Coworker socializing positively affects employee creativity.

4.4 Fun Activities and Employee Creativity

Generally, fun activities have been considered as one of the major aspects of fun at work. According to the responses of human resource managers in a survey conducted by Ford et al. (2003), a fun work environment can be created through various activities that are funny, humorous, or playful. Michel et al., (2019) viewed fun activities as a main aspect of fun in the workplace, along with other aspects, such as fun job responsibilities and coworker socializing.

This view is consistent with McDowell's (2004) empirical study, which suggested that activities such as celebrations and parties are one dimension of a fun climate at work.

Past research usually examined workplace fun in relation to creativity, as a multidimensional, higher order construct, rather than focusing on specific dimensions such as fun activities. For example, Fluegge (2008) found that fun at work, which includes celebrating as a dimension, positively influenced employees' engagement and, in turn, their creativity. A thorough examination of the relationship between fun activities and creativity is still lacking. However, research on play—a similar concept, which is sometimes considered as a subset of fun (Michel et al., 2019) and also involves fun activities such as office celebrations and games (Mainemelis & Sarah, 2006)—suggested that there is a connection between play at work and employee creativity. Mainemelis and Sarah (2006) argued that play facilitates creativity in many ways. According to these authors, play allows individuals to develop an informal social bond with other organizational members, which enables them to feel safe to explore and express different ideas. It also connects people across the organization and thereby provides them with access to diverse information and perspectives, which are important for idea generation. Roos, Victor and Statler (2004) conducted action research where they added play to the strategy making process and observed changes. Participants in the research reported that when the strategy process became more playful, they came up with new ideas and perspectives. Jacob and Statler (2006) proposed that play can be used to facilitate scenario development processes.

Research on play produced by the above scholars has pointed out the positive impact of play on creativity. In addition, since fun activities is conceptually similar to play at work, it should be reasonable to expect similar influence. For this reason, the following hypothesis is generated.

H3: Fun activities positively affect employee creativity.

4.5 Fun Job Responsibilities and Employee Creativity

Tew, Michel and Bartlett (2012, p. 108) defined fun job responsibilities as "tasks that are personally enjoyable, meaningful, and a good fit to the person's interests." According to literature pertaining intrinsic motivation, employees who engage in tasks for their own satisfaction are likely to be more creative (Amabile, 1997). It is explained that such motivation has tendency to increase cognitive flexibility, curiosity, risk-taking behavior and persistence in

the face of challenges, all of which are argued to facilitate the development of new ideas (Shalley, Zhou, & Oldham, 2004). The link between fun job responsibilities and employee creativity is supported by empirical research on enjoyment of work. Aleksić, Černe, Dysvik and Škerlavaj's (2016) study indicated that work enjoyment had a significant, positive effect on employees' creative performance.

Support for the connection between fun job responsibilities and employee creativity may also be derived from research related to affect, which is based on the notion that the fun of work is positive affect. Affect has long been associated with creativity. It is suggested that positive affect improves individuals' creative performance in several ways, for example, by enhancing their cognitive ability and by motivating them to engage in more exploratory and risk-taking behavior (Hirt et al., 1997). Prior empirical research has provided evidence that positive affect can have a positive impact on creativity. To illustrate, Amabile, Barsade, Mueller and Staw (2005) focused their study on the pleasantness aspect of affect and found that it had a positive effect on creativity. Similarly, Baron and Tang (2011), who examined positive affect, which combined various feelings and emotions (e.g. enthusiastic, excited and active), reported that there was a positive relationship between the positive affect and employee creativity.

Following the arguments and findings in the previous research, it is expected that fun job responsibilities may have positive influence on employee creativity. Therefore, the following hypothesis is put forwarded.

H4: Fun work responsibilities positively affect employee creativity.

4.6 Psychological Safety as a Mediator of Workplace Fun and Employee Creativity

Psychological safety was first introduced as a team-level construct by Edmondson (1999), who defined it as "a shared belief held by members of a team that the team is safe for interpersonal risk taking (p. 354)." Since then, it has been frequently investigated in research, particularly that is pertaining organizational learning and innovation. In some studies, psychological safety was adapted to be used at the organizational level (e.g. Baer & Frese, 2003; Dunne, 2013).

It has been argued that psychological safety is associated with individual creativity. Runco (2007), for example, stated that psychological safety is amongst the key features of a

creative climate, which allow individuals to express their creativity. In a field study of psychological safety in work teams, Edmondson (1999) observed experimenting behaviors, such as generating new ideas and testing new ways to perform tasks, in the team where psychological safety was present. Mainemelis and Ronson (2006) explained that psychological safety reduces the fear of negative evaluation for risky, yet creative, behaviors such as suggesting new ideas. Bornemisza (2013) conducted a quantitative study to assess the relationship between psychological safety and creativity. She found that the safer the participants felt in their team, the more creativity they reported. This finding is consistent with what Gu, Wang and Wang (2013) found in their empirical study, which revealed the positive effect of teams' psychological safety on their innovation.

Psychological safety has also been argued to be connected with workplace fun. Mainemelis and Ronson (2006) stated that participating in playful activities such as office games or the company's sporting events helps employees realize that they are part of the group and feel comfortable with and trust each other. They explained that social bonds developed through such activities results in increased psychological safety in the organization, which in turn benefits the creativity of employees.

The network literature highlights the importance of socializing in building psychological safety in organizations. Aranzamendez, James and Toms (2015) stated that interactions between people improve the quality of their relationships. Carmeli (2007) pointed out that high-quality interpersonal relationships help members of the organizations develop a shared belief that they are in a safe environment and will not be embarrassed, rejected or punished when they express their opinions. Similarly, Oh, Chung and Labianca (2004) suggested that organization members trust and are open to each other more when they socialize, particularly outside of the workplace. Thus, psychological safety should be a mechanism through which coworker socializing affects employee creativity.

Existing research has suggested that characteristics and behaviors of leaders can, as well, influence the climate of psychological safety. Supervisory abuses, for example, constantly blaming subordinates for failure and expressing beliefs about their incompetence, were found to negatively impact psychological safety (Jiang and Gu, 2016). On the contrary, humility of leaders—which involves accurately evaluating their own weaknesses while appreciating strengths of subordinates, and being open to new ideas—had positive influence on psychological safety in the team, which in turn positively affected team creativity (Gonçalves

and Brandão, 2017). Similar to humility, leaders' support for fun involves reinforcing subordinates' confidence as well as freedom. It is therefore reasonable to expect that leaders' support for fun at work should similarly enhance the psychological safety climate and consequently improve employee creativity.

Reviews of the literature similarly show that psychological safety is mainly influenced by contextual factors rather than individual factors (e.g. Aranzamendez et al., 2015; Chen, Gao, Zheng, & Ran, 2015; Zehr, 2017). Fun job responsibilities are considered an individual factor dealing with individuals' enjoyment of their work tasks. While enjoying the job may motivate employees to be creative, they may or may not feel that it is safe to express their ideas. For this reason, psychological safety is not expected to mediate the relationship between fun job responsibilities and employee creativity hypothesized earlier.

To summarize, based on the literature and the reasoning described above, three components of workplace fun, namely manager support for fun, coworker socializing and fun activities are expected to influence creativity of employees in a positive way through psychological safety. Thus, the following hypothesis is offered.

H5: Psychological safety mediates the relationships between (a) manager support for fun and employee creativity, (b) coworker socializing and employee creativity and (c) fun activities and employee creativity.

4.7 Information from Others as a Mediator of Workplace Fun and Individual Creativity

Interaction between individuals has been viewed as an important way to develop creative ideas. In organizations, team and group collaboration has often been promoted as a driver for creativity (Paulus, 2000). According to the social view of creativity, creativity is a collaborative process, which involves interactions between different people, rather than originating from lone geniuses (Khazanchi, 2005). Under this view, from the perspective of the focal individual, others serve as sources of creative inputs as they provide new information and perspectives (Madjar, 2002). Also, working with diverse people gives access to a broad set of external networks and a wide variety of knowledge (Ancona & Caldwell, 1992). Team diversity has been found to have a positive effect on the level of creativity of the team (Bodla, Tang, Jiang & Tian, 2018) as well as its individual members (Shin et al., 2012).

Workplace fun increases circumstances where organizational members can interact. Mainemelis and Ronson (2006) pointed out that fun activities help employees who work in different functional areas or rarely meet each other to come into contact. This provides an opportunity for them to exchange information would not be accessible otherwise. Socializing with coworkers is another element of workplace fun that can create as well as strengthen social bonds between members of the organization. Oh et al. (2004) mentioned that organization members who socialize outside of the workplace are more motivated to exchange resources including information. Kuo, Kuo and Ho (2014) similarly stated that stronger social bonds make employees more willing to help and share information with their fellow coworkers. Information provided by coworkers that is different from what employees already possess can be a useful source for new idea generation.

It is therefore reasonable to expect that coworker socializing and fun activities will help employees acquire information from their coworkers. In addition, this information will, in turn, enhance the creativity of the employees. However, the mediating role of information from coworkers is not expected in the relationships between manager support for fun and employee creativity, and between fun job responsibilities and employee creativity. Unlike the previous two components of workplace fun, manager support for fun and fun job responsibilities may not facilitate or provide opportunities for more social interactions where information can be exchanged. Thus, the following hypothesis is formed.

H6: Information from others mediates the relationships between (a) coworker socializing and employee creativity and (b) fun activities and employee creativity.

4.8 Workload as a Moderator of Workplace Fun and Individual Creativity

An excessive workload can be argued to be a factor, which may prevent workplace fun from benefiting employee creativity. Like core work tasks, play or having fun at work is bounded by time (Mainemelis & Ronson, 2006). Fun at work, whether it be socializing with colleagues, celebrating their birthdays or playing pranks on them, takes some time. Since the time individuals have is limited, extended hours of work take up the time they could otherwise spend in engaging in socializing and fun activities. This should mean that they have less opportunities to socially interact with their other members of the organization and thereby to acquire new information for developing creative ideas. Heavy workload also means less time for exploration, experimentation, and playing around on the job. These activities are argued to be conducive to creativity (Mainemelis & Ronson, 2006).

Some doubt has been cast on the benefits of "work hard, play hard" culture. Bolton and Houlihan (2009) pointed out that such culture is accompanied by a "pressure to conform and act the part" (p. 562) and is not always beneficial. The pressure for conformity to this culture places heavy demands on the time of the employees. In addition, the perception that there is insufficient time to cope with these demands can cause stress (Lal & Singh, 2015). Research suggested that individuals who experience high levels of stress tend to be less flexible in problem solving and stick with familiar solutions rather than trying new methods (Staw, Sandelands, & Dutton, 1981).

It is expected that manager support for fun, coworker socializing and fun activities will have interaction effects with workload on employee creativity. These aspects of workplace fun need additional time and may become less possible when employees are dealing with high workload. Fun job responsibilities, on the other hand, may not be affected by workload in influencing employee creativity. For one thing, unlike the other three aspects, it is the core task itself and hence does not require extra time. Moreover, for another, it should motivate employees to handle the workload rather than interfere with it. For this reason, the following hypothesis is generated.

H7: Workload moderates the relationships between three aspects of workplace fun, namely (a) manager support for fun, (b) coworker socializing and (c) fun activities, and employee creativity.

In total, seven hypotheses were proposed. Four of them pertained the relationships between the four constructs of workplace fun, "manager support for fun", "coworker socializing", "fun activities" and "fun job responsibilities", and "employee creativity". Two concerned the mediating roles of "psychological safety" and "information from coworkers". In addition, one was related to the role of "workload" as a moderator. Figure 2 presents the theoretical model of the hypothesized relationships. The next section describes the research method that was used to test these hypotheses.

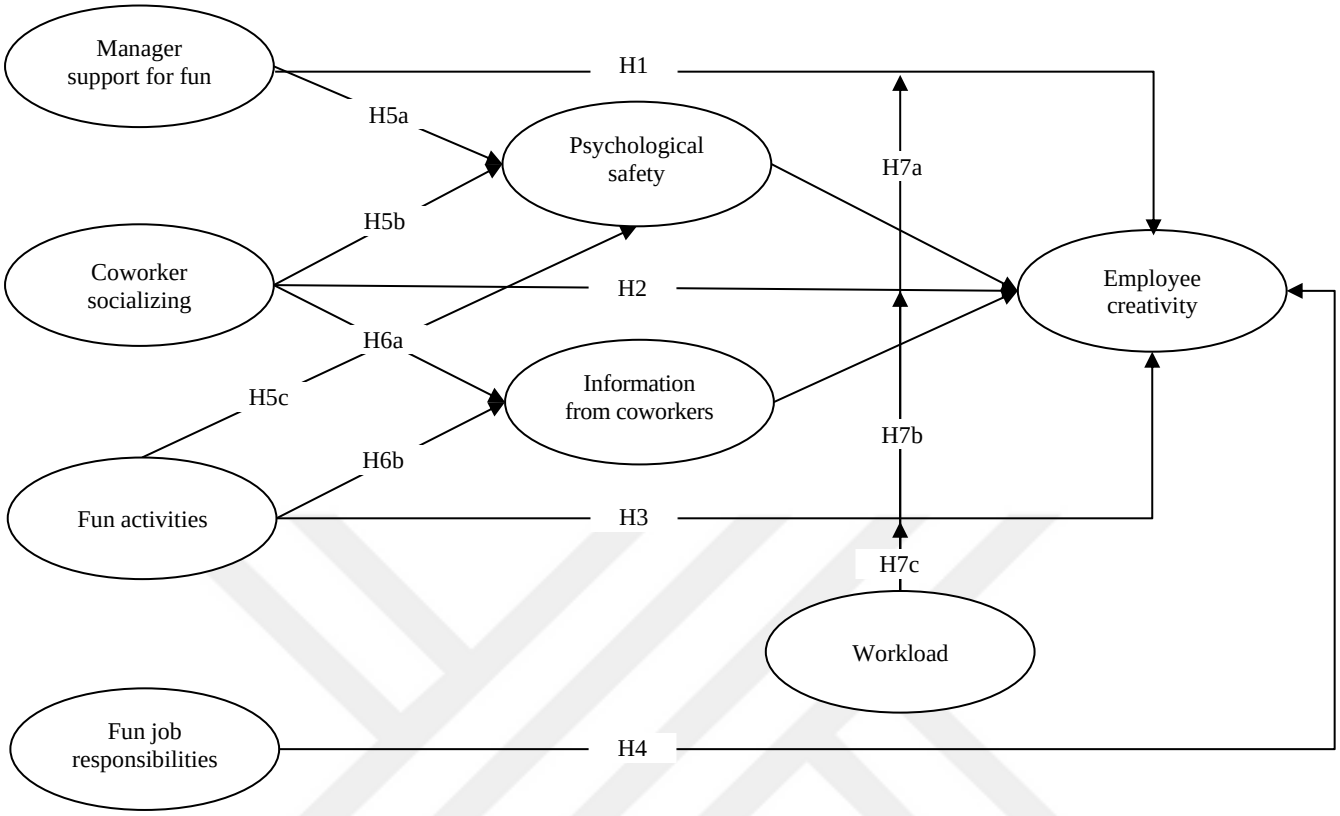


Figure 2: Theoretical Model

5: RESEARCH METHODS

5.1 Research Setting

This study was carried out in start-up companies—which is defined as product-focus technology private companies where many elements of business such as revenue model, customers and products are not yet firmly established (Presidency of the Republic of Turkey Investment Office, 2019)—in Turkey. The companies of this kind were selected because of their highly competitive and fast-paced environment where creativity and innovation are key drivers of organizational success. Especially, Turkish start-up companies are growing at a rapid pace. Within the countries in Europe, the highest number of new start-up companies was seen in Turkey between years 2013 and 2017 (Tolentino, 2018, July 12). Additionally, various perks and fun are commonly offered by start-up companies in order to motivate current employees and attract new talents (Studholme, 2014). For the reasons given above, this research setting was expected to provide valuable as well as sufficiently reliable insights into the relationships between the workplace fun factors and employee creativity.

5.2 Data Collection Procedure

The sample for this study was composed of employees who were working in start-up companies in Turkey. Responses were collected by means of questionnaires. Two modes of questionnaire administration were used. The first mode was using a self-administered paper-and-pencil questionnaire. Start-up companies were contacted in advance to request the permission and arrange the date to carry out a survey with the employees. On the survey date, copies of the self-completion paper-based questionnaire were distributed to the employees who were willing to participate in the research. The participants were instructed to complete the questionnaire and to return it to the researcher upon the completion.

The second mode was a self-administered web-based questionnaire. Start-up companies were contacted to request their assistance in distributing the online questionnaire to the employees. The use of these two modes of questionnaire administration was aimed to help reach participants in a timely manner. All of the respondents were informed that their responses would remain anonymous and confidential.

5.3 Instrument

Paper-based and web-based questionnaires were used to collected responses from the participants. The two questionnaires contained the same items, which were organized in the same order. These items were composed of the measures of “employee creativity”, “manager support for fun”, “coworker socializing”, “fun activities”, “fun job responsibilities”, “psychological safety” of the workplace, “information from coworkers”, “workload”, and basic demographic information.

All of the questionnaire items were presented in Turkish. Those measures whose Turkish translation was not available were translated from English into Turkish. These included the measures of employee creativity, manager support for fun, coworker socializing, fun activities, fun job responsibilities, psychological safety and information from coworkers. The original measures and the translated measures can be found in Tables A1-A8 in the Appendix. To assure the content validity and the appropriateness, all of the measures were reviewed and revised by academics who were knowledgeable about the topic.

The measures and scales that were used to assess the constructs included in the hypotheses are explained below.

5.3.1 Employee Creativity

Employee creativity can be measured objectively as well as subjectively. The objective measurement of employee creativity involves using such indicators as patent disclosures, idea contributions to employee suggestion programs (Oldham & Cummings, 1996), invention disclosure forms and research reports (Tierney, Farmer, & Graen, 1999). On the other hand, subjective measurement is usually done by using three techniques: (1) consensual assessment, in which employees’ creative outcomes are evaluated by experts who normally have relevant educational background and work experience, (2) self-ratings, in which employees rate their own creativity, and (3) supervisor-ratings, in which, the creativity of employees is assessed by their direct supervisors (Zhou & Shalley, 2003).

In the present study, employee creativity was measured subjectively by self-ratings. Specifically, it was assessed by using the employee creativity scale developed by Tierney et al. (1999). Although this scale was developed in 1999, it has still been used effectively in more

recent studies (e.g. Carmeli, Reiter-Palmon, & Ziv, 2010; Tierney & Farmer, 2011; Wang et al., 2010). Unlike another frequently used scale developed by George and Zhou (2002), it excludes items related to the implementation of ideas, which is argued to be an indicator of innovation rather than creativity (Zhou & Hoever, 2014). Thus, Tierney et al.'s (1999) employee creativity scale was considered appropriate for this study.

Employees were asked to rate how often they engaged in creative behaviors, by using a six-point scale, where 1 means "never" and 6 means "always." The scale contained six items in total, which can be found in Table A1 in the Appendix. Examples of the items are "I took risks in terms of producing new ideas in doing job," "I identified opportunities for new products/processes" and "I generated novel, but operable work-related ideas."

5.3.2 Manager Support for Fun

To measure manager support for fun, this study used Tews et al.'s (2014) five-item manager support for fun scale. The items were adapted from the perceived supervisor support scale developed by Shanock and Eisenberger (2006) to instead reflect manager support for employees having fun in the workplace. The scale has been tested for validity and reliability, and proven to be acceptable in prior studies (e.g. Müceldili & Erdil, 2016; Tews et al., 2014; Tews et al., 2015). It was used effectively in a Turkish sample by Müceldili and Erdil (2016). In their study, Cronbach's alpha for the scale shows reliability to be sufficient (.93).

The five items were measured by asking employees to rate how often their managers showed different kinds of support for fun at work. Responses were anchored on a six-point scale where 1 means "never" and 6 means "always." All items are shown in Table A2 in the Appendix. Examples of the items include "my managers encourage employees to have fun on the job," "my managers care about employees having fun on the job" and "my managers allow employees to play around on the job."

5.3.3 Coworker Socializing

Tews et al.'s (2014) coworker socializing scale was adopted in this study to assess employees socializing with their coworkers. The scale was developed based on McDowell's (2004) fun climate scale, which has been used to measure the overall climate of fun in the workplace (Fluegge, 2008; McDowell, 2004). This coworker socializing scale has been used

successfully in past studies focusing on different aspects of workplace fun (Tews et al., 2014; Tews et al., 2015; Müceldili & Erdil, 2016). Müceldili and Erdil (2016) applied the scale to a sample of Turkish employees and reported a Cronbach's alpha coefficient of .86, which indicated acceptable reliability.

The scale consisted of four items. These items were assessed on a scale ranging from 1 (never) to 6 (always). On this scale, employee respondents rated how often each of the statements happened. All items can be seen in Table A3 in the Appendix. Sample items are "my coworkers and I share stories with each other," "my coworkers and I joke around with each other" and "my coworkers and I socialize outside of work."

5.3.4 Fun Activities

The scale for measuring fun activities used in this study was taken from Tews et al.'s (2014). It was developed based on Ford et al.'s (2003) findings on activities contributing to a fun work environment. Tews et al. (2014) tested this scale for reliability and reported a Cronbach's alpha coefficient of .76, which was within the acceptable range. It was also validated and applied in a Turkish sample by Müceldili and Erdil (2016) and was shown to be a reliable scale with a Cronbach's alpha of .85.

This fun activities scale comprised five activities which are common in the Turkish culture. The items include, for example, "public celebrations of work achievements," "team building activities" and "recognition of personal milestones." All items can be found in Table A4 in the Appendix. In the survey, employees indicated the frequency of the occurrence of each activity. Responses were given on a six-point scale where 1 means "never" and 6 means "always."

5.3.5 Fun Job Responsibilities

Spence and Robbins (1992)'s enjoyment of work scale was used to assess the extent to which employees found their responsibilities at work enjoyable or fun. The scale was originally developed as one of the three components of the workaholism battery (WorkBAT), together with "driven" and "work involvement". The WorkBAT has been extensively tested and the enjoyment of work component has been well supported (e.g. Andreassen, Hetland, & Pallesen, 2010, 2014; McMillan, Brady, O'Driscoll, & Marsh, 2002; McMillan & O'Driscoll; 2004). A

satisfactory level of reliability of the enjoyment of work scale (Cronbach's alpha coefficient of .86) was reported in Spence and Robbins' (1992) study. The scale was tested with an additional item by Ersoy-Kart (2005) in Turkey, and the Cronbach's alpha coefficient was .81.

The score comprised 10 items in total, which are shown in Table A5 in the Appendix. All items were scored by employees along a six-point continuum between never (1) and always (6). Sample items include "my job is so interesting that it often doesn't seem like work," "sometimes when I get up in the morning I can hardly wait to get to work" and "when I get involved in an interesting project it's hard to describe how exhilarated I feel."

5.3.6 Psychological Safety

Psychological safety was measured by using the Turkish translated version of the psychological safety scale. The original English scale, which was developed by Edmondson (1999), has been extensively validated and used in various contextual settings and across diverse samples, and has been found to be valid and reliable (e.g. Chen, Zhang, Zhang, & Xu, 2016; Gu et al., 2013; Lee, Swink, & Pandejpong; 2011; Lenberg & Feldt, 2018). In the Turkish version translated for this study, all items were transformed from team level statements into organization level statements. Yener's (2015) study showed that psychological safety of the organization was as well a reliable scale (Cronbach's alpha of .81) and was suitable for the Turkish culture.

The Turkish version of the scale used in this study consisted of seven items. Employees were asked to rate how frequently each statement happened. Responses were anchored on a scale ranging from 1 (never) to 6 (always). All seven items can be found in Table A6 in the Appendix. Examples of these items include "members of this team are able to bring up problems and tough issues," "no one on this team would deliberately act in a way that undermines my efforts," and "working with members of this team, my unique skills and talents are valued and utilized."

5.3.7 Information from Coworkers

Madjar (2002) developed a scale to assess the extent to which others shared knowledge and information with the employee. Originally, the was used to measure knowledge and information from six different groups of others, namely, supervisors, coworkers from the same

work unit, coworkers from different work units, customers or clients, family members outside the organization, and friends outside the organization. The Cronbach's alphas for each of these groups of others were found satisfactory (83, .78, .79, .70, .82 and .82, respectively).

In the present study, only information from coworkers was measured by using Madjar's (2002) scale. Reversed items were unreversed to avoid confusing the respondents (Sonderen, Sanderman, & Coyne, 2013). The scale consisted of seven items, which can be found in Table A7 in the Appendix. Employees were asked to rate the items on a scale ranging from 1 (never) to 6 (always). Examples of the items include "my coworkers often provide me with different perspectives and viewpoints," "my coworkers give me useful suggestions about my ideas concerning the workplace" and "my coworkers provide me with constructive suggestions about how to improve my job."

5.3.8 Workload

Workload was assessed by using Keser, Bilir and Aytaç's (2017) version of the quantitative workload inventory (QWI). The QWI is a self-report measure, which was developed by Spector and Jex (1998) and has been successfully adapted in many languages (University of South Florida, 2018). The Turkish version of the QWI was developed and tested on a Turkish sample by Keser, Bilir and Aytaç (2017). The results from their study indicated that this version of the scale was reliable with a Cronbach's alpha of .95.

The measure consisted of five items, all of which were presented in Table A8 in the Appendix. The respondents indicated how frequently each item happened in their job by using a six-point scale where 1 means "never" and 6 means "always." Sample items include "how often does your job require you to work very hard," "how often does your job leave you with little time to get things done" and "how often do you have to do more work than you can do well."

5.4 Data screening

In total, 270 responses were returned. 132 responses were from the paper-based questionnaire and 138 responses were from the web-based questionnaire. The collected data were screened, and the incomplete responses were eliminated. Finally, 254 responses remained and were then used in the analyses.

5.5 Characteristics of Respondents

Table 1 summarizes the main characteristics of the respondents. The total number of respondents was 254. There were more male respondents (63 percent) than female respondents (37 percent) were. The majority of the respondents were at the age of between 20 and 29 years old (83 percent), graduates of a bachelor's degree (70 percent), were not married (86 percent), were working on a full-time basis and had been working in the company for less than two years. The respondents were members of different teams. 40 percent had responsibilities related to product development, 20 percent supported customers, and the rest worked in other areas. Most of them spent at least 40 hours but less than 60 hours per week on work tasks.

Table 1. Summary of Characteristics of Respondents

Characteristics	Number	Percent
Gender (N = 254)		
Female	93	36.6
Male	161	63.4
Age (N = 226)		
< 20	2	.9
20 – 29	188	83.2
30 – 39	34	15.0
> 40	2	.9
Education (N = 254)		
High school	31	12.2
Bachelor's degree	178	70.1
Master's degree and higher	45	17.7
Marital status (N = 248)		
Single	214	86.3
Married	34	13.7
Job type (N = 254)		
Full-time	241	94.9
Non-full-time	13	5.1

Table 1. Summary of Characteristics of Respondents - Continued

Characteristics	Number	Percent
Role (N = 220)		
Product, programming and engineering	88	40.0
Customer success and customer support	44	20.0
Marketing	19	8.6
Human resources	13	5.9
Finance and accounting	12	5.5
Business intelligence	11	5.0
Sales	9	4.1
Management and administration	8	3.6
Design	5	2.3
Others	11	5.0
Years in company (N = 252)		
1 year	203	80.6
2 to 3 years	22	8.7
More than 3 years	27	10.7
Working hours per day (N = 248)		
Less than 40 hours	22	8.9
40 hours or less than 50 hours	95	38.3
50 hours or less than 60 hours	77	31.0
60 hours or above	54	21.8

6: ANALYSES AND RESULTS

This section demonstrates the analyses carried out in this study as well as their results. It consists of three sections. The first section presents confirmatory factor analyses (CFA) which were conducted to assess measurement models for eight constructs: “employee creativity”, “fun job responsibilities”, “information from coworkers”, “psychological safety”, “workload”, “fun activities”, “manager support for fun” and “coworker socializing”. The second section involves structural equation modeling which was performed to examine the direct and indirect relationships between the different constructs of workplace fun and employee creativity. The third section pertains moderation analysis, in which the effects of workload on the relationships between the workplace fun constructs and employee creativity were investigated.

6.1 Confirmatory Factor Analyses

Confirmatory factor analysis is a statistical technique, which is used for verifying measurement theories. To be more precise, it allows researchers to test whether the observed variables are related to the underlying latent constructs in the same way as previously hypothesized (Shek & Yu, 2014).

In CFA, discriminant validity and convergent validity are generally evaluated to establish construct validity. The average variance extracted (AVE) analysis is commonly conducted to assess discriminant validity. This can be done by comparing the square root of every AVE value for each latent construct with the correlation coefficients among the latent constructs. If the results indicate that the variance of the latent construct is explained by its own items more than by those of the other latent constructs, discriminant validity is established (Zait & Bertea, 2011). To test convergent validity, AVE is usually used together with composite reliability, which indicates how well a latent construct is measured by its assigned items. If the AVE value of the latent construct is greater than 0.5 and its composite reliability value is over 0.6, convergent validity can be confirmed (Bagozzi & Yi, 1988).

Also, in order to test the adequacy of a measurement model, it is common to examine parameter estimates and fit indices of the model. The parameter estimates should be in the hypothesized direction as well as be statistically significant. Fit indices that are frequently used include the comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) (Rios & Wells,

2014). There has been an ongoing debate concerning the cut-off values of these fit indices. However, Hu and Bentler (1999) proposed, as a rule of thumb, that CFI and TLI values should be close to .95 or greater, RMSEA values should be close to .06 or below and SRMR values should be close to .08 or below. These fit indices are used in combination as a measure of overall model fit. Before interpreting the parameter estimates, models are commonly re-specified if they do not fit the data well. Model respecification often involves inspecting factor loadings and modification indices. Factor loadings are used for determining the extent to which indicators are relevant in explaining a construct. It is recommended that the standardized factor loading of an indicator should be greater than 0.50 (Bagozzi & Yi, 1988). Modification indices are useful for identifying sources of misfit in a model. Specifically, they highlight possible correlated, unexplained variance among indicators, based on which a model can be re-specified. It should be noted that model respecification is considered acceptable only when there is justification (Kline, 2011).

In this study, CFAs were conducted on five single-factor models for "fun job responsibilities", "information from coworkers", "psychological safety", "employee creativity" and "workload" as theory is specific about the number of factors. For "fun activities", "manager support for fun" and "coworker socializing", a CFA was carried out on a three-factor model due to the closeness of their indicators. The construct validity and the adequacy of these measurement models were evaluated by the common practice mentioned previously. Table 2 summarizes the assessment criteria guiding the present study.

Table 2 Summary of Assessment Criteria for CFA

Assessment	Criterion	Recommended threshold
Model fit	Comparative fit index (CFI)	≥ .90 (Bagozzi & Yi, 1988), ≥ .95 (Hu & Bentler, 1999)
	Tucker-Lewis index (TLI)	≥ .90 (Bagozzi & Yi, 1988), ≥ .95 (Hu & Bentler, 1999)
	Root mean square error of approximation (RMSEA)	≤ .06 (Hu & Bentler, 1999), ≤ .08 (MacCallum, et al., 1996)
	Standardised root mean square residual (SRMR)	≤ .08 (Hu & Bentler, 1999)
Factor loading	Standardized parameter estimate	> .50 (Bagozzi & Yi, 1988)
Reliability	Composite reliability	> .60 (Bagozzi & Yi, 1988)
Convergent validity	Average variance extracted (AVE)	> .50 (Bagozzi & Yi, 1988)
Discriminant validity	Square root of AVE and correlations of the constructs	Square root of AVE > correlations of constructs (Fornell & Larcker, 1981)

6.1.1 Employee creativity

The results of the original CFA model for "employee creativity" are summarized in Table 3. The chi-square statistic (χ^2) was found to be statistically significant. This result can indicate a poor fit to the data. However, it is arguable that this statistic has several limitations, including its sensitivity to sample size and the complexity of the model, and should not be a sole reason for accepting or rejecting a model (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Thus, other fit information is needed to confirm the model fit (Kline, 2011). For this measurement model, other fit statistics with an exception of SRMR also suggested a poor fit. Specifically, the TLI and CFI values (.820 and .865 respectively) were lower than .95, the RMSEA value (.159) was greater than .06 and the SRMR value (.062) was below .08. These statistics resulted in the need for model respecification.

To respecify the model, the modification indices as well as the correlation residuals were inspected. A relatively large modification index (55.719) was found in a pair of items, "I served as a good role model for creativity (yaratıcılık açısından iyi bir rol modelim)" and "I

generated ideas revolutionary to our field (iş alanımıza yenilikçi fikirler katarım)". Examination of the content of these two items revealed that they express similar meanings and hence dropping one of them should not harm the meaning of the employee creativity construct. The former item, which had a lower factor loading, was selected to be excluded from the model. After this item was removed, a relatively large modification index (33.406) was still found between "I identified opportunities for new products/processes (ürün ve süreçlerde yenilik fırsatları yakalarım)" and "I generated novel, but operable work-related ideas (iş ile ilgili yeni ve uygulanabilir fikirler üretirim)". Like the previous pair, when these two items were examined closely, it was found that they are close in meaning. Thus, removing one of these items was deemed appropriate. The former item was selected to be eliminated as its factor loading was smaller.

Table 3 also summarizes the fit statistics of the model after the respecification. The TLI, CFI and SRMR values were improved to a satisfactory level. The TLI and CFI values (.910 and .940 respectively) were yet below the threshold for a good fit (.95). Nevertheless, the TLI and CFI values of below .95 but above .90 are also considered to be adequate (Bagozzi & Yi, 1988; Hooper, Coughlan, & Mullen, 2008). The RMSEA value was still greater than the suggested threshold of .06 (.119). While this may suggest a poor fit, it is argued that SRMR favors parsimony and tends to be higher on smaller models with relatively few factors (Kline, 2011). Since the re-specified model for "employee creativity" still contained many indicators (7), which were assigned to only a single factor, it remained low in parsimony and hence had a high RMSEA value. For the above reasons, this model was accepted for further analyses.

The factor loadings of the items that were kept in the model are summarized in Table 4. All of the items loaded on the employee creativity factor, with the smallest standardized estimate of .533 and the largest standardized estimate of .806. The statistics determining the internal consistency, including AVE and composite reliability are presented in Table 3. Both of the AVE (.524) and the composite reliability (.884) of this model were found to be above the suggested minimum thresholds of .50 and .60 (Bagozzi & Yi, 1988), respectively. These statistics provided strong evidence of convergent validity.

Table 3 Fit Statistics of Measurement Models of Employee Creativity

Model	χ^2	df	χ^2/df	TLI	RMSEA	CFI	SRMR	CR	AVE
Original model	198.992*	27	7.370	.820	.159	.865	.062	.906	.522
Re-specified model	63.880*	14	4.563	.910	.119	.940	.044	.884	.524

Note. * $p < .05$

Table 4 Factor Loadings of Employee Creativity

Item	Unstandardized	Standardized	t-value	p-value
I generated ideas revolutionary to our field.	1.000	.751		
I generated novel, but operable work-related ideas.	.844	.726	11.401	<.001
I solved problems that had caused other difficulty.	.902	.767	12.091	<.001
I found new uses for existing methods or equipment.	1.038	.769	12.130	<.001
I took risks in terms of producing new ideas in doing job.	1.040	.806	12.738	<.001
I tried out new ideas and approached to problems.	.763	.680	10.623	<.001
I demonstrated originality in my work.	.729	.533	8.210	<.001

6.1.2 Fun Job Responsibilities

Table 5 summarizes the results of the original CFA model for "fun job responsibilities". The chi-square statistic and two model fit indices indicated a poor fit to the data. Specifically, the chi-square statistic was statistically significant, the TLI value (.896) was below .95 and the RMSEA value (.116) was greater than .06. The CFI value (.919) was lower than .95 but still greater than .90, which could be considered acceptable. Only the SRMR value (.052), which was lower than .08, suggested a good model fit. Together, these statistics suggested an unsatisfactory model fit. Consequently, model was revised.

In order to improve the model fit, the factor loadings of the indicators and the modification indices were investigated. It was found that the following indicator did not substantially load on the fun job responsibilities factor: “I seldom find anything to enjoy about work (işim hakkında herhangi bir şeyi eğlenceli nadiren bulurum)”. That is, the standardized estimate for this indicator (-.235) was smaller than the suggested cut-off value of 0.50 (Bagozzi & Yi, 1988). Thus, this item was eliminated from the model. A relatively large modification index (63.640) was obtained in the following pair of indicators, “when I get involved in an interesting project it’s hard to describe how exhilarated I feel (ilgi çekici bir projeye katıldığımda ondan ne kadar keyif aldığımı anlatmam)” and “I lose track of time when I’m involved in a project (bir projeye katıldığımda vaktin nasıl geçtiğini anlamam)”. These two items had similarities in wording as well as meaning so it was considered appropriate to drop one item. Since the former item had a lower factor loading than the latter, it was selected to be removed. Table 6 presents the factor loadings of the items that were kept in a new model. The standardized estimates were greater than .50, ranging from .667 to .878.

The fit statistics of the re-specified model are shown in Table 5. These statistics, with an exception of the chi-square statistic, which was statistically significant, indicated a good or acceptable fit to the data. The TLI and CFI values (.964 and .975) were over .95. The SRMR (.032) value was below .05. The RMSEA value (.079) was greather than the threshold of .06 but can be considered to be acceptable. For one thing, an RMSEA value of lower than .08 sometimes deems as adequate (MacCallum, Browne, & Sugawara, 1996). For another thing, as previously mentioned, the RMSEA favors larger models, which tend to be more parsimonious. Therefore, it is reasonable to consider the fit of the re-specified model for “fun job responsibilities” to be satisfactory.

In order to assess the internal consistency of the model, the AVE and the composite reliability were examined. As shown in Table 5, the AVE (.585) was greater than .50 and the composite reliability (.918) was above .60. Both of the statistics indicated that the model had convergent validity.

Table 5 Fit Statistics of Measurement Models for Fun Job Responsibilities

Model	χ^2	df	χ^2/df	TLI	RMSEA	CFI	SRMR	CR	AVE
Original model	154.693*	35	4.420	.896	.116	.919	.052	.900	.523
Re-specified model	51.226*	20	2.561	.964	.079	.975	.032	.918	.585

Note. * $p < .05$

Table 6 Factor Loadings of Fun Job Responsibilities

Item	Unstandardized	Standardized	t-value	p-value
Most of the time my work is very pleasurable.	1.000	.878		
Sometimes I enjoy my work so much I have a hard time stopping.	1.005	.758	14.847	<.001
My job is more like fun than work.	1.139	.854	18.284	<.001
My job is so interesting that it often doesn't seem like work.	1.041	.841	17.735	<.001
I like my work more than most people do.	.943	.717	13.594	<.001
I do more work than is expected of me strictly for the fun of it.	.775	.667	12.217	<.001
I lose track of time when I'm involved in a project.	.707	.686	12.728	<.001
Sometimes when I get up in the morning I can hardly wait to get to work.	.889	.685	12.714	<.001

6.1.3 Information from Coworker

The results of the original CFA model for "information from coworker" are presented in Table 7. The chi-square statistic was statistically significant, the TLI value (.870) was lower than .95 and the SMSEA value (.190) was greater than .06. These statistics indicated a poor fit to the data. The CFI value (.913) was below .95 but was still over .90, which are also considered acceptable. The SRMR value (.050) was adequate, that is, below .08. These results were insufficient to establish a good fit model, hence the need for inspection for model respecification.

Modification indices were investigated for significant areas of model misfit. It was found that there was a relatively large modification index (55.151) for the residual covariance between the following indicators: “my coworkers often share their expertise and knowledge with me (iş arkadaşlarım kendi uzmanlık ve bilgilerini benimle paylaşır)” and “my coworkers often provide me with different perspectives and viewpoints (iş arkadaşlarım bana farklı perspektif ve bakış açıları sağlar)”. These two items tend to happen together as different expertise of others is a good source of new perspectives (Madjar, 2002). And since the former item had a lower factor loading than the latter, it was selected to be removed. The factor loadings of the remaining items were presented in Table 8. All of the standardized estimates were above .50, with the lowest value of .773 and the highest value of .885.

Table 7 shows the fit statistics of the re-specified model. While the chi-square statistic was still significant, other fit indices were improved. The TLI value (.935) became above .90, which is an adequate level. The RMSEA value (.147) decreased but was still greater than the acceptable value of .08. However, as previously mentioned, the relatively high RMSEA value can be attributed to the nature of this statistic that favors models with more factors. The CFI (.961) value and the SRMR value (.032) were higher than .95 and lower than .08 respectively, which indicated a good model fit. Based on these statistics, the fit of the re-specified model for “information from coworker” was deemed satisfactory.

Examination of the AVE and the composite reliability suggested the re-specified model had convergent validity and was reliable. To be specific, the AVE (.714) was greater than .50 and the composite reliability (.937) was above .60, as shown in Table 7.

Table 7 Fit Statistics of Measurement Models for Information from Coworker

Model	χ^2	df	χ^2/df	TLI	RMSEA	CFI	SRMR	CR	AVE
Original model	142.524*	14	10.180	.870	.190	.913	.050	.937	.680
Re-specified model	58.156*	9	6.462	.935	.147	.961	.032	.937	.714

Note. * $p < .05$

Table 8 Factor Loadings of Information from Coworker

Item	Unstandardized	Standardized	t-value	p-value
My coworkers often contribute new ideas for how to solve problems at work.	1.000	.885		
My coworkers give me useful suggestions about my ideas concerning the workplace.	1.051	.877	19.852	<.001
My coworkers offer information and alternatives for solving problems.	.943	.856	18.895	<.001
My coworkers provide me with constructive suggestions about how to improve my job.	1.062	.856	18.901	<.001
My coworkers often provide me with different perspectives and viewpoints.	.822	.773	15.630	<.001
My coworkers help me with hints or cues for new ideas.	.956	.817	17.276	<.001

6.1.4 Psychological Safety

The results of the original CFA model for "psychological safety" are shown in table 9. The chi-square statistic was statistically significant, indicating that the model fit was poor. The following are the results of other model fit indices: the TLI value was .857, the RMSEA value was .120; the CFI value was .905 and the SRMR value was .060. On the one hand, the TLI value, which was lower than .90, the RMSEA value, which was greater than .06, and the SRMR value, which was above .05, suggested a poor fit to the data. On the other hand, the CFI value suggested an acceptable model fit as it was over .90. When these results were considered together, it can be concluded that the model had an unsatisfactory fit.

To identify sources of misfit in the model, the factor loadings of the indicators were investigated. Nevertheless, it was found that all indicators substantially loaded on the psychological safety factor, that is the standardized estimates were greater than 0.50, with a range of between .589 and .718. Table 10 presents the factor loadings of the indicators of the psychological safety factor. The modification indices were also inspected. The largest modification index (16.758) was observed in the following pair of indicators: "if you make a mistake on this team, it is not held against you (bu iş yerinde bir hata yaparsaniz, bu durum

aleyhinizde kullanilmaz)" and "people on this team sometimes reject each other for being different regarding age, race, language and religion (bu iş yerinde çalışanlar, diğer çalışanların fikirlerine sırf farklı (yaş, ırk, dil, din) oldukları için karşı çıkmazlar)". These two items expressed different meanings and removing one of them may harm the overall meaning of the psychological safety factor. Thus, no indicator was excluded from the model.

The AVE and the composite reliability were used to determine the internal consistency of the model. As Table 9 shows, the AVE (.410) was found to be below .50, suggesting that the model did not have convergent validity, while the composite reliability (.829) was above .60, suggesting that the model was reliable.

Table 9 Fit Statistics of Measurement Model for Psychological Safety

Model	χ^2	df	χ^2/df	TLI	RMSEA	CFI	SRMR	CR	AVE
Original model	64.885*	14	4.635	.857	.120	.905	.060	.829	.410

Note. * p < .05

Table 10 Factor Loadings of Psychological Safety

Item	Unstandardized	Standardized	t-value	p-value
No one on this team would deliberately act in a way that undermines my efforts.	1.000	.697		
People on this team do not reject each other for being different.	1.134	.593	8.259	<.001
If you make a mistake on this team, it is not held against you.	1.006	.596	8.293	<.001
It is easy to ask other members of this team for help.	.807	.718	9.750	<.001
It is safe to take a risk in this team.	.888	.637	8.807	<.001
Members of this team are able to bring up problems and tough issues.	.764	.641	8.861	<.001
Working with members of this team, my unique skills and talents are valued and utilized.	.758	.589	8.205	<.001

6.1.5 Workload

Table 11 shows the results of the original CFA model for "workload". It was found that the chi-square statistic was significant, the TLI value was .968, the RMSEA value was .087, the CFI value was .984, and the SRMR value was .026. The significant chi-square and the RMSEA value of higher than .08 may indicate a poor model fit; however, as previously mentioned, a chi-square statistic should not be a basis for rejecting a model and RMSEA favors larger models with more factors. TLI and CFI values were over .95 and the SRMR value was below .08, demonstrating a good model fit. For the above reasons, the fit of this model was deemed adequte and model respecification was not needed. The factor loadings of the items of the workload factor are summarized in Table 12. All of the items had loaded on the workload factor substantially, that is, had standardized estimates of over .50, ranging from .692 to .788.

The values of the AVE and composite reliabiliy were presented in Table 11. Both of the AVE (.587) and the composite reliability (.876) of this model had values above the suggested minimum thresholds of .50 and .60, respectively. Thus, the convergent validity and the reliability of the measurement model for "workload" was confirmed.

Table 11 Fit Statistics of Measurement Model for Workload

Model	χ^2	df	χ^2/df	TLI	RMSEA	CFI	SRMR	CR	AVE
Original model	14.567*	5	2.913	.968	.087	.984	.026	.876	.587

Note. * $p < .05$

Table 12 Factor Loadings of Workload

Item	Unstandardized	Standardized	t-value	p-value
How often do you have to do more work than you can do well?	1.000	.788		
How often is there a great deal to be done?	.812	.748	12.190	<.001
How often does your job leave you with little time to get things done?	.983	.837	13.739	<.001
How often does your job leave you with little time to get things done?	.885	.757	12.369	<.001
How often does your job require you to work very fast?	.792	.692	11.146	<.001

5.1.6 Fun Activities, Manager Support for Fun and Coworker Socializing

A CFA was conducted on a three-factor model for "fun activities", "manager support for fun" and "coworker socializing". Although theory suggests that they are three separate factors, one three-factor model, rather than three single-factor models, was tested for two reasons. First, the indicators of the three factors were close in meaning and, second, these indicators were translated from English into Turkish in this study. It is therefore important to verify the hypothesized relationships between these three factors and their indicators.

Table 13 summarizes the results of three-factor CFA model. The chi-square statistic was found to be statistically significant. The following are the other model fit indices: the TLI value was .958, the RMSEA value was .069, the CFI value was .966, and the SRMR value was .044. While the significant chi-square suggested a poor model fit, the values of the other model fit indices indicated otherwise. To be specific, the TLI and CFI values were greater than .95, the RMSEA value was higher than .06 but still lower than .08 and the SRMR value was below .08. Based on these results, this model was considered to have a good model fit. Tables 14, 15 and 16 present the standardized and unstandardized parameter estimates for "fun activities", "manager support for fun" and "coworker socializing", respectively. As shown in the tables, every indicator loaded onto its underlying factor substantially. The factor loadings exceeded the recommended threshold of .50, ranging from .677 to .949. As the above results were satisfactory, the model was not respecified.

Table 17 summarizes the AVE and the construct reliability for "fun activities", "manager support for fun" and "coworker socializing". The AVE values of the three factors (.611, .768 and .585, respectively) were found to be greater than .50, which indicated convergent validity. Their composite reliability values (.887, .943 and .849, respectively) were as well over the suggested minimum threshold of .60. This demonstrated that the three scales measuring "fun activities", "manager support for fun" and "coworker socializing" were reliable. Additionally, these scales were tested for discriminant validity. Construct discriminant validity can be evaluated by comparing the square roots of the AVE values with the correlations between different constructs (Fornell & Larcker, 1981). If the former values are higher than the latter values, discriminant validity is established. Table 17 also presents a matrix in which the square roots of the AVE values are in the diagonal entries and the correlations between the constructs are in the off diagonal entries. As seen in the table, the square roots of the AVE

values for “fun activities”, “manager support for fun” and “coworker socializing” were greater than the correlations between them. There results provided evidence of discriminant validity.

Table 13 Fit Statistics of Measurement Model for Fun Activities, Manager Support for Fun and Coworker Socializing

Model	χ^2	df	χ^2/df	TLI	RMSEA	CFI	SRMR	CR	AVE
Original model	163.595*	74	2.211	.958	.069	.966	.044	.887	.611

Note. * p < .05

Table 14 Factor Loadings of Fun Activities

Item	Unstandardized	Standardized	t-value	p-value
Team building activities	1.000	.867		
Social events	.867	.793	15.260	<.001
Public celebrations of work achievements	.844	.798	15.414	<.001
Recognition of personal milestones	.982	.762	14.360	<.001
Competitions	.930	.677	12.111	<.001

Table 15 Factor Loadings of Manager Support for Fun

Item	Unstandardized	Standardized	t-value	p-value
My managers care about employees having fun on the job.	1.000	.921		
My managers try to make my work fun.	1.065	.949	28.088	<.001
My managers emphasize employee fun in the workplace.	1.049	.893	23.354	<.001
My managers encourage employees to have fun on the job.	.904	.887	22.911	<.001
My managers care about employees having fun on the job.	.631	.712	14.477	<.001

Table 16 Factor Loadings of Coworker Socializing

Item	Unstandardized	Standardized	t-value	p-value
My coworkers and I share stories with each other.	1.000	.778		
My coworkers and I socialize at work.	1.312	.790	12.312	<.001
My coworkers and I socialize outside of work.	1.138	.799	12.441	<.001
My coworkers and I share stories with each other.	1.341	.686	10.637	<.001

Table 17 Results of Convergent and Discriminant Analysis of Manager Support for Fun, Fun Activities and Coworker Socializing

Latent variable	CR	AVE	MSV	MS	FA	CS
MS	.943	.768	.578	**.876**		
FA	.887	.611	.578	.760	**.782**	
CS	.849	.585	.269	.447	.519	**.765**

Note. FA = fun activities, MS = manager support for fun, CS = coworker socializing
The numbers in bold indicate the square root of the AVE and the other numbers denote the correlation between variables.

6.2 Structural Equation Modeling

While CFA is used to assess measures of constructs, structural equation modeling is employed to test the hypothesized relationships between the constructs. In this study, seven constructs were hypothesized to be related directly or indirectly. To be precise, four constructs, “fun activities”, “manager support for fun”, “coworker socializing” and “fun job responsibilities”, were expected to have relationships with “employee creativity”. And these relationships were proposed to be mediated by two other constructs, “psychological safety” and “information from coworker”. Additionally, it was predicted that “workload” would moderate the relationships between three constructs of workplace fun, namely, “fun activities,” “manager support for fun” and “coworker socializing”, and “employee creativity”.

According to the results of the previous section, the psychological safety construct did not meet the requirement for discriminant validity. Consequently, two separate structural

equation models were investigated: model 1, which contained seven constructs, which included psychological safety, and model 2, which excluded psychological safety and had six constructs (see Figures 3 and 4). Table 18 shows the fit statistics of model 1 and model 2. Examination on model 1 resulted in a significant chi-square statistic. The values of other fit indices showed mixed results. The TLI and CFI values (.885 and .893) were found to be below the recommended minimum value of .90, whereas the RMSEA and SRMR values (.063 and .073) were within the acceptable threshold of lower than .08. Thus, the fit indices did not provide sufficient proof that the model fits the data well. The fit statistics of model 2 were as follows: the chi-square statistic was significant, the TLI and CFI values (.917 and .924) were greater than .90, the RMSEA and SRMR values were lower than .08. With an exception of the chi-square, the fit indices suggested a satisfactory model fit. When comparing model 1 with model 2, it can be seen that model 2 had a better model fit than model 1. Consequently, model 2 was selected for hypothesis testing. Figure 4 illustrates the hypothesized relationships between the six constructs.

Table 18 Fit Statistics of Structural Models

Model	χ^2	df	χ^2/df	TLI	RMSEA	CFI	SRMR
Model 1	1601.004*	804	1.991	.885	.063	.893	.073
Model 2	1043.145*	547	1.907	.917	.060	.924	.062
Model 3	646.962*	316	2.047	.909	.064	.924	.062

Note. * $p < .05$

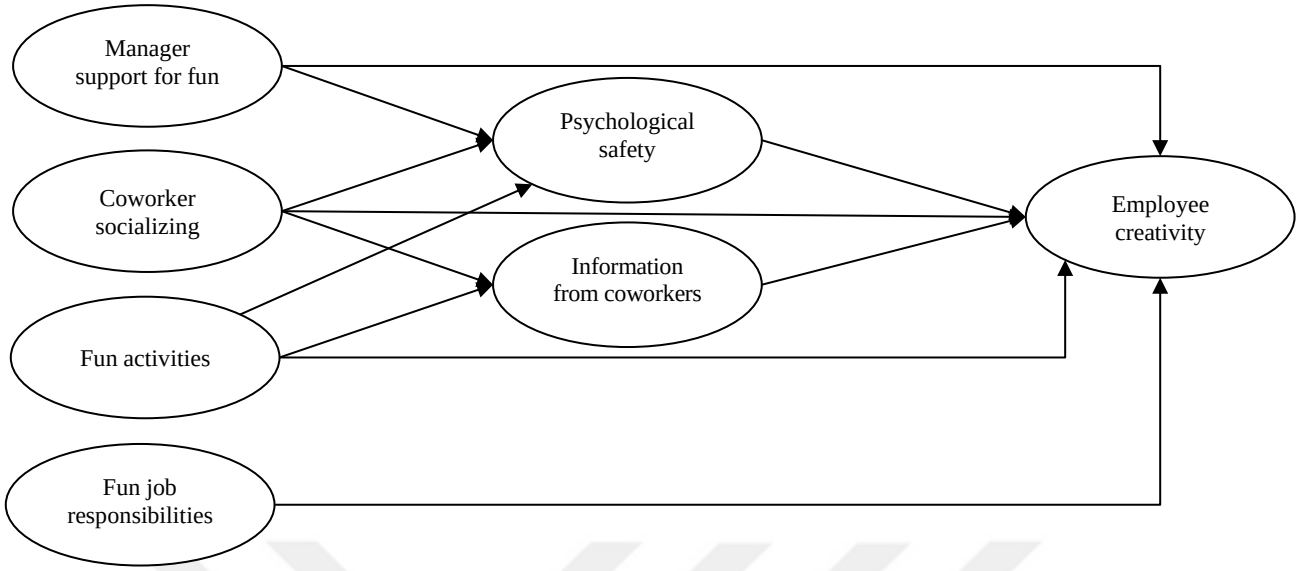


Figure 3: Structural Model of Workplace Fun Elements, Employee Creativity, Psychological Safety and Information from Coworkers (Model 1)

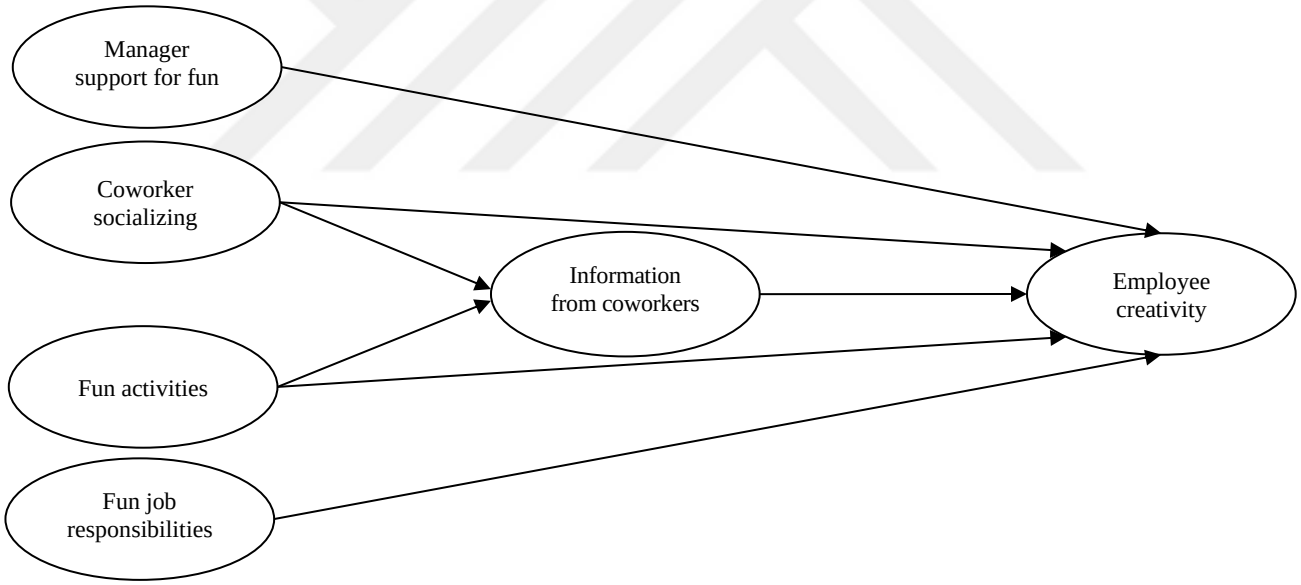
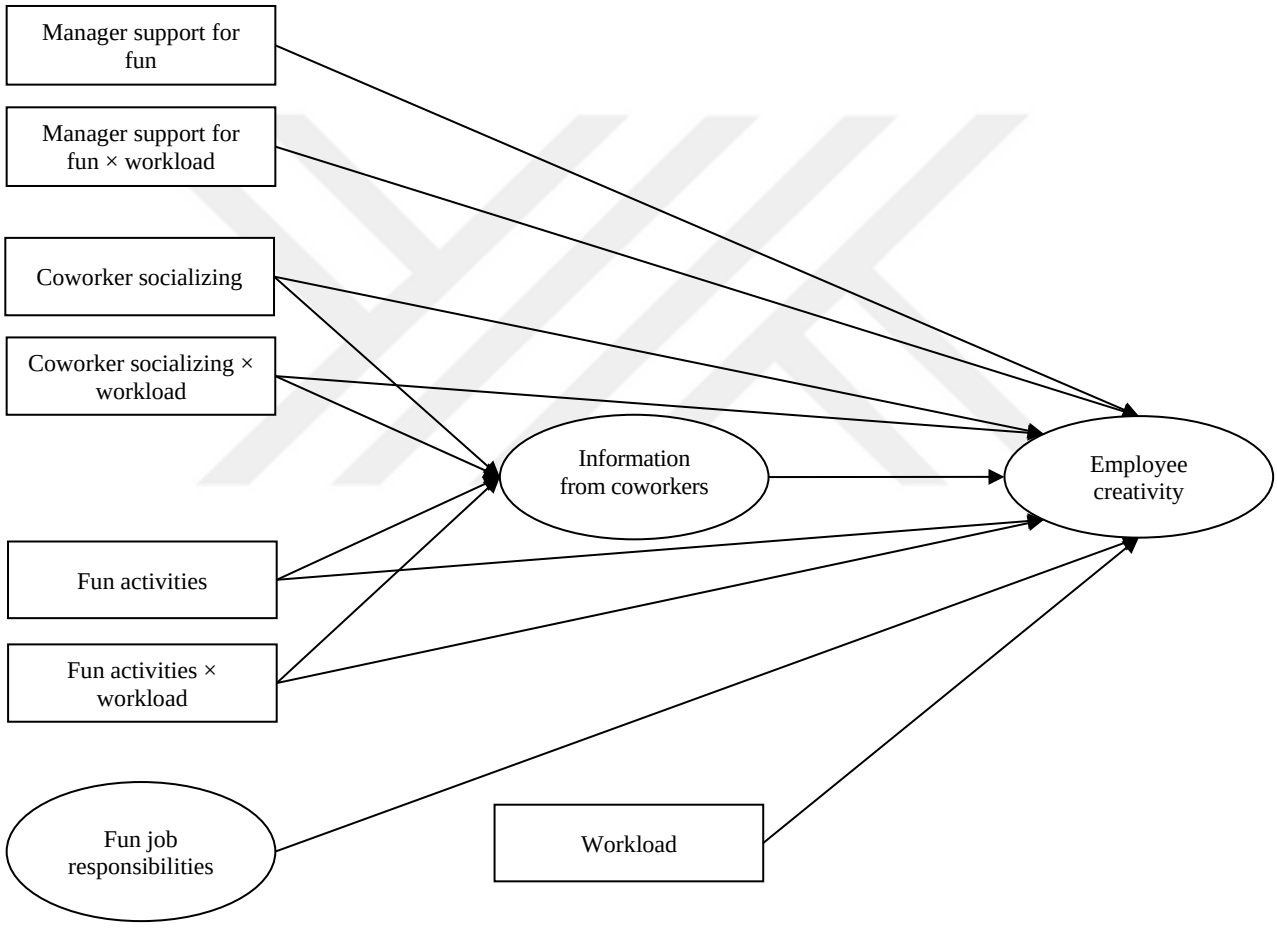


Figure 4: Structural Model of Workplace Fun Elements, Employee Creativity and Information from Coworkers (Model 2)

To test the moderation effects of "workload", model 3 was constructed and tested (see Figure 5). In order to obtain the product terms for the moderation model, first, summated scales were generated for three independent variables, "manager support for fun", "coworker

socializing" and "fun activities", and the moderator, "workload". The use of summated scales was selected for two main reasons. For one thing, they allow multiplications between the independent variables and the moderator. For another thing, they facilitate replication across studies (Simmons & Lehmann, 2013). In this study, the summated scales were calculated by summing all indicators that measured each latent variable and then dividing the result by the number of the indicators. Subsequently, the summated scales of the three independent variables were multiplied by the summated scale of the moderator.



The ovals represent latent variables
The rectangles represent summated scales

Figure 5: Structural Model of Workplace Fun Elements, Employee Creativity and Information, Coworkers and Workload (Model 3)

Table 18 reports the model fit statistics of the model for testing moderation effects. It was found that the chi-square statistic was significant, the TLI value was .909, the RMSEA

value was .064, the CFI value was .924, and the SRMR value was .062. While the significant chi-square might indicate a poor fit, other model fit indices were within the acceptable ranges. Specifically, the TLI and CFI values were greater than .90, the RMSEA value was close to .06 and the SRMR value was lower than .08. Thus, it was determined that this model had an adequate fit to the data.

6.2.1 Test Results of Direct Effects

The first four hypotheses suggested positive relationships between "workplace fun" and "employee creativity". Figure 6 presents the standardized effect of each element of workplace fun on "employee creativity". Hypothesis 1 predicted that "manager support for fun" would be positively related to "employee creativity". The direct effect of "manager support for fun" on "employee creativity" was found to be negative and insignificant ($\beta = -.112$). Thus, hypothesis 1 was not supported.

Hypothesis 2 proposed that there would be a positive relationship between "coworker socializing" and "employee creativity". As expected, "coworker socializing" positively and directly affected "employee creativity", and its effect was significant at the $p < .01$ level ($\beta = .204$). This provided evidence supporting hypothesis 2.

Hypothesis 3 suggested that "fun activities" would positively affect "employee creativity". The results, however, showed that the direct effect of "fun activities" on "employee creativity" was neither positive nor significant ($\beta = -.007$). Therefore, hypothesis 3 was not supported.

Hypothesis 4 predicted that “fun job responsibilities” would be positively related to “employee creativity”. It was found that the direct effect of “fun job responsibilities” on “employee creativity” was positive as well as significant at the $p < .01$ level ($\beta = .605$). These results supported hypothesis 4.

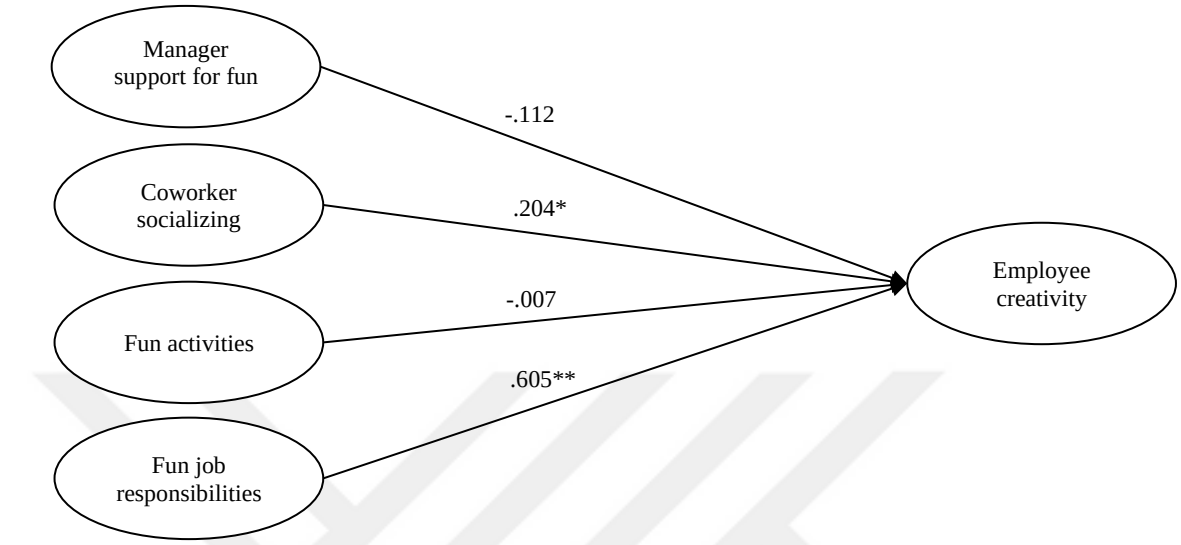
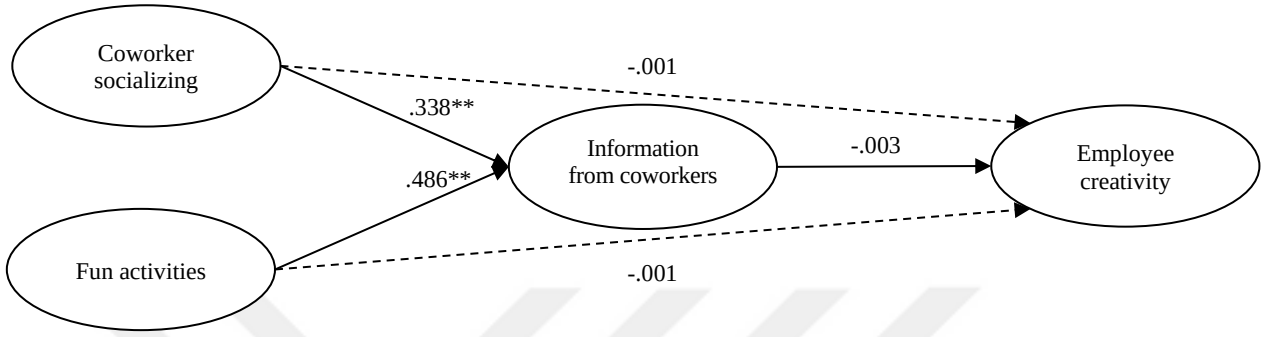


Figure 6: Standardized Effects of Direct Relationships between Workplace Fun Elements and Employee Creativity

6.2.2 Test Results of Mediation Effects

Hypotheses 5 and 6 suggested that the relationships between certain elements of workplace fun and “employee creativity” were mediated by “psychological safety” and “information from coworkers”, respectively. However, “psychological safety” was not included in model 2, hypothesis 5 was not tested. According to hypothesis 6-a, “information from coworkers” would mediate the relationship between “coworker socializing” and “employee creativity”. As demonstrated in Figure 7, there was no significant, direct relationship between “information from coworkers” and “employee creativity”. “Coworker socializing” was found to be related to “information from coworkers” and their relationship was significant at the $p < .01$ level ($\beta = .338$), but it had no significant indirect effect on “employee creativity”. This means that “information from coworkers” did not mediate the relationship between “coworker socializing” and “employee creativity”. Based on hypothesis 6-b, “information from coworker” would also mediate the relationship between “fun activities”

and "employee creativity". The direct effect of "fun activities" on "information from coworkers" was significant at the $p < .01$ level ($\beta = .486$). However, the indirect effect of "fun activities" on "employee creativity" were not significant, which indicated that "information from coworkers" did not mediate the relationship between "fun activities" and "employee creativity". Based on the above results, it was concluded that hypothesis 6 was not supported.



Note. ** $p < .01$; * $p < .05$.

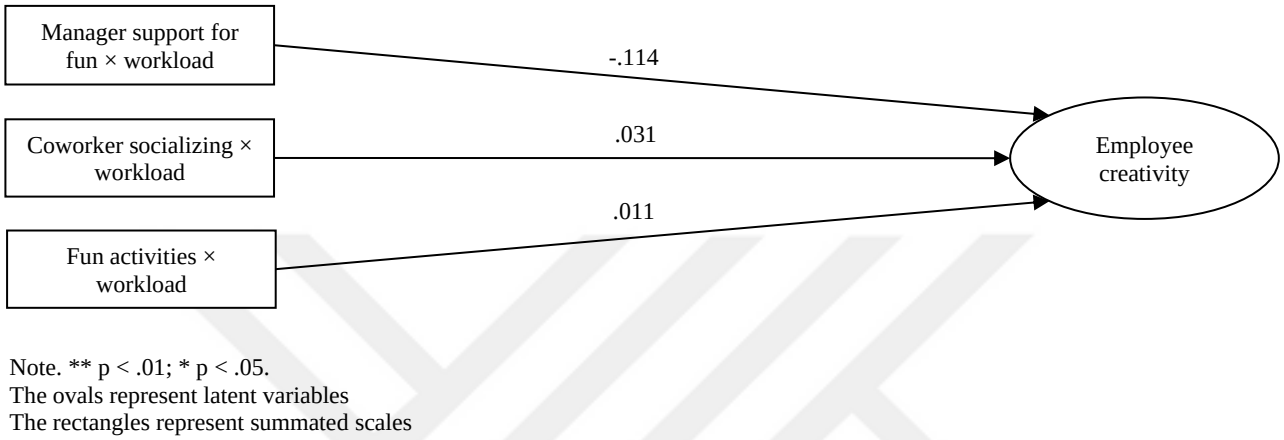
Solid lines represent direct effects.
Dashed lines represents indirect effects.

Figure 7: Standardized Effects of Relationships between Workplace Fun Elements and Employee Creativity with Information from Coworkers as Mediator

6.2.3 Test Results of Moderation Effects

Hypothesis 7 predicted that workload would moderate the relationships between three aspects of workplace fun, namely (a) "manager support for fun", (b) "coworker socializing" and (c) "fun activities", and "employee creativity". To test this hypothesis, structural equation modeling was conducted separately. In addition to the independent constructs ("manager support for fun", "coworker socializing", "fun activities" and "fun job responsibilities"), the dependent construct ("employee creativity") and the mediator ("information from coworkers"), the model included the hypothesized interactions. That is, "manager support for fun", "coworker socializing" and "fun activities" were interacted with the moderator ("workload"), and the significance of their interactions was tested.

Figure 8 presents the standardized estimates for the interaction effects. The results revealed that the interactions between three components of workplace fun—"manager support for fun", "coworker socializing" and "fun activities"—and "workload" were not significant. This indicated that "workload" was another predictor rather than a moderator. Therefore, hypothesis 7 was not supported.



Note. ** p < .01; * p < .05.
The ovals represent latent variables
The rectangles represent summated scales

Figure 8: Standardized Effects of Relationships between Workplace Fun Elements and Employee Creativity with Workload as Moderator

7: DISCUSSION

It has been claimed, particularly by the media, that fun at work has a positive impact on the creativity of employees (e.g. Clarkson, 2018, March 29; Ditkoff, 2013, February 5). But thorough investigation into this claim is still lacking. The current study aimed to provide empirical evidence for as well as shed more light on the link between workplace fun and employees' creativity. To this end, the effect of each component of workplace fun—fun activities, manager support for fun, coworker socializing and fun job responsibilities—on employee creativity was examined. In addition, the mediating role of information from coworkers and the moderating role of workload in the relationships between workplace fun and employee creativity were investigated. The analyses revealed expected as well as unexpected results. In light of these results, the following points were discussed in the subsequent sections: (1) the effects of components of workplace fun on employee creativity, (2) the mediating role of information from coworkers, (3) the moderating role of workload, (4) theoretical contributions and implications, (5) managerial contributions and implications, (6) limitations, (7) directions for future research, and (8) conclusion.

7.1 The Effects of Components of Workplace Fun on Employee Creativity

Past research recorded moderately strong correlations between components of workplace fun and combined them into a multidimensional single construct (Fluegge, 2008). Following the call for shifting research focus to individual components of workplace fun (Michel et al., 2019), the current study investigated correlations among similar scales measuring three components of workplace fun, namely, fun activities, manager support for fun and coworker socializing. The results provided evidence for divergent validity, indicating that these three components of workplace fun were distinct from each other and that they could be examined as different constructs.

To examine the effect of individual components of workplace fun on employee creativity, four hypotheses were generated. There were hypotheses 1, 2, 3 and 4, which predicted that employee creativity would be positively affected by manager support for fun, coworker socializing, fun activities and fun job responsibilities, respectively. According to the results of hypothesis testing, hypotheses 1 and 3 were not supported, whereas hypotheses 2 and 4 were supported. These findings complemented Fluegge's (2008) study—which suggested that fun at work as a single construct positively impacted creative performance—by revealing that different aspects of workplace fun were not equally important to employees' creativity. In

fact, the fun activities and manager support for fun aspects of workplace fun were found to have no significant impact on the creativity of employees. And among the aspects that had significant results, fun job responsibilities were found to impact employee creativity to a greater extent than coworker socializing.

The findings that coworker socializing and fun job responsibilities are positively related to employee creativity were consistent with other studies. Socialization is understood to allow employees to acquire resources from their colleagues that can be used for creative process (Mainemelis & Ronson, 2006). While past research reported that socialization had a positive impact on employee creativity at the group level (Handzic & Chaimungkalanont, 2004), the current study demonstrated that it also positively impacted the creativity of individuals. In prior research, fun job responsibilities were examined as part of positive affect, which was argued to stimulate divergent thinking (Mainemelis & Ronson, 2006) and was empirically found to positively influence creativity (Amabile et al., 2005). The present study provided evidence that fun job responsibilities as an individual construct also had a positive effect on creativity.

It was unexpected that fun activities had no influence on employee creativity as the existing theoretical research suggests otherwise. However, empirical evidence that fun activities have or do not have an effect on the creativity of employee is still lacking. Also, there are a wide variety of fun activities which can be distinct in nature and may result in different outcomes. Certain types of fun activities may be beneficial for the development of employees' creativity while the other types may instead have adverse effects or do not have any impact. Thus, more investigation into the relationship between fun activities and employee creativity is needed in order to be able to draw any conclusions.

The results which revealed that manager support for fun did not significantly affect employee creativity was also not expected. The influence of manager support for fun was suggested and evidenced by previous research. Transformational leaders, who would allow and encourage having fun on the job, were frequently reported to have positive influence on the creativity of their subordinates (e.g. Henker et al., 2015; Qu et al., 2015). A possible explanation of the divergent findings in the present study is that, given start-up companies are notable for its fun culture (Studholme, 2014), the employees might have fun to the extent that it diverted their attention and effort away from their main tasks. As Andriopoulos and Lewis (2010) argued, freedom without discipline can hurt rather than boost creativity. The insignificant effect of manager support for fun, however, was in line with the results produced

by Karamfilov's (2018) study of creativity at the team level. Leaders' endorsement of workplace fun was found to have no significant impact on team creativity. These inconsistent findings highlight the need for more empirical research.

7.2 The Mediating Role of Information from Coworkers

It has been argued that workplace fun increases psychological safety and information from coworkers, which in turn enhance employee creativity. To validate this argument, the present study hypothesized the mediating effects of psychological safety (hypothesis 5) and information from coworkers (hypothesis 6) on the relationships between components of workplace fun and employee creativity.

While the psychological safety measure developed by Edmonson (1999) has been validated in many studies (e.g. Chen et al., 2016; Gu et al., 2013; Lee, Swinkm & Pandejpong; 2011; Lenberg & Feldt, 2018), it was found to have weak convergent validity and a poor model fit. As the measure was translated into Turkish and was applied to Turkish respondents in the present study, the divert results can be attributed to the linguistic and cultural differences. Since the measure was not successfully validated, hypothesis 5 was not tested.

Hypothesis 6 was tested but was not supported. The results showed that the indirect effects of coworker socializing and fun activities on employee creativity through information from coworkers were not significant. This means that information from coworkers did not mediate the relationships between coworker socializing and employee creativity and between fun activities and employee creativity. Also, it was found that information from coworkers did not significantly affect employee creativity, although prior research pointed out that others are important sources of creative inputs (Madjar, 2002; Mainemelis & Sarah, 2006). Perhaps the reason for the unexpected findings was that the sample in the present study did not have much variation in the information from coworkers variable. As start-up companies commonly allow much interaction among employees (Studholme, 2014), the extents to which information is exchanged might be similar. And other thing, in this study, the majority of the respondents were younger than 30 years of age. This is not uncommon as young companies tend to hire relatively more young employees than more established companies (Ouimet & Zarutskie, 2014). Older employees are more likely to have tacit knowledge useful for developing creativity, for example, the know-how of how to convince managers to encourage new ideas (Hador & Klein, 2020). Thus, the lack of diversity in terms of age might be another reason why the exchange of information between coworkers did not translate into creativity.

However, coworker socializing as well as fun activities were found to be significantly related to information from coworkers. These results were consistent with past research, which suggested that such social interactions create connection and bonds between people and thereby provide access to information (Mainemelis & Sarah, 2006).

7.3 The Moderating Role of Workload

Workload pressure is recognized as one of the environmental threats to creativity (Mainemelis & Sarah, 2006; Staw et al, 1981). It is expected that when employees are pressured by high workload, they may be less likely to engage in fun activities and interactions that may benefit their creativity. Thus, the present study predicted in hypothesis 8 that workload would moderate the relationships between three aspects of workplace fun, namely (a) manager support for fun, (b) coworker socializing and (c) fun activities, and employee creativity. The results, however, showed that the moderating effects of workload on those relationships were not significant. That is to say, regardless of the amount of workload, coworker socializing positively influenced the creativity of employees while manager support for fun and fun activities had no impact. These unexpected results may be attributable to the characteristics of the examined sample, which included employees working in start-up companies. Recent research found that many start-up employees were reluctant to admit their high workload as working long hours are generally expected (Studholme, 2014). Thus, their responses regarding workload could be biased, and more research using different samples is needed.

7.4 Theoretical Contributions and Implications

The present study contributed to the field of creativity and innovation management by incorporating concepts from the theory of fun in the workplace and the theory of creativity to explain how different aspects of workplace fun were related to the creativity of employees. It was the first research, which examined “fun job responsibilities”, “manager support for fun”, “fun activities” and “coworker socializing” as four distinct constructs of workplace fun and provided empirical evidence of their relationships with “employee creativity”. It was also the first to empirically test the mediating effects of “information from coworkers” and the moderating effects of “workload” on those relationships.

Prior research linking fun at work to creativity has been mostly theoretical (e.g. Bolton & Houlihan, 2009; Ford, McLaughlin, & Newstrom, 2003; Mainemelis & Sarah, 2006; Michel et al., 2019). The empirical work is still very limited and has concentrated on examining the

effects of either workplace fun as a single multidimensional construct (Fluegge, 2008) or a particular aspect of workplace fun (Karamfilov, 2018) on creativity. Although the past studies have suggested that workplace fun can enhance employee creativity, it is still unclear as to whether all aspects of workplace fun have significant effects and as to how effective they are. The present study provided additional empirical evidence for the linkage between workplace fun and employee creativity. It also filled the aforementioned gap in research by revealing the different effects of four aspects of workplace fun, namely, “fun activities”, “manager support for fun”, “coworker socializing” and “fun job responsibilities”, on “employee creativity”.

The findings of this study provided the following important implications for further theoretical development in regard to the relationship between workplace fun and employee creativity. First, different aspects of workplace fun are not equally important in boosting the creativity of employees. To be specific, “fun job responsibilities” were found to be the most impactful, “coworker socializing” showed a small impact, and “manager support for fun” as well as “fun activities” had no significant impact. These results emphasized the importance of examining different aspects of workplace fun. Second, two aspects of workplace, namely “fun coworker socializing” and “fun activities” were found to be related to “information from coworkers”. Even though information from coworkers did not in turn influence “employee creativity”, it was reported in other studies to have various outcomes at different levels, for example, individual innovation (Kuo et al., 2014; Shah, Afsar, & Shahjehan, 2020), team performance (Faraj & Sproull, 2000; Srivastava, Bartol, & Locke, 2006) and organizational effectiveness (Noor, Hajar, & Idris, 2015). Thus, the findings of the current study paved the way for further investigation into other outcomes of workplace fun. Third, the present study provided an extension of applying the theory of fun in the workplace. The instruments measuring the four aspects of workplace fun were originally generated for English-speaking samples. This study translated these instruments into Turkish and validated them on a sample of Turkish individuals. The results demonstrated that these instruments are meaningful and applicable to the Turkish culture. Finally, this study, which was conducted in start-up companies, produced some results that were inconsistent with past results obtained from established companies. This can be implied that types of organizations and their specific characteristics may play a role in the relationship between workplace fun and the creativity of employees.

7.5 Managerial Contributions and Implications

In the light of the many claims in recent years that fun at work can improve employees' creativity, there is a need to investigate whether and how the two concepts are actually related. The findings of the present study provided empirical evidence of their connection and suggested practical guidelines for managers who desire to enhance the creativity of their employees by leveraging fun in the workplace.

Specifically, this study has two important practical implications. First, the insignificant effects of fun activities and manager support for fun, and the significant effects of fun job responsibilities and coworker socializing on employee creativity indicated that different elements of workplace fun were not equally important to enhancing the creativity of employees. Like other organizational activities, workplace fun requires resources, such as time, money, and equipment, and hence should be prioritized. The strongest positive effect of fun job responsibilities suggested that managers who desire to improve creativity among employees may need to place more importance on this aspect of workplace fun. This can be done by matching employees with roles and tasks that they personally enjoy. Personality tests may be used to help find the right candidate for the job. Internal role transfers should be allowed so that current employees can move to a new role, which they are more interested in. These methods to enhance fun job responsibilities can be done outside the office. This makes fun job responsibility even more crucial in the current situation, where more companies are shifting towards remote working. Managers may also want to encourage employees to socialize with their colleagues, as the results showed some positive relationship between coworker socializing and employee creativity. This can be done by providing physical areas such as a coffee corner and a common space, as well as opportunities for socialization. If employees work remotely, online sessions can be organized for them to socialize.

Second, this study revealed that the effect of the interaction between coworker socializing and workload on employee creativity was not significant. That is, workload did not stifle the positive relationship between coworker socializing and employee creativity. This implies that managers can still promote socialization between employees in order to enhance creativity in situations where workload is high.

7.6 Limitations

Although the findings of the present study provided valuable insights into the relationships between different aspects of workplace fun and employee creativity, there are three major limitations, which need to be recognized. Firstly, the sample included only employees in Turkish start-up companies. These individuals might have distinct attitudes towards fun in the workplace and workload demand, which might influence their responses. Therefore, the generalizability of the findings is limited to the start-up culture in the country.

Secondly, in this study, employees rated their own creativity. Even though self-rating might be more accurate than supervisor-rating or peer-rating because the employees had more information about their own creative activities than the others, their responses could still be biased. Employees have tendency to inflate their own performance (Janssen & van der Vegt, 2010) and to give socially desirable responses (Zerbe & Paulhus, 1987). Since creativity can be regarded as a type of performance and is favorable, the respondents might rate their creativity higher than the reality.

Thirdly, this study drew on Michel et al.'s (2019) research, which proposed four elements of workplace fun namely, fun job responsibilities, manager support for fun, fun activities and coworker socializing. However, this is merely one way among others of classifying different aspects of fun in the workplace. For instance, McDowell's (2004) study suggested socializing with coworkers, celebrating at work, personal freedoms and global fun as the elements of workplace fun. Basing research on other frameworks may yield results different from those of the present study.

7.7 Directions for Future Research

There are several opportunities for future research concerning the relationship between fun and creativity at work, some of which can be derived from the limitations of the present study discussed earlier. First, this study should be replicated in different cultural environments and in other organizational settings. For instance, future research may test the proposed models in established companies and in governmental organizations, which may have different magnitudes of creativity and fun in the workplace.

Second, employing a single measurement technique is subject to certain biases. By using self-ratings, employees may inflate their own performance (Janssen & van der Vegt, 2010), whereas by using supervisor-ratings, supervisors may rate their employees favorably

due to their liking for the subordinates (Wilson, 2010). To reduce the effects of such biases, future research may employ self-ratings together with supervisor-ratings. The use of both techniques in combination may pose some operational difficulties, yet has been successful in some studies (e.g. Bjornberg, 2017; Janssen, 2000; Joo et al., 2014). Alternatively, objective measurement may be used in addition to subjective measurement to diminish the influence of subjectivity.

Third, to generate a more complete understanding of the topic, further examination into distinct aspects of workplace fun is needed. As previously mentioned, there are other models, which suggest different sets of components of workplace fun (e.g. Chan, 2010; McDowell, 2004). Future research may examine those other components, which may have different effects on the creativity of employees. It may also look beyond the existing conceptualization of workplace fun. As more and more people are working remotely, some aspects of workplace fun in past research may become less relevant. Future research on workplace fun may need to expand beyond the office space.

Fourth, even though the instrument for measuring psychological safety was not successfully validated in this study, the results of studies evidenced its validity (e.g. Chen et al., 2016; Lenberg & Feldt, 2018; Yener, 2015). Also, prior research consistently suggested the links between fun and psychological safety (e.g. Gonçalves & Brandão, 2017; Mainemelis & Ronson, 2006) and between psychological safety and creativity (e.g. Bornemisza, 2013; Gu et al., 2013). Thus, future research may re-examine the role of psychological safety in the relationship between workplace fun and employee creativity.

Fifth, as discussed earlier, the demographic of employees in start-up companies might be the reason for the unexpected results in this study. Future research may want to replicate the study in other types of organizations, for instance, not-for-profit and governmental organizations and compare the results.

Last but not least, only linear relationships between workplace fun and employee creativity were examined in the present study. However, workplace fun may be positively related to employee creativity to a certain point, after which the relationship becomes negative. To illustrate, excessive engagement in socialization may take away the time that could be used for creative activities. Consequently, future research may also need to examine curvilinear relationships between workplace fun and employee creativity.

7.8 Conclusion

Jung (as cited in Lauterbach, 2017), a renowned psychiatrist and psychoanalyst, stated "the creation of something new is not accomplished by the intellect but by the play instinct acting from inner necessity" (p. 130). This study shed more light on the link between fun at work and the creativity of employees. Specifically, the results revealed that coworker socializing and fun job responsibilities were two aspects of workplace fun, which had positive effects on employee creativity. That is to say, the more employees socialized with their coworkers and enjoyed their work, the more they showed their creativity. The effects of other two aspects of workplace fun, manager support for fun and fun activities, were not found to be significant. Therefore, these findings provided evidence that partially supported the many claims that fun workplace boosts employees' creativity. More empirical research is still needed to fully evidence such claims as well as to establish a better understanding of the connection between workplace fun and employee creativity. Nevertheless, it is evident that fun at work plays an important role in enhancing employees' creativity. It is suggested that business practitioners who desire to foster creativity among employees may want to encourage socialization with coworkers and to match employees with work that they personally enjoy. Also, it is hoped that this study will bring more research attention to fun at work, which is a relatively new concept, and pave the way for further research into its role in enhancing creativity in organizations.

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APPENDIX

A1: Measure of Employee Creativity

No	item	Turkish translated item
1	I demonstrated originality in my work.	İşimde özgünüm.
2	I took risks in terms of producing new ideas in doing job.	Yeni fikirler ortaya koymak için risk alırım.
3	I found new uses for existing methods or equipment.	Mevcut yöntem ve ekipman için yeni kullanım alanları bulurum.
4	I solved problems that had caused other difficulty.	Farklı problemlere sebep olan sorunları çözerim.
5	I tried out new ideas and approached to problems.	Sorunları çözerken farklı fikir ve yaklaşımlar denerim.
6	I identified opportunities for new products/processes.	Ürün ve süreçlerde yenilik fırsatları yakalarım.
7	I generated novel, but operable work-related ideas.	İş ile ilgili yeni ve uygulanabilir fikirler üretirim.
8	I served as a good role model for creativity.	Yaratıcılık açısından iyi bir rol modelim.
9	I generated ideas revolutionary to our field.	İş alanımıza yenilikçi fikirler katarım.

Note. All of the original items are adapted from Tierney et al. (1999).

Table A2: Measure of Manager Support for Fun

No	Original item	Turkish translated item
1	My managers encourage employees to have fun on the job.	Çalışanlarını işte zevk alması için teşvik eder.
2	My managers emphasize employee fun in the workplace.	İş ortamının eğlenceli olmasının önemini vurgular.
3	My managers try to make my work fun.	İşimin keyifli olmasını sağlamaya çalışır.
4	My managers care about employees having fun on the job.	Çalışanın işinde keyif almasına özen gösterir.
5	My managers allow employees to play around on the job.	Çalışanların iş ortamında eğlenmesine izin verir.

Note. All items are taken from Tews et al. (2014).

Table A3: Measure of Coworker Socializing

No	Original item	Turkish translated item
1	My coworkers and I share stories with each other.	İş arkadaşlarımızla hikayelerimizi paylaşırız.
2	My coworkers and I joke around with each other.	İş arkadaşlarımızla şakalaşırız.
3	My coworkers and I socialize at work.	İş arkadaşlarımızla iş yerinde sosyalleşiriz.
4	My coworkers and I socialize outside of work.	İş arkadaşlarımızla iş dışında sosyalleşiriz.

Note. All items are taken from Tews et al. (2014).

Table A4: Measure of Fun Activities

No	Original item	Turkish translated item
1	Public celebrations of work achievements	İş yerindeki başarının topluca kutlanması
2	Team building activities	Takım oluşturucu aktiviteler
3	Recognition of personal milestones	Kişisel başarının takdir edildiği aktiviteler
4	Social events	Sosyal etkinlikler
5	Competitions	Yarışmalar

Note. All items are taken from Tews et al. (2014).

Table A5: Measure of Fun Job Responsibilities

No	Original item	Turkish translated item
1	My job is so interesting that it often doesn't seem like work.	İşim çok ilgi çekici olduğu için bana iş gibi gelmez.
2	When I get involved in an interesting project it's hard to describe how exhilarated I feel.	İlgi çekici bir projeye katıldığımda ondan ne kadar keyif aldığımı anlatmak kolay olmaz.
3	I lose track of time when I'm involved in a project.	Bir projeye katıldığımda vaktin nasıl geçtiğini anlamam.
4	I do more work than is expected of me strictly for the fun of it.	Sadece daha keyifli bulduğum için benden beklenenden daha çok iş yaparım.
5	Most of the time my work is very pleasurable.	İşim keyif vericidir.
6	Sometimes I enjoy my work so much I have a hard time stopping.	Bazen işimden çok keyif aldığım için durmakta zorlanırım.
7	I like my work more than most people do.	İşimi çoğu insandan daha çok severim.
8	My job is more like fun than work.	Yaptığım iş, işten daha çok eğlence gibidir.
9	I seldom find anything to enjoy about work. (R)	İşim hakkında herhangi bir şeyi eğlenceli nadiren bulurum.
10	Sometimes when I get up in the morning I can hardly wait to get to work.	Bazı sabahlar uyandığımda işe gitmek için sabırsızlanıyorum.

Note. All items are taken from Spence and Robbins (1992).

Table A6: Measure of Psychological Safety

No	Original item	Turkish item
1	If you make a mistake on this team, it is often held against you. (R)	Bu iş yerinde bir hata yaparsanız, bu durum aleyhinizde kullanılmaz.
2	Members of this team are able to bring up problems and tough issues.	Bu iş yerinde çalışanlar problemleri ve çözülmesi zor sorunları açıkça dile getirirler.
3	People on this team sometimes reject each other for being different. (R)	Bu iş yerinde çalışanlar, diğer çalışanların fikirlerine sırf farklı (yaş, ırk, dil, din) oldukları için karşı çıkmazlar.
4	It is safe to take a risk in this team.	Bu iş yerinde risk almak sorun olmaz.
5	It is difficult to ask other members of this team for help. (R)	Çalışanlardan yardım istemek kolaydır.
6	No one on this team would deliberately act in a way that undermines my efforts.	Hiç kimse benim çabalarımı kasıtlı olarak engellemez.
7	Working with members of this team, my unique skills and talents are valued and utilized.	Benim beceri ve yeteneklerime değer verili ve kullanılır.

Note. All of the original items are taken from Edmondson (1999).

Table A7: Measure of Information from Coworkers

No	Original item	Translated Turkish item
1	My coworkers often share their expertise and knowledge with me.	İş arkadaşlarım kendi uzmanlık ve bilgilerini benimle paylaşır.
2	My coworkers often provide me with different perspectives and viewpoints.	İş arkadaşlarım bana farklı perspektif ve bakış açıları sağlar.
3	My coworkers do not help me with hints or cues for new ideas. (R)	İş arkadaşlarım bana yeni fikirler üretmeme yol açacak ipuçları verir.
4	My coworkers seldom offer information and alternatives for solving problems. (R)	İş arkadaşlarım sorunları çözmek için bana farklı bilgi ve alternatifler sunar.
5	My coworkers seldom give me useful suggestions about my ideas concerning the workplace. (R)	İş arkadaşlarım iş yerini ilgilendiren fikirler hakkında kullanışlı tavsiyeler verir.
6	My coworkers often contribute new ideas for how to solve problems at work.	İş arkadaşlarım iş yerindeki problemleri çözmek için yeni fikirler üretir.
7	My coworkers provide me with constructive suggestions about how to improve my job.	İş arkadaşlarım işimi geliştirmek için yapıcı tavsiyeler sağlar.

Note. All of the original items are taken from Madjar (2002).

Table A8: Measure of Workload

No	Original item	Turkish item
1	How often does your job require you to work very fast?	İşinizi daha hızlı yapmanızın istenmesi
2	How often does your job require you to work very hard?	Çok fazla çalışmanızın istenmesi
3	How often does your job leave you with little time to get things done?	İşleri tamamlamanız için kalan sürenin az olması
4	How often is there a great deal to be done?	Daha yapılacak bir hayli işin olması
5	How often do you have to do more work than you can do well?	Sizden iyi şekilde yapabileceğinizden daha fazla iş yapmanızın istenmesi

Note. All of the original items are taken from Spector and Jex (1998) and all of the Turkish translated items are taken from Keser et al. (2017).