'Collective creativity':
A Quantitative Study of Factors Contributing to Collective creativity in the Workplace
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Abstract

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The complexity that organizations face in the modern external environment calls for employees to generate novel ideas for solving problems. Despite acknowledging the importance of creativity for innovation, creativity assumes a subsidiary role in contrast to productivity in the workplace. The purpose of the study is to expand knowledge in the field of Strategic communication on factors that foster Collective creativity in the Communication industry. The study takes inspiration from the theoretical framework developed by Amabile & Pratt (2016), undertakes an empirical approach and a quantitative methodology. Six hypotheses were developed through an extensive literature review of previous research. The distribution of a digital questionnaire was utilized to collect data from 107 respondents in the Communication industry by using a convenience sampling method. The findings support the hypotheses that the factors 'Work self-efficacy' and 'Organizational encouragement' contribute significantly to Collective creativity. The results indicate that employees' confidence in that she/he can perform effectively across different tasks and situations, and that elements of organizational encouragement are the most momentous factors fostering Collective creativity. The implications of the study suggest that future research can test current/additional variables in a larger sample size and design a comparative study to explore the potential differences between what is needed to foster Collective creativity in different cultural contexts.

Keywords: Collective creativity, Strategic communication, Management, Workgroup, Innovation

Contents

1. Introduction

Creativity has become an important parameter in harnessing a competitive advantage for organizational performance (e.g., Asad et al., 2021; Fields, 2021; Solomons, 2023). While creativity can be defined as "The production of novel and useful ideas in any domain" (Amabile et al., 1996, p. 1155), innovation can be defined as "The successful implementation of creative ideas" (Amabile et al., 1996, p. 1155). A critical aspect of any organization is that employees are dependent on each other, collaborate to come up with new innovative ideas for problem-solving, and seldom practice their creativity in silos (e.g., Parjanen, 2012). Catmull (2008) emphasizes that "Creativity involves a large number of people from different disciplines working effectively together to solve a great many problems" (p. 66). Accordingly, the phenomenon of Collective creativity has become apparent to describe "An approach to creative activity that emerges from the collaboration and contribution of many individuals so that new forms of innovative and expressive art forms are produced collectively by individuals connected by the network" (Fields, 2021, p. 41). Fields (2021) furthermore states that "Collective creativity occurs when social interactions lead to new interpretations and discoveries which individual thinking could not have generated" (p. 41).

The demonstrated relationship between employees' Collective creativity in the workplace and innovation (see Acar et al., 2024; Hill et al., 2014; Somech & Drach-Zahavy, 2011) has captured the interest of researchers to examine the indirect and direct effect of individual-, group-, leadership-, organizational- and resource variables. To enable capitalizing on potential synergies as well as eliminate the risk that researchers studying one topic are only peripherally aware of the work done by researchers studying the other topic, numerous state-of-the-

art research reviews- and meta-analyses have been made (see Anderson et al., 2014; Andriopoulos, 2001; Jain & Jain, 2016; Liu et al., 2016; Lua et al., 2024; Ren & Song, 2024; Shalley et al., 2004).

The present study is motivated by the growing body of research investigating the factors that foster Collective creativity. While contemporary research on this elusive and complex topic oftentimes is isolated within disciplinary boundaries, there is a risk that researchers operate limited by the educational constraints of their research traditions (see Acar et al., 2024, for a discussion on this). Collective creativity is a complex phenomenon and difficult to attribute an exclusive definition (see Cropley, 2020), conceptualization (see Anderson et al., 2014; Chen & Kaufmann, 2008), type (see Madjar et al., 2011; Ren & Song, 2024), level (see Agars et al., 2008; Hon & Lui, 2016), and measure (see Ng & Feldman, 2012). However, the joint components involved in facilitating creative outcomes (i.e., workgroup composition, management, organizational structure, and organizational culture) are all linked by communication. Conversely, there prevails a controversy on how to make Collective creativity tangible to study. All things considered, presents not only a barrier to knowledge accumulation and cross-disciplinary learning but an opportunity for an interdisciplinary research field.

In its widest definition, the umbrella research field Strategic communication "Encompasses all communication that is substantial for the survival and sustained success of an entity" (Zerfass et al., 2018, p. 493), and integrates the three disciplines (a) Organizational communication; (b) Public relations; and (c) Marketing communications (Falkheimer & Heide, 2022, p. 6). Strategic communication implies shaping perceptions, influencing behaviors, and achieving objectives in various domains (Falkheimer & Heide, 2022, p. 6), including fostering work environments to achieve organizational goals.

Considering the previously outlined, it is relevant to generate new research findings in the field of Strategic communication to understand what factors work most prominently to

foster Collective creativity in the Communication industry. The study is primarily relevant to organizations in the Communication industry in both the private and public sectors. Providing insights into the fostering factors of Collective creativity is thought to encourage management's inclusion of creative outcomes as part of the general organizational goal setting. Managers can apply efforts to scale up and prolong creative outcomes, while simultaneously working towards maximizing business imperatives (i.e., productivity, coordination, and control). Ultimately, employees' professional constraints can be leveraged to both allow and incentivize employees to be creative while completing job obligations, for the development of both novel and useful ideas.

1.1.   Background and problem

Efficient communication within organizations, amongst employees and management, is a crucial part of any successful organization (Miller, 2015). It promotes transparency, collaboration, and mutual understanding in the workplace which leads to higher levels of both productive and creative outcomes (Acar et al., 2024; Miller, 2015). Although creativity is widely acknowledged by CEOs as crucial for economic growth and conceived to play a prominent role in driving innovation, creativity is oftentimes undervalued and takes a backseat to workplace productivity (Solomons, 2023). Unfortunately, while working towards maximizing business imperatives, work environments and workgroup compositions may inadvertently be designed to systematically inhibit creativity.

An Adobe study in 2012 conducted on 5000 employees in the US, UK, Germany, France, and Japan uncovered what has been referred to as the "Global creativity gap" (Adobe, 2012; Solomons, 2023). These global findings revealed that 52% of people believe creativity is undervalued in the workplace. While merely 25% felt they were living up to their creative potential, 75% stated that they were under growing pressure to be productive rather than

creative (Adobe, 2012; Solomons, 2023). Although there's a tendency to think that creativity and productivity are at odds, fostering a culture of creativity motivates and encourages high-performance teams (Sharma, 2016). In Adobe's following "2016 State of Create Report", 78% stated that businesses that invest in creativity were more likely to increase employee productivity and 80% stated that creative companies were more likely to have satisfied customers as well as provide better customer experiences (Sharma, 2016).

The discrepancy that on the one hand creativity is perceived as crucial for economic growth, and on the other hand undervalued in the workplace, indicates a pressing need for industries to prioritize and nurture Collective creativity (Solomons, 2023). Contrastingly in the Communication industry, creativity has been at the margins of both professional and academic interest (Aslan & Ertem-Eray, 2018; Daymon, 2000). In its constant strive for academic and professional legitimacy, the Communication industry has instead turned towards methods for quantifying and measuring the value of communication (Aslan & Ertem-Eray, 2018). Through the interdisciplinary exploration of creativity as a collective phenomenon in the Communication industry, the present study problematizes traditional ways of conceiving how employees contribute to organizational goals in the workplace.

1.2.   Purpose and research question

The purpose of the study is to (a) situate and conceptualize Collective creativity in the research field of Strategic communication; and (b) contribute to research on factors fostering Collective creativity in the workplace. Subsequently, the study's purpose is concretized, and the study aims to answer the following research question:

RQ: What are the factors contributing to Collective creativity in the workplace in the Communication industry?

1.3.   Disposition

The continued sections of the study are structured as follows: Chapter Two includes a presentation of the status quo of knowledge in the field and a literature review on Collective creativity. Chapter Three includes a presentation of the study's guiding theoretical framework developed by Amabile & Pratt (2016) and assumptions followed by the theoretical framework. Chapter Four presents the hypotheses and the research model that have been developed from previous research. Chapter Five includes the empirical approach, quantitative methodology, methods, data collection, sample, sample method, and considerations of ethics and biases. Chapter Six presents the findings of the paper using SPSS data analysis and the six hypotheses are tested. Finally, Chapter Seven concludes, describes the results of the study, encompasses a discussion of the implications of the study's findings, a consideration of limitations, and presents suggestions for future research.

2. Literature review

Chapter Two presents an overview of the status quo of central research conducted on Collective creativity. First, the phenomenon of research is situated in a wider context. Second, a literature review on Collective creativity is demonstrated. Ultimately, central research on Collective creativity is comprehensively reviewed.

2.1. Collective creativity

Literature on Collective creativity is diverse in approach and the phenomenon appears both elusive and complex (see Ren & Song, 2024, for an overview). The present study uses the term Collective creativity to refer to the aggregated volume of creativity generated by employees within the organization. However, scholars use various terms to refer to the same phenomena such as 'Workplace creativity', 'Employee creativity', 'Team creativity', and 'Organizational creativity'. Collective creativity has been studied extensively by scholars ranging from various disciplines in social sciences (e.g., Psychology, Sociology, Communication studies, and Management), and various subdisciplines (e.g., Social psychology, Human resources, Organizational communication, and Organizational studies). Scholars from these disciplines differ in their level of analysis (i.e., individual-, group-, leadership-, organizational- and resources). Moreover, from the perspective of the unit of analysis, scholars conceptualize creativity differently, including viewing creativity as a personal trait (e.g., Gaut, 2014), a process (e.g., Drazin et al., 1999), or an outcome (e.g., Amabile, 1988). However, most research on Collective creativity tends to conceptualize creativity according to the outcome perspective. There is also a debate among scholars on the type of creativity and hence

whether the construct of creativity is to be operationalized as one-dimensional (e.g., Amabile & Pratt, 2016) or needs to be operationalized as multidimensional (see Madjar et al., 2011; Ren & Song, 2024). The stream of research operationalizing creativity as a multidimensional construct suggests that scholars who operationalize creativity as one-dimensional do not take into consideration the complexity of creativity, which can lead to contradictory empirical findings. Nevertheless, the present study does not make any claim on the validity of any of the above-mentioned approaches to operationalize creativity. However, the implications followed by operationalizing creativity as a multidimensional construct are rather limited considering the profound research stream on creativity as one-dimensional. For present research purposes, creativity is operationalized as a one-dimensional construct and conceptualized according to the outcome perspective.

2.2.   Theoretical contributions

In the existing literature, several theories appear as supplementary and complementary to conceptualize Collective creativity. However, the most impactful theoretical contributions can be understood to be constituted by four major classic theories (Amabile, 1983; Csikszentmihalyi, 1996; Ford, 1996; Woodman et al., 1993) and one newer (Hargadon & Bechky, 2006). Amabile's (1983) "Componential Theory of Creativity" can be regarded as the oldest established theory of Collective creativity in organizations. The author describes a comprehensive model of four social psychological components necessary for an individual to produce creative work. Three components consist within the individual (a) domain-relevant skills (expertise in the relevant domain or domains); (b) creativity-relevant skills (cognitive and personality processes conducive to novel thinking); and (c) intrinsic task motivation (specifically, the intrinsic motivation to engage in the activity out of interest, enjoyment, or a personal sense of challenge). The component outside the individual is the surrounding

environment in which the individual is working (in particular, the social environment). The model of individual creativity is conceptually a multiplicative one, no component within the individual may be absent if any recognizable level of creativity is to be produced, and the higher the level of each of the three individual components the higher the multiplicative effect on the overall level of creativity. The three components also appear to operate at different levels of specificity. Creativity-relevant skills operate at the most general level of specificity, this component may influence responses in any content domain. Domain-relevant skills operate at an intermediate level of specificity, this component includes all skills relevant to a general domain. Finally, intrinsic task motivation operates at the most specific level, this component may be very specific in its impact on creativity related to the particular tasks within the domain and may even vary over time. The theory has undergone considerable evolution and revision by Amabile and her colleagues since its origin (see Amabile, 1988; Amabile et al., 1996; Amabile & Mueller, 2008; Amabile & Pratt, 2016), nevertheless the components of the model of individual creativity have remained the same (see Amabile, 2012, for a review).

Woodman et al. (1993) contrastingly presents the "Interactionist Model of Organizational Creativity". The theory integrates four constructs (a) the creative process (which results in the creative product); (b) the creative product (consisting of novel ideas, products, services, procedures, or processes); (c) the creative person; and (d) the creative situation (the sum of social and environmental influences on creative behavior). Woodman et al. (1993) view Collective creativity to be the result of a complex interplay of (a) stable or transient characteristics of an actor (individual or group); and (b) contextual factors. This complex mosaic of individual, group, and organizational characteristics creates the context (the creative situation within which individual- and group behaviors are played out).

Csikszentmihalyi (1996) differentially presents the "Contextual Model of Creativity". The author describes that Collective creativity results from the interaction of a system

composed of three subsystems (a) a domain (with a culture that contains symbolic rules); (b) a person (who brings novelty into the symbolic domain); and (c) a field (of experts who recognize and validate the innovation). Each of the three subsystems affects the other. Csikszentmihalyi (1996) describes that for creativity to occur, a set of rules and practices must be transmitted from the domain to the individual. The individual must then produce a novel variation in the content of the domain. The variation then must be selected by the field for inclusion in the domain.

Ford (1996) adversely presents the "Theory of Creative Action". The author describes that Collective creativity results from individuals' intentional and habitual action within an organization situated in the multiple social domains (a) an intertwined group; (b) an organization; (c) an institution; and (d) a market domain. Although the theory is in some ways similar to Csikszentmihalyi's (1996) conceptualization, it goes beyond previous formulations of Collective creativity, including those offered by Amabile (1983) and Woodman et al. (1993) by describing (a) the interactions between intentional and behavioral change processes that explain creative behavior; and (b) identifying multiple social domains that collectively represent "the situation", facing organizational actors as they choose between creative and routine actions.

While each of the four major classic theories of Collective creativity (Amabile, 1983; Csikszentmihalyi, 1996; Ford, 1996; Woodman et al., 1993) includes the work environment as an influence on individuals' creative performance, much of these early theoretical contributions tended to neglect the group as the unit of analysis and focused merely on the individual. The direct role of groups in the development of ideas as well as the contributions of individual characteristics on creativity has been the focus of newer research. While conceptualizing creativity as a process, newer research has emphasized the effects of social interactions between individuals, specifically examining the team creative cognition process of Collective

creativity (see Caniels et al., 2014; Reiter-Palmon & Linnell, 2023; Shalley & Perry-Smith, 2008). An example of a newer theoretical contribution to the Collective creativity literature is Hargadon & Bechky's (2006) "Model of Collective creativity". The authors use a social cognition approach to present a model demonstrating how creative problem-solving shifts from the individual to the social interactions of a collective. The authors argue that although some creative solutions can be seen as the products of individual insights, others should be regarded as the products of momentary collective processes. While identifying the origins of such moments, the model encapsulates the roles played by four types of social interactions (a) help-seeking; (b) help-giving; (c) reflective reframing; and (d) reinforcing. These activities constitute an alternative framework for understanding and managing the creative process within organizations; as one that shifts the focus away from the contextual variables that surround individuals, to the behavioral influences and momentary social interactions between people. The authors' approach differs from earlier theoretical contributions to the Collective creativity literature by recognizing the coincidence of behaviors that trigger moments when creative insights emerge amongst individuals. Rather than focusing on the organizational variables that make up the constituting context for creativity and viewing these moments as sole individual cognition, the authors focus on insights that emerge in the ongoing social interactions between individuals that add up to a greater sum than individuals could have generated singlehandedly (Hargadon & Bechky, 2006).

3. Theoretical framework

Chapter Three provides the theoretical tools, terminology, and concepts relevant to conceptualizing Collective creativity. First, Amabile & Pratt's (2016) theoretical framework is described. Ultimately, assumptions followed by the framework are accounted for.

3.1.   Amabile and Pratt's (2016) theoretical framework

Amabile & Pratt's (2016) theoretical framework "The dynamic componential model of creativity and innovation in organizations" offers a comprehensive description of (a) the process of individual and group creativity; (b) the process of organizational innovation; and (c) how the two are linked through mutual influence. Through the framework, it can be comprehended how individual-, group-, leadership-, organizational- and resource factors affect creativity among employees in the workplace. The model consists of two levels (a) individual/group creativity; and (b) organizational innovation (see Figure 1). These two levels consist broadly of the three basic multiplicative components that are required to produce something new:

1. A driver.
2. Basic resources.
3. A set of skills for combining basic resources in new ways.

Figure 1

Model of interactions between components of creativity and innovation
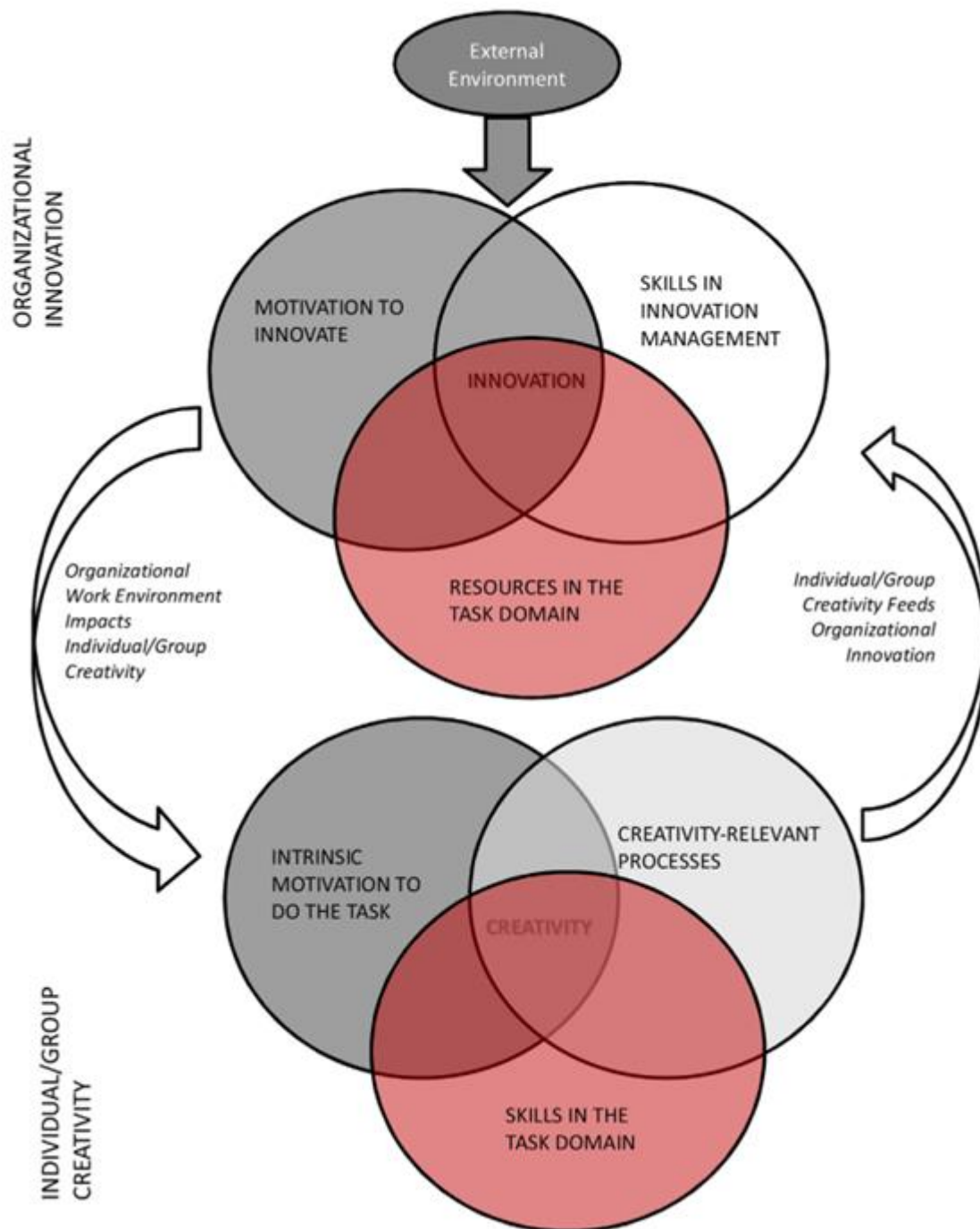
Note. Adapted from Amabile & Pratt (2016, p. 161).

The level of individual/group creativity consists of (a) Intrinsic motivation to do the task; (b) Skills in the task domain; and (c) Creativity-relevant processes. First, 'Intrinsic

motivation to do the task' is conceptualized as the driver, this refers to the extent to which an individual is excited about a work task and engages for the sake of the activity itself to fulfill a certain task at the workplace (Amabile & Pratt, 2016). Second, 'Skills in the task domain' is conceptualized as the basic resources. This refers to the individual's expertise or factual knowledge about the domain, technical skills for fulfilling work tasks, and advancing one's knowledge in the domain (Amabile & Pratt, 2016). Third, 'Creativity-relevant processes' are conceptualized as the set of skills for combining basic resources in new ways. This refers to the cognitive and perceptual styles, and thinking skills that are conducive to taking new perspectives on problems, pivoting among different ideas, thinking broadly, and making unusual associations (Amabile & Pratt, 2016). This also leads the individual to take risks and refrain from conformity.

The organizational innovation level consists of (a) Motivation to innovate; (b) Resources in the task domain; and (c) Skills in innovation management (Amabile & Pratt, 2016). First, 'Motivation to innovate' is conceptualized as the driver and refers to the basic orientation of the organization toward innovation. Motivation is manifest primarily in statements and actions of founders and high-level leaders. Amabile & Pratt (2016) state that a true organizational motivation to innovate is marked by a bias toward risk-taking (versus clinging to the status quo), a genuine openness to new ideas, a system for developing creative ideas, and an offensive strategy to lead the organization's industry into the future (Amabile & Pratt, 2016). Second, 'Resources in the task domain' is conceptualized as the basic resources and includes everything the organization has available to aid creative work in a targeted area (a) people with sufficient expertise, skill, and interest to do the work creatively; (b) financing for projects in the targeted domain, with which necessary tangible materials and services can be obtained; (c) sufficient infrastructure within and external to the organization to support the creative work; and (d) access to necessary information (Amabile & Pratt, 2016). Importantly,

sufficient time to explore creative solutions and implement those solutions effectively is an often-neglected organizational resource. Third, 'Skills in innovation management' are conceptualized as the set of skills for combining basic resources in new ways. This includes management at the level of the organization as a whole and management at the levels of departments, units, and projects (Amabile & Pratt, 2016). The management practices that mainly influence creativity and innovation include (a) goal-setting that is sufficiently clear to direct work toward the ultimate strategic aims of the organization, but sufficiently loose to allow individuals and teams the autonomy to explore truly new ideas; (b) work assignments that are matched well to individuals' interests and that provide positive challenges; (c) open communication systems within the organization, to facilitate idea exchange, coordination, and collaboration; (d) frequent, constructive, and supportive feedback on creative efforts; (e) equitable and generous rewards and recognition for good creative efforts (regardless of outcome), as well as for creative successes; (f) an absence of unnecessary layers of hierarchy, complexity, and bureaucracy in the organization; and (g) supportive collaboration across departments, units and teams (Amabile & Pratt, 2016). Ultimately, Amabile & Pratt's (2016) model allows an examination of how the combination of individual skills, group processes, and motivation contributes to Collective creativity.

3.1.1. Assumptions followed by the theoretical framework

Several assumptions for creativity and innovation within organizations are followed by Amabile & Pratt's (2016) dynamic theoretical framework. First, individual creativity is the most crucial element of Collective creativity. However, individual creativity is not sufficient by itself. Second, the features of the organization can be the most crucial determinant of an individual's creativity at any point in time. Third, a high level of isomorphism prevails for what is needed on the level of individual/group creativity and what is needed for

organizational innovation. Fourth, individual/group creativity as well as organizational inno-

vation are inextricably linked. To specify, the creativity of individuals and groups feeds or-

ganizational innovation within organizations. Simultaneously, features of the organization,

including managerial practices, feed or starve individual/group creativity. Hence, the pro-

cesses within each of the two levels are independent yet linked to each other through mutual

influence (Amabile & Pratt, 2016).

4. Hypotheses development

Chapter Four gives an account of the most relevant reviewed previous research that significantly contributes to Collective creativity and demonstrates the process of operationalizing the research into the six hypotheses giving rise to the research model. First, the six hypotheses are developed by synthesizing previous research on Collective creativity. Ultimately, the integrated and conceptual research model is illustrated, consisting of six independent variables and one dependent variable.

4.1.   Work intrinsic motivation

The positive relationship between intrinsic motivation at work as a mediating factor to Collective creativity is well-established (see De Jesus et al., 2013, for a review). Intrinsic motivation can be understood to reflect a 'want-to-do' factor of individuals and has been defined by Amabile et al. (1998) as "The motivation to engage in an activity for its own sake" (p. 243). In a work environment, intrinsic motivation is the motivation that arises within an individual for the intrinsic value it brings to do the work activity, such as inner passion, interest, enjoyment, or intrinsic pressures such as the challenge to solve a particular problem at hand (e.g., Amabile & Pillemer, 2012; Zhou & Shalley, 2010). Intrinsic motivation is thought to have a positive relationship with Collective creativity because intrinsically motivated individuals will show deeper levels of involvement in the problem at hand (e.g., Amabile et al., 1994). These individuals will search for solutions with greater persistence and in ways that are more exploratory (Amabile et al., 1998). They will be more prone to be playful with ideas and materials because of their freedom to take risks, explore new cognitive pathways, and

engage in behaviors that might not be directly linked to attaining a "solution" (Amabile, 1979, 1998). Since intrinsically motivated individuals undertook the activity primarily for the enjoyment of engaging in it, these individuals will relate to the activity as more like play than work (Amabile, 1979).

Kim et al. (2021) found that intrinsic motivation mediated the positive relationship between perceived cognitive diversity and Collective creativity, and that learning goal orientation moderated this relationship. Furthermore, Yesuf et al. (2023) revealed that intrinsic motivation mediated the positive relationship of domain-relevant skills and creativity-relevant skills, respectively, with Collective creativity. Lastly, Nguyen et al. (2023) showed that intrinsic motivation and creative process engagement mediated the positive relationship between psychological empowerment and Collective creativity. Considering the research supporting the mediating positive effect between intrinsic motivation at work and Collective creativity, a first hypothesis is formulated:

H1: There is a positive relationship between 'Work intrinsic motivation' and 'Collective creativity'.

4.2. Work self-efficacy

Parallel to the stream of research concerning the link between intrinsic motivation and Collective creativity, another stream of motivational research has drawn on social cognitive theory (Bandura, 1997, 2001) to conceptualize and test an individual's self-efficacy at work as a mediating mechanism to Collective creativity (see McKay et al., 2018; Puente-Díaz, 2016, for a review). Self-efficacy can be understood to reflect a 'can-do' factor for individuals and has been defined by Wood & Bandura (1989) as the "Beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given

situational demands" (p. 408). Thus, embedded in the concept of self-efficacy, it is not the competence itself that matters but the mere belief about one's competence (Lemons, 2010). 'Work self-efficacy' has been defined by Chen et al. (2001) as "One's estimate of one's overall ability to perform successfully in a wide variety of achievement situations, or to how confident one is that she or he can perform effectively across different tasks and situations" (p. 79). Furthermore, general types of self-efficacy like work self-efficacy shape more specific types of self-efficacy such as Creative self-efficacy (CSE) (see Tierney & Farmer, 2002). Although researchers have focused on the effect of the specific CSE, general work self-efficacy is a more trait-like general dimension of self-efficacy (Chen et al., 2001), and is conceived more appropriate for present research purposes since it can predict overall beliefs about performance across a variety of situations.

Because generating creative ideas involves moving past existing mental frameworks, it can be challenging for individuals to marshal the cognitive resources and persistence necessary for succeeding in this regard (e.g., Farmer & Tierney, 2017). Self-efficacy relates to creativity since individuals are more likely to think about creative ideas and engage in creative tasks if they believe in their capabilities (e.g., Asad et al., 2021). This is also further embossed by the fact that creativity is a high-risk activity, chances of failure are manifold, and individuals can find themselves in a situation where they cannot come up with new and useful ideas (e.g., Amabile & Pratt, 2016). Moreover, self-efficacy reflects the confidence of an individual about her/his inclination to accomplish a particular task and is thought to encourage employees to cope with challenging situations (Asad et al., 2021).

Yang et al. (2021) found that work self-efficacy mediated the positive relationship between strengths-based job crafting and Collective creativity. Furthermore, Zada et al. (2023) revealed that work self-efficacy indirectly affected the positive link between servant leadership, Collective creativity, and work role performance via knowledge sharing. Lastly, Ma et

al. (2013) showed that work self-efficacy and knowledge-sharing mediated the positive relationship between ethical leadership and Collective creativity. Considering the research supporting the mediating positive effect between self-efficacy at work and Collective creativity, a second hypothesis is formulated:

H2: There is a positive relationship between 'Work self-efficacy' and 'Collective creativity'.

4.3.   Workgroup supports

'Workgroup supports' has been defined by Amabile et al. (1996) as "A diversely skilled work group in which people communicate well, are open to new ideas, constructively challenge each other's work, trust and help each other and feel committed to the work they are doing" (p. 1166). Workgroup diversity is thought to positively impact Collective creativity because of increased perspective-taking provided by workgroup members with wider ranges of backgrounds (e.g., Zhou & George, 2001). Moreover, when employees work with colleagues willing to share knowledge, provide alternative viewpoints, and assist in completing duties, they will feel more secure in their abilities to adapt to problems and be creative (e.g., Kremer et al., 2019).

Hoever et al. (2012) found that perspective-taking moderates the positive effect of diversity on Collective creativity and that this effect is mediated by information elaboration. Joo et al. (2023) revealed that knowledge-sharing and work engagement mediated the positive relationship between empowering leadership and Collective creativity. Lastly, Bai et al. (2016) showed that team conflict and knowledge sharing mediated the positive relationship between transformational leadership and Collective creativity. Considering the research

supporting the positive relationship between elements of workgroup supports and Collective creativity, a third hypothesis is formulated:

H3: There is a positive relationship between 'Workgroup supports' and 'Collective creativity'.

4.4.   Supervisory encouragement

Research supporting the positive relationship between 'Supervisory encouragement' and Collective creativity falls into various branches of leadership such as authentic leadership (see Putra & Satrya, 2024), creative leadership (see Liu et al., 2024), empowerment leadership (see Joo et al., 2023), entrepreneurial leadership (see Islam & Asad, 2024), ethical leadership (see Li et al., 2024), paradoxical leadership (see Devi, 2024), shared leadership (see Ali et al., 2023), and transformational leadership (see Asad et al., 2021). 'Supervisory encouragement' can be defined according to Amabile et al. (1996) as "A boss who serves as a good work model, sets goals appropriately, supports the workgroup, values individual contributions, and shows confidence in the work group" (p. 1166). Goal setting is thought to positively impact Collective creativity because it fosters engagement with employees, relational transparency, and builds a sense of obligation for employees to apply their full talents to their jobs (e.g., Sumanth et al., 2023). Moreover, when leaders foster knowledge-sharing, employees are empowered to creatively collaborate in a culture of openness and trust (e.g., Devi, 2024).

Aristana et al. (2023) found that transformational leadership had a positive relationship with Collective creativity and that this mechanism was mediated by intrinsic motivation. Furthermore, Yoon et al. (2023) revealed that supervisor knowledge-sharing had a positive relationship with Collective creativity and that this influence was mediated by self-efficacy.

Lastly, Zhang et al. (2022) showed that leader humor had a positive relationship with Collective creativity, and that this positive effect was mediated by CSE. Considering the research supporting the positive relationship between elements of supervisory encouragement and Collective creativity, a fourth hypothesis is formulated:

H4: There is a positive relationship between 'Supervisory encouragement' and 'Collective creativity'.

4.5. Organizational encouragement

'Organizational encouragement' has been defined by Amabile et al. (1996) as "An organizational culture that encourages creativity through the fair, constructive judgment of ideas, reward, and recognition for creative work, mechanisms for developing new ideas, an active flow of ideas, and a shared vision" (p. 1166). A flatter organizational structure, characterized by a decentralized decision-making process, is thought to foster autonomy, and flexibility, contributing positively to Collective creativity (Fraihat et al., 2023). Moreover, top management supports to establish environments that foster knowledge-sharing enhances the capacity of employees to be creative (Al-Husseini, 2024).

Islam et al. (2022) found a positive relationship between affect-based trust and Collective creativity through the mediating mechanism of knowledge sharing. Furthermore, Aldabbas et al. (2021) revealed a positive relationship between perceived organizational support with Collective creativity through the mediating mechanism of work engagement. Lastly, Kulachai et al. (2024) showed a positive relationship of perceived organizational support on Collective creativity. Considering the research supporting the positive relationship between elements of organizational encouragement and Collective creativity, a fifth hypothesis is formulated:

H5: There is a positive relationship between 'Organizational encouragement' and 'Collective creativity'.

4.6. Sufficient resources

'Sufficient resources' has been defined by Amabile et al. (1996) as "Access to appropriate resources, including funds, materials, facilities, and information" (p. 1166). Adequate resources are necessary for developing Collective creativity because the development of new ideas is a labor- and resource-intensive task (Shalley and Perry-Smith, 2008). Sufficient resources are thought to foster Collective creativity since when employees do not need to expend time and effort looking for or asking for additional resources from their organization, they may focus solely on the task at hand. think deeply and put forth creative ideas without stressing over external constraints (Zhang et al., 2018).

De Clercq & Pereira (2020) found that knowledge-sharing stimulates Collective creativity to a greater extent when employees have sufficient time to complete their job tasks, perceive that organizational decision-making is fair, and feel passionate about work. Furthermore, Zhang et al. (2018) revealed that employees' access to resources and organization-based self-esteem both mediate the relationship between empowering leadership and creativity. Lastly, Madjar et al. (2011) showed that resources for creativity, willingness to take risks, and career commitment were positively associated with Collective creativity. Considering the research supporting the positive relationship between elements of sufficient resources and Collective creativity, a sixth hypothesis is formulated:
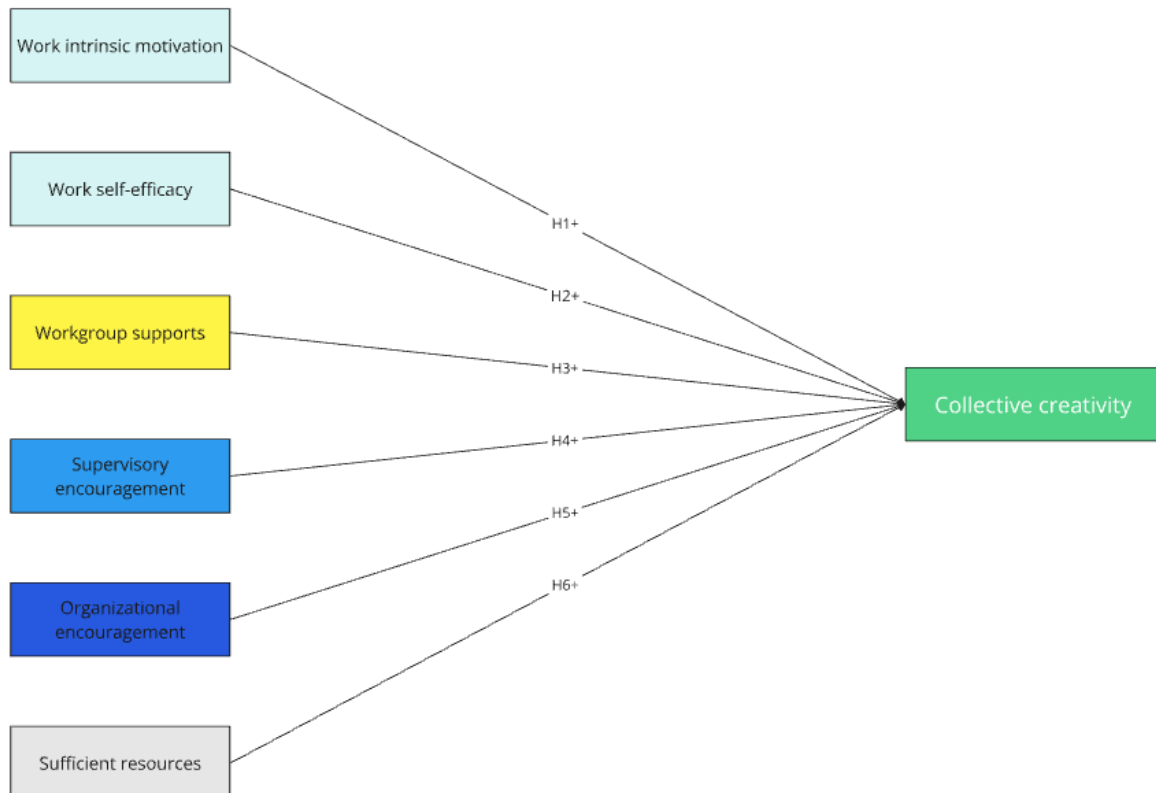
H6: There is a positive relationship between 'Sufficient resources' and 'Collective creativity'.

4.7.   Research model

All research hypotheses are included in the research model (see Figure 2).

Figure 2

Research model

Note. The light blue color indicates the individual dimension. The yellow color indicates the group dimension. The blue color indicates the leadership dimension. The dark blue color indicates the organizational dimension. The light grey color indicates the resource dimension. The green color indicates the dependent variable 'Collective creativity'.

5. Methodology

Chapter Five describes the empirical approach of the study. First, the research paradigm, research design, and quantitative methods are described. Second, the sample selection and data collection methods are presented. Third, the questionnaire design and scale constructs are demonstrated. Ultimately, research biases and ethics are considered.

5.1.   Research paradigm and design

Underlying any form of research is an ontology and an epistemology. An ontology is the philosophy of science that informs us of the nature of the phenomenon examined, whereas an epistemology refers to how knowledge can be acquired which indicates the methods used for understanding reality (Van de Ven, 2007). Given the nature of the research question and the research design, the current study is conducted in the post-positivist research paradigm and with an objective epistemological stance (Lincoln et al., 2011). Modern research can be understood to be guided by a refined version of positivism, the limitations and criticism of positivism led to the post-positivist paradigm. Contrastingly, post-positivism does not make absolute claims about truth underlying the phenomena of study but strives instead to scientifically explore and represent reality (Lincoln et al., 2011; Muijs, 2011). Quantitative approaches that use statistics and/or experiments are classic examples of how reality can be captured. Probability testing and building evidence to reject or support hypotheses but not conclusively prove them lead to the predictability of knowing in the social world (Muijs, 2011; Pallant, 2020). The study uses a deductive approach, where all hypotheses are developed from previous research, academic literature, and theoretical frameworks to construct a

research model with testable hypotheses (Pallant, 2020; Van de Ven, 2007). Ultimately, IBM SPSS is used to create variables to measure and analyze the findings of the study.

5.2. Survey design

The questionnaire is designed in two sections, progressing from the socio-demographic background to the measurements of the constructed six hypotheses. The six hypotheses pertain to variables that cannot be observed or measured directly, so-called latent variables (Pallant, 2020). To make the latent variables measurable, a scale is used. Furthermore, a scale is a group of questions, and the individual questions in each scale are referred to as items. As Van de Ven (2007) states, when evaluating the validity of an instrument, one should consider whether it captures the intended constructs and conforms to the theory. To ensure the questionnaire is reliable and valid, the items have been formed according to previously validated research.

The questionnaire consists of nine socio-demographic variables and seven scales containing 57 items in total. The first section of the questionnaire consists of both closed and open-ended questions asking for socio-demographic information. Specifically, in the socio-demographic section, the information of respondents regarding consent to participate in the study, sex, age, organizational level as well as employment duration is collected. As Van de Ven (2007) states, the factors of individual differences are often used as stratification variables, to statistically control the different frames of reference of respondents. It not only helps to filter out respondents who are not the targeted audience but also contributes to the interpretation of the collected data. Furthermore, participants were informed about the purpose of the survey, while anonymity and confidentiality of their data were assured. No incentives for participating in the survey were given. Subsequently, the next seven scales consist of closed-

ended questions and these items all ask for information about employee's perceptions as well as impressions of the workplace.

The seven constructs of interest in the study are all measured on multi-item Likert scales, using validated instruments from prior research. The three-item 'Work intrinsic motivation' scale is measured on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). The eight-item 'Work self-efficacy' scale is measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The rest of the seven constructed scales are all measured on a four-point Likert scale with an option to mark not applicable (1 = never or almost never true of your current workplace, 4 = always or almost always true of your current workplace, and N/A = not applicable). All sources of the scales, constructs, number of items, and Cronbach's alpha (α) are listed (see Table 1).

Table 1

Internal Consistency of Validated Scales

Author	Construct	No. of items	α
Trembley et al., 2010	'Work intrinsic motivation'	3	0.77
Chen et al., 2001	'Work self-efficacy'	8	0.90
Amabile, 1995 & Amabile et al., 1996	'Workgroup supports'	8	0.86
Amabile, 1995 & Amabile et al., 1996	'Supervisory encouragement'	11	0.91
Amabile, 1995 & Amabile et al., 1996	'Organizational encouragement'	15	0.91
Amabile, 1995 & Amabile et al., 1996	'Sufficient resources'	8	0.83
Amabile, 1995 & Amabile et al., 1996	'Collective creativity'	6	0.84

Note. KEYS items were used with the permission of Teresa M. Amabile, Ph.D.

5.3.   Sample selection and data collection

Since the purpose of the study is to generate new knowledge about how communication professionals conceive creativity in the workplace, the target population is employees in the Communication industry. To obtain a representative sample of the chosen population, it

was made mandatory in the questionnaire for all respondents to state if they were currently employed in the Communication industry or not.

A nonprobability convenience sampling method was used, whereby the sample is selected based on availability and accessibility (Boyle & Schmierbach, 2015; Zikmund et al., 2009). The reasons for adopting a convenience sample were the suitability to access a substantial number of respondents and to explore and uncover ideas amongst a larger sample. The questionnaire was shared with a sharable link on the social media platforms LinkedIn and Facebook. To increase the reach and randomization of survey responses, the questionnaire was also printed as posters with a belonging QR code and set up in the public spaces of Malmo University Library and Lund City Library. In addition, to find a more public population of participants and reach a larger sample of respondents to participate in the survey, the questionnaire was registered on the free-of-charge website SurveyCircle.

5.4.   Ethical considerations

The research process was guided by ethical principles, to uphold the Swedish Scientific Council's (Vetenskapsradet, 2018) ethics in research- and research practice. First, the respondents were given informed consent, which was a prerequisite to agree, to proceed with participating in the study. The informed consent encompassed the aim of the research, and how anonymity as well as confidentiality was ensured. The respondents were informed that their data were treated anonymously, and that no personal or identifiable information was used to analyze and report the data. The respondents were also informed that their data were processed confidentially, and used solely for educational purposes, to contribute to research and the design of educational programs. Moreover, that no information about any individual would be disclosed without their written consent.

All questions in the questionnaire were made mandatory for respondents to provide answers as well as to proceed to the following section and submit their final answers to the questionnaire. First, the decision was made to avoid missing data in the analysis, as there could be a risk that parts of the cases were excluded while running SPSS analysis. In addition, as the scales have few items, there would be a risk that the results would be reported incorrectly. In this case, pairwise deletion in Multiple Regression Analysis (MRA) would have excluded these cases for analysis (Pallant, 2020). However, as suggested by Pallant (2020), an imputation (i.e., manipulating the data by replacing the missing data with mean values) is not considered a substitute for real answers as the results can tend to look more refined than they should. Ultimately, by making all questions mandatory, the risk of respondents overlooking questions reduced. This can otherwise create a potential bias if the respondents do not know what to answer but were controlled for using normality tests.

5.5. Considering biases

Biases need inevitably be considered while conducting quantitative research, in terms of the chosen sampling technique and the response style made by respondents. First, the possibility of bias related to the sampling method needs to be considered. There is a risk that the respondents most likely to answer the questionnaire are those who have a particular interest in the subject. With either extremely positive or negative experiences about the study subject volunteering for the study, the "average" viewpoint may thus not emerge. Yet a great extent of researchers in the social sciences consider the convenience sampling technique appropriate and have employed this technique. For example, Yalçin & Ulaş (2023) adopted a convenience sampling method to reveal the positive relationship between symmetrical communication and employee creativity. All things considered; convenience sampling method is suitable for present research purposes.

Second, respondents do not always give logically consistent answers to regular and reversed item scales. The response inconsistency may be due to illogical, irrational, careless, or biased behavioral reasons (e.g., Kam et al., 2021). Different response style biases constitute a challenge to research and five major response styles or biases are frequently discussed in the literature (e.g., Fischer et al., 2009; Kam et al., 2021). The first is acquiescent response style (ARS), the tendency of a respondent to either attentively or inattentively agree with survey items regardless of their content (Bentler et al., 1971). According to some methodologists (e.g., Nunnally, 1978), reversed items with either negation words or antonyms are useful to counter ARS. As emphasized by Schriesheim et al. (1991), reversed items can be classified into three different types (a) polar opposite; (b) negated regular; and (c) negated polar opposite. However, other methodologists (e.g., Gnambs & Schroeders, 2020) recommend excluding reversed items because they are more difficult to understand and engender a second, artificial factor distinct from the regular-item factor. The second response type is the careless response type referring to the respondent's inattention to the content of a survey item before responding (Kam et al., 2021). While some careless participants give random responses to all survey questions, others give identical answers to items (Meade & Craig, 2012). The third response type is extreme response style (ERS), which is the tendency by respondents to use either only moderate, or extreme categories of rating scales. Individuals either agree or disagree with an item content strongly or they tend to use only the middle categories (Fischer et al., 2009). The fourth response style often mentioned in the literature is social desirability responding (Crowne & Marlowe, 1960). This is a tendency by respondents to present themselves in an overly positive manner which implies that respondents respond in a socially desirable way, which amounts to responding in a way that is expected or thought to receive approval from significant others (Fischer et al., 2009; Kam et al., 2021). A fifth factor to explain misresponses is confirmation bias, which refers to participants' tendency to recollect

information that supports the content of an item (Kam et al., 2021). According to Weijters et al. (2013), participants tend to recollect evidence consistent rather than inconsistent with the item content.

Lastly, measurement error can occur, which represents the differences between observed values and the true value of the variable as it is conceptually defined (Pallant, 2020). Measures to avoid this bias include controlling the accuracy of all measurements, using validated instruments, and observing that the respondents understand the formulations (Pallant, 2020). As mentioned in previous sections, all instruments used in the research are published validated scales used in research. Therefore, the measurements are considered adequate in terms of notions of validity and reliability. Additionally, pretests were conducted to ensure phrasing and measures were accurately presumed by respondents. Concludingly, the biases are controlled for in the data analysis in SPSS, including normality tests to make sure that the variables are normally distributed.

6. Quantitative analysis

Chapter Six aims to lead the reader through the process of analyzing the collected data using relevant statistical techniques in SPSS. First, the data screening process is demonstrated, and the analysis of the demographic data is presented. Second, the data is controlled for outliers and a descriptive analysis of the variables is presented. Third, the internal consistency of scales is controlled for. Fourth, a bivariate correlation analysis is conducted. Ultimately, the results of the MRA are presented, and the hypotheses are tested.

6.1. Data analysis

The total sample size of respondents answering the questionnaire at the Sunet Survey platform reached 111 when the collected data was extracted into SPSS. Of the total respondents, four did not qualify for the population (i.e., had not agreed to the consent form or were not employed at all). Hence, the final sample size consisted of 107 respondents working in the Communication industry, for analysis using SPSS of their answers to the questionnaire. Accordingly, the sample size met the minimum requirement of 98 respondents needed for multiple regression analysis in a model of six independent variables, according to Tabachnick and Fidell's (2013, p. 123) sample size formula.

6.1.1. Demographic data

56.1% of the respondents define themselves as female, 42.0% as male, and 1.9% as other. 63% of the respondents have citizenship in a country in Europe and while the country

of citizenship varies from 33 countries, most of the respondents have citizenship in either Ukraine, Sweden, or the USA (i.e., 18.7%, 15.9%, and 13.1%). The respondents are born between 2003 and 1952 with the youngest aged 18 and the eldest aged 72 years old. 81.4% of the respondents are aged 35 and younger, and the mean age is 30.8, hence dominantly representative of the generational cohort Millennials. 46.7% of the respondents have obtained an undergraduate degree and 41.1% have obtained a master's degree, indicating that the educational level of the respondents is relatively high. In terms of organizational level, 2.8% of the respondents work at the top level, 2.8% at the executive level, 15.9% at the upper middle level, 22.4 % at the middle level, 27.1% at the first level, 28% work as an hourly employee, and 0.9% reported that it was not relevant to their situation. Ultimately most of the respondents, 71%, have a work experience of zero to five years (see Table 2).

Table 2

Demographic profile of the sample

Communication Industry	N	%
Yes	107	100
Gender		
Female	60	56.1
Male	45	42.0
Other	2	1.9
Continent of Citizenship		
Europe	68	63.6
Asia	17	15.9
North America	14	13.1
Africa	7	6.5
Australia	1	0.9
Country of Citizenship		
Ukraine	20	18.7
Sweden	17	15.9
USA	14	13.1
Germany	7	6.5
China	5	4.7
Italy	4	3.7

Denmark	3	2.8
Poland	3	2.8
Turkey	3	2.8
United Kingdom	3	2.8
India	2	1.9
Latvia	2	1.9
Nigeria	2	1.9
Tunisia	2	1.9
Vietnam	2	1.9
Australia	1	0.9
Austria	1	0.9
Azerbaijan	1	0.9
Cambodia	1	0.9
Czech Republic	1	0.9
England	1	0.9
Ghana	1	0.9
Greece	1	0.9
Ireland	1	0.9
Jordan	1	0.9
Malta	1	0.9
Mauritius	1	0.9
Norway	1	0.9
Romania	1	0.9
Slovakia	1	0.9
South Africa	1	0.9
Thailand	1	0.9
United Arab Emirates	1	0.9

Age

26 – 35	45	42.1
25 and younger	42	39.3
36 – 45	10	9.3
46 – 55	7	6.5
56 and older	2	1.9
Rather not say	1	0.9

Highest Level of Education Obtained

Primary school	1	0.9
Secondary school	5	4.7
Undergraduate university	50	46.7
Postgraduate university	44	41.1
PHD	3	2.8
Docent	1	0.9
Higher vocational education	3	2.8
Rather not say	0	0.0

Organizational Level

Top-level	3	2.8
Executive level	3	2.8
Upper middle level	17	15.9

Middle level	24	22.4
First level	29	27.1
Hourly employee	30	28.0
Not relevant to my situation	1	0.9
Years of Service		
Over 20 years	8	7.5
16 to 20 years	3	2.8
11 to 15 years	7	6.5
6 to 10 years	13	12.1
0 to 5 years	76	71.0

6.1.2.   Controlling data for outliers

The presence of outliers can be detected in the boxplots as well as the Scatterplots (see Appendix A). Tabachnick and Fidell (2013) define outliers as cases that have a standardized residual of more than 3.3 or less than -3.3. Furthermore, any scores in the boxplots that SPSS considers outliers appear as little circles with an ID number attached to the case. SPSS defines these points as outliers if they extend more than 1.5 box lengths from the edge of the box. Extreme points (indicated with an asterisk) are those that extend more than 3 box lengths from the edge of the box. According to Pallant (2020), it is not uncommon to find outlying residuals and in a normally distributed sample, one would expect only 1% of cases to fall outside this range. In my sample, SPSS has identified one extreme point (ID number 37) and 3 outliers (ID numbers 80, 98, and 107). To confirm that any cases are not having any undue influence on the results for my model, the value for Cook's Distance is controlled for. Tabachnick and Fidell (2013, p. 75) suggest that cases with values larger than 1 are a potential problem. In my sample, the maximum value for Cook's Distance is .168, suggesting no problems with the validity of the data. Ultimately, the decision is made to keep the extreme point and the three outliers identified in the data, as they do not influence the mean, and since they represent actual deviance made by respondents.

6.1.3.   Normal distribution of variables

The standard deviation is a measure that indicates how much the data scatter around the mean value (Pallant, 2020). In essence, the standard deviation indicates how much the answers of the respondents differ (see Table 3).

Table 3

Mean, standard deviation, and scale range

Variable	Mean	SD	Scale range
'Work Intrinsic motivation'	16.9	3.8	3 - 27
'Work self-efficacy'	31.1	4.7	8 - 40
'Workgroup supports'	27.0	4.1	8 - 40
'Supervisory encouragement'	36.9	5.1	11 - 44
'Organizational encouragement'	46.0	9.7	15 - 60
'Sufficient resources'	18.8	3.3	6 - 24
'Collective creativity'	18.8	4.2	6 - 24

When the distribution is perfectly normal, one would obtain a skewness and kurtosis value of 0. However, Pallant (2020) attests that this is a rather uncommon occurrence in the social sciences. When an independent variable is negatively skewed, this indicates the clustering of scores at the high end (i.e., skewed to the left). A positive kurtosis value indicates that the distribution is peaked (Pallant, 2020). Concludingly, the data can be regarded to have a sufficiently normal distribution with skewness values within the range of -2 and 2 as well as kurtosis values within the range of -7 and 7, following Curran et al.'s (1996) guidelines of how to interpret skewness and kurtosis values (see Table 4).

Table 4

Skewness and kurtosis values

Variable	Skewness	Kurtosis
'Intrinsic motivation'	-1.03	0.77
'Work self-efficacy'	-1.20	4.24
'Workgroup supports'	-1.25	3.33
'Supervisory encouragement'	-0.13	-0.12
'Organizational encouragement'	-0.31	0.68
'Sufficient resources'	-0.45	-0.06
'Collective creativity'	-0.53	0.16

6.1.4.   Internal consistency of scales

α may be conceived of as the conventional statistic for communication scholars to use to estimate the reliability of measurement instruments. However, Pallant (2020) states that α values are quite sensitive to the number of items in the scale. With shorter scales (e.g., fewer than 10 items) it is common to find quite low values (e.g., 0.5). Furthermore, Goodboy & Martin (2020) emphasize that α rests on several assumptions that may not be prevalent. First, it rests on the assumption that a scale is unidimensional, this implies that all items measure the same construct from a single factor. Second, α assumes within the unidimensional measurement model to require essential tau-equivalence, meaning that the latent variable contributes the same amount of variance to all items (Goodboy & Martin, 2020). From a factor-analysis perspective, this implies that all scale items have equal factor loadings, and likewise all error variances for each item are equal. However, this model can be argued to be slightly unrealistic in practice since communication measures rarely consist of items that all measure the latent construct precisely to the same degree. Instead of α, Goodboy & Martin (2020) argue that McDonald's Coefficient Omega (ω) should be reported to estimate the reliability of multidimensional scales, as it provides a calculation of the reliability itself (Goodboy & Martin, 2020). Considering the reasoning above, the decision is made to provide both α and ω.

Nunnally (1978) and Devellis (2012) recommend an α and ω minimum value of 0.7. Overall, all scales suggest an internal consistency with values above 0.7, which are considered above an acceptable level. This was expected since all scales are operationalized from already validated scales. Ultimately, since all scales are reliable, they are retained and used to test all six hypotheses (see Table 5).

Table 5

Internal consistency of model constructs

Construct	No. of items	α	ω
'Work intrinsic motivation'	3	0.902	0.902
'Work self-efficacy'	8	0.867	0.865
'Workgroup supports'	8	0.842	0.839
'Supervisory encouragement'	11	0.834	0.794
'Organizational encouragement'	15	0.930	0.930
'Sufficient resources'	6	0.731	0.749
'Collective creativity'	6	0.861	0.857

6.1.5. Correlations

By performing a bivariate correlation analysis and interpreting the Pearson correlation coefficient (r), it is possible to explore the strength and direction of a linear relationship between two variables. The size of the r value indicates the strength of the relationship, and a perfect correlation of 1 or -1 indicates that the value of one variable can be determined exactly by knowing the value of the other variable (Pallant, 2020). Cohen (1988) suggests the following guidelines for interpreting the r value: small r = .10 to 0.29, medium r = .30 to .49, and large r = .5 to 1.00 (p. 79-81). Moreover, the r-squared value indicates the proportion from the independent variable that the regression explains of the variation in the dependent variable 'Collective creativity' (Pallant, 2020). Lastly, the Coefficient of determination indicates the r-square value in percentage (see Table 6).

Table 6

Correlations with Collective creativity

Variable	r	r²	Coefficient of determination
'Work intrinsic motivation'	.202	.041	4.1%
'Work self-efficacy'	.359	.129	12.9%
'Workgroup supports'	.523	.274	27.4%
'Supervisory encouragement'	.364	.132	13.2%
'Organizational encouragement'	.659	.434	43.4%
'Sufficient resources'	.367	.135	13.5%

Before deciphering the results of the MRA, all data need to be controlled to ensure that the data meets all assumptions and that MRA is the appropriate technique. Pallant (2020) suggests that strong correlations between the independent variables in the model indicate multicollinearity and that one may need to consider removing one of these from the model. Hence, as not to risk that potentially important variables are found to be non-significant, a collinearity diagnostic using Tolerance and Variance Inflation Factor (VIF) is performed to control for multicollinearity. The Tolerance value indicates how much of the variability of the specified independent variable is not explained by the other independent variables in the model, and VIF is just the inverse value of Tolerance (Pallant, 2020). VIF values greater than 10 and Tolerance less than 0.1 are a concern and would indicate multicollinearity, according to Pallant's (2020) guidelines of how to interpret these values. After controlling these values, all values meet the assumptions, hence there is no multicollinearity. The partial correlation between two variables shows that the correlation between two variables may be partially explained by a third variable. Like the partial correlation, the part correlation is the correlation between two variables (independent and dependent) after controlling for the other variables in the model. However, for the part correlation, only the influence of the control variables on the independent variable is taken into consideration (Pallant, 2020). Complete correlation between two variables is expressed by either + 1 or -1 (see Table 7).

Table 7

Collinearity diagnostics

Variable	Partial	Part	Tolerance	VIF
'Work intrinsic motivation'	-.122	-.088	.566	1.768
'Work self-efficacy'	.192	.140	.520	1.924
'Workgroup supports'	.145	.105	.548	1.825
'Supervisory encouragement'	.087	.062	.724	1.382
'Organizational encouragement'	.467	.377	.558	1.793
'Sufficient resources'	.041	.029	.750	1.333

Normal P-P Plots and scatterplots showing the distribution of the residuals can be found in Appendix A. The residuals show the differences between the obtained and the predicted dependent variable scores (Boyle & Schmierbach, 2015) and according to Pallant (2020), the residuals should be checked for normality, linearity, and homoscedasticity. Therefore, the residuals should be normally distributed, there should be a linear relationship between the dependent- and independent variables, and the data should show in a centralized rectangle. In the normal P-P Plot, one can see that the points lie in a reasonably straight diagonal line from bottom left to top right, suggesting no major deviations from the assumptions of normality and linearity. Furthermore, in the Scatterplot, the residuals are roughly rectangularly distributed with most of the scores concentrated in the center, suggesting no violation of the assumption of homoscedasticity.

6.1.6.   Multiple regression analysis

To test if the independent variables affect the dependent variable, an MRA is conducted (Pallant, 2020). The results of the MRA allow one to answer the research question (see Tables 8 and 9). The R Square value is .492. This means that the overall model explains approximately 49.2% of the variance in the dependent variable 'Collective creativity' (Pallant, 2020). This is quite a respectable result. While the value of the R square can be an overly optimistic estimation of the true value of the population in smaller samples. The

adjusted R square can be conceived of as the most appropriate value to report when the sample is smaller, in the current study it is .461, indicating that the model explains 46.1% of the variance in 'Collective creativity'. Furthermore, the level of statistical significance "Sig." (P-value) indicates how much confidence one should have in the results obtained (Pallant, 2020). The model reaches statistical significance (P = < .001, F = 16.128).

Table 8

R Square, Adjusted R Square, Sig., and F

R Square	Adjusted R Square	Sig.	F
.492	.461	< .001	16.128

The next thing to find out is the disparate contribution of each independent variable included in the model to the prediction of the dependent variable. This is changeable depending on which variables are included in the equation and how much overlap there is among the independent variables. Since the study is merely considering the positive impact of the predictors for Collective creativity (the underlying research model constructs are hypothesizing a positive effect on Collective creativity), it is feasible to indicate the one-tailed significance test instead of the standardized two-tailed significance test (Hales, 2023). Moreover, if the one-tailed Sig. value is less than .05, the variable is making a significant unique contribution to the prediction of the dependent variable. If greater than .05, one can conclude that the variable is not making a significant unique contribution (Pallant, 2020). The standardized beta values indicate the number of standard deviations that scores in the dependent variable would change if there was a 1 standard deviation unit change in the predictor (Pallant, 2020). Furthermore, the t-value is the calculated difference of standard error and measures the size of the difference relative to the variation in the sample data (Pallant, 2020).

The results of the MRA show that 'Organizational encouragement' makes the strongest unique contribution to explaining the model, with a standardized beta coefficient $\beta = .505$

and a significant contribution (t = 5.288 and One-tailed Sig. < .001) to the prediction of the

dependent variable. Followed by 'Work self-efficacy', with a standardized beta coefficient β

= .194 and a significant contribution (t = 1.961 and One-tailed Sig. = .027). The remaining

independent variables 'Work intrinsic motivation' (One-tailed Sig. = .111), 'Workgroup sup-

ports' (One-tailed Sig. = .073), 'Supervisory encouragement' (One-tailed Sig. = .192), and

'Sufficient resources' (One-tailed Sig. = .341) are not making a significant unique contribu-

tion to the prediction of the dependent variable 'Collective creativity' (see Table 9).

Table 9

Coefficients

Variables	Unstd. Beta	Std. Beta	t	Two-tailed Sig.	One-tailed Sig.
'Work intrinsic motivation'	-.127	-.117	-1.230	.222	.111
'Work self-efficacy'	.172	.194	1.961	.053	.027
'Workgroup supports'	.146	.142	1.470	.145	.073
'Supervisory encouragement'	.060	.073	.875	.383	.192
'Organizational encouragement'	.217	.505	5.288	< .001	< .001
'Sufficient resources'	.043	.034	.412	.681	.341

Given the above, with the results from the MRA, hypotheses two and five are sup-

ported while hypotheses one, three, four, and six are rejected (see Table 10). In support of

two out of six hypotheses, higher levels of perceived 'Organizational encouragement' and

perceived 'Work self-efficacy' engender a significantly more positively perceived Collective

creativity.

Table 10

Hypotheses testing results

Hypothesis	Validation
H1: There is a positive relationship between 'work intrinsic motivation' and 'Collective creativity'.	Rejected
H2: There is a positive relationship between 'Work self-efficacy' and 'Collective creativity'.	Supported
H3: There is a positive relationship between 'Workgroup supports' and 'Collective creativity'.	Rejected
H4: There is a positive relationship between 'Supervisory encouragement' and 'Collective creativity'.	Rejected
H5: There is a positive relationship between 'Organizational encouragement' and 'Collective creativity'.	Supported
H6: There is a positive relationship between 'Sufficient resources' and 'Collective creativity'.	Rejected

7. Conclusion

Chapter Seven concludes the study with final remarks. First, the chapter includes the results of the findings of the SPSS analysis and answers the research question. Second, the implications of the findings of the SPSS analysis are presented. Third, the limitations of the study are considered. Finally, suggestions for future research are provided.

7.1.   Results

The study aimed to investigate the hypothesized positive relationships between six factors and Collective creativity in the workplace in the Communication industry. The purpose of the study was concretized through the research question:

RQ: What are the factors contributing to Collective creativity in the workplace in the Communication industry?

The result of the SPSS analysis suggests that the independent variables in the research model explain 46.1% of the variance in the dependent variable 'Collective creativity'. The model reaches statistical significance (P = < .001, F = 16.128). The independent variables 'Work self-efficacy' and 'Organizational encouragement' significantly contribute to the variance in the dependent variable 'Collective creativity'. Hence, hypotheses two and five are supported. 'Organizational encouragement' makes the strongest unique contribution (β = .505, t = 5.288, and One-tailed Sig. < .001) followed by 'Work self-efficacy' (β = .194, t = 1.961 and One-tailed Sig. = .027). In essence, the findings of the study indicate that (a) employees' perceived 'Work self-efficacy' significantly correlates with employees' perceived

'Collective creativity'; and (b) employees' perceived 'Organizational encouragement' significantly correlates with employees' perceived 'Collective creativity'.

7.2.   Implications

The results of the findings of the SPSS analysis have implications for both research and practice. The results confirm previous findings in the body of research affirming that higher levels of perceived work self-efficacy and elements of organizational encouragement engender a significantly more positively perceived Collective creativity. Interestingly, organizational encouragement makes the strongest unique significant contribution, which suggests that elements in the environment are decisive features of employees' perceptions of what contributes to Collective creativity. Considering the implications of this result for the cross-disciplinary body of research on Collective creativity, Ramos et al. (2018) also found through an MRA (using the same Amabile scale constructs; see Table 1) that organizational encouragement made a unique contribution to Collective creativity in a sample of Brazilian industrial companies. The result of the present research contributes to the body of research with the selection of a global geography and the Communication industry as a sample. Furthermore, work self-efficacy was found to make a significant contribution and was derived from Chen et al.'s (2001) research on general work self-efficacy (see Table 1). The methodological choice of selecting a general work self-efficacy scale and not a CSE scale differentiates this paper's contribution from other research findings derived using more specific CSE scales. Lastly, the findings of the study contribute to the research field of Strategic communication. Since it is well established that the field includes the fostering of work environments to achieve organizational goals, the importance of employees' Work self-efficacy and elements of Organizational encouragement to foster Collective creativity from an outcome perspective

will guide future research to gain new insights that accumulate the body of research in a finer direction.

The implications of the results of the study for practice and the Communication industry specifically is that managers can prioritize supporting employees to feel confident that they can perform effectively across different tasks and situations. Furthermore, management can prioritize establishing policies, encourage, and recognize employees with organizational encouragements (i.e., organizational justice, appropriate incentives, recognition for creative work, mechanisms for developing new ideas, an active flow of ideas, and a shared vision).

7.3.   Limitations

The results of the study need to be interpreted with its limitations in mind, considering the chosen convenience sampling method, target population, and sample size. First, the use of a convenience sampling method restricts the generalizability of the study, since the self-selection character of the digitally based questionnaire comes with the fact that it is only the respondents who are available and have access to the questionnaire that participate in the study. Second, the representation of the population limits the thesis as the results show that there is an overrepresentation of respondents in terms of citizenship (Ukrainian, Swedish, or US citizenship = 47.7%). Furthermore, there is an overrepresentation of respondents aged 35 and younger (i.e., 81.3%) as well as respondents with less than five years of service (71%). Consequently, the findings of the study may not be in full accordance with a representative and complete generalization of a global geography and sample selection of the Communication industry. In truth, the statistical significance of the hypothesized relationship between the independent variables and the dependent variable would likely increase with a larger sample size. Hence, although the findings confirm two hypotheses, some of the remaining hypotheses would likely be confirmed with a larger sample size. To extend this discussion, blindly

relying on a significance test using the P < .05. adds a consideration on limitations of how the results of the study can be interpreted. Since it is well established that significance level is affected by sample size (see Andrade, 2020, for a discussion on this), one can object to the reasonableness that the factor in the research model 'Workgroup supports' is so close to being significant (P < .073) but not being recognized as significant due to the assumption of significance P < .05. To conclude, perhaps it would be more appropriate in research to interpret the results of studies with an assumption of significance absolute relative to the size of the sample. This discussion's applicability however is outside the scope of purpose of the present study.

7.4.   Suggestions for future research

Future research aiming to test the fostering effect of factors on Collective creativity in the Communication industry can take inspiration from the present study in numerous ways. First, by extension of the limitations it would be reasonable to test the variables in a larger sample size to gain a better representativeness of the sample. Second, one can design a comparative study to explore the potential differences between what is needed of new and/or the same variables to foster Collective creativity in different cultural contexts. One can follow Lua et al. (2024) indications that despite the importance of affect in previous research, research on the impact of creativity on emotions has been sparse, and future research can explore factors related to this topic. Third, just as Chen et al. (2024) reveal through structural equation modeling (SEM) that self-efficacy triggers an individual's intrinsic motivation more than the reverse effect, future research can conduct an SEM analysis to investigate the interrelationships between the six variables considered in the research model of the present study. Fourth, new scales can be used to underlie the construct measured in the questionnaire of the present study (see Table 1). Fifth, one can explore alternative ways to measure Collective

creativity rather than from the perspective of employees' perceptions. Finally, future research can conform a study that conceptualizes Collective creativity as a process rather than as an outcome, proposedly by taking inspiration from Hargadon & Bechky's (2006) theory to study the phenomena of team creative cognition processes from a Strategic communication perspective. One can follow Reiter-Palmon & Linnell (2023) suggestions of further research needed to understand (a) how creative cognition processes occurring at the individual level are integrated into team-level; and (b) how to establish ways to evaluate cognitive processes at team-level (especially for those apart from idea generation).

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Appendices

Appendix A

SPSS output

IV: 'Work intrinsic motivation'

Normal P-P Plot of WORK_INTRINSIC_MOTIVATION_SCALE

IV: 'Work self-efficacy'

WORK_SELFEFFICACY_SCALE

Histogram

Mean = 31,11
Std. Dev. = 4,725
N = 107

WORK_SELFEFFICACY_SCALE

Normal P-P Plot of WORK_SELFEFFICACY_SCALE

IV: 'Workgroup supports'

Histogram

Mean = 26,99
Std. Dev. = 4,06
N = 107

Normal P-P Plot of WORKGROUP_SUPPORTS_SCALE

IV: 'Supervisory encouragement'

SUPERVISORY_ENCOURAGEMENT_SCALE_RECODED

Histogram

Mean = 36,94
Std. Dev. = 5,067
N = 107

SUPERVISORY_ENCOURAGEMENT_SCALE_RECODED

Normal P-P Plot of SUPERVISORY_ENCOURAGEMENT_SCALE_RECODED

IV: 'Organizational encouragement'

ORGANIZATIONAL_ENCOURAGEMENT_SCALE

Histogram

ORGANIZATIONAL_ENCOURAGEMENT_SCALE

Normal P-P Plot of ORGANIZATIONAL_ENCOURAGEMENT_SCALE

IV: 'Sufficient resources'

SUFFICIENT_RESOURCES_SCALE_RECODED

Histogram

Mean = 18,79
Std. Dev. = 3,308
N = 107

SUFFICIENT_RESOURCES_SCALE_RECODED

Normal P-P Plot of SUFFICIENT_RESOURCES_SCALE_RECODED

DV: 'Collective creativity'

Histogram

Mean = 18,80
Std. Dev. = 4,179
N = 107

Normal P-P Plot of CREATIVITY_SCALE

MRA

DV: 'Collective creativity'

IV: 'Work intrinsic motivation', 'Work self-efficacy', Workgroup supports', 'Supervisory encouragement', 'Organizational encouragement'

Histogram
Dependent Variable: CREATIVITY_SCALE

Mean = 6,01×10^−16
Std. Dev. = 0,971
N = 107

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: CREATIVITY_SCALE

Scatterplot
Dependent Variable: CREATIVITY_SCALE
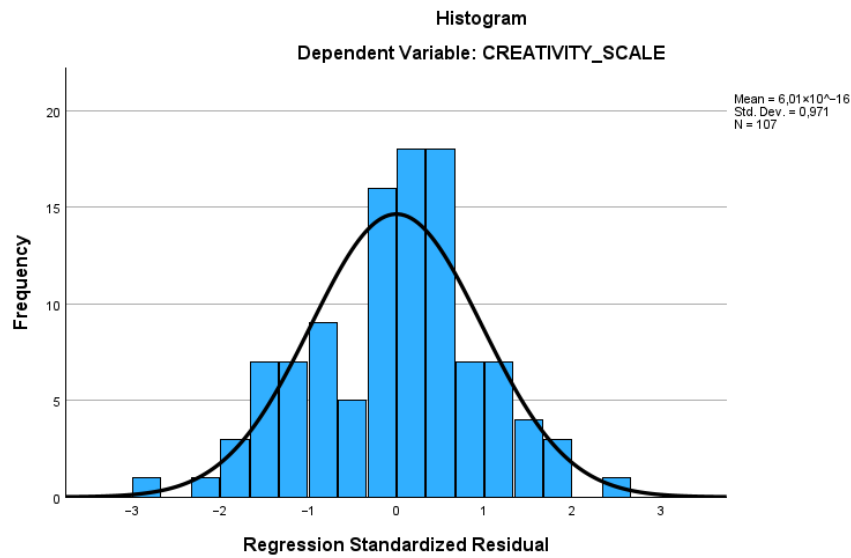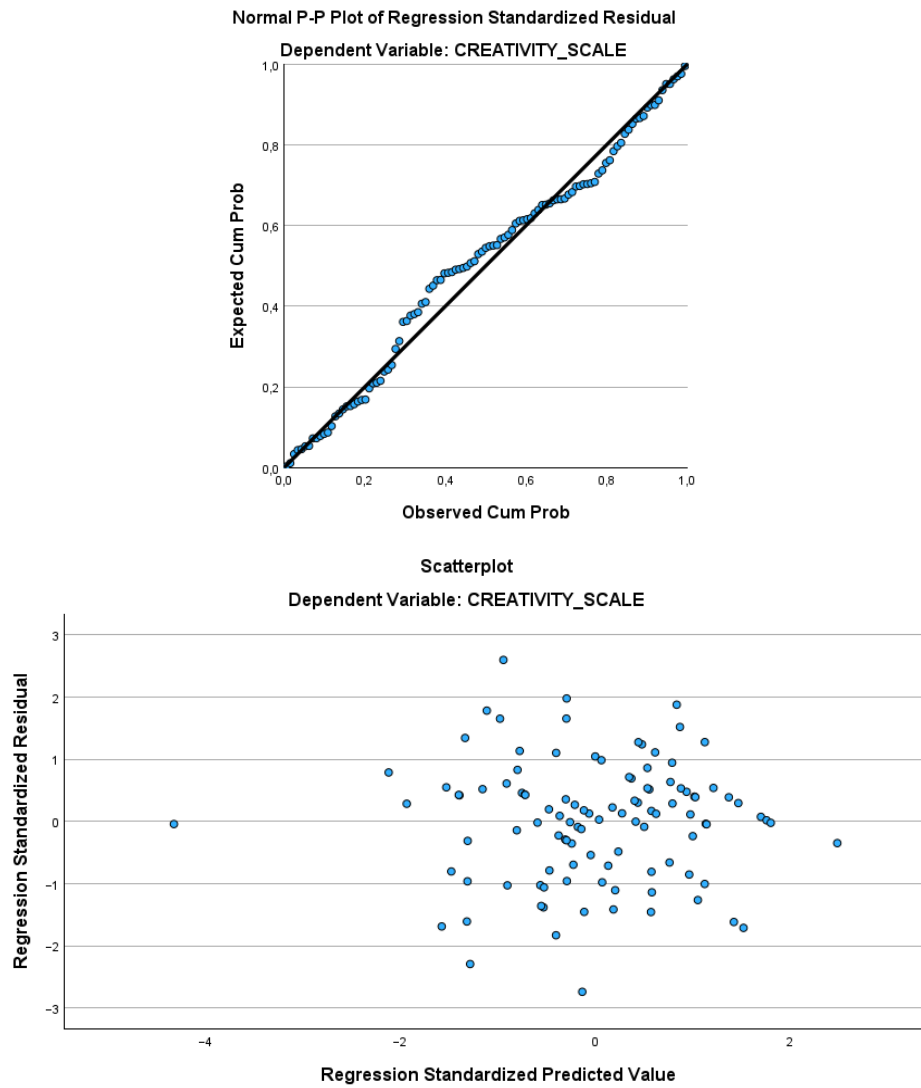
Normal P-P Plot: H1

DV: 'Collective creativity'

IV: 'Work intrinsic motivation'

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: CREATIVITY_SCALE
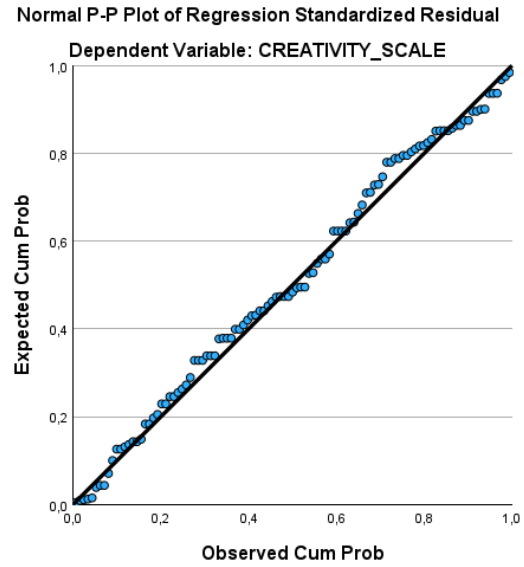
Scatterplot: H1

DV: 'Collective creativity'

IV: 'Work intrinsic motivation'

Scatterplot
Dependent Variable: CREATIVITY_SCALE
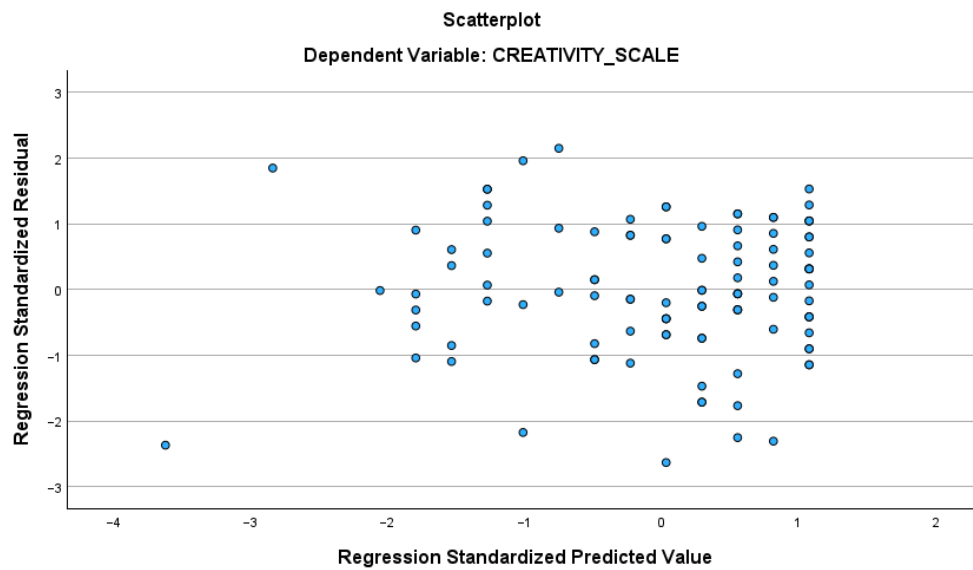
Normal P-P Plot: H2

DV: 'Collective creativity'

IV: 'Work self-efficacy'

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: CREATIVITY_SCALE
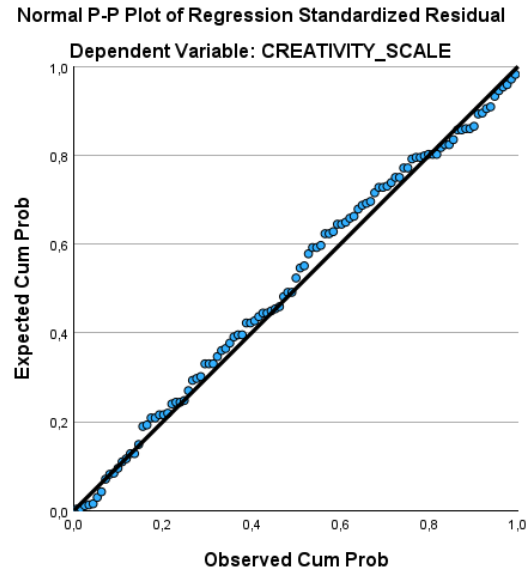
Scatterplot: H2

DV: 'Collective creativity'

IV: 'Work self-efficacy'

Scatterplot

Dependent Variable: CREATIVITY_SCALE
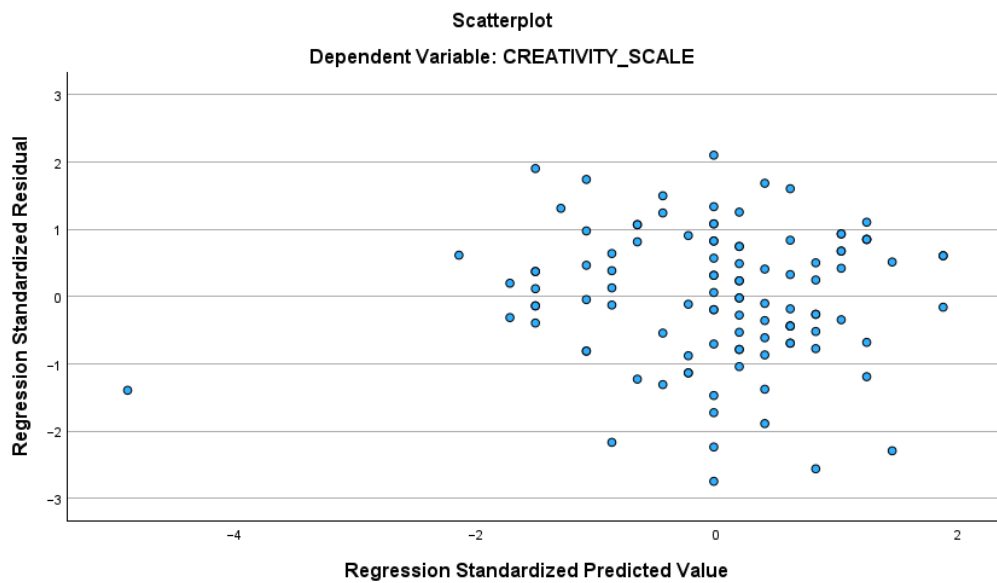
Normal P-P Plot: H3

DV: 'Collective creativity'

IV: 'Workgroup supports'

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: CREATIVITY_SCALE
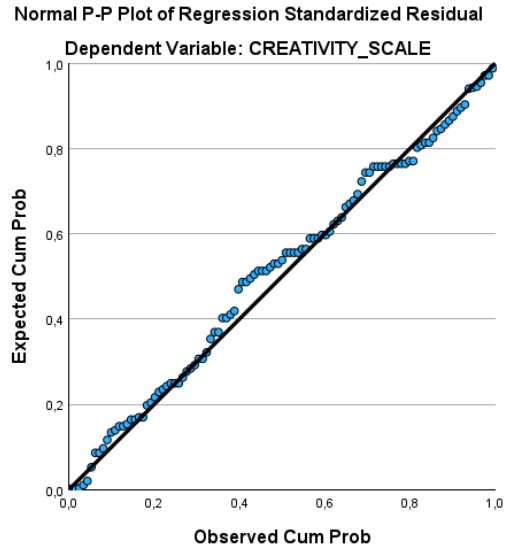
Scatterplot: H3

DV: 'Collective creativity'

IV: 'Workgroup supports'

Scatterplot
Dependent Variable: CREATIVITY_SCALE
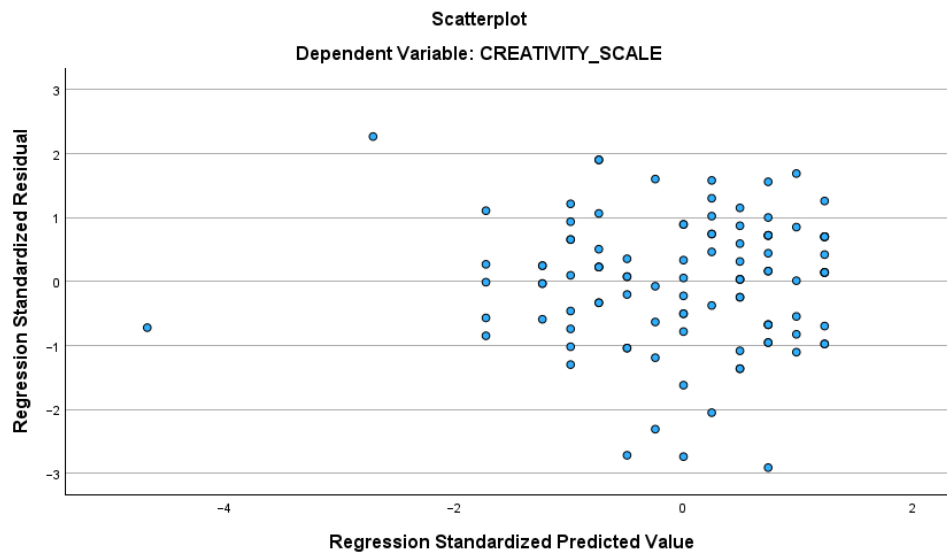
Normal P-P Plot: H4

DV: 'Collective creativity'

IV: 'Supervisory encouragement'

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: CREATIVITY_SCALE
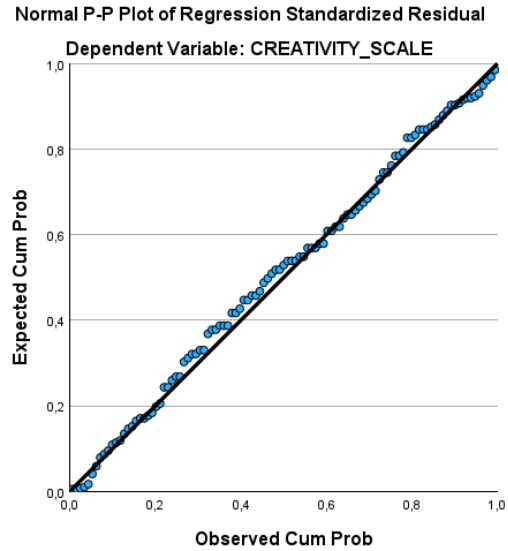
Scatterplot: H4

DV: 'Collective creativity'

IV: 'Supervisory encouragement'

Scatterplot

Dependent Variable: CREATIVITY_SCALE
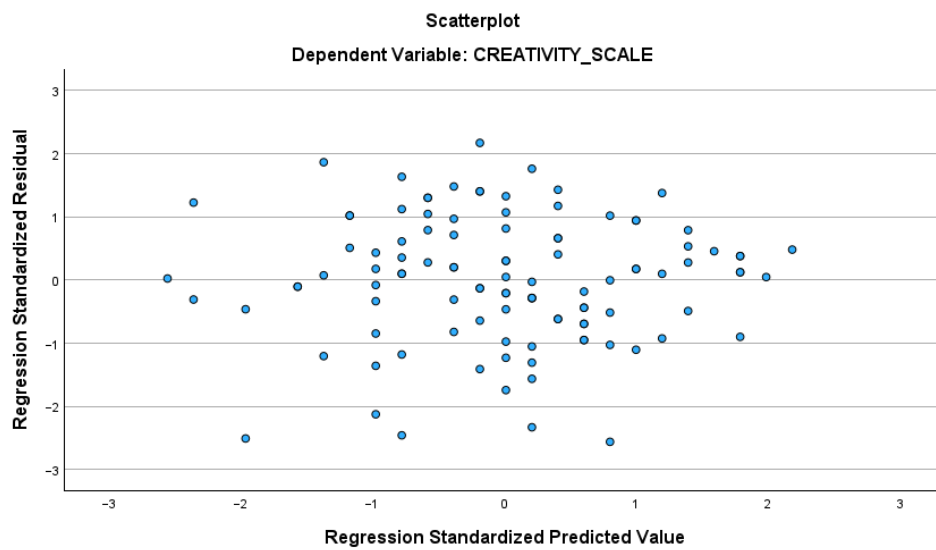
Normal P-P Plot: H5

DV: 'Collective creativity'

IV: 'Organizational encouragement'

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: CREATIVITY_SCALE
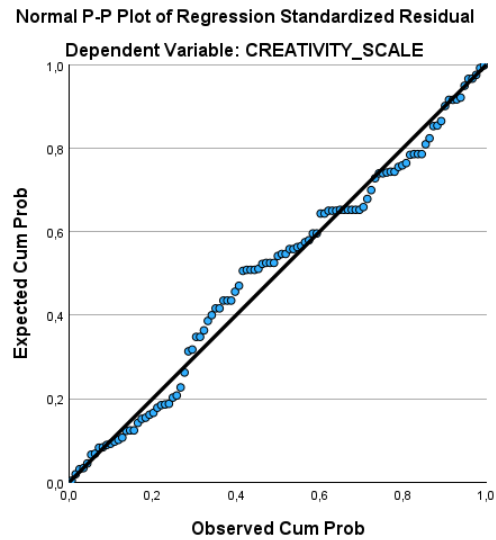
Scatterplot: H5

DV: 'Collective creativity'

IV: 'Organizational encouragement'

Scatterplot
Dependent Variable: CREATIVITY_SCALE
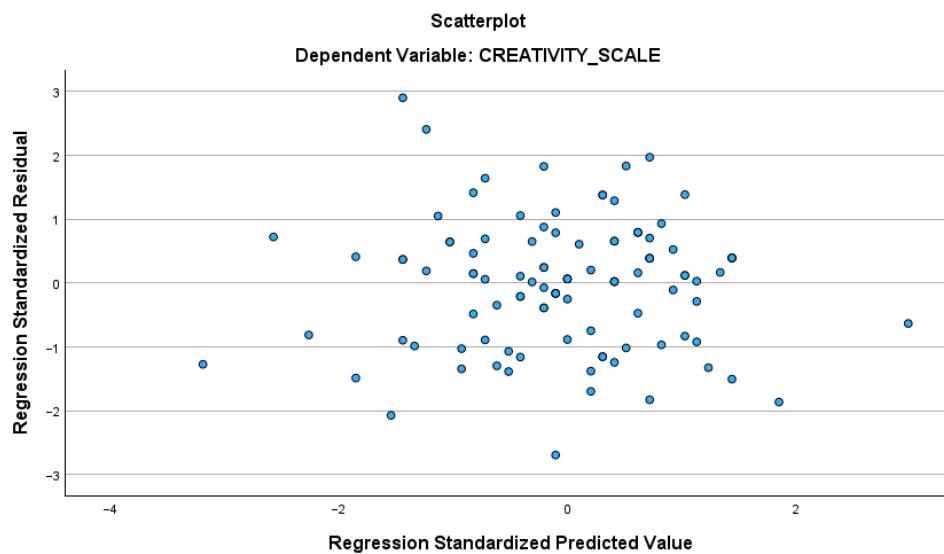
Normal P-P Plot: H6

DV: 'Collective creativity'

IV: 'Sufficient resources'

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: CREATIVITY_SCALE
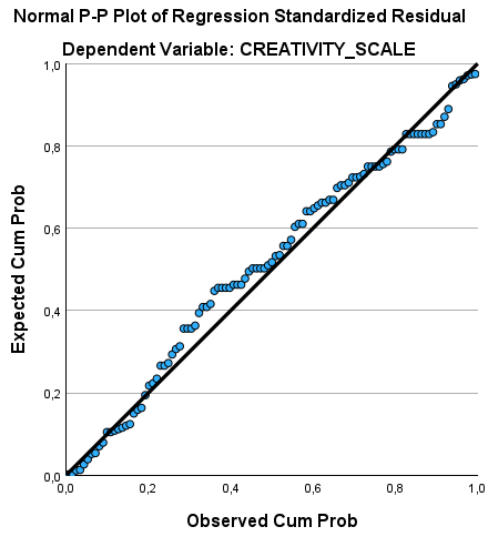
Scatterplot: H6

DV: 'Collective creativity'

IV: 'Sufficient resources'

Scatterplot
Dependent Variable: CREATIVITY_SCALE