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Cognitive Diversity and Team Creativity: Knowledge Sharing and Sharing Information as Moderators

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Master in Human Resources Management and Organizational Consulting

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ISCTE – University Institute of Lisbon

November, 2020



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Department of Human Resources and Organizational Behavior

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Acknowledgments

This project was a significant challenge for me, since it made me face my insecurities regarding my capabilities as writer, since putting to words what I know and explaining in detail is not strongest strength. And I know that I could not have done it without the help of the right people, so I would like to take this opportunity to thank them.

First of all, I would like to start with my parents and my sister, whom I am extremely blessed to have and to whom I would like to express my eternal and ever growing gratitude for their endeavour in supporting my high-level education and for their patience to deal with me on my most difficult days. Parents that not only believe in my capabilities but trust the decisions that I make. This thesis is not only mine but also yours.

To my colleagues in the project those with whom I worked together to get the results needed, also to my supervisor that connect us and to my colleague Sumeyye who did not work with me in this project, but made her contribution by showing a kindness that is only found in her.

To my dearest friends, specially Margarida, Nazli and Jueun, who had the tough job of listening to my anguishes, proving that distance is just a number without emotional translation.

I want to give a special shoutout to Adriana Vieira, who was a huge aid in this thesis. For all the words said to me, all the motivation given not only in moments of need but also in everyday moments and for all the help with my mental health, I am infinitely grateful. This thesis would not be what it is if it were not for her.

Thank you all.

Lastly, I want to dedicate this project to my grandma, her memory inspires me every day.

Resumo

Objetivo:

Sendo diversidade cognitiva cada vez mais cobiçada no mundo do trabalho, é relevante analisar o seu impacto no desempenho de uma equipa, nomeadamente a criatividade de equipa. A criatividade é vista como um dos maiores trunfos que qualquer empresa pode ter, por isso é crucial investigar a relação entre diversidade cognitiva e criatividade, bem como os possíveis moderadores dessa relação. Neste estudo, a partilha de conhecimento e a partilha de informação são examinadas como potenciais moderadores.

Método: A amostra é composta por 46 equipas, 168 indivíduos, de diferentes empresas de consultadoria e auditoria. Os dados foram recolhidos através de dois questionários, um direcionado ao líder de equipa e o segundo aos respetivos membros dessas equipas, com o intuito de obter perspetivas separadas, fazendo assim, uma análise mais completa e imparcial. Para analisarmos as hipóteses, utilizamos um modelo de mediação da macro PROCESS de Hayes (2018).

Resultados: Os resultados obtidos mostram que existe uma relação negativa entre diversidade cognitiva e criatividade de equipa, e que não há provas significativas que partilha de conhecimento e partilha de informação trabalhem como moderadores dessa relação.

Palavras-chave: diversidade cognitiva; criatividade de equipa; partilha de conhecimento; partilha de informação.

Abstract

Purpose: With the demand for cognitive diversity in the workplace growing every day, it is important to analyse the impacts of that diversity regarding the performance of a team. As creativity being regarded as a major asset in any corporation, it is crucial to inspect the relationship between diversity and creativity, but also the possible moderators between cognitive diversity and creativity. For that reason, in this study knowledge sharing and sharing information are examined as those possible moderators.

Methodology: A sample composed of 46 teams, 168 individuals, from different consultancy and auditing companies is used. The data collection was gathered through two surveys, one directed to team leaders and the other aimed for the members of the respective teams. This was done in order to get the viewpoint of the leaders and the members, thus having a more complete and unbiased study. Data at team level were analyzed using a mediation model, macro PROCESS Hayes (2018).

Findings: The results obtained show that there is a negative relationship between cognitive diversity and team creativity and that there is no significant proof that knowledge sharing and sharing information work as moderators of that relationship.

Keywords: cognitive diversity; team creativity; knowledge sharing; sharing information.

List of Abbreviations

CD – cognitive diversity

TC – team creativity

KS – knowledge sharing

SI – sharing information

CEM – categorization elaboration model

e.g. - for example

et al., - and colleagues

i.e., - that is

Index/ Table of Contents

1. INTRODUCTION	1
2. LITERATURE REVIEW	4
2.1. Cognitive Diversity	4
2.2. Team Creativity	6
2.3. Knowledge Sharing	8
2.4. Sharing Information	10
3. RESEARCH HYPOTHESES AND CONCEPTUAL MODEL	13
4. METHOD	14
4.1. Procedure	14
4.2. Sample	14
4.3. Measures	16
Cognitive diversity	16
Team Creativity	16
Knowledge Sharing	16
Sharing Information	17
4.4. Data analysis strategy	17
5. RESULTS	18
5.1. Data aggregation	18
5.2. Correlations	18
5.3. Hypotheses testing	19
6. DISCUSSION AND CONCLUSION	21
6.1. Implications	22
6.2. Limitations and future suggestions	23
REFERENCES	25
APPENDIX	31
Annex A – Leaders Questionnaire	31
Annex B – Team members Questionnaire	32
Annex C – Letter explaining the study	37

Index of Figures

Figure 3.1: Incorporated conceptual model regarding <i>H2</i>	13
Figure 3.2: Incorporated conceptual model regarding <i>H3</i>	21

Index of Tables

Table 4.1: Leaders and team members' age distributions	15
Table 4.2: Leaders and team members' seniority	15
Table 5.1: Descriptive statistics and bivariate correlations	20
Table 5.2: Testing results for KS as a moderator	20
Table 5.3: Testing results for SI as a moderator	21

1. INTRODUCTION

“Diversity can enhance as well as disrupt team performance” (van Knippenberg et al., 2013). Regardless of the uncertainty that diversity carries, the workplace becomes more diverse as days pass, not only demographically but also cognitively, with organizations walking toward cross-functional teams and setting diversity as a goal.

Sauer *et al.*, (2006) did a good overview of past literature based on cognitive diversity in teams, by mentioning how Jackson (1996) classified team diversity into two elements: (i) readily detected attributes vs. underlying attributes; and (ii) task-related attributes vs. relationship-oriented attributes. Stumpf and Thomas (1999), took it a step forward and considered diversity a multifaceted notion. McGrath et al. (1995) created a model that divides team diversity into five bundles: (a) demographic attributes, such as gender, age; (b) task-related knowledge, skills, and abilities; (c) values, beliefs, and attitudes; (d) personality, cognitive and behavioral styles; (e) status in the work group’s embedding organization.

In this study we will explore cognitive diversity and how it affects team creativity. Matthew Syed (2019) once explained the dilemma of cognitive diversity in a very simple way, in the process of arranging a team of runners, 7 talented and fast athletes, all the same gender and cultural background therefore not very demographically diverse and probably not cognitively either. But the coach is advised to have a more diverse team for team image, so the coach decides to have a more diverse team, but the new athletes are not as fast and talented as the previous 7 members. So, is that beneficial for the team? Well not really since the only purpose of runners is to be fast. However, if we shift to a more complex job, where creativity and problem-solving are key, the case may change. In a company, let’s assume a manager is putting 10 people together in a team to come up with creative ideas, all of them are talent employees and each of them comes up with ten genuinely useful ideas, but if they are cognitively homogenous, if they are thinking the same way and they come up with the same ten ideas, the manager is only obtaining 10% overall. On the other hand, if they are cognitively diverse and come up with different ideas from one another, the manager could end up with a hundred useful ideas. These are two teams who are composed of equally talented people but the one that is cognitively diverse comes up with additional creative ideas, hence the importance of analyzing when diversity is beneficial for team performance.

In today’s business, innovation is a must, creativity is one of the key ingredients for business’ survival and growth. Creativity can be a positive force in organizations that

allows them to progress in the ever-changing marketplace (Woodman, Sawyer, & Griffin 1993), furthermore, it is believed that it can increase job satisfaction and even enhance the employees' confidence.

Diversity is not only seen as important for an organization for image purposes but as more than that, many believe that cognitive diversity is one of the most crucial competitive advantages that an organization can have.

On the other hand, there are opposite opinions that diversity is good on paper however, once that diversity is analyzed there seems to be more disadvantages than advantages for organizations. Others have a balanced view of diversity, claiming that having diversity provides benefits in some areas of business and in others it damages the performance of a team and the process of decision making.

The purpose of this study is to examine if cognitive diversity affects positively or negatively team creativity, another asset, that corporations have been giving closer attention in the last decade. Since the first studies about creativity it was clear how important it is, and how creativity tends to be a more reachable goal for a team than an individual (Uzzi et al, 2013). However, companies now have seen how innovation can be a strong link to success and can make or break a business. In a time where the first reaction or the initial attention that consumer gives to a product or a service is extremely important, creativity can be a major asset for a company to have in order to gain that primary reaction of consumers. Achieving a positive team creativity is one goal that organizations want to obtain, and that is seen by the support given by them to teams.

Nevertheless, some companies fail to determine what are the moderators that affect team creativity, and other major variables that can have a positive or negative relation with it.

Throughout research of possible moderators, it felt important to test how knowledge sharing and sharing information can dictate the relation between cognitive diversity and team creativity. The complexity of those two possible moderators is not one to take lightly. Studies show how each variable seems to be influence by the type of leadership or the status of the members involved. Moreover, Savolainen (2017), expressed that although sharing information and knowledge sharing are akin "communicative activities", the complexity of them enters when we talk about what is being shared, because individuals hold different understandings of information and knowledge. The two moderators have been heavily researched in terms of their

connection to decision making, but not a lot of research is found linked to cognitive diversity and team creativity, thus the curiosity to analyze such model.

Hence, the purpose of this study is to examine the relation between cognitive diversity and team creativity, and if knowledge sharing and sharing information work as moderators of that relationship.

2. LITERATURE REVIEW

The main objective of this study is to analyse the moderators of the relation between team creativity and cognitive diverse and to interpret the effect of those moderators. To understand how beneficial cognitive diversity can be for team creativity.

In this section, starting with Cognitive Diversity, we will explain the theory behind it and some research already done about the topic. Secondly, we will approach Team Creativity and its definition. Following, Knowledge Sharing in today's perspective and Sharing Information insights, finishing with hypothesis models for this study.

2.1. Cognitive Diversity

Throughout literature, the results of the effects of diversity in team performance is not consensual, with results being inconsistent and different depending on moderators and other factors. Cognitive diversity (CD) is described as “the inclusion of people who have different ways of thinking, different viewpoints and different skill sets in a team or business group” (Schindler, 2018).

With CEM (Categorization-Elaboration Model), van Knippenberg et al. (2004) describes diversity as divergences among individuals, those differences can be anything that directs the assessment of other individuals as different from self.

Ilgen *et al.*, (2005) expressed how having individuals working as a diverse team could be a positive thing since it increases the amount of knowledge suppliers. Those informational resources can bring to a company an improvement of the quality of decision-making, creativity, and innovation as a team (van Knippenberg & Mell, 2016).

Research suggests that the link between team performance and cognitive diversity is intricate, and it can be influenced by multiple variables (Milliken & Martins 1996). Studies in this field have identified work characteristics, technology and tasks as major factors that play a role in that link (McGrath et al., 1995).

CD has been regarded as advantageous for team performance (Bantel & Jackson, 1989; Cox *et al.*, 1991), and Guillaume et al. (2017) found the advantages of diversity arise when there is a need for innovation or when there are knowledge-based tasks.

Research also found negative effects, such as friction within the team, conflict (Jehn et al., 1999), and weaken employee self-esteem (Tsui *et al.*, 1992), therefore diminishing or even completely cancelling out the benefits. Pelled *et al.* (1999) discovered that some elements of cognitive diversity are related to specific categories of

conflict, for instance, emotional conflict was correlated with diversity in relationship-oriented attributes (e.g. nationality, age), but not with task-related conflicts.

Because of the contradiction that CD seems to carry, studies have focus on analyzing the factors and possible moderators of that contradictory outcome. Although multiple studies tried to identify the potential moderators, the majority was found not to have enough data supporting it (Avery & McKay, 2010).

Van Knippenberg & Schippers (2007) believed that the most crucial aspect regarding diversity is to analyze the eventual outcomes, since diversity can also bring interferences into a team, disrupting its usual dynamic and consequently affecting its performance (van Knippenberg et al., 2013).

Based on CEM, that retains the idea that diversity takes its results into two directions, Phillips & O'Reilly (1998) analyzed the two directions: the social categorization approach and the information/decision-making approach. The process of social categorization starts when we realize the similarities and differences (similar working method or not, similar way of thinking or not) of the people with whom we work and, thus, we end up inserted in a group corresponding to certain categories already existing (genre, nationality, age). Otherwise, we create a new group with the ones that most resemble us and “assign ourselves” a category, creating an ingroup and outgroup; the ingroup being the group of people that belong in the same category and the outgroup the ones outside of it. Connecting with the definition of homophily, that carries the idea that similar people tend to form a connection.

As Tajfel & Turner (1986) explained people tend to prefer their inner group rather than their outside group, which might explain why diversity can prompt interpersonal conflict. Furthermore, people trust and are more amenable to work and to compromise with their “ingroup” than the “outgroup”, leading to easier and fast conflicts resolution in teams with poorer diversity.

The information/decision-making approach carries the notion that “diverse groups are likely to possess a broader range of task-relevant knowledge, skills, and abilities, and members with different opinions and perspectives” (Van Knippenberg & Schippers, 2007). Moreover, it is well-studied that when team members consider diversity a valuable asset and trust in the power of diversity, it carries more benefits than hindrances (De Meuse & Hostager, 2001). Additionally, Cox (1993) and Jackson et al., (1992) also determined the importance of the organization showing support and applying measures to promote diversity. However, what we can conclude from both approaches is that

cognitive diversity seems to be influenced by various factors yet to be fully identified and understood.

Furthermore, CEM touched the idea that the final outcome of CD being positive or negative hinges on three characteristics: variables that allow demographic disparities to be relevant; variables that provoke or avert intergroup prejudice; and variables that enrich or demoralize information-elaboration. (Guillaume *et al.*, 2017).

What we aim to achieve in this work, is to determine the relationship between CD and TC, and the possible moderators.

2.2. Team Creativity

The most acknowledged definition of creativity is “a product or response that is (a) both a novel and appropriate, useful, correct or valuable response to the task at hand, and (b) the task is heuristic rather than algorithmic” (Amabile 1983). Most researchers agree that creativity is not only found in individuals but also in teams. Furthermore, there seems to be a consensus that when a situation occurs where individuals must work as a team creatively, the creativity of each individual impacts the creativity of the team (Tiwana & McLean, 2005). Pirola-Merlo & Mann (2004) even stated that team creativity is nothing more than the sum of each individual team member’s creativity, meaning if each member does not contribute in terms of creativity, the TC will be affected negatively.

The relevance of creativity is also a topic with little divergence, where multiple authors unanimously defend how creativity and innovation are major assets for any company and how much they are necessary to bolster and sustain organizations (Ilinitch *et al.*, 1996; Lichtenstein *et al.*, 2006) some even regarded it as a competitive advantage (Shalley *et al.*, 2004). Florida & Goodnight (2005) proposed how creativity capital is the supreme asset and that the future of a company depends on their capability to reach the creative potential of their teams.

Amabile (1996) believed that creativity is the opening stage in innovation, and since the business world is rarely fixed, innovation is fundamental for long-term organizational prosperity. It has been shown that companies that invest in developing and equip themselves for the future have succeeded and blossomed more than those that have not prepared.

In a research made for an article by Brodtherson *et al.* (2017), the writers focused on how “creativity is the heart of business innovation, and innovation is the engine of

growth". In the article, they analyzed that highly creative organizations (based on Award Creative Score), perform better than fellow organizations in two major business metrics: McKinsey's innovation score and financial performance. For a deeper examination, they provided data, recognising that the top quartile of the most creative companies had 67% above average organic revenue growth; 70% above-average total return to shareholders and 74% above-average net enterprise value.

The concept of team creativity was firstly introduced as a product of the individual and the social system combined, "a moment when individuals come together to find, redefine, and solve problems that no one, working alone, could have done as easily, if at all" (Hargadon & Becky 2006).

Taggar's (2002) article regarding creativity proposes that is not solely the sum of everyone's creativity that composes the team creativity, but also other factors regarding the team member interactions and the type of leadership used. Solek-Borowska (2019) explained the difference between generating ideas and implementing them, pointing out that although diverse composed teams seem to have no problem in generating ideas, they face problems when the decision-making time arrives, when the teams have to determine which ideas will be implemented. That lack of consensus is likely to be related to the diversity present in those teams.

Even if organizations realise the importance of TC, and even support and promote innovation in the company, there is a step that should not be left out, the step consists of understanding and analysing the factors that can assist and endure creativity. Previously, leadership was mentioned as a possible factor. In addition, Strollberger et al., (2019) had a deeper look in how leadership plays an important part in managing team constructs and therefore a role in innovation harvests. Arguing that team practices arbitrate between inputs and outputs, in terms of participation levels, support from the company for innovation and conflict management. Factors that can lead into individuals trusting the company and feel safe or the complete opposite by making individuals feel anxious and even threatened in their workplace. Contending that transformational leadership and opening leader behaviours can stimulate team creativity.

In the previously mentioned McKinsey Digital article (2020), surveys were conducted to analyse the practices used in those high scored companies on Award Creative Score, that lead to achieve good results. The number one practice was implementing creativity in day-to-day habits, basically prioritizing creativity. A measure not only supported by senior executives, but a measure that senior executives practiced

themselves, serving as role models for the employees. Secondly, focusing on the customers, by observing the customers' needs and customers own environments, creative companies are able to create solutions and innovate.

Additionally, moving fast but with precision and fostering "clear goals" and having a reliable report system is another measure that seems to be consistent in those organizations. Lastly, another measure discovered was the capability to adapt and realising the important of doing so.

But which are the mediators of the relationship between CD and TC? Solek-Borowska (2019) stated that team creativity does not develop if there is not a proper knowledge sharing culture in the organization. Additionally, Hahm (2017) focused on how information sharing plays a role in core constituents of team creativity, such as supporting expertise, creative thinking skills and motivation. Both variables seem to play a crucial role when it comes to mediating the link between CD and TC.

In this dissertation, we will investigate the relation between CD and TC and the use of two variables that we believe act as moderators between that relationship: knowledge sharing and sharing information.

***H1:** CD positively relates to TC.*

2.3. Knowledge Sharing

It should be evident, how indispensable knowledge is in any organization. Knowledge gives the power to build, create and to identify crucial elements of a business, therefore knowledge is not only an asset but depending on how it is applied it can be a competitive advantage. Hence, the way of using and applying knowledge directly affects the company's performance.

One essential element of managing knowledge correctly is through sharing that knowledge, that is where teams come into play. Cummings (2004) recognizes teams as an important piece of knowledge sharing. However, although corporations have been investing in supporting knowledge sharing in teams (Wasko & Faraj, 2005), there is a concealed issue beneath the surface: as it was allured by Hutchins (1995), knowledge in teams is usually unequally divided throughout the team members.

"Knowledge sharing is the process where individuals mutually exchange their (implicit and explicit) knowledge and jointly create new knowledge" (Van den Hoff & De Ridder, 2004). But as mentioned in the previous paragraph, knowledge is not equally

distributed by everyone, and if not efficiently managed, that difference can create friction in a team, consequently damaging the team performance.

With Van den Hoof & De Ridder's (2004) definition of knowledge sharing (KS), we can conclude that KS consists of bringing knowledge and getting knowledge. Basically KS is not only donating knowledge to your team members, but also collecting knowledge from them, therefore the authors divided KS into two different processes: (i) knowledge donating, communicating one's personal intellectual capital to others; and (ii) knowledge collecting, consulting others to get them to share their intellectual capital.

However, KS is not as simple as it seems. For that transaction of knowledge to happen, the individuals need to be committed to it, to share and to learn from other individuals. Engström (2003) explained how work team interactions are important for the team since it gives individuals a reason to work together and motivates the dialogue between them. This is meaningful, because for the correct implementation of KS, team members need to interact in interpersonal conversations. It is at least a step in the right direction.

Supporting and facilitating KS in the organization matters to the individuals, but some authors defend that a reward mechanism is more important (Choi et al., 2008); rewards ranging from non-monetary incentives (job security, flexible working hours) to monetary rewards (increase in salaries and bonuses). This aspect is something that does not change depending if the diversity is present in the organization or not. Moreover, through research I found that some authors observed that expertise (Stasser 1995; Melissa C., et al 2003) and leadership (Carmeli et al, 2011) are influencers of KS.

Regarding expertise, Melissa C., et al (2003) explained that although perceived expertise does not strengthen or undermine an individual own exclusive knowledge, experts tend to accentuate shared information, e.g., when a group is making a decision, the perceived experts have a tendency to keep reminding and informing the colleagues of certain aspects as regards to his/hers know-how, information that is already known to the team. Furthermore, that behavior can lead members with a shorter background to feel less capable to talk since a member with more mastery is talking and it can create an unwelcomed habit. Yet, Mell et al., (2014) discovered that teams tend to incorporate information circulation less when expertise is evenly dispersed in the team, rather than when it is focused in one member.

Carmeli et al, (2011) believe that for the organization to reach its full potential, employees must share knowledge. They conducted a study examining how leadership

influences KS, proposing a test model that regards transformational leadership has an assessment to which individuals identify with their team leader and with the mediation of the value leader-member exchange. They determined it leads to a clearer recognition of the goals of the organization and therefore guides the employees to a KS environment.

Lauring & Selmer (2012) investigated the connection between different types of diversity and knowledge sharing and discovered that when it comes to diversity in terms of nationality it affected positively the group knowledge sharing, homogeneous nationality generally had negative or no relation whatsoever with KS. In addition, they concluded that age diversity had no relation with KS. Our aim is to analyse what happens to team creativity when a team is exposed to knowledge sharing, basically to identify if KS benefits the team's creativity or impairs it.

H2: Knowledge sharing moderates the relationship between cognitive diversity and team creativity.

2.4. Sharing Information

Burdenson & Sutcliffe (2002) defined sharing information as “a conscious and deliberate attempt on the part of team members to exchange work-related information, keep one another apprised of activities, and inform one another of key developments”, being the leading procedure where the team members make use of the existing informational resources.

The connection between sharing information and team performance is not one to take lightly. In 2009, Mesmer-Magnus & DeChurch registered a correlation of 0.37 between the two variables. The connecting point between sharing information (SI) and performance is something that is not necessarily only observed in organizations. Even in our daily lives, we can see how sharing information can benefit us, just as simple as mentioning to a family member that at the end of the day you are going to the supermarket. If that information is not shared, the household might end up with double the groceries.

In organizations, the outcome of not sharing information can be much more devastating for the company than just having double of groceries, especially if that tradition of not sharing is a systematic/constant process, because that means the team is not capable of profiting 100% from the informational resources provided (Hoch, 2014).

When it comes to a team where diversity is present, the situation becomes more complex. So that, SI works efficiently, individuals need to be able to share information and to gather information.

Just as KS, we are investigating the role of SI has a moderator, however we felt that it was important to understand if there are variables that influence SI. Through research we have found that some authors identified status (Hollingshead, 1996a), leadership (Larson et al., 1998) and expertise (Stasser 1995; Franz & Larson 2002) as influencers of SI.

According to Hollingshead, social status can be a factor that can have power to control the information being shared and the extent to which the group integrates that information to make decisions as a group. In his words, status personifies characteristics such as gender, age, ethnicity, tenure, and expertise, that makes groups view individuals as only representatives of those personal characteristics and what they can provide for the benefit of the company. In contrast to workers coming from upper-class households, employees from working-class households, in which family is assumed to play a bigger role, can be viewed by their colleagues and superiors at work as less committed and ambitious. Ultimately, this can result in being underestimated in teamwork contexts and have less confidence to speak out in meetings, for example.

Larson (1998) claimed that although groups, frequently share common information rather than unshared information, the behaviours of a leader can change that mistake. Bringing to attention that a leader has the power to manage the team into facilitating the communication, motivating each individual to participate and to make sure that the crucial information is being shared and that becomes the normal for the team. In his study, the comparison between participative and direct leadership was studied and the results insinuate that even though participative leaders managed to get more individuals to share information, direct leaders were able to provide more unshared information, additionally they were more keen to repeat unshared information that a member from other group contributed that was different from its own opinion.

When it comes to expertise, Franz & Larson (2002) research results indicate that experts do indeed, provided more information than other members, nevertheless it did not supplied data that supports the idea that experts help boost SI by other individuals.

Hahm's (2017) article connected TC and SI in virtual teams, in the paper it was detailed how the number of members in a team can affect SI, regarding how the relationship between members and leaders can change in accordance of the dimension of

the team. And while it was focused on virtual teams, I argue that it is a factor relevant for non-virtual teams. The factor becomes even more relevant when we consider that during the COVID-19 pandemic the majority of non-virtual teams became virtual teams.

As in the likes of KS, it has been discussed that individuals are more likely to share information with team members that belong in the same categories as them, team members that they consider not different from them (Devine, 1999; Mesmer-Magnus & DeChurch, 2009). Additionally, another finding made was the Biased Information Sampling Model, that is to say that teams predominantly spend more time deliberating over information already shared than over information not yet known by most team members. This information is therefore exclusively known by individual team members and is not being successfully shared within the team. Apart from the obvious problem that this raises, Mesmer-Magnus & DeChurch (2009) manifested how that information would be much more beneficial for the performance of the team if properly shared, than the usual already well-known information.

Our aim is to analyse what happens to team creativity when a team is in a sharing information environment, and to identify if SI benefits the team's creativity or impairs it.

H3: Sharing information moderates the relationship between cognitive diversity and team creativity.

3. RESEARCH HYPOTHESES AND CONCEPTUAL MODEL

H1: Cognitive diversity relates positively with Team creativity.

H2: Knowledge sharing moderates the relationship between Cognitive diversity and Team creativity.

H3: Sharing information moderates the relationship between Cognitive diversity and Team creativity.

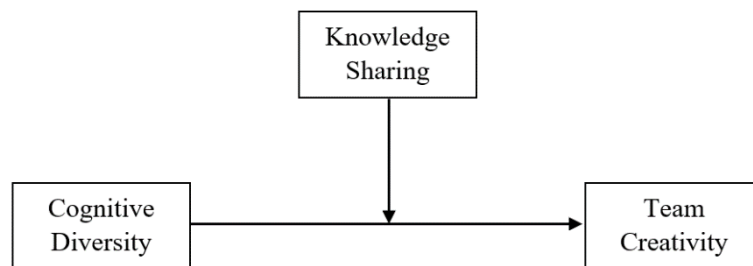


Figure 3.1: Incorporated conceptual model regarding *H2* (Source: Author)

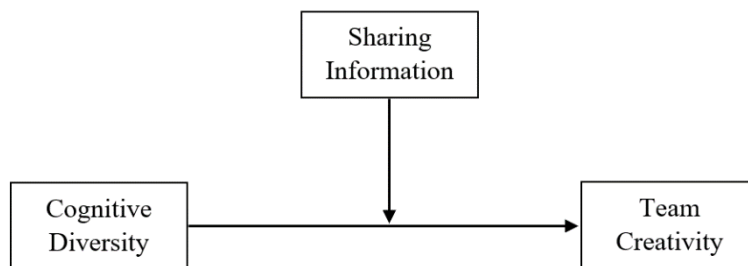


Figure 3: Incorporated conceptual model regarding *H3* (Source: Author)

4. METHOD

This chapter is designated to break down the components, by analysing procedural outcomes to assess the hypothesis. In the method, it is possible to view the procedure used, the sample, the data analysis strategy, and the measures.

4.1. Procedure

This research took place under the supervision of Ph.D. Ana Margarida Passos, the project consists of an examination project focused on maximization of team effectiveness and cognitive diversity within multiple consulting and auditing organizations. Each member of the project oversaw the distribution of two types of questionnaires in printed format: a one-page survey, for the leader of each team, and a four pages survey for the members of each team (17 questions). Commonly, at the end of the two types of surveys, each participant had to fill in a section dedicated to sociodemographic data, such as age, job function, seniority, and the number of members in the team.

Each of us, was responsible to organize both surveys, so that the leader survey would be attached to the surveys of respective team members. The creation of both questionnaires was done with the purpose of having a deep outlook of the teams, and not only one side of both elements, furthermore we believe that it was necessary in order to analyse different variables for the two positions.

A letter from the project coordinator was forwarder to clarify the objectives of the project, and to reassure the confidentiality of the entire process. To comply with the confidentiality and to respect the privacy of each participant, names were never asked, and participants were given a code number as well as the teams for organization purposes.

Unfortunately, with the effects of COVID-19 pandemic, some of the teams that were gathered had to fill the surveys online, for safety precautions. Those safety measures affected the number of teams that we wanted to achieve and the data collection period but not the validity of the answers since teams that had already agreed to the participation before quarantine was implemented, were still able to engage in our project.

4.2. Sample

The selection of participants was an extremely important step of our work, since we are dealing with diversity, we wanted to make sure that we were allowing participants to

answer free of judgement and in addition we selected participants that were in a position where they could answer our questions. The sample was gathered by our group working together with the 2019/2020 members of *ConsulTeam Project*.

The project sample collected was 46 teams, 168 individuals from various consultancy and auditing companies, from Portugal, United Kingdom, Italy, and Germany. Each team was composed by consultants and their direct leaders, the average of team members was 3.65.

Regarding gender, in the table 4.1 we can analyse that there are more male team members (52.38%) in the organizations than female (47.62%), furthermore there are also more male leaders (69.57%) than female (30.43%). In general, males account for 58.82% of employees and females account for 41.18%.

In terms of seniority, most leaders and team members have been in the respective company for 1 to 3 years (16 leaders and 66 team members). But in opposite of the leaders, were the lowest of seniority level represents 6.8% (3 leaders), for team members “less than 1 year” represents 37.9% of them, leaving the percentage of maximum of 3 years in the company being 78.8% for team members.

Table 4.1: Gender distribution in leaders and team members

Gender	Leaders	Team Members
Male	69.57%	52.38%
Female	30.43%	47.62%

Table 4.2: Seniority of leaders and team members

Seniority	Leaders	Team Members
Less than 1 year	3	61
1 to 3 years	16	66
3 to 5 years	9	22
5 to 7 years	5	10

More than 7 years	11	2
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4.3. Measures

The data collecting was done with my research colleagues therefore in the questionnaire not only my variables are tested. For this study we administered 4 variables: cognitive diversity, team creativity, knowledge sharing and information sharing.

In the 17 sections presented in the questionnaire for the team members, 4 sections are related with my study. For the team leader survey, only CD and TC were assessed.

For the study we administered 4 variables: cognitive diversity, team creativity, knowledge sharing and information sharing.

Cognitive Diversity. CD was measured by 4 items based on Van der Vegt & Janssen (2003) regarding the way the team thinks and how knowledge and skills are distributed in the team, and on seven-point Linkert scale had to share how much they agreed or not (1- “totally disagree” and 7- “totally agree”). Remarks such as “We see the world the same way” and “We have the same knowledge and skills”. By measuring in these two ways, we not only get information regarding the diversity in the team but also if that diversity translates into cognitive diversity in terms of having the same skills set and way of thinking. To evaluate the reliability of the scale, we applied the ordinary measure *Cronbach's Alpha*, which allow us to know that the scale was reliable by $\alpha \geq 0.700$, $\alpha = 0.833$.

Team Creativity. TC was measured in the two questionnaires, so that the variable was examined in the two perspectives so that the variable was analyzed independently and unbiased. It was measured with 4 adapted items from DiLiello *et al.*, (2011.)Participants were asked questions regarding the outcome of their team's creativity and had to classify on seven-point Linkert scale how much they agreed with the remarks made (1- “totally disagree” and 7- “totally agree”). Some examples of the remarks made are “My team is good at generating novel ideas” and for the leader survey “The team is good to solve problems creatively” and the reliability of the scale is good ($\alpha = 0.880$).

Knowledge Sharing. The variable of KS was measured by 4 adapted items by Sue *et al.*, (2010) using seven-point Linkert scale, participants were questioned about the knowledge sharing environment in the company and had to rate (1- “totally disagree” and 7- “totally

agree”) how much they agreed with the statements. The statements regarding KS were e.g., “Team members share their experience or know-how from work with the other members” and “Team members provide their manuals and methodologies for other members”. This variable was only examined in the team members survey. The reliability is confident, with α being higher than 0.700 ($\alpha = 0.769$).

Sharing Information. SI was present in the team members survey, the variable was measured by 3 adapted items of Homan *et al.*, (2008) using seven-point Likert scale (1- “totally disagree” and 7- “totally agree”), remarks regarding sharing information were made and the contributors had to answer how much they agreed or disagreed with the statements. Some of the remarks were e.g., “The group members contributed unique information during group task” and “The group members contributed a lot of information during the group task”. The reliability is good, with $\alpha = 0.905$.

4.4. Data analysis strategy

The analysis conducted was done in SPSS by Hayes (2017) macro Process, adapting a test that measures the direct and indirect effects of the variables being tested and the hypothesis mentioned previously regarding the relation between CD and TC (*H1*) and the moderator roles that KS and SI play in that association (*H2* and *H3*).

The first step of the analysis is assessing for misplaced or unaccounted for values, after the reliability and validity of the variables is checked. Regarding reliability, it is tested with Cronbach’s alpha, the value should achieve 0.700. In terms of validity, the analysis is legitimated if the p-value (Bartlett’s sphericity) is of a considerable value and the KMO and MSA are higher than 0.500.

If the values are inferior to 0.500 for KMO and MSA or even if they damage the reliability by decreasing the Cronbach’s alpha to less than 0.700, values will be eradicated, for the benefit of the study.

5. RESULTS

The purpose of this chapter is to present the results and possible findings of the analysis conducted. Furthermore, not only to analyse the correlation between the variables but also the indirect or direct relationship between cognitive diversity and team creativity, in addition the moderator role that KS and SI represent in that relation.

This study intent is to have an analysis regarding the teams; therefore, all team members' feedback was aggregated to the team level.

5.1 Aggregation

Since the main goal of this study is to do an assessment of the relationship between cognitive diversity and team creativity, it is essential to evaluate the data in a team level. Before proceeding with the analysis, it is important to check if that aggregation is reasonable, that step is done by calculating the inter-rater reliability ($r_{wg(j)}$). James, Demaree & Wolf (1993), argued that for $r_{wg(j)}$ to be consider good, the mean value should lay between 0.70 and 0.90, and values above 0.90 are consider very strong.

Regarding this study, all the variables displayed a mean value between 0.70 and 0.90, by that we can conclude that the aggregation is reasonable, since the $r_{wg(j)}$ is considered good.

5.2 Correlations

In table 5.1, it is given the means, standard deviations and the correlations of the variables studied. The results provided show that there is a negative correlation between cognitive diversity and team creativity, unlike the hypothesis tested (*H1*). Additionally, cognitive diversity displayed a negative correlation with the possible moderators as well.

Regarding team creativity, the variable exhibited no significant correlation with any variable. The only significant correlation found in this analysis is between knowledge sharing and sharing information ($r = .514, p < .01$).

Table 5.1 Descriptive statistics and bivariate correlations.

Variable	M	SD	1	2	3	4
1. Cognitive Diversity	3.817	.778				
2. Team Creativity	5.683	.660	-.284			
3. Knowledge Sharing	5.917	.613	-.475	.173		
4. Sharing Information	5.924	.842	-.380	.161	.514**	

**Correlation is significant at the 0.01 level (2-tailed)

5.3 Hypotheses testing

The hypothesis testing has done through macro PROCESS, a logistic regression path analysis modelling tool built by Andrew F. Hayes with the intent of helping businesses, health sciences estimating direct and indirect impacts of single and various mediator roles in moderation patterns. The model used to test the hypothesis was model 1, a model that assumes the relation between 3 variables. In the table 5.2, the variables applied are cognitive diversity as the independent variable, knowledge sharing as the moderator and team creativity as the outcome (*H2*). And in table 5.3, the independent variable and outcome are the same, but the moderator is sharing information (*H3*).

Regarding indirect effects, examining the lower and upper bound, zero should not be found between those values, furthermore if both values are positive than the indirect effect is taken as positive moderator effect. If the upper and lower bound are negative values, the indirect is treated as significantly negative.

Table 5.2 Testing results for KS as a moderator

Predictor	B	SE	t	p	LL 95% CI	UL 95% CI
Constant	5.635	.102	55.145	.000	5.429	5.842
Cognitive Diversity	-.231	.140	-1.649	.107	-.515	.052
Knowledge Sharing	.129	.197	.655	.517	-.296	.528
Interaction	-.288	.1821	-1.582	.1216	-.656	.080

As it is visible in table 5.2, the interaction between cognitive diversity and knowledge sharing is not significant ($B = .1821$, $t = -1.582$, $p > .05$). Additionally, zero is found between the lower and upper bound, meaning that there is no significant indirect effect (95%CI: -.409 to .130).

Table 5.3 Testing results for SI as a moderator

Predictor	B	SE	t	p	LL 95% CI	UL 95% CI
Constant	5.611	.101	55.899	.000	5.447	5.855
Cognitive Diversity	-.222	.137	-1.628	.111	-.498	.054
Sharing Information	.096	.131	.733	.468	-.168	.359
Interaction	-.1395	.1336	-1.044	.303	-.409	.130

The same is displayed in table 5.3, for the interaction between cognitive diversity and sharing information ($B = -.1395$, $t = -1.044$, $p > .05$) and zero also found between the upper and lower bound (95%CI: -.656 to .800), showing no significant indirect effect.

From the results, we can deduce that there is no significant proof that knowledge sharing and sharing information have a moderator effect on the relationship between cognitive diversity and team creativity. From the correlations test, we can also conclude that the relationship between cognitive diversity and team creativity is a negative one.

6. DISCUSSION AND CONCLUSION

This study, started with the principle of analysing the relationship between cognitive diversity and team creativity, and examine how the relationship could be moderated and also its moderators.

In the beginning, we acknowledged the main objectives of this study, those being: approaching the existent literature with an unbiased opinion and adding something new to it, secondly approaching the research already made and apply it to the topic, and lastly and perhaps the most important goal was to add relevant results and somehow help with the analysis of the relationship between the two variables.

From the existent studies, it was possible to see that results showed two sides. Guillaume *et al.* (2017), found positive results between diversity and team creativity. However, Jehn *et al.* (1999) observed negative effects of that relationship such as friction and conflicts in the teams. Along with Tsui *et al.* (1992) that uncovered lower employee self-esteem as a negative effect of the relationship between diversity and team creativity.

The results we obtained complement this field of research, with data (consistently) showing a negative relationship between cognitive diversity and team creativity. However, one should keep in mind that human interpersonal relationships are very complex and easily influenced and modulated by a number of variables which we are still trying to understand in detail. Interactions in the workplace and within a work team are, as well, subjected to a multitude of variables and moderators should be further studied. We do not undermine the studies that observed different results from ours and urge for more research in order to unravel and better understand both variables and modulators of this interaction.

The results displayed no significant effect of both moderators (knowledge sharing and sharing information)on the relationship between cognitive diversity and team creativity, in accordance to the results found by Avery & McKay (2010), that concluded that although multiple moderators are studied, there is not enough data supporting those possible moderators.

When it comes to knowledge sharing, the empirical literature showed that the effects change depending to what type of diversity was present (Lauring & Selmer 2012). And perhaps, if we analysed another type of diversity, we would find a significant effect as moderator on the relationship between cognitive diversity and team creativity. Additionally, although Solek-Borowska (2019) stated that in order to have team

creativity, knowledge sharing needs to be present, we found no significant role of knowledge sharing in team creativity. In the literature, we also found that for knowledge sharing to be used beneficially, it requires proper management and desire from the individuals to share knowledge, we can conceivably assume from our results, that desire and suitable management for knowledge sharing is not present.

For sharing information, past studies show that individuals prefer not only to share information but also get information, from individuals that belong in the same group as them (Devine, 1999; Mesmer-Magnus & DeChurch, 2009), not moderating positively the relationship between cognitive diversity and team creativity. Additionally, it should be again mentioned that sharing information in the literature has its own influences: status (Hollingshead 1996a), leadership (Larson 1998) and expertise (Stasser 1995; Franz & Larson 2002). Conceivably, these could have played a role in our results. Perhaps, we can further assume that social categorization (Phillips & O'Reilly 1998) is present in the participant companies.

Furthermore, as it was mentioned in the data collection, a part of the questionnaires was answered during the COVID-19 pandemic, when our participants were already working from home, making the teams, virtual teams. This brings light to the study of Hahm (2017) that observed negative effects between sharing information and team creativity on virtual teams' depending on the number of team members.

6.1 Implications

Taking into consideration the sample size analyzed in this study, any implication mentioned must be taken lightly since our data does not carry enough dependability. As it was seen in the literature review, cognitive diversity is not a clear positive or negative element of a workplace, in some instances carrying more hindrances than advantages. Research shows that both can happen, hence the importance of analysing what can moderate the relationship between cognitive diversity and team creativity, instead of forcing diversity in the workplace for image purposes.

One thing is certain, team creativity is a great advantage to have in any organization, and if cognitive diversity is present in organizations, it is crucial for any organization's success to determine how cognitive diversity can have a positive relationship with team creativity.

6.2 Limitations and future suggestions

The major limitations that we faced doing this study, was the sample size since it can be an impediment of achieving more precise and trustworthy results. Due to Covid-19 pandemic, the gathering of participants became even more complicated since the questionnaires had to be filled online.

The size of the questionnaires could also be a constraint because of the duration that it took for the team members to fill the questionnaire. Moreover, although the questionnaires were anonymous, team members could have felt unsafe to answer the questionnaire truthfully fearing that the leader would have access to it. Another point is the different notions of some topics that the members of the same team can have, since it can lead to the data being very irregular.

For future studies, we argue that the problem does not lie in the model used but with the size of the sample and with the structure of the questionnaires. With a larger sample size, the data becomes more reliable to analyse.

Regarding the questionnaires, it would be beneficial to make the team members questionnaire more appealing and more informative in terms of the topics, so that the concepts of the topics are similar to the participants. In addition, it would be noteworthy to gather data regarding the level of studies and/or the different skill sets that the participants carry, so that cognitive diversity could be analyzed further.

Additionally, it would be interesting to develop the team leader survey, in order to have a deeper understanding of not only the role of the leader but also of the perspective of the leader regarding the variables.

Concluding, that regardless of the limitations this study, it supports the research that defends the relationship between cognitive diversity and team creativity as a negative one. Reinforcing the sentiment that for cognitive diversity to impact positively the performance of a team, there is a lot of work that needs to be done. In order to find a way to go against or work with the principle that human beings are keen to stay with people of their “group” and agree with what they know (Devine, 1999; Mesmer-Magnus & DeChurch, 2009), and not develop altercations that damage the performance of the team and therefore impairs the success of the organization.

Ending with a note, that although we want to believe that diversity is beneficial, it is important to analyse if that idea is indeed valid in every situation. Our results suggest that is not the case, however organizations should not just settle and give up the intention

of promoting cognitive diversity in the workplace. In order to obtain the advantages of diversity, it is essential to determine how organizations can make diversity play a beneficial role in their office. Perhaps, the answer will differ from company to company, or even from department to department.

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APPENDIX

ANNEX A – Leaders Questionnaire

1. This survey is part of a research project carried out by a group of researchers from ISCTE-Instituto Universitário de Lisboa, focused on team effectiveness in the context of consultancy and audit firms. The main objective of this project is to identify the factors related to teamwork that contribute to the effectiveness of the projects carried out by the organization and to the satisfaction of both the clients and the consultants themselves.
2. The data collected will be exclusively analyzed by the research team and anonymity will be guaranteed.
3. The questions are written in a way that you only have to point out the answer that seems most appropriate for you.
4. There is no right or wrong answers. We are only interested in your personal opinion.
5. For each question there is a scale. You can use any point on the scale as long as you consider it is appropriate.
6. Respond to the entire questionnaire without interruption.

For any clarification, or to receive additional information about the study please contact: Prof.^a Ana Margarida Passos (ana.passos@iscte-iul.pt).

Thanks for your collaboration!

To answer this questionnaire think about the TEAM and the specific project you are leading

1. The following questions describe team’s behaviors. Please indicate to what extent you agree with each of them using the following rating scale:

Totally disagree	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Totally agree
1	2	3	4	5	6	7

1.	This team has a good performance.	1	2	3	4	5	6	7
2.	Members are satisfied in working in this team..	1	2	3	4	5	6	7
3.	This team is effective.	1	2	3	4	5	6	7
4.	I would not hesitate to work with this team on other projects.	1	2	3	4	5	6	7
5.	This team could work well on future projects.	1	2	3	4	5	6	7
6.	This team is good at generating novel ideas							
7.	The team is good to solve problems creatively.							
8.	The team believes that we are able to produce new ideas or solutions							
9.	The team has the talent and skills to do well in our work							

2. Think about **your behavior as a team leader**. Please use the same rating scale.

1.	I encourage the team to be responsible for determining the methods, procedures, and schedules with which the work gets done	1	2	3	4	5	6	7
2.	I urge the team to make its own decisions regarding who does what tasks within the team	1	2	3	4	5	6	7
3.	I encourage the team to make most of its own work-related decisions	1	2	3	4	5	6	7
4.	I encourage the team to solve its own problems	1	2	3	4	5	6	7
5.	I encourage the team to be responsible for its own affairs	1	2	3	4	5	6	7
6.	I encourage the team to assess its performance	1	2	3	4	5	6	7

Finally, we would like to ask some socio-demographic data, essential to data analysis:

1. Sex: Male Female

2. Age: _____ years

3. Job function in the organization:

4. How long have you been working in this organization?

Less than 1 year 1 to 3 years 3 to 5 years 5 to 7 years More than 7 years

THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

ANNEX B – Team Members Questionnaire

1. This survey is part of a research project carried out by a group of researchers from ISCTE-Instituto Universitário de Lisboa, focused on team effectiveness in the context of consultancy and audit firms. The main objective of this project is to identify the factors related to teamwork that contribute to the effectiveness of the projects carried out by the organization and to the satisfaction of both the clients and the consultants themselves.
2. The data collected will be exclusively analyzed by the research team and anonymity will be guaranteed.
3. The questions are written in a way that you only have to point out the answer that seems most appropriate for you.
4. There is no right or wrong answers. We are only interested in your personal opinion.
5. For each question there is a scale. You can use any point on the scale as long as you consider it is appropriate.
6. Respond to the entire questionnaire without interruption.

For any clarification, or to receive additional information about the study please contact: Prof.^a Ana Margarida Passos (ana.passos@iscte-iul.pt).

Thanks for your collaboration!

To answer this questionnaire think about the consulting/ audit project you are currently involved in and the team you are working

1. The following questions attempt to describe **team behaviors**. Please indicate to what extent you agree with each of them using the response scale:

Totally disagree	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Totally agree
1	2	3	4	5	6	7

1.	We engage in creative action to solve problems for which there are no easy or strait forward answers	1	2	3	4	5	6	7
2.	We find innovative ways to deal with unexpected events	1	2	3	4	5	6	7
3.	We adjust and deal with unpredictable situations by shifting focus and taking reasonable action	1	2	3	4	5	6	7
4.	We devise alternative plans in very short time, as a way to cope with new task demands	1	2	3	4	5	6	7
5.	We search and develop new competences to deal with difficult situations/ problems.	1	2	3	4	5	6	7
6.	We adjust the personal style of each member to the team as a whole	1	2	3	4	5	6	7
7.	We improve interpersonal relationships taking into account the needs and aspirations of each member.	1	2	3	4	5	6	7
8.	We maintain focus when dealing with multiple situations and responsibilities	1	2	3	4	5	6	7

2. The following statements relate to **feelings** that some teams have **about their work**. Please use the same scale as above.

1.	At our work, we feel bursting with energy	1	2	3	4	5	6	7
2.	At our job, we feel strong and vigorous	1	2	3	4	5	6	7
3.	We are enthusiastic about our job	1	2	3	4	5	6	7
4.	Our job inspires us	1	2	3	4	5	6	7
5.	When we arrive at work, we feel like starting to work	1	2	3	4	5	6	7
6.	We feel happy when we are working intensely	1	2	3	4	5	6	7
7.	We are proud of the work that we do in the organization.	1	2	3	4	5	6	7
8.	We are immersed in our work	1	2	3	4	5	6	7
9.	We get carried away when we are working	1	2	3	4	5	6	7

3. Please think about the **outcomes of your team's work**. Please continue to use the same rating scale.

1.	My team has a good performance	1	2	3	4	5	6	7
2.	We are satisfied in working in this team.	1	2	3	4	5	6	7
3.	My team is effective.	1	2	3	4	5	6	7
4.	I would not hesitate to work with this team on other projects.	1	2	3	4	5	6	7
5.	This team could work well on future projects.	1	2	3	4	5	6	7
6.	My team is good at generating novel ideas	1	2	3	4	5	6	7

Cognitive Diversity and Team Creativity: KS and SI as moderators

7.	We are good to solve problems creatively.	1	2	3	4	5	6	7
8.	My team believes that we are able to produce new ideas or solutions	1	2	3	4	5	6	7
9.	We have the talent and skills to do well in our work	1	2	3	4	5	6	7

4. The following questions are related to **how your team works as a group**. Enter, please, how often each one of these situations occurs during your work. Please use the following rating scale:

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always
1	2	3	4	5	6	7

1.	How much emotional conflict is there among members in your work team?.	1	2	3	4	5	6	7
2.	How much friction is there among team members?	1	2	3	4	5	6	7
3.	How frequently are there conflicts about ideas in your work team?	1	2	3	4	5	6	7
4.	To what extent do team members disagree about time allocation in your work team (how much time to spend on tasks)?	1	2	3	4	5	6	7
5.	To what extent are there differences of opinion in your work team	1	2	3	4	5	6	7
6.	How often do people in your team disagree about opinions regarding the work being done?	1	2	3	4	5	6	7
7.	To what extent are there disagreements about how long to spend on specific tasks in your team?	1	2	3	4	5	6	7
8.	How much are personality conflicts evident in your work team?	1	2	3	4	5	6	7
9.	To what extent is there is conflict about how you should pace task activities in your team?	1	2	3	4	5	6	7

5. The following questions are about **how your team works**. Please use the following rating scale.

Totally disagree	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Totally agree
1	2	3	4	5	6	7

In my team...

1.	We have the same way of thinking	1	2	3	4	5	6	7
2.	We have the same knowledge and skills	1	2	3	4	5	6	7
3.	We see the world the same way	1	2	3	4	5	6	7
4.	We agree on what is right and wrong	1	2	3	4	5	6	7

6. Think about **how team members relate to each other**. Please indicate to what extent you agree with each of the following statements. Please continue to use the rating scale.

1.	I can explain the emotions I feel to team members.	1	2	3	4	5	6	7
2.	I respect the opinion of team members, even if I think they are wrong.	1	2	3	4	5	6	7
3.	I can read fellow team members 'true' feelings, even if they try to hide them.	1	2	3	4	5	6	7
4.	My enthusiasm can be contagious for members of a team.	1	2	3	4	5	6	7
5.	I can discuss the emotions I feel with other team members.	1	2	3	4	5	6	7
6.	I am able to cheer team members up when they are feeling down.	1	2	3	4	5	6	7
7.	If I feel down, I can tell team members what will make me feel better.	1	2	3	4	5	6	7
8.	When I am frustrated with fellow team members, I can overcome my frustration.	1	2	3	4	5	6	7
9.	I am able to describe accurately the way others in the team are feeling.	1	2	3	4	5	6	7
10.	I can get fellow team members to share my keenness for a project.	1	2	3	4	5	6	7
11.	I can talk to other team members of the team about the emotions I experience	1	2	3	4	5	6	7
12.	When I talk to a team member I can gauge their true feelings from their body language.	1	2	3	4	5	6	7
13.	I can provide the 'spark' to get fellow team members enthusiastic.	1	2	3	4	5	6	7
14.	When deciding on a dispute, I try to see all sides of a disagreement before I come to a conclusion.	1	2	3	4	5	6	7
15.	I can tell when team members don't mean what they say.	1	2	3	4	5	6	7
16.	I give a fair hearing to fellow team members' ideas.	1	2	3	4	5	6	7

Cognitive Diversity and Team Creativity: KS and SI as moderators

7. **Think of teams in general.** Please continue to use the same rating scale.

1.	I believe that team members' diversity is a key aspect to increase performance.	1	2	3	4	5	6	7
2.	Belonging to a heterogeneous team can be the recipe for success.	1	2	3	4	5	6	7
3.	I think that teams work better if the elements that compose them are similar to each other.	1	2	3	4	5	6	7
4.	I believe that the teams perform better in the tasks if the elements that compose them are similar to each other.	1	2	3	4	5	6	7

8. Considering your team as a whole, indicate to what extent your team is heterogeneous in relation to each of the dimensions (from 0 to 100%).

Nationality	Very homogeneous	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	Very heterogeneous
Age		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Sexual orientation		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Educational Background		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	

9. The following questions refer to the way **you act as a team member**. Please use the following scale to answer:

Totally disagree	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Totally agree
1	2	3	4	5	6	7

1.	Proactively develop and make suggestions for issues that may influence the team.	1	2	3	4	5	6	7
2.	Proactively suggest new projects which are beneficial to the team	1	2	3	4	5	6	7
3.	Raise suggestions to improve the team's working procedure	1	2	3	4	5	6	7
4.	Proactively voice out constructive suggestions that help the team reach its goals.	1	2	3	4	5	6	7
5.	Make constructive suggestions to improve the team's operation	1	2	3	4	5	6	7

10. Think about **how team members work with each other**. Please continue to use the same rating scale.

1.	The group members contributed a lot of information during the group task	1	2	3	4	5	6	7
2.	The group members contributed unique information during the group task	1	2	3	4	5	6	7
3.	During the task, we tried to use all available information.	1	2	3	4	5	6	7

11. Think about the project your team is involved and in **the way team members work with each other**. Please indicate to what extent you agree or disagree with each statement. Continue to use the same rating scale:

1.	If you make a mistake on this team, it is often held against you.	1	2	3	4	5	6	7
2.	It is difficult to ask other members of this team for help	1	2	3	4	5	6	7
3.	It is safe to take a risk on this team.	1	2	3	4	5	6	7
4.	Team members don't tolerate each other's mistakes:	1	2	3	4	5	6	7
5.	No one on this team would deliberately act in a way that undermines my efforts.	1	2	3	4	5	6	7

12. Think about **your leader and his/her leadership behaviors**. Indicate to what extent you agree with each of the statements. Please use the same rating scale:

Cognitive Diversity and Team Creativity: KS and SI as moderators

Our team leader.....

1.	Encourages information exchange between members.	1	2	3	4	5	6	7
2.	Encourages openness in the discussion meetings	1	2	3	4	5	6	7
3.	Tells the team how events or situations the team is faced with should be interpreted	1	2	3	4	5	6	7
4.	Tells the team how to understand events or situations	1	2	3	4	5	6	7
5.	Explains the meaning of ambiguous events or situations to the team.	1	2	3	4	5	6	7
6.	Encourages members to share ideas with each others	1	2	3	4	5	6	7
7.	Is a role model for collaboration and knowledge exchange	1	2	3	4	5	6	7
12.	Encourages the team to collectively interpret things that happen to the team.	1	2	3	4	5	6	7
13.	Promotes team discussions about different perspectives of events or situations.	1	2	3	4	5	6	7
14.	Encourages team members to provide their individual viewpoint on events or situations.	1	2	3	4	5	6	7
15.	Promotes the development of a shared understanding of events or situations among the team member	1	2	3	4	5	6	7
16.	Encourages the team to collectively make sense of ambiguous situations.	1	2	3	4	5	6	7
18.	The leader changes the way the team interprets events or situations the team is faced with	1	2	3	4	5	6	7
19.	The leader alters the way the team thinks about events or situations the team is faced with..	1	2	3	4	5	6	7
20.	The leader modifies how the team thinks about events or situations the team is faced with..	1	2	3	4	5	6	7

13. Think about your **team leader's behavior**. Please use the following rating scale to answer.

Totally disagree	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Totally agree
1	2	3	4	5	6	7

1.	Encourages the team to be responsible for determining the methods, procedures, and schedules with which the work gets done	1	2	3	4	5	6	7
2.	Urges the team to make its own decisions regarding who does what tasks within the team	1	2	3	4	5	6	7
3.	Encourages the team to make most of its own work-related decisions	1	2	3	4	5	6	7
4.	Encourages the team to solve its own problems.	1	2	3	4	5	6	7
5.	Encourages the team to be responsible for its own affairs	1	2	3	4	5	6	7
6.	Encourages the team to assess its performance	1	2	3	4	5	6	7

14. Think now about the project and the **technological support** (e.g., intranet, email, knowledge storage and / or communication systems) that you have available. Continue to use the same scale

The technological support we have available:

1.	Allows us to work together regardless of time and location.	1	2	3	4	5	6	7
2.	Allows us to communicate effectively between team members	1	2	3	4	5	6	7
3.	Allows us to search and access information whenever necessary	1	2	3	4	5	6	7
4.	Allows us to store our work continuously	1	2	3	4	5	6	7
5.	It suits my team's daily tasks	1	2	3	4	5	6	7
6.	It is quite useful.	1	2	3	4	5	6	7

15. **Think about the members of your team**. Please continue to use the same rating scale.

1.	We know which team members have expertise in specific areas	1	2	3	4	5	6	7
2.	I do not have much faith in other members expertise"	1	2	3	4	5	6	7
3.	Team members are comfortable accepting procedural suggestions from other team members	1	2	3	4	5	6	7
4.	I trust on other team members knowledge about the project	1	2	3	4	5	6	7
5.	Our team has very few misunderstandings about what to do.							

16. Think about **the way your team works** and indicate to what extent you agree with each of the following statements. Please use the following scale:

ANNEX C – Letter explaining the study



À direção

Enquanto Coordenadora científica do Projeto “ConsulTeam”, gostaria de solicitar a vossa autorização para aplicar um questionário às equipas de consultores/ auditores da vossa empresa e assim como aos responsáveis diretos dessas equipas. Trata-se de um projecto de investigação levado a cabo por um grupo de investigadores do ISCTE-Instituto Universitário de Lisboa, focado na eficácia do trabalho em equipa em contexto de empresas de consultoria e auditoria. O principal objetivo deste projeto é identificar os fatores relacionados com trabalho em equipa que contribuem para a eficácia dos projetos realizados e para a satisfação quer dos clientes quer dos próprios consultores/ auditores.

Os questionários são distribuídos em papel por um dos membros da equipa de investigação e demora sensivelmente 15 minutos a preencher. O questionário do líder, de muito menor dimensão, demora cerca de 5 minutos a preencher. Aproveito para salientar que o nome da vossa empresa não será mencionado em qualquer documento.

Comprometemo-nos a disponibilizar no final do ano letivo, após a conclusão do estudo, um documento com as principais conclusões a todas as empresas participantes. Estou inteiramente ao dispor para responder a qualquer questão relacionada com este projecto e a aplicação dos questionários (ana.passos@iscte-iul.pt).

Com os melhores cumprimentos,

Ana Margarida Passos

Professora no Departamento de Recursos Humanos
e Comportamento Organizacional

Lisboa, 17 de abril de 2020