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**“You’re on Mute”: Can the Workplace Impact Creative  
Performance?**

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Dissertation written under the supervision of Professor João Pedro Niza Braga

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## **Abstract**

The ongoing pandemic times have most likely permanently changed the way we work. Our homes became our office, and we were now presented with the challenge of juggling professional and personal matters within the same space. Despite the unfortunate circumstances and innumerable challenges associated, it allows for a greater understanding of how working from home practices impact one's performance and general well-being. Can working from home actually foster creativity? As previous research suggests a strong link between spatial distance and enhanced creative performance (Jia, Hirt, & Karpen, 2009), this dissertation attempted to test if the same effect applied on an extremely relevant real-life context. As such, two different studies were conducted to compare performance on creative tasks between individuals at the office and at home and test distance as a mediator of this effect. In Study 1, participants were asked to imagine themselves either working from home or at the office while in Study 2, participants were directly tested while working from home or at the office. Although individuals at home displayed a significantly superior performance than those at the office on both studies, distance alone does not seem to be the reason why.

**Title:** "You're on Mute": Can the Workplace Impact Creative Performance?

**Author:** Sandra Meneses Caetano

**Keywords:** remote work, working from home, working at the office, creativity, creative performance, psychological distance, well-being

## Resumo

A situação pandémica em que nos encontramos provocou uma indiscutível mudança de paradigma no mundo do trabalho. As nossas casas transformaram-se em escritórios e fomos desafiados a gerir assuntos profissionais e pessoais a partir do mesmo espaço. Apesar dos infelizes contornos e inúmeros desafios associados a esta mudança, esta representa também uma oportunidade para percebermos melhor como é que o trabalho desde casa poderá afetar a performance e bem-estar. Poderão estas práticas promover a criatividade? Estudos prévios sugerem a ligação entre distância espacial e uma melhor performance criativa (Jia, Hirt, & Karpen, 2009). Esta dissertação ambiciona testar esse mesmo efeito num contexto real e muito relevante na atualidade. Como tal, foram realizados dois estudos de modo a comparar performance criativa entre indivíduos a trabalhar desde casa e no escritório, e testar a distância como possível mediador. No primeiro estudo, os participantes imaginavam-se a trabalhar desde casa ou no escritório, enquanto no segundo estudo, os participantes eram diretamente testados a trabalhar desde casa ou no escritório. Apesar dos indivíduos a trabalhar desde casa demonstrarem uma performance criativa superior à dos indivíduos a trabalhar no escritório, a distância não parece explicar o fenómeno de forma isolada.

**Título:** “Estás em Mute”: O Espaço de Trabalho Impacta a Performance Criativa?

**Autora:** Sandra Meneses Caetano

**Palavras-chave:** trabalho remoto, trabalhar desde casa, trabalhar no escritório, criatividade, performance criativa, distância psicológica, bem-estar

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*"Extraordinary talent, personality, and cognitive ability do not seem to be enough – it's the 'labor of love' aspect that determines creativity"*

*Amabile, 1986*

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## List of Abbreviations

CLT – Construal Level Theory  
CP – Creative Performance  
WFH – Work from Home  
WATO – Work at The Office  
ICT – Information and Communication Technologies

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# Chapter 1: Introduction

## Research Topic

“Creativity is crucial to what is it to be human.” (Chávez-Eakle, Eakle, & Cruz-Fuentes, 2012, p. 1). Creativity is undoubtedly one of the most relevant and sought-after constructs in recent times. In an ever fast-paced, dynamic, and competitive organizational context, creativity is undeniably crucial to the growth and performance of any organization (Mumford, Hester, & Robledo, 2012). Creativity is linked to innovation, which in turn leads to the creation of new businesses and provides a competitive edge for the existing ones (Ko & Butler, 2007). As such, managers are always seeking new and effective ways of fostering creativity in organizations. Although creativity has been long perceived as a mere personality trait (Simonton, 1991), extensive research shows that there are several ways of promoting creative insight (Besemer, 2010). Many creative thinkers themselves have recognized that the environment, for instance, may play a significant role in influencing creativity (McCoy & Evans, 2002) – If so, can the workplace impact creative performance? Can individuals actually be more creative when working from home rather than at the office? What theory may be related to such hypothesis? According to previous research, spatial distance may be labeled as a situational moderator of creativity. High-level construals – associated with a greater psychological distance, including physical or spatial distance – were linked to a superior creative performance in a series of tasks (Jia, Hirt, & Karpen, 2009). As such, it seems that there is a high chance of the same principle applying to what this dissertation proposes: as individuals may feel a greater distance and abstraction when working from home rather than when working at the office, they are expected to deliver a superior performance in tasks that require creative insight.

Recently, there has been a colossal diffusion of working from home (WFH) practices instigated by the current pandemic times we are living. Unprecedented times call for extraordinary measures, and as such, social distance requirements were enforced, and most workers started working remotely to reduce the impact of the COVID-19 pandemic. (Tønnessen, Dhir, & Flåten, 2021). Despite the unfortunate circumstances, the broad dissemination of WFH practices represents an optimal opportunity to understand how it may affect individuals’ overall performance and, more specifically, creative insight.

The central goal of this dissertation is to assess the impact of the workplace in creative performance, which will hopefully contribute to foster creativity in organizations in a more effective way – which seems especially relevant, when working from home is becoming the new normal.

## **Research Problem**

As formerly stated, the primary goal of this dissertation is to study the impact of the workplace – namely the differences in working from home vs. working at the office – on creative performance, as well as the hypothetical role of psychological distance in this effect. As such, the following research questions are proposed:

***RQ1: “Is creative performance impacted by the workplace – working from home vs. working at the office?”*** The first research question aims to understand whether the workplace – working from home vs. working at the office – can impact creative performance.

***RQ2: “How is creative performance impacted by the workplace – working from home vs. working at the office?”*** The second research question aims to measure and analyze the potential impact of the workplace – working from home vs. working at the office – on creative performance.

***RQ3: “Does psychological distance mediate the hypothetical effect of workplace on creative performance?”*** The third and final research question aims to evaluate if psychological distance as a mediating effect on the impact of the workplace on creative performance.

## **Dissertation Outline**

This dissertation is structured into five different chapters. The first one provides an overview of the study in which the relevance of the topic, problem statement and subsequent research questions are presented. The second chapter comprises a comprehensive literature review covering the most relevant topics for the development of the hypothesis. The third chapter meticulously describes the methodology used in the two studies conducted, including participants, materials, procedures, and design. The fourth chapter consists of a detailed analysis of the results obtained. Lastly, the fifth and final chapter presents a general discussion providing the main conclusions of this dissertation.

## Chapter 2: Literature Review

### 2.1. Creativity

As the first half of the twentieth century welcomed the second half, Guilford (1950) pointed out creativity as an extremely important attribute that was profoundly neglected as a research topic. In the following years, there was an evident increasing interest in creativity research propelled by the pioneer efforts of Guilford, yet the volume of work on the topic remained relatively marginal (Sternberg & Lubart, 1996). In more recent years, a healthy development of creativity as a research topic can be witnessed as the importance of the subject becomes ever more critical (Csikszentmihalyi & Wolfe, 2014).

Of all human activities, creativity is most certainly among the most relevant and pervasive of them all. Creativity is everywhere – the buildings people enter, the clothes they wear, the vehicles they drive, the music they listen to and the shows they attend – these are all exemplars of some form of creativity (Simonton, 2000). It is, without a doubt, one of the most valued constructs at both the individual and societal levels (Sternberg & Lubart, 1999).

Defining creativity is a more challenging of a task than it may appear at a first glance (Simonton, 1999). There is a broad range of approaches to the study of creativity and several perspectives available on the definition of the concept (Walia, 2019). Some authors perceive creativity as a trait (Eysenck H. , 1993); others understand it as a mental process (Smith, Ward, & Finke, 1995); while others approach it as an outcome (Amabile, 1983). The most consensual and widely known definition establishes creativity as the production of both novel and useful ideas (Stein, 1953) (Barron, 1955). The standard definition of creativity pinpoints two criteria as undoubtedly required: originality and effectiveness (Runco & Jaeger, 2012). Originality – also commonly labeled as novelty – refers to something that is unique or unusual; something that is not commonplace or conventional. Although originality is crucial for creativity, it is not sufficient by itself. To be truly creative, original things must be effective as well. (Prabhu, Sutton, & Sauser, 2008). “Originality is vital, but must be balanced with fit and appropriateness” (Runco, 1988, p. 4). Effectiveness – also frequently referred to as usefulness – concerns the fit or appropriateness to the problem or task that is being addressed (Kaufman & Baer, 2012). In addition to originality and usefulness, more criteria have been suggested for defining creativity such as value – which for some authors may be related to usefulness – or the surprise factor (Boden, 2004) (Bruner, 1962) also referred to as non-obviousness (Simonton, 2012).

## 2.2. Measuring Creative Performance

“Perhaps no psychological concept has proven to be as difficult to measure as creativity” (Hocevar, 1981, p. 1). Measuring creativity is yet another controversial research topic, as it is very difficult to reach consensus on the most proper way to do so. It is argued that because the concept of creativity is so loosely defined, it is very difficult to find an optimal measure of creativity (Geir, 2003).

To avoid the often-conflicting research on the subject, Plucker et al. (2004) suggests that all studies about creativity include a clear author’s perspective on the definition of creativity (Plucker, Beghetto, & Dow, 2004). Hocevar (1981) proposed a review on the ten distinct approaches available for measuring creativity: (i) divergent thinking tests, (ii) attitude and interest inventories, (iii) personality inventories, (iv) biographical inventories, (v) teacher nominations, (vi) peer nominations, (vii) supervisor ratings, (viii) judgements of products, (ix) eminence and, finally, (x) self-reported creative achievements. The first four methods mentioned can be categorized as psychometric tests, while the remaining six can be classified as expert opinion (El-Murad & West, 2004).

The initial developments on measuring creativity are extensively due to the efforts of both Guilford and Torrance, both solidified on divergent thinking as the basis of creativity (Guilford, 1959) (Torrance, 1961). Although the specifics (i.e., content and instructions) of different divergent thinking tests may vary, the categorization of responses persists very consistently (Plucker & Makel, 2010).

Guilford’s Alternate Uses Test and Structure of Intellect (SOI) are some of the first developments on testing divergent thinking. The tasks included can be distinguished for their prerequisite of a trial-and-error approach and flexible thinking. The Torrance Tests of Creative Thinking (TTCT) remain one of, if not the most vastly used methods of assessing creative performance to this date (Sternberg, 2006). The TTCT includes both figural and verbal subtests, with the purpose of assessing the four fundamental cognitive processes of creativity: (i) fluency – that translates to the number of responses generated by a stimuli; (ii) flexibility – that associates with the variety of categories covered by the respondents; (iii) originality – which relates to the uniqueness of the responses; and finally (iv) elaboration – that entails the extent of detail given in a response (Almeida, Prieto, Ferrando, & Oliveira, 2008). Although measuring creative performance will always remain a puzzling mission, it is imperative to highlight the great importance of the established measures and take advantage of those whose show clear evidence of practical soundness (Khatena, 1982).

### **2.3. Working From Home & Working at the Office**

The global outbreak of the COVID-19 pandemic is one of the most devastating crises of modern times with acute consequences for economies, organizations, and workers all over the world (Choudhury, Koo, & Li, 2020) (Margherita, Elia, & Klein, 2021). To mitigate the impact of the COVID-19 pandemic, unprecedented social distancing measures were enforced. As such, work from home (WFH) practices were vastly encouraged which has prompted a major paradigm shift in the world of work (Tønnessen, Dhir, & Flåten, 2021).

WFH – defined as working remotely from a non-office location, more specifically from home, commonly using information and communication technologies (ICT) – became the new normal. The COVID-19 pandemic forced us to rethink WFH practices not only as a short-term measure but rather as a long-term solution (Chi, Saldamlı, & Gursoy, 2021). The sudden and large-scale shift to WFH caused by the COVID-19 pandemic can be seen as an opportunity to learn more about how working from home really affects individuals, their work performance and general well-being. Understanding the impact of WFH on individuals can contribute to designing and implementing efficient WFH policies, leading organizations to greater success (George, Atwater, Maneethai, & Madera, 2021).

Prior to the COVID-19 pandemic, WFH had become an increasingly common practice in organizations all around the world (Anderson, Kaplan, & Vega, 2015). Research suggests that WFH presents innumerable benefits, such as increased flexibility, reduction in commuting, higher productivity, better work-life balance, reduced overheads for employer and increased skill base for employer. Nonetheless, WFH is also associated with a wide range of concerns namely social isolation, presenteeism, lack of support and blurring of work-life boundaries (Mann & Holdsworth, 2003).

Working at the office, on another hand, may encourage creative collaboration – fostered by the proximity with fellow workers – and may also promote some sense of healthy competitiveness that may consequently positively impact creative performance and the spark of new and disruptive ideas. Impression management consists of displaying a certain behavior with the objective of controlling or manipulating the impression caused on other individuals (Wayne & Kacmar, 1991). Thus, there is a high chance that the apparent added pressure of having colleagues and supervisors nearby may impact one's behavior, and consequently, their performance and creative insight.

## **2.4. Construal Level Theory & Psychological Distance**

Although individuals can only directly experience the here and now, they often dwell on the past, plan for the future, and consider other individuals' perspectives or alternatives to reality. According to the Construal Level Theory (CLT), individuals are capable of transcending the here and now by forming abstract mental construals of psychologically distal events (Trope & Liberman, 2010). CLT proposes that individuals represent psychological distant events with abstract mental models or high-level construals whereas psychological near events with concrete, low-level construals. In other words, individuals think more abstractly about distant events and more concretely about near events (Williams & Bargh, 2008). High-level construals encompass general and decontextualized features of events. Contrarily, low-level construals include concrete and contextualized features of events (Trope & Liberman, 2003).

There are four dimensions of psychological distance that have been fairly recognized: spatial distance, temporal distance, social distance and hypotheticality (Liberman, Trope, & Stephan, Psychological Distance, 2007). Research suggests that these different dimensions of psychological distance affect mental construals which consequently affects individuals' thoughts and behavior (Trope, Liberman, & Wakslak, 2007). "Construal Level Theory (CLT) is an account of how psychological distance influences individuals' thoughts and behaviors" (Trope, Liberman, & Wakslak, 2007, p. 1).

## **2.5. Psychological Distance & Creative Performance**

Previous research has proven that high-level construals enhance performance on a series of different tasks that require creative insight. This effect presumptively derives from the fact that high-level construals promote abstract thinking (Förster, Liberman, & Friedman, 2004). Subsequently, abstract thinking has been theorized to encourage creative cognition (Finke, 1995). In the prementioned study, Förster et al. (2004) successfully manipulated construals level solely by alternating temporal distance. Participants were asked to imagine themselves in a day from now or in a year from now and then to complete a task while imagining themselves in the assigned condition. Participants who were assigned to the high-level construals condition (i.e., those who were asked to imagine themselves a year from now) registered a better mental and visual insight, and were able to generate more creative answers.

As temporal distance is just one of the four dimensions of psychological distance, a few years later, Jia et al. (2009) investigated whether spatial distance could also be labeled as a situational moderator of creative performance. Spatial distance has been previously recognized as centrally

important as some authors believe that it is not a derivative of psychological distance, but very much the other way around (Williams & Bargh, 2008). Moreover, Williams et al. (2008) denotes spatial distance as one of the developmentally earliest concepts there are. In the prementioned study, participants were requested to complete a task and were either told beforehand that the task originated from a far or close location. Participants who were assigned to the high-level construals condition (i.e., those who were told that the task was originated from a far location) outperformed those who were assigned to the low-level construals condition (i.e., those who were given the information that the task originated from rather a close location) both in a category generation task and in a problem-solving task that required creative insight. Thus, it was concluded that manipulating individuals' spatial distance from a specific task by altering its perceived origin has a noticeable impact on creative performance (Jia, Hirt, & Karpen, 2009).

## **Summary and Hypothesis Development**

The first topic of this comprehensive literature review covered the definition of creativity and highlighted its undeniable relevance both at an individual or organizational level nowadays. Subsequently, the following topic concerned the controversial measurement of creative performance. The third topic analyzed the evolution of WFH practices, more recently propelled by the current pandemic times, and gathered its main benefits and drawbacks. Then, the fourth topic presents the Construal Level Theory (CLT) as the main framework of theorizing about psychological distance. Finally, the last topic reviews previous research on how psychological distance affects creative performance. After carefully binding all the prementioned topics, it was possible to propose the following research hypothesis:

### ***H1: Working from home rather than at the office positively impacts creative performance***

The first hypothesis proposes that working from home rather than at the office promotes creative performance. To test our first hypothesis, it is necessary to compare creative performance between those who work from home from those who work at the office.

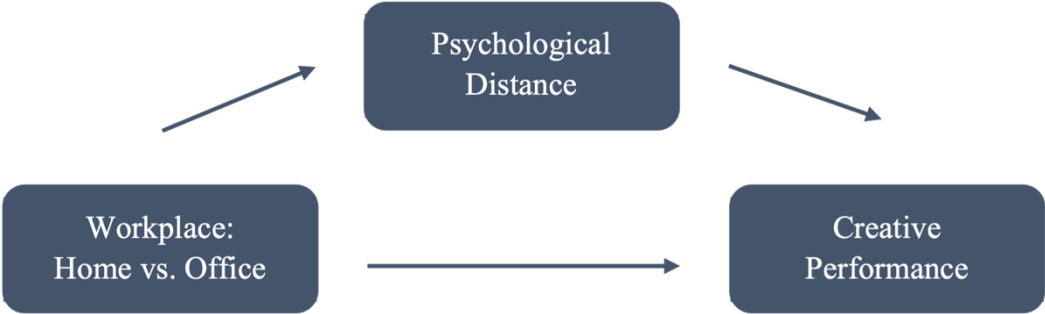
### ***H2: The perceived distance from the office mediates this hypothetical effect***

The second hypothesis proposes that the greater the perceived distance from the office is, the better individuals will perform on tasks that require creative insight. This hypothetical effect is linked to psychological distance and the high-level construals associated with greater spatial

distance (i.e., a distant condition rather than a near one), which have been proven to enhance creative insight.

### Conceptual Framework

The following conceptual framework synthetizes the hypothesis developed which were based on the comprehensive literature review previously presented:



*Figure 1 - Conceptual Framework*

## Chapter 3: Methodology

In this section, the research methods used in this dissertation are rigorously described. To analyze the hypothetical impact of the workplace on creative performance, two distinct studies were conducted. The first study consists of a scenario-based survey with a larger number of participants whereas the second one consists of a field-work survey with a smaller pool of participants.

### 3.1. Study 1

Participants completed a scenario-based survey in which they had to complete a creative task and answer some general questions about how they felt while imagining themselves working from home or at the office. Participants were randomly assigned to one of the two conditions under analysis.

#### 3.1.1. Participants

All participants were volunteers and recruited via social networks or messaging platforms (such as LinkedIn, Facebook, WhatsApp) as this was found to be an effective method to gather answers in the limited time frame. Participants were also encouraged to share the survey to collect an even greater number of answers – resorting to the snowball technique. The described data collection method resulted in a total of 259 answers gathered. After excluding unfinished or invalid answers, there was a total of 190 valid answers. Regarding demographics, 69.47% of the participants are female and 30.53% are male. The average age of the respondents is approximately 30 years old ( $M = 30.42$ ;  $SD = 11.77$ ). Nearly two thirds of the participants are aged between 20 and 30 years old. As it would be expected, the vast majority of participants (92.11%) currently resides in Portugal. Most participants (51.05%) hold a bachelor's degree ( $Mo =$  Bachelor's degree). Regarding occupation, 42.63% are employed, 27.89% are students, 16.32% are working students, 7.89% are self-employed and 2.11% are currently unemployed.

#### 3.1.2. Research Materials

##### Independent Variables

**Workplace.** Workplace was manipulated by asking participants to imagine themselves either working from home or working at the office. Participants were provided with an image and

brief description to help them to picture themselves in one of the two scenarios intended. If asked to imagine themselves working from home, participants were presented the following description: “Please imagine yourself working from home. You are sitting at a table. There you can find your laptop, a notepad, a pen, and a coffee mug. Your colleagues are working from their homes as well and you communicate with them online. There is a plenty of natural light in. Take your time and really try to picture yourself there.”. If asked to imagine themselves working at the office, participants were presented the following description: “Please imagine yourself working at the office. You are sitting at a desk. There you can find a laptop, a monitor, basic office supplies (post-its, pens, pencils, clips) and a cup of coffee. You can hear your colleagues chatting in the background. There is a plenty of natural light in. Take your time and really try to picture yourself there.”. Each description was paired with an image illustrating the scenario described. Both images can be found below.



Figure 2 - Working From Home



Figure 3 - Working At The Office

## Dependent Variables

***Creative Performance.*** To measure creative performance, participants were asked to complete a category generation task, generating as many modes of transportation as they possibly could. Similar tasks have been vastly used in literature to evaluate cognitive flexibility and divergent thinking as they can assess creative cognition on dimensions of *fluency*, *originality*, and *flexibility* (Jia, Hirt, & Karpen, 2009), the last of which was not investigated in this study. Furthermore, there is no significant correlation between the scores on identical tests and intelligence or skill level, preventing potential drawbacks of other creativity tasks that may require domain-specific skills or knowledge (Hirt, Devers, & McCrea, 2008). For all the reasons mentioned, a category generation task seemed very suitable to test our predictions on the impact of the workplace on creative performance. Creative performance was then measured accounting for the dimensions of fluency and originality. Fluency was appraised by counting the number of modes of transportation listed by each participant. To assess originality, all modes of

transportation generated were catalogued and noted for their uniqueness. Responses that were not considered valid were previously discarded.

**Work Experience.** Participants were asked to indicate if they had any work experience at all. In case they did, they were also requested to share if they had any prior or current experience working from home.

**Personal Preference.** To check if personal preference between working from home or at the office interfered with their performance, participants stated their preference on a scale from 1 to 7 (1 = “definitely from home”; 7 = “definitely at the office”).

**Perceived Distance.** Whether asked to imagine themselves working from home or at the office, participants were asked to indicate how distant they felt from the office on a scale from 1 to 7 (1 = “not distant at all”; 7 = “extremely distant”).

**Condition Perception.** As distance was manipulated with the two conditions under analysis – home vs. office – other variables would be consequently manipulated as well. As such, participants were asked about they felt at the assigned condition. In a scale from 1 to 7, participants indicated how comfortable, safe, creative, productive, bored, happy, pressured to perform well, motivated, anxious, and relaxed they felt when imagining themselves at the assigned condition.

**Self-Assessment.** Participants stated their current mood, evaluated their performance and affection to the previous task, and shared how creative, curious, extrovert and sociable they consider themselves to be.

### **3.1.3. Procedure**

The survey was conducted in Qualtrics, a very commonly known online survey software. Participants were randomly assigned to one of the two existing conditions and requested to imagine themselves either working from home or at the office. For finer detail, the English version of the survey may be found in [Appendix A](#). The survey was structured in seven different blocks:

**Block 1: Introduction.** Participants were welcomed to the study and then briefed about its general scope and main objective. They were told that the estimated time to complete the survey would be approximately 5 to 10 minutes. The survey was available in two languages – English

and Portuguese. Participants were encouraged to complete the survey in the language they felt more comfortable with. Moreover, participants were informed that all answers would be collected anonymously and asked to answer all questions with utmost honesty. They would then be randomly assigned to one of the two conditions: working from home or working at the office.

**Block 2: WFH Experience and Personal Preference.** Subsequently, participants shared whether they had any work experience, any experience working from home and their personal preference between working from home or working at the office.

**Block 3: Condition WFH/WATO.** In this section, participants were randomly assigned to one of the two conditions under study. They were either requested to imagine themselves working from home or working at the office. As mentioned before, they were presented a brief description and a matching image to help them to really picture themselves in the scenario intended.

**Block 4: Creative Task.** Afterwards, participants were asked to generate as many modes of transportations as they possibly could. It was mentioned that there were no right or wrong answers and that answers could be as creative or commonplace as desired. Participants were encouraged to take as much time as needed to work through the task.

**Block 5: Condition Perception.** After completing the task, participants indicated how challenging was it to imagine themselves at the assigned condition and how they felt in terms of perceived distance from the office, and from their colleagues and supervisors, as well as in terms of comfort, creativity, safety, productivity, boredom, happiness, pressure to perform well, motivation, anxiety, and relaxation.

**Block 6: Self-Assessment.** In this section, participants stated their current mood and assessed their performance and affection to the previous task. In addition, participants shared their judgement on how creative, curious, sociable, and extroverted they consider themselves to be.

**Block 7: Demographics.** Finally, participants were requested to provide demographic data such as gender, age, country of residence, level of education and current occupation to control for their hypothetical effect on workplace on creative performance.

### 3.1.4. Design

The first survey was built according to a 2x1 between participant design. As previously mentioned, participants were asked to imagine themselves either working from home or at the office. They would then complete a task accessing creative performance and answer some general questions about how they felt about the completed task and their overall perception on the given condition.

Table 1 - Study 1 Design

	Home	Office
Creative Performance	(Creative Performance; Home)	(Creative Performance; Office)

## 3.2. Study 2

Although scenario-based research stands out for its convenience, it also presents some limitations. Interpretations may vary depending on each participants' past experiences and surrounding stimulus which may ultimately constrain the conclusions one may draw from the results. As such, a second study was conducted. This time, participants were in fact working from home or at the office. Those who completed the survey while working at the office, were all in the same office space assuring homogeneous stimulus.

### 3.2.1. Participants

All participants were recruited in person and agreed to participate in the survey voluntarily. Participants work at a large telecommunications company and are currently following a hybrid working model – working from home two days a week and at the office three days a week. Participants were divided in two distinct groups. Half of them answered the survey while working from home and the other half while working at the office. The described data collection method resulted in a total of 88 answers gathered. After eliminating unfinished or invalid answers, there were 61 answers left. 30 participants completed the survey while working at the office whereas 31 participants completed the survey while working from home. Concerning demographics, 63.93% of the participants are female and 36.07% are male. The average age is approximately 34 years old ( $M = 34.10$ ;  $SD = 9.02$ ). All participants currently reside in Portugal. Most participants (50.82%) hold a master's degree ( $Mo = \text{Master's degree}$ ). Regarding occupation, 93.44% are employed and the remaining 6.56% are working students.

### **3.2.2. Research Materials**

#### **Independent Variables**

*Workplace.* Participants were either working from home or at the office. There was no need of manipulating our independent variable. Participants were handed the survey that matched their condition. In both instances, they were requested to take a moment to connect with their surroundings.

#### **Dependent Variables**

*Creative Performance.* Apart from completing the exact same category generation task described in Study 1 ([3.1.2. Research Materials](#)), participants were given two minutes to complete each of the three insight problems they were presented. The insight problems included in the study comply with the criteria defined by Schooler et al. (1993) as they (i) are expected to be solved by the average problem solver; (ii) are likely to produce an impasse and uncertainty as to how to approach a solution; and (iii) have a high chance of producing an “aha” experience (Jia, Hirt, & Karpen, 2009).

*Perceived Distance.* Whether working from home or at the office, participants were asked to indicate how distant they felt from the office on a scale from 1 to 7 (1 = “not distant at all”; 7 = “extremely distant”).

*Condition Perception.* In a scale from 1 to 7, participants indicated how comfortable, safe, creative, productive, bored, happy, pressured to perform well, motivated, anxious, and relaxed they felt when working either from home or at the office.

*Self-Assessment.* Participants stated their mood, evaluated their performance and affection to the previous tasks, and shared how creative, curious, extrovert and sociable they consider themselves to be. They were also asked about the importance of conforming to social norms and belonging.

### **3.2.3. Procedure**

The second survey was also conducted on Qualtrics. For finer detail, the English version of the survey may be found in [Appendix B](#). The survey was structured in five different blocks:

*Block 1: Introduction.* Participants were presented a similar introduction to the one described in the first study. This time around, participants were told that they would be requested to

complete two different tasks and that the estimated time to complete the survey would be between 8 to 10 minutes.

**Block 2: Condition WFH/WATO & Creative Tasks.** In this section, participants were asked to take a moment to look around and connect with their surroundings. They would be reminded that they were either working from home or at the office, according to the condition that verified. They would then find the instructions to complete the category-generation task. Afterwards, participants were given 2 minutes to solve each of the three insight problems and asked to keep their answers brief.

**Block 3: Condition Perception.** After completing both tasks, participants answered the same questions listed in the fifth block of the first survey (3.1.3. Procedure). In addition, they were asked about having concerns conforming to social norms either while working from home or at the office.

**Block 4: Self-Assessment.** This section includes the same questions asked in the sixth block of the first survey. Additionally, participants indicated how important is to them to conform to social norms and the feeling of belonging.

**Block 5: Demographics.** Finally, participants were requested to provide demographic data such as gender, age, country of residence, level of education and current occupation to control for their hypothetical effect on workplace on creative performance.

**3.2.4. Design**

Just like the first survey conducted, the second one follows a 2x1 between participants design as well. This time around, participants were either working from home or at the office. They would then complete two distinct tasks accessing creative performance and answer some general questions about how they felt about the completed tasks and their overall perception of their workplace environment.

*Table 2 - Study 2 Design*

	Home	Office
Creative Performance	(Creative Performance; Home)	(Creative Performance; Office)

## Chapter 4: Results

In this section, the results obtained are thoroughly analyzed. The same statistical analysis was performed on both studies. First, to test the differences between the results found on both conditions, – working from home vs. working at the office – a series of independent sample t-tests were performed. Then, to evaluate the hypothetical mediating effect of perceived distance on creative performance, the PROCESS macro was used in SPSS (Hayes, 2013). Lastly, some variables other than perceived distance were analyzed as potential predictors of creative performance through linear regressions.

### 4.1. Study 1

#### Sample Characterization

Sample's demographical data is detailed in the previous chapter ([3.1.1. Participants](#)) and summarized in [Appendix C](#). Regarding gender, 69.47% of the participants are female and 30.53% are male. The average age is approximately 30 years old ( $M = 30.42$ ;  $SD = 11.77$ ). Most participants currently reside in Portugal (92.11%). More than half of the participants hold a bachelor's degree (51.01%). Regarding occupation, 42.63% are employed, 27.89% are students, 16.32% are working students, 7.89% are self-employed and 2.11% are currently unemployed. There were significant differences regarding prior or current work experience and WFH experience between the participants who were assigned to the two different conditions under analysis. Ideally, this would not verify. Study 2 tackles this issue by only having participants who have past work experience and working from home experience. However, there were no significant differences in preference between the two groups.

#### Creative Performance

**Fluency.** On average, participants who completed the category generation task while imagining themselves working from home were capable of listing more transportation modes ( $M = 10.09$ ;  $SD = 5.55$ ) than those who completed the task while imagining themselves working at the office ( $M = 8.81$ ;  $SD = 3.10$ ), meaning the first group outperformed the latter in terms of fluency – the number of responses generated given the stimuli. This difference, 1.27, BCa 95% CI [-0.01; 2.61], however, was not significant,  $t(145.20) = 1.95$ ;  $p = .053$ .

**Originality.** Similarly, participants who completed the task while imagining themselves working from home were able to produce more original modes of transportations ( $M = 1.49$ ;  $SD = 0.51$ ) than those who completed the task while imagining themselves working at the office ( $M = 1.33$ ;  $SD = 0.33$ ). This difference, 0.16, BCa 95% CI [0.03; 0.29], was significant,  $t(160.11) = 2.54$ ;  $p = .012$ .

**Category Generation Task Overall Performance.** Finally, participants who concluded the task while imagining themselves working from home registered, on average, a superior overall performance ( $M = 11.58$ ;  $SD = 5.98$ ) than those who were requested to imagine themselves working at the office ( $M = 10.15$ ;  $SD = 3.34$ ). This difference, 1.43, BCa 95% CI [0.71; 2.85], was also significant,  $t(145.13) = 2.03$ ;  $p = .044$ .

Table 3 - Study 1: Creative Performance (Independent Sample T-Tests)

	Condition	Mean $\pm$ SD	p-value
Fluency	Home	10.09 $\pm$ 5.55	.053 (Not significant)
	Office	8.81 $\pm$ 3.10	
Originality	Home	1.49 $\pm$ 0.51	.012 (Significant)
	Office	1.33 $\pm$ 0.33	
Overall Performance (Category Generation Task)	Home	11.58 $\pm$ 5.98	.044 (Significant)
	Office	10.15 $\pm$ 3.34	

### Perceived Distance

Participants who were requested to imagine themselves working from home reported a greater perceived distance from the office ( $M = 4.68$ ;  $SD = 1.72$ ) than those who were asked to imagine themselves working at the office ( $M = 3.68$ ;  $SD = 1.68$ ). This difference, 1.00, BCa 95% CI [0.49; 1.49], was verified to be statistically significant,  $t(188) = 4.06$ ;  $p < .001$ . The first group also reported to feel more distant from their colleagues and supervisors ( $M = 4.72$ ;  $SD = 1.46$ ) than the second group ( $M = 3.67$ ;  $SD = 1.81$ ). This difference, 1.05, BCa 95% CI [0.59; 1.47], was equally statistically significant,  $t(181.50) = 4.39$ ;  $p < .001$ .

Table 4 - Study 1: Perceived Distance (Independent Sample T-Tests)

	Condition	Mean $\pm$ SD	p-value
Perceived Distance	Home	4.68 $\pm$ 1.72	< .001

(Office)	Office	3.68 ± 1.68	(Significant)
Perceived Distance (Colleagues and Supervisors)	Home	4.72 ± 1.46	< .001
	Office	3.67 ± 1.81	(Significant)

The perceived distance from the office seems to significantly predict originality scores ( $\beta = 0.039$ ;  $p = .028$ ) and overall creative performance ( $\beta = 0.392$ ;  $p = .050$ ), but it does not seem to significantly predict fluency scores ( $\beta = 0.353$ ;  $p = .056$ ).

### Mediating Effect of Perceived Distance

As we have theoretical and empirical reasons – the significant difference between the two conditions observed – to analyze distance as a potential mediator, the PROCESS macro was used in SPSS (Hayes, 2013). All mediation models proposed are regarded more as exploratory analysis. In this mediation model, and considering the overall performance on the category generation task – both fluency and originality – as our creative performance variable, it is possible to observe a solid relationship between workplace and perceived distance ( $a_1 = -1.0038$ ;  $SE = 0.2472$ ;  $p < .001$ ), meaning that the perceived distance is expected to diminish when working at the office vs. when working from home. Consequently, a higher perceived distance is associated with a superior creative performance ( $b_1 = 0.3014$ ;  $SE = 0.3163$ ;  $p = .1455$ ), however this effect is not significant. Although not significant, working at the office rather than from home has a negative impact on creative performance ( $c_1 = -1.1291$ ;  $SE = 0.7287$ ;  $p = .1230$ ). Still, the indirect effect of distance on creative performance is not significant ( $\beta = -0.3026$ ; 95% CI [-0.77; 0.07]) as the bootstrapping interval crosses zero.

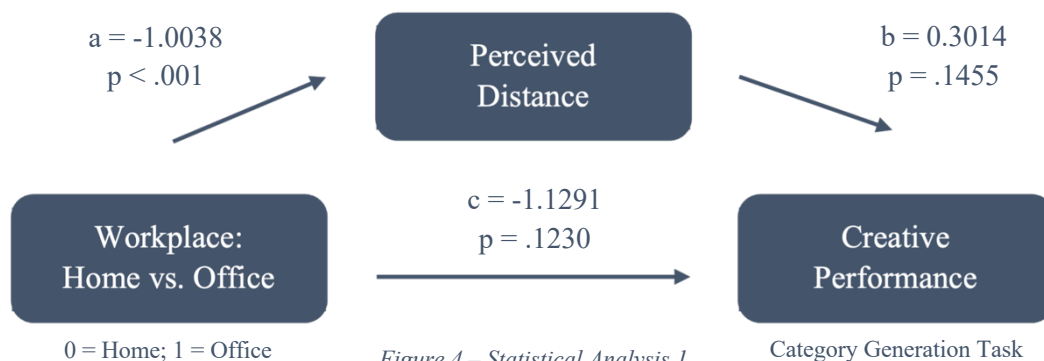


Figure 4 – Statistical Analysis 1

Table 5 - Statistical Analysis 1

Path	Variables	Coefficient	df	t	p-value
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a	Workplace → PD	-1.0038	188.00	-4.0614	< .001
b	PD → OCP	0.3014	188.00	1.4618	.1455
c	Workplace → OCP	-1.1291	188.00	-1.5494	.1230

PD = Perceived Distance; OCP = Overall Creative Performance (Category Generation Task)

### Condition Perception & Self-Assessment

**Comfort.** On average, participants who completed the survey while imagining themselves working from home feel more comfortable in the assigned condition ( $M = 5.74$ ;  $SD = 1.39$ ) than those who imagined themselves working at the office ( $M = 4.51$ ;  $SD = 1.34$ ). This difference, 1.23, BCa 95% CI [0.83; 1.59], was significant,  $t(188) = 6.24$ ;  $p < .001$ . Moreover, comfort seems to significantly predict creative performance ( $\beta = 0.582$ ;  $p = .014$ ).

**Creativity.** On average, participants who completed the survey while imagining themselves working from home feel more creative in the assigned condition ( $M = 4.67$ ;  $SD = 1.51$ ) than those who imagined themselves working at the office ( $M = 4.58$ ;  $SD = 1.30$ ). This difference, 0.09, BCa 95% CI [-0.31; 0.48], however, was not significant,  $t(188) = 0.42$ ;  $p = .672$ . In addition, feeling creative does not seem to significantly predict creative performance ( $\beta = 0.426$ ;  $p = .091$ ).

**Safety.** On average, participants who completed the survey while imagining themselves working from home feel safer in the assigned condition ( $M = 6.12$ ;  $SD = 1.18$ ) than those who imagined themselves working at the office ( $M = 5.38$ ;  $SD = 1.38$ ). This difference, 0.74, BCa 95% CI [0.36; 1.09], was significant,  $t(184.76) = 3.99$ ;  $p < .001$ . However, safety does not seem to significantly predict creative performance ( $\beta = 0.462$ ;  $p = .082$ ).

**Productivity.** On average, participants who completed the survey while imagining themselves working from home feel less productive in the assigned condition ( $M = 4.46$ ;  $SD = 1.60$ ) than those who imagined themselves working at the office ( $M = 5.16$ ;  $SD = 1.29$ ). This difference, -0.70, BCa 95% CI [-1.11; -0.29], was significant,  $t(178.59) = -3.31$ ;  $p = .001$ . However, feeling productive does not seem to significantly predict creative performance ( $\beta = 0.054$ ;  $p = .820$ ).

**Boredom.** On average, participants who completed the survey while imagining themselves working from home feel more bored in the assigned condition ( $M = 3.86$ ;  $SD = 1.71$ ) than those who imagined themselves working at the office ( $M = 3.51$ ;  $SD = 1.61$ ). This difference, 0.35,

BCa 95% CI [-0.09; 0.84], however, was not significant,  $t(188) = 1.46$ ;  $p = .147$ . Additionally, boredom does not seem to significantly predict creative performance ( $\beta = 0.061$ ;  $p = .773$ ).

**Happiness.** On average, participants who completed the survey while imagining themselves working from home feel happier in the assigned condition ( $M = 4.84$ ;  $SD = 1.31$ ) than those who imagined themselves working at the office ( $M = 4.63$ ;  $SD = 1.33$ ). This difference, 0.22, BCa 95% CI [-0.17; 0.59], however, was not significant,  $t(188) = 1.13$ ;  $p = .262$ . In addition, happiness does not seem to significantly predict creative performance ( $\beta = 0.207$ ;  $p = .441$ ).

**Pressure.** On average, participants who completed the survey while imagining themselves working from home feel less pressured to perform well or impress their colleagues and supervisors in the assigned condition ( $M = 4.00$ ;  $SD = 1.50$ ) than those who imagined themselves working at the office ( $M = 4.63$ ;  $SD = 1.66$ ). This difference, -0.63, BCa 95% CI [-1.08; -0.17], was significant,  $t(188) = -2.73$ ;  $p = .007$ . However, it does not seem to significantly predict creative performance ( $\beta = 0.087$ ;  $p = .693$ ).

**Concern.** On average, participants who completed the survey while imagining themselves working from home feel less concerned about what others may think about their work in the assigned condition ( $M = 4.10$ ;  $SD = 1.78$ ) than those who imagined themselves working at the office ( $M = 4.90$ ;  $SD = 1.77$ ). This difference, -0.80, BCa 95% CI [-1.30; -0.28], was significant,  $t(188) = -3.11$ ;  $p = .002$ . However, it does not seem to significantly predict creative performance ( $\beta = 0.266$ ;  $p = .174$ ).

**Judgement.** On average, participants who completed the survey while imagining themselves working from home don't feel that others might be judging their work in the assigned condition ( $M = 3.74$ ;  $SD = 1.77$ ) as much as those who imagined themselves working at the office ( $M = 4.76$ ;  $SD = 1.70$ ). This difference, -1.02, BCa 95% CI [-1.49; -0.53], was significant,  $t(188) = -4.04$ ;  $p < .001$ . However, it does not seem to significantly predict creative performance. However, it does not seem to significantly predict creative performance ( $\beta = 0.324$ ;  $p = .100$ ).

**Motivation.** On average, participants who completed the survey while imagining themselves working from home feel less motivated in the assigned condition ( $M = 4.36$ ;  $SD = 1.41$ ) than those who imagined themselves working at the office ( $M = 4.82$ ;  $SD = 1.27$ ). This difference, -0.46, BCa 95% CI [-0.86; -0.13], was significant,  $t(188) = -2.37$ ;  $p = .019$ . However, motivation does not seem to significantly predict creative performance ( $\beta = 0.088$ ;  $p = .737$ ).

**Anxiety.** On average, participants who completed the survey while imagining themselves working from home feel less anxious in the assigned condition ( $M = 2.85$ ;  $SD = 1.54$ ) than those who imagined themselves working at the office ( $M = 3.55$ ;  $SD = 1.60$ ). This difference,  $-0.70$ , BCa 95% CI  $[-1.20; -0.23]$ , was significant,  $t(188) = -3.08$ ;  $p = .002$ . However, anxiety does not seem to significantly predict creative performance ( $\beta = 0.202$ ;  $p = .361$ ).

**Relaxation.** On average, participants who completed the survey while imagining themselves working from home feel much more relaxed in the assigned condition ( $M = 5.33$ ;  $SD = 1.20$ ) than those who imagined themselves working at the office ( $M = 3.93$ ;  $SD = 1.33$ ). This difference,  $1.40$ , BCa 95% CI  $[1.03; 1.78]$ , was significant,  $t(188) = 7.61$ ;  $p < .001$ . However, relaxation does not seem to significantly predict creative performance ( $\beta = 0.105$ ;  $p = .668$ ).

**Mood.** On average, participants who completed the survey while imagining themselves working at the office reported a slightly better mood ( $M = 5.22$ ;  $SD = 1.11$ ) than those who imagined themselves working from home ( $M = 5.18$ ;  $SD = 1.03$ ). This difference,  $-0.04$ , BCa 95% CI  $[-0.36; 0.24]$ , however, was not significant,  $t(188) = -0.31$ ;  $p = .756$ . Additionally, mood does not seem to significantly predict creative performance ( $\beta = 0.126$ ;  $p = .704$ ).

**Affection.** On average, participants who completed the survey while imagining themselves working from home reported an inferior affection to the task ( $M = 4.76$ ;  $SD = 1.73$ ) than those who imagined themselves working at the office ( $M = 4.93$ ;  $SD = 1.74$ ). This difference,  $-0.17$ , BCa 95% CI  $[-0.66; 0.33]$ , was significant,  $t(188) = -0.68$ ;  $p = .495$ . However, the affection to the task does not seem to significantly predict creative performance ( $\beta = -0.129$ ;  $p = .530$ ).

Table 6 - Study 1: Condition Perception (Independent Sample T-Tests)

	Condition	Mean $\pm$ SD	p-value
Comfort	Home	5.74 $\pm$ 1.39	< .001 (Significant)
	Office	4.51 $\pm$ 1.34	
Creativity	Home	4.67 $\pm$ 1.51	.672 (Not significant)
	Office	4.58 $\pm$ 1.30	
Safety	Home	6.12 $\pm$ 1.18	< .001 (Significant)
	Office	5.38 $\pm$ 1.38	
Productivity	Home	4.46 $\pm$ 1.60	.001 (Significant)
	Office	5.16 $\pm$ 1.29	
Boredom	Home	3.86 $\pm$ 1.71	.147

	Office	3.51 ± 1.61	(Not significant)
Happiness	Home	4.84 ± 1.31	.262
	Office	4.63 ± 1.33	(Not significant)
Pressure	Home	4.00 ± 1.50	.007
	Office	4.63 ± 1.66	(Significant)
Concern	Home	4.10 ± 1.78	.002
	Office	4.90 ± 1.77	(Significant)
Judgement	Home	3.74 ± 1.77	< .001
	Office	4.76 ± 1.70	(Significant)
Motivation	Home	4.36 ± 1.41	.019
	Office	4.82 ± 1.27	(Significant)
Anxiety	Home	2.85 ± 1.54	.002
	Office	3.55 ± 1.60	(Significant)
Relaxation	Home	5.33 ± 1.20	< .001
	Office	3.93 ± 1.33	(Significant)
Mood	Home	5.18 ± 1.03	.756
	Office	5.22 ± 1.11	(Not significant)
Affection	Home	4.76 ± 1.73	.495
	Office	4.93 ± 1.74	(Not significant)

Note: Regarding all other control measures included in the *Self-Assessment* block, there were no significant differences between the two groups.

### Mediating Effect of Perceived Distance & Comfort

Since comfort displayed a significant difference between the two conditions under analysis and it seems it can significantly predict creative performance, a parallel mediation model was performed. As stated before, it is possible to observe a solid relationship between workplace and perceived distance ( $a_1 = -1.0038$ ;  $SE = 0.2472$ ;  $p < .001$ ), meaning that the perceived distance is expected to diminish when working at the office vs. when working from home. Consequently, a higher perceived distance is associated with a superior creative performance ( $b_1 = 0.4404$ ;  $SE = 0.2124$ ;  $p = .0395$ ). Similarly, comfort is expected to diminish when working at the office vs. when working from home ( $a_2 = -1.2342$ ;  $SE = 0.1979$ ;  $p < .001$ ). Subsequently, comfort is expected to have a positive impact on creative performance ( $b_2 = 0.6172$ ;  $SE = 0.2652$ ;  $p = .0210$ ). Although not significant, working at the office rather than from home has

a negative impact on creative performance ( $c = -0.2278$ ;  $SE = 0.8178$ ;  $p = .7808$ ). In this mediation model, the indirect effect of distance turns out to be significant ( $\beta = -0.4421$ ; 95% CI [-0.95; -0.04]) as is the indirect effect of comfort ( $\beta = -0.7617$ ; 95% CI [-1.48; -0.14]). as the bootstrapping intervals do not cross zero.

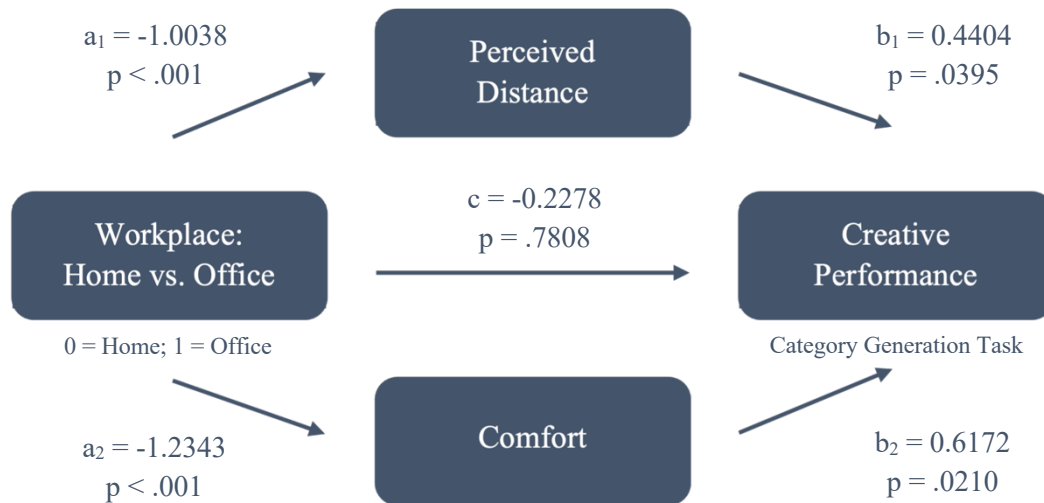


Figure 5 - Statistical Analysis 2

Table 7 - Statistical Analysis 2

Path	Variables	Coefficient	df	t	p-value
a <sub>1</sub>	Workplace → PD	-1.0038	188.00	-4.0614	< .001
a <sub>2</sub>	Workplace → Comfort	-1.2343	188.00	-6.2354	< .001
b <sub>1</sub>	PD → OCP	0.4404	188.00	2.0738	.0395
b <sub>2</sub>	Comfort → OCP	0.6172	188.00	2.3275	.0210
c	Workplace → OCP	-0.2278	188.00	-0.2786	.7808

PD = Perceived Distance; OCP = Overall Creative Performance (Category Generation Task)

## 4.2. Study 2

### Sample Characterization

Sample's demographical data is detailed in the previous chapter (3.2.1. Participants) and summarized in Appendix C. Concerning gender, 63.93% of the participants are female and 36.07% are male. The average age is approximately 34 years old ( $M = 34.10$ ;  $SD = 9.02$ ). All participants currently reside in Portugal. Most participants (50.82%) hold a master's degree

(*Mo* = Master's degree). Regarding occupation, 93.44% are employed and the remaining 6.56% are working students. As mentioned before, all participants currently work at a large telecommunications company and are working under a hybrid system. There were no significant differences on preference between participants who were assigned to the two different conditions under study.

## **Creative Performance**

### ***Fluency***

Just as in the first study, on average, participants who completed the category generation task while working from home were capable of listing more transportation modes ( $M = 12.58$ ;  $SD = 5.10$ ) than those who completed the task while working at the office ( $M = 8.10$ ;  $SD = 2.37$ ), meaning that the first group outperformed the latter in terms of fluency. This difference, 4.48, BCa 95% CI [2.65; 6.52], was statistically significant,  $t(42.68) = 4.43$ ;  $p < .001$ .

### ***Originality***

Participants who completed the same task while working from home produced more original modes of transportations ( $M = 1.62$ ;  $SD = 0.54$ ) than those who completed the task while working at the office ( $M = 1.26$ ;  $SD = 0.26$ ). This difference, 0.37, BCa 95% CI [0.16; 0.56], was proven to be statistically significant,  $t(43.48) = 3.41$ ;  $p = .001$ .

### ***Category Generation Task Overall Performance***

Participants who concluded the category generation task while working from home registered, on average, a superior overall performance ( $M = 14.20$ ;  $SD = 5.56$ ) than those who were requested to complete the task while working at the office ( $M = 9.36$ ;  $SD = 2.54$ ). This difference, 4.85, BCa 95% CI [2.89; 7.07], was also proven to be statistically significant,  $t(42.28) = 4.40$ ;  $p < .001$ .

### ***Insight Problem Overall Performance***

Participants who completed the second task while working from home were far more successful at solving all three insight problems ( $M = 0.59$ ;  $SD = 0.32$ ) than those who completed it while working at the office ( $M = 0.36$ ;  $SD = 0.28$ ). This difference, 0.23, BCa 95% CI [0.08; 0.38], was statistically significant,  $t(59) = 3.07$ ;  $p = .003$ . The insight problem overall score was calculated based on the combined average of score on all three insight problems.

Table 8 - Study 2: Creative Performance (Independent Sample T-Tests)

	Condition	Mean ± SD	p-value
Fluency	Home	12.58 ± 5.10	< .001 (Significant)
	Office	8.10 ± 2.37	
Originality	Home	1.62 ± 0.54	.001 (Significant)
	Office	1.26 ± 0.05	
Overall Performance (Category Generation Task)	Home	14.20 ± 5.56	< .001 (Significant)
	Office	9.36 ± 2.54	
Insight Problem 1	Home	0.52 ± 0.51	.047 (Significant)
	Office	1.27 ± 0.45	
Insight Problem 2	Home	0.45 ± 0.51	.228 (Not significant)
	Office	0.30 ± 0.47	
Insight Problem 3	Home	0.81 ± 0.40	.012 (Significant)
	Office	0.50 ± 0.51	
Overall Performance (Insight Problem Task)	Home	0.59 ± 0.32	.003 (Significant)
	Office	0.36 ± 0.28	

### Perceived Distance

Participants who were working from home reported a greater perceived distance from the office ( $M = 3.87$ ;  $SD = 1.59$ ) than those who working at the office ( $M = 2.53$ ;  $SD = 2.00$ ). This difference, 1.34, BCa 95% CI [0.46; 2.20], was statistically significant,  $t(59) = 2.90$ ;  $p = .005$ . However, perceived distance does not seem to statistically predict creative performance in neither task (Category Generation Task:  $\beta = 0.605$ ;  $p = .071$  | Insight Problem Task:  $\beta = 0.033$ ;  $p = .131$ ).

Table 9 - Study 2: Perceived Distance (Independent Sample T-Tests)

	Condition	Mean ± SD	p-value
Perceived Distance (Office)	Home	3.87 ± 1.59	.005 (Significant)
	Office	2.53 ± 2.00	

### Mediating Effect of Perceived Distance

When considering the overall performance on the **category generation task** as our creative performance variable, it is possible to observe a solid relationship between workplace and

perceived distance ( $a_2 = -1.3376$ ;  $SE = 0.4607$ ;  $p = .0052$ ), meaning that the perceived distance is expected to diminish when working at the office vs. when working from home. Consequently, a higher perceived distance is associated with a superior creative performance ( $b_2 = 0.1742$ ;  $SE = 0.3163$ ;  $p = .5839$ ), however this effect is not significant. Working at the office rather than from home is linked with an inferior creative performance ( $c_2 = -4.6129$ ;  $SE = 1.1966$ ;  $p < .001$ ). Still, the indirect effect of distance is not significant ( $\beta = -0.2330$ ; 95% CI [-1.64; 0.71]) as the bootstrapping interval crosses zero.

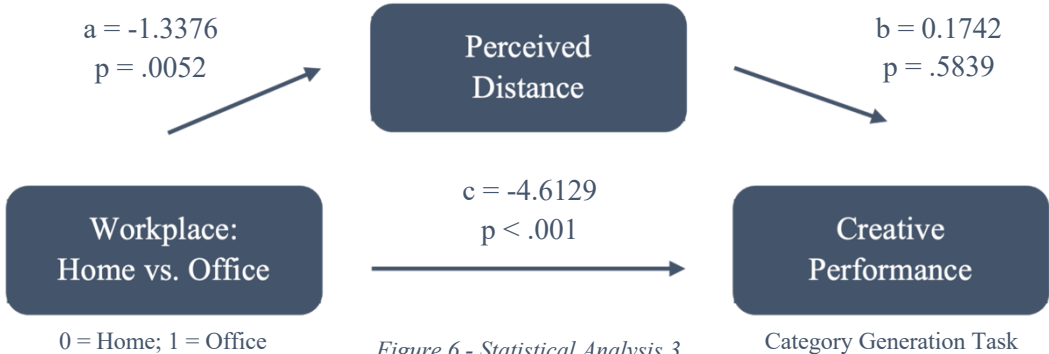


Table 10 - Statistical Analysis 3

Path	Variables	Coefficient	df	t	p-value
a	Workplace → PD	-1.3376	59.00	-2.9032	.0052
b	PD → OCP	0.1742	59.00	0.5507	.5839
c	Workplace → OCP	-4.6129	59.00	-3.8550	.0003

PD = Perceived Distance; OCP = Overall Creative Performance (Category Generation Task)

Similarly, when considering the overall performance on the **insight problem task** as our creative performance variable, a higher perceived distance is associated with a superior creative performance ( $b = 0.0123$ ;  $SE = 0.0218$ ;  $p = .5739$ ), but this effect is not significant. Working at the office rather than from home is linked with an inferior creative performance ( $c = -0.2194$ ;  $SE = 0.0825$ ;  $p = .0101$ ). However, the indirect effect of distance, although close from significance, is not significant ( $\beta = -0.0165$ ; 95% CI [-0.08; 0.03]) as the bootstrapping interval crosses zero.

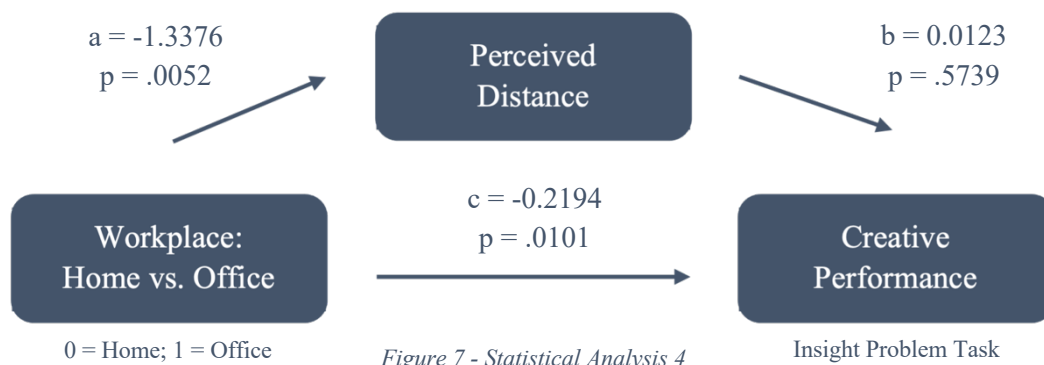


Table 11 - Statistical Analysis 4

Path	Variables	Coefficient	df	t	p-value
a	Workplace → PD	-1.3376	59.00	-2.9032	.0052
b	PD → OCP	0.0123	59.00	0.5655	.5739
c	Workplace → OCP	-0.2194	59.00	-2.6588	.0101

PD = Perceived Distance; OCP = Overall Creative Performance (Insight Problem Task)

## Condition Perception

**Comfort.** On average, participants who completed the survey while working from home feel more comfortable in the assigned condition ( $M = 5.97$ ;  $SD = 0.98$ ) than those who were working at the office ( $M = 4.47$ ;  $SD = 1.48$ ). This difference, 1.50, BCa 95% CI [0.86; 2.13], was significant,  $t(50.20) = 4.65$ ;  $p < .001$ . Moreover, comfort seems to significantly predict creativity scores on both the category generation task ( $\beta = 1.793$ ;  $p < .001$ ) and insight problem task ( $\beta = 0.058$ ;  $p = .040$ ).

**Creativity.** On average, participants who completed the survey while working from home feel more creative in the assigned condition ( $M = 5.13$ ;  $SD = 1.02$ ) than those who were working at the office ( $M = 4.50$ ;  $SD = 1.31$ ). This difference, 0.63, BCa 95% CI [0.34; 1.18], was significant,  $t(59) = 2.10$ ;  $p = .040$ . Feeling creative does not seem to significantly predict creativity scores on the insight problem task ( $\beta = 0.018$ ;  $p = .605$ ) but it seems to significantly predict creativity scores on the category generation task ( $\beta = 1.087$ ;  $p = .040$ ).

**Safety.** On average, participants who completed the survey while working from home feel safer in the assigned condition ( $M = 6.65$ ;  $SD = 0.55$ ) than those who working at the office ( $M = 4.80$ ;  $SD = 1.58$ ). This difference, 1.85, BCa 95% CI [1.28; 2.46], was significant,  $t(35.71) = 6.04$ ;  $p$

< .001. Safety seems to significantly predict creative scores on the category generation task ( $\beta = 1.512$ ;  $p < .001$ ) and insight problem task ( $\beta = 0.067$ ;  $p = .031$ ).

**Productivity.** On average, participants who completed the survey while working from home feel more productive in the assigned condition ( $M = 5.52$ ;  $SD = 1.31$ ) than those who were working at the office ( $M = 5.00$ ;  $SD = 1.51$ ). This difference, 0.52, BCa 95% CI [-0.21; 1.24], however, was not significant,  $t(59) = 1.43$ ;  $p = .159$ . Moreover, productivity does not seem to predict creative scores on either task ( $\beta = 0.376$ ;  $p = .485$ ;  $\beta = 0.014$ ;  $p = .643$ ).

**Boredom.** On average, participants who completed the survey while working from home feel more bored in the assigned condition ( $M = 3.74$ ;  $SD = 1.46$ ) than those who were working at the office ( $M = 3.27$ ;  $SD = 1.80$ ). This difference, 0.48, BCa 95% CI [-0.37; 1.27], however, was not significant,  $t(59) = 1.14$ ;  $p = .261$ . Additionally, it does not seem to predict creative scores in neither task ( $\beta = -0.301$ ;  $p = .450$ ;  $\beta = 0.008$ ;  $p = .775$ ).

**Happiness.** On average, participants who completed the survey while working from home feel happier in the assigned condition ( $M = 5.35$ ;  $SD = 1.08$ ) than those who were working at the office ( $M = 4.70$ ;  $SD = 1.44$ ). This difference, 0.65, BCa 95% CI [0.06; 1.31], was significant,  $t(59) = 2.01$ ;  $p = .049$ . However, happiness does not seem to significantly predict creative scores in neither task ( $\beta = 0.819$ ;  $p = .097$ ;  $\beta = 0.050$ ;  $p = .133$ ).

**Pressure.** On average, participants who completed the survey while working from home feel less pressured to perform well or impress their colleagues and supervisors in the assigned condition ( $M = 3.94$ ;  $SD = 1.59$ ) than those who were working at the office ( $M = 4.30$ ;  $SD = 1.60$ ). This difference, -0.36, BCa 95% CI [-1.17; 0.44], however, was not significant,  $t(59) = -0.89$ ;  $p = .376$ . Feeling pressured to perform well seems to significantly predict creative performance in the category generation task ( $\beta = -0.879$ ;  $p = .033$ ) but not in the problem insight task ( $\beta = -0.006$ ;  $p = .806$ ).

**Concern.** On average, participants who completed the survey while working from home feel slightly less concerned about what others may think about the output of their work in the assigned condition ( $M = 4.45$ ;  $SD = 1.73$ ) than those who were working at the office ( $M = 4.57$ ;  $SD = 1.79$ ). This difference, -0.12, BCa 95% CI [-0.98; 0.77], however, was not significant,  $t(59) = -0.26$ ;  $p = .800$ . Moreover, it does not seem to predict creative performance in neither task ( $\beta = -0.177$ ;  $p = .629$ ;  $\beta = 0.018$ ;  $p = .534$ ).

**Judgement.** On average, participants who completed the survey while working from home don't feel that others may be judging the quality of their work in the assigned condition ( $M = 3.83$ ;  $SD = 1.71$ ) as much as those who were working at the office ( $M = 4.30$ ;  $SD = 1.76$ ). This difference,  $-0.46$ , BCa 95% CI  $[-1.29; 0.43]$ , however, was not significant,  $t(59) = -1.04$ ;  $p = .305$ . Moreover, it does not seem to significantly predict creative performance in neither task ( $\beta = -0.337$ ;  $p = .425$ ;  $\beta = -0.018$ ;  $p = .531$ ).

**Motivation.** On average, participants who completed the survey while working from home feel more motivated in the assigned condition ( $M = 5.23$ ;  $SD = 1.20$ ) than those working at the office ( $M = 4.87$ ;  $SD = 1.46$ ). This difference,  $0.36$ , BCa 95% CI  $[-0.28; 1.02]$ , however, was not significant,  $t(59) = 1.05$ ;  $p = .297$ . Motivation does not seem to significantly predict creative performance in neither task ( $\beta = 0.796$ ;  $p = .138$ ;  $\beta = 0.028$ ;  $p = .375$ ).

**Anxiety.** On average, participants who completed the survey while working from home feel less anxious in the assigned condition ( $M = 2.94$ ;  $SD = 1.36$ ) than those working at the office ( $M = 3.60$ ;  $SD = 1.92$ ). This difference,  $-0.66$ , BCa 95% CI  $[-1.46; 0.22]$ , however, was not significant,  $t(52.18) = -1.55$ ;  $p = .127$ . Moreover, it does not seem to significantly predict creative performance in neither task ( $\beta = 0.815$ ;  $p = .051$ ;  $\beta = -0.003$ ;  $p = .886$ ).

**Relaxation.** On average, participants who completed the survey while working from home feel much more relaxed in the assigned condition ( $M = 5.16$ ;  $SD = 1.04$ ) than those working at the office ( $M = 3.53$ ;  $SD = 1.43$ ). This difference,  $1.63$ , BCa 95% CI  $[1.04; 2.23]$ , was significant,  $t(52.74) = 5.07$ ;  $p < .001$ . Moreover, relaxation seems to significantly predict creative performance on both tasks ( $\beta = 1.730$ ;  $p = .001$ ;  $\beta = 0.077$ ;  $p = .004$ ).

**Social Norms.** On average, participants who completed the survey while working from home feel less pressured to conform to social norms in the assigned condition ( $M = 3.45$ ;  $SD = 1.41$ ) than those working at the office ( $M = 5.20$ ;  $SD = 1.61$ ). This difference,  $-1.75$ , BCa 95% CI  $[-2.48; -0.98]$ , was significant,  $t(59) = -4.52$ ;  $p < .001$ . Although it seems to predict creative performance on the category generation task ( $\beta = -0.737$ ;  $p = .036$ ), it does not seem to predict it on the insight problem task ( $\beta = -0.022$ ;  $p = .448$ ).

**Mood.** On average, participants who completed the survey while working from home feel better in the assigned condition ( $M = 5.71$ ;  $SD = 0.82$ ) than those working at the office ( $M = 4.93$ ;  $SD = 1.36$ ). This difference,  $0.78$ , BCa 95% CI  $[0.23; 1.34]$ , was significant,  $t(59) = 2.702$ ;  $p =$

.009. Mood seems to significantly predict creative performance on the category generation task ( $\beta = 1.207$ ;  $p = .040$ ), but not on the insight problem task ( $\beta = 0.030$ ;  $p = .373$ ).

**Affection.** On average, participants who completed the survey while working from home show a greater affection to the task ( $M = 5.39$ ;  $SD = 1.09$ ) than those working at the office ( $M = 4.73$ ;  $SD = 1.57$ ). This difference, 0.65, BCa 95% CI [-0.02; 1.28], however, was not significant,  $t(51.33) = 1.882$ ;  $p = .065$ . The affection to the task does not seem to significantly predict creative scores on neither task ( $\beta = 0.660$ ;  $p = .122$ ;  $\beta = 0.022$ ;  $p = .436$ ).

Table 12 - Study 2: Condition Perception (Independent Sample T-Tests)

	Condition	Mean $\pm$ SD	p-value
Comfort	Home	5.97 $\pm$ 0.98	< .001 (Significant)
	Office	4.47 $\pm$ 1.48	
Creativity	Home	5.13 $\pm$ 1.02	.040 (Significant)
	Office	4.50 $\pm$ 1.31	
Safety	Home	6.65 $\pm$ 0.55	< .001 (Significant)
	Office	4.80 $\pm$ 1.58	
Productivity	Home	5.52 $\pm$ 1.31	.159 (Not significant)
	Office	5.00 $\pm$ 1.51	
Boredom	Home	3.74 $\pm$ 1.46	.261 (Not significant)
	Office	3.27 $\pm$ 1.80	
Happiness	Home	5.35 $\pm$ 1.08	.049 (Significant)
	Office	4.70 $\pm$ 1.44	
Pressure	Home	3.94 $\pm$ 1.59	.376 (Not significant)
	Office	4.30 $\pm$ 1.60	
Concern	Home	4.45 $\pm$ 1.73	.800 (Not significant)
	Office	4.57 $\pm$ 1.79	
Judgements	Home	3.83 $\pm$ 1.71	.305 (Not significant)
	Office	4.30 $\pm$ 1.76	
Motivation	Home	5.23 $\pm$ 1.20	.297 (Not significant)
	Office	4.87 $\pm$ 1.46	
Anxiety	Home	2.94 $\pm$ 1.36	.127 (Not significant)
	Office	3.60 $\pm$ 1.92	
Relaxation	Home	5.16 $\pm$ 1.04	< .001 (Significant)
	Office	3.53 $\pm$ 1.43	

Social Norms	Home	3.45 ± 1.41	< .001 (Significant)
	Office	5.27 ± 1.61	
Mood	Home	5.71 ± 0.82	.009 (Significant)
	Office	4.93 ± 1.36	
Affection	Home	5.39 ± 1.09	.065 (Not significant)
	Office	4.73 ± 1.57	

**Note:** All other control measures included in the *Self-Assessment* block reported no significant differences between the two groups with the exception of the performance self-assessment: participants who were working from home felt they performed better on both creative tasks ( $M = 5.35$ ;  $SD = 1.36$ ) than those who were working at the office ( $M = 4.47$ ;  $SD = 1.17$ ). This difference, 0.88, BCa 95% CI [0.24; 1.54], was significant,  $t(59) = 2.74$ ;  $p = .008$ .

### Mediating Effect: Category Generation Task

#### Perceived Distance, Comfort, Creativity, Safety, Relaxation & Mood

For purely exploratory analysis purposes, a parallel mediation model with perceived distance and all variables that verified statistically significant differences between the two conditions – working from home vs. at the office – and seem to significantly predict creative scores on the category generation task was performed. The indirect effect of all variables included in this mediation model, with the exception of comfort were not significant (*Perceived Distance*:  $\beta = -0.3152$ ; 95% CI [-1.98; 0.74] | *Comfort*:  $\beta = -1.8070$ ; 95% CI [-3.89; -0.06] | *Creativity*:  $\beta = -0.2318$ ; 95% CI [-0.60; 1.09] | *Safety*:  $\beta = 0.3370$ ; 95% CI [-1.39; 2.63] | *Relaxation*:  $\beta = -1.0682$ ; 95% CI [-3.49; 0.64] | *Mood*:  $\beta = -0.0664$ ; 95% CI [-1.29; 0.75]) as all bootstrapping intervals cross zero excluding the one for comfort. However, the total indirect effect of this model is significant ( $\beta = -2.6879$ ; 95% CI [-5.74; -0.66]), as the bootstrapping interval does not cross zero.

### Mediating Effect: Insight Problem Task

#### Perceived Distance, Comfort, Safety & Relaxation

Similarly, the variables that displayed significant differences between the two conditions under study and seem to significantly predict creative scores on the insight problem task were included in a parallel mediation model. The indirect effect of all variables included in this mediation model, appraised individually, were not significant (*Perceived Distance*:  $\beta = -0.0140$ ; 95% CI [-0.08; 0.05] | *Comfort*:  $\beta = 0.0272$ ; 95% CI [-0.11; 0.20] | *Safety*:  $\beta = -0.0383$ ; 95% CI [-0.20;

0.12] | **Relaxation:**  $\beta = -0.0791$ ; 95% CI [-0.23; 0.05]) as the bootstrapping intervals cross zero. Consequently, the total indirect effect of this model is not significant ( $\beta = -0.1043$ ; 95% CI [-0.26; 0.03]), as the bootstrapping interval crosses zero.

## Chapter 5: General Discussion

This final chapter discusses the results obtained and presents the main conclusions that were drawn from both studies. It also points out some limitations and suggestions for future research.

### 5.1. Main Findings

As previously stated, the main goal of this dissertation is to analyze the impact of the workplace – working from home vs. working at the office – on creative performance and to understand what factors may explain it. Based on past research, it was hypothesized that working from home rather than at the office has a positive impact on creative performance and that psychological distance – i.e., the perceived spatial distance from the office on both studies conducted – may influence this effect.

#### *H1: Working from home rather than at the office promotes creative performance*

In order to test the first hypothesis proposed, we compared the creative scores obtained between the participants who were assigned to the two different conditions under analysis – working from home vs. working at the office. Across different creative measures and manipulations of the workplace, working from home seems to enhance creative performance, corroborating with the first hypothesis proposed.

**Study 1.** In the first study, participants who were asked to imagine themselves working from home were capable of listing a greater number and more original modes of transportation than those who were requested to imagine themselves working at the office. Even though the differences in fluency between the two groups were not statistically significant, the differences in originality and overall performance in the category generation task were indeed statistically significant, backing the first hypothesis proposed.

**Study 2.** As it seems there is no single and optimal way of measuring creativity, but a vast range of valid methods is available, the second study included a second task that also required creative insight. In the category generation task – the same performed in the first study – participants who were working from home displayed a significantly superior performance in terms of both fluency and originality and therefore on the overall performance than those who completed the task while working at the office. Similarly, in the insight problem task, participants who were working from home outperformed those who were working at the office in the three insight problems. All three problems with the exception of the second one showed statistically significant differences between the two groups. The overall performance of the second task was obtained by calculating the average of all three problems for each participant. Participants who

completed the task while working from home registered a significantly superior performance in this second task than those who completed it while working at the office. As the first group outperformed the latter on both tasks, the results obtained in the second study conducted corroborate with the ones found in the first study, further supporting our hypothesis. In light of the results attained, it seems that working from home does in fact promote creative performance.

***H2: The perceived spatial distance from the office influences this hypothetical effect***

Having found that the workplace may indeed impact creative performance, and that working from home rather than at the office seems to have a boosting effect on creativity, the only next logical step is attempting to understand why that may be. Previous research has found that a greater spatial distance affects one's creative performance, building on the effect of psychological distance on creative cognition and emphasizing the relevance of such slight hints of spatial distance in predicting performance on tasks that require creative insight. As such, it was hypothesized that a greater perceived distance from the office – which is ultimately the source of the tasks proposed to our participants – may be linked to a superior performance on creative tasks.

***Study 1.*** In the first study, there were statistically significant differences in the perceived distance from the office between the participants who were asked to imagine themselves working from home and the ones who were asked to imagine themselves working at the office. As predicted, the first group reported a greater perceived distance than the second one. Moreover, the perceived distance to the office seems to be a significant predictor of creative performance. As such, to test our second hypothesis, we evaluated perceived distance as a mediator. The mediating model was, however, not significant.

***Study 2.*** In the second study, there were also significant differences concerning perceived distance from the office between the two conditions. Those who were working from home reported a greater perceived distance than those working at the office. Nonetheless, distance does not seem to significantly predict creative scores in neither task in this second study. Still, distance was evaluated as a possible mediator for the two tasks, however, both mediating models were not significant.

In light of the results obtained, we cannot significantly link a greater perceived spatial distance with a superior creative performance and thus reject our second hypothesis.

### **Additional Exploratory Analysis**

Subsequently, we evaluated potential predictors of creative performance through linear regressions for both studies conducted. We then included those which were found to significantly predict creative performance and registered significant differences between the two conditions to a parallel mediation model.

***Study 1.*** In the first study, comfort was the only variable that verified significant differences between the two groups and seemed to significantly predict creative scores on the category generation task. As such, a parallel mediation model was designed contemplating both perceived distance and comfort as mediators. The mediation model was significant. Moreover, the indirect effect of perceived distance turns out to be significant when comfort is added.

In light of the results obtained, it seems that comfort seems to play a fundamental role in creative performance, at least in the context in which was evaluated – working from home vs. working at the office – and therefore, should be accounted for in future research.

***Study 2.*** In the second study, comfort, safety, pressure to perform well, relaxation and mood seem to account for significant differences between the two conditions and to significantly predict creative scores on the category generation task. As such, we included perceived distance and all prementioned variables in a parallel mediation model. The mediation model proved to be significant. Similarly, comfort, safety, and relaxation verified significant differences between the two conditions and seem to significantly predict creative scores on the insight problem task. Similarly, perceived distance and the three variables just mentioned were included in a parallel mediation model. This mediation model, however, was not significant.

## **5.2. Contributions**

This dissertation provides valuable insights on how the workplace may impact creative performance and presents strong evidence that working from home rather than at the office enhances performance on tasks that require creative insight. In both studies conducted, those who completed the creative tasks from home outperformed those who completed the same tasks at the office. This finding seems especially relevant nowadays with the large-scale shift to remote work propelled by the current pandemic times. The present research not only attempts to investigate a somewhat neglected topic until recently, – working from home – but it also extends the literature on the effect of slight hints of psychological distance on creative performance. Despite the unfortunate lack of evidence found concerning distance as a mediator of creative performance, it is my belief that future research should further investigate the topic

and corroborate these findings. Due to the scarcity of research on working from home practices, it is possible to not have accounted for some other factors that may majorly influence the impact of workplace on creative performance.

Adopting a managerial standpoint, and being creativity one of the most sought-after and highly valued skills in an ever-competitive organizational context, it is crucial to understand what practices may inhibit and foster creative performance. As working from home seems to enhance creative performance, it is important to understand why that may be in order to foster creativity in organizations. In a post-pandemic scenario, organizations must rethink WFH not just as a short-time contingency measure but rather as a long-term solution (Chi, Saldamli, & Gursoy, 2021) capable of boosting performance and general well-being. Furthermore, as it was possible to establish a seemingly strong link between comfort and creative performance, this should be further investigated and serve as a basis for organizations to develop and implement measures that enhance comfort both at the office and at home, thus potentially boosting creative performance.

### **5.3. Limitations and Future Research**

The present dissertation has hopefully contributed to a greater understanding of how the workplace may impact creative performance and how psychological distance may or may not influence this effect. Notwithstanding, there are some inherent limitations that must be addressed.

One of the limitations concerns the sample size and its diversity. In the first study conducted, there was a total of 190 valid answers. In the second study, there was a total of 61 valid answers. Ideally, we would have collected a larger number of responses as both studies could benefit from a larger sample. Furthermore, both samples were not very gender diverse: more than two thirds of the participants were females. A more diverse sample would expand the reliability of results. Moreover, the fact that both surveys were conducted online may pose some concerns: participants may have not answered in full disclosure and honesty or taken the appropriate time to reflect on their answers. Furthermore, participants did not have the immediate chance to clarify potential doubts that may arose.

In the first study conducted, creative performance was measured based on a single task – idyllically, participants' creative performance would be assessed in more than one dimension. Even though the second study included a second different task, it would be interesting to ask

participants to complete a series of different tasks that require creative insight. This would further improve the reliability of results.

Although there is clear evidence that the workplace impacts creative performance, and as expected, working from home seems to have a boosting effect on creativity when compared to working at the office, it was not possible to link a greater perceived distance with a superior creative performance in this context as hypothesized. As previously suggested, due to the lack of previous research on the impact of working from home on one's performance and well-being, we may have not accounted for other variables that may significantly influence this effect. For future research, it would be suggested to investigate possible moderators of the relationship between the workplace and creative performance such as comfort, for instance, which has proven to predict creative performance and varies significantly between the office and at home. It also seems fair to note that while manipulating distance with the two different conditions analyzed in this research – home vs. office – other variables are also being manipulated, such as the presence of other individuals. Future research should definitely account for the activation of social norms – as significant differences between the two groups were verified – potential stress associated with the presence or absence of others and collaborative vs. competitive mindsets.

Regardless of the findings that were reached, the present dissertation should (i) serve as a basis for future research on how the workplace may impact one's performance and well-being; (ii) promote future research on WFH practices; and (iii) shed some light on the practical relevance of creativity for organizations and the importance of understanding what practices may foster or dilute creative performance.

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## Appendices

### Appendix A: Survey – Study 1

#### Start of Block 1: *Introduction*

Dear participant,

Firstly, I would like to thank you for taking the time to participate in this survey. Your participation is greatly appreciated! This survey is being conducted as part of my master's dissertation. Its main purpose is to analyze the impact of the workplace (office vs. home) on creative performance. You will be asked to answer some questions and to complete a task. The estimated time to complete this survey is between 5 to 10 minutes. This survey is available in two languages – English and Portuguese. Please choose the language you feel most comfortable with on the upper right corner. All answers will be collected anonymously. I kindly ask you to answer all questions with utmost honesty.

If you have any doubts or wish to know more about this study, please contact me:

s-smcaetano@ucp.pt

**Thank you for your collaboration!**

Sandra Caetano

#### End of Block 1: *Introduction*

#### Start of Block 2: *WFH Experience and Personal Preference*

**Q1)** Do you have any work experience?

- Yes
- No

Skip To: End of Block If Do you have any work experience? = No

**Q2)** Have you ever worked from home?

- Yes, I work exclusively from home
- Yes, I sometimes work from home
- Yes, but I do not currently work from home
- No, I never worked from home

Skip To: End of Block If Have you ever worked from home? = No, I have never worked from home

**Q3)** Do you prefer working from home or at the office?

	1	2	3	4	5	6	7	
Definitely from home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Definitely at the office

*End of Block 2: WFH Experience and Personal Preference*

*Start of Block 3: Condition WFH/WATO*

**Q4)** Please imagine yourself **working from home**. You are sitting at a table. There you can find your laptop, a notepad, a pen, and a coffee mug. Your colleagues are working from their homes as well and you communicate with them online. There is a plenty of natural light in. Take your time and really try to picture yourself there.

Or

**Q4)** Please imagine yourself **working at the office**. You can hear your colleagues chatting in the background. You are sitting at a desk. There you can find a laptop, a monitor, basic office supplies (post-its, pens, pencils, clips) and a cup of coffee. There is a plenty of natural light in. Take your time and really try to picture yourself there.

*End of Block 3: Condition WFH/WATO*

*Start of Block 4: Creative Task*

**Q5)** As previously suggested, imagine that you are **working from home**. You are asked to complete a work-related task. Your colleagues will also be at their homes working on the same task as you. Please find the instructions to complete the task below.

Or

**Q5)** As previously suggested, imagine that you are **working at the office**. You are asked to complete a work-related task. Your colleagues at the office are nearby and will also be working on the same task as you. Please find the instructions to complete the task below.

**Q6)** Please list as many **modes of transportation** as you possibly can. There are no wrong or right answers. They can be as commonplace or as creative as you want. Take as much time as needed to work through this task.

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**End of Block 4: Creative Task**

**Start of Block 5: Condition Perception**

**Q7) How **challenging** was it to imagine yourself working from home?**

Or

**Q7) How **challenging** was it to imagine yourself working at the office?**

	1	2	3	4	5	6	7	
Not challenging at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely challenging

**Q8) When you imagine yourself working from home, how **distant** do you feel from the office?**

Or

**Q8) When you imagine yourself working at the office, how **distant** do you feel from the office?**

	1	2	3	4	5	6	7	
Not distant at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely distant

**Q9) When you imagine yourself working from home, how **distant** do you feel from your colleagues and supervisors?**

Or

**Q9) When you imagine yourself working at the office, how **distant** do you feel from your colleagues and supervisors?**

	1	2	3	4	5	6	7	
Not distant at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely distant

**Q10)** When you imagine yourself working from home, how **comfortable** do you feel?

Or

**Q10)** When you imagine yourself working at the office, how **comfortable** do you feel?

	1	2	3	4	5	6	7	
Not comfortable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely comfortable

**Q11)** When you imagine yourself working from home, how **creative** do you feel?

Or

**Q11)** When you imagine yourself working at the office, how **creative** do you feel?

	1	2	3	4	5	6	7	
Not creative at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely creative

**Q12)** When you imagine yourself working from home, how **safe** do you feel?

Or

**Q12)** When you imagine yourself working at the office, how **safe** do you feel?

	1	2	3	4	5	6	7	
Not safe at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely safe

**Q13)** When you imagine yourself working from home, how **productive** do you feel?

Or

**Q13)** When you imagine yourself working at the office, how **productive** do you feel?

	1	2	3	4	5	6	7	
Not productive at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely productive

**Q14)** When you imagine yourself working from home, how **bored** do you feel?

Or

**Q14)** When you imagine yourself working at the office, how **bored** do you feel?

	1	2	3	4	5	6	7	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Not bored at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely bored
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**Q15)** When you imagine yourself working from home, how **happy** do you feel?

Or

**Q15)** When you imagine yourself working at the office, how **happy** do you feel?

	1	2	3	4	5	6	7	
Not happy at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely happy

**Q16)** When you imagine yourself working from home, how **pressured** do you feel to perform well or impress your colleagues and supervisors?

Or

**Q16)** When you imagine yourself working at the office, how **pressured** do you feel to perform well or impress your colleagues and supervisors?

	1	2	3	4	5	6	7	
Not pressured at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely pressured

**Q17)** When you imagine yourself working from home, do you feel **concerned** about what others might think of your work?

Or

**Q17)** When you imagine yourself working at the office, do you feel **concerned** about what others might think of your work?

	1	2	3	4	5	6	7	
Not concerned at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely concerned

**Q18)** When you imagine yourself working from home, do you feel that your colleagues and supervisors might be **judging** your work?

Or

**Q18)** When you imagine yourself working at the office, do you feel that your colleagues and supervisors might be **judging** your work?

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Not at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Definitely
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**Q19)** When you imagine yourself working from home, how **motivated** do you feel?

Or

**Q19)** When you imagine yourself working at the office, how **motivated** do you feel?

	1	2	3	4	5	6	7	
Not motivated at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely motivated

**Q20)** When you imagine yourself working from home, how **anxious** do you feel?

Or

**Q20)** When you imagine yourself working at the office, how **anxious** do you feel?

	1	2	3	4	5	6	7	
Not relaxed at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely relaxed

**Q21)** When you imagine yourself working from home, how **relaxed** do you feel?

Or

**Q21)** When you imagine yourself working at the office, how **relaxed** do you feel?

	1	2	3	4	5	6	7	
Not relaxed at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely relaxed

**End of Block 5: Condition Perception**

**Start of Block 6: Self-Assessment**

**Q22)** How are you feeling right now?

	1	2	3	4	5	6	7	
Extremely bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely good

**Q23)** How well do you think you performed in the previous task?

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Extremely poorly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely well
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**Q24) How important was for you to perform well in the previous task?**

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Not important at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely important
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**Q25) Would you describe yourself as a **creative** person?**

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Not creative at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely creative
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**Q26) Do you consider yourself a **curious** person?**

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Not curious at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely curious
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**Q27) Are you an **introvert** or an **extrovert**?**

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Definitely an introvert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Definitely an extrovert
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**Q28) Do you consider yourself a **sociable** person?**

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Not sociable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely sociable
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**End of Block 7: *Self-Assessment***

**Start of Block 7: *Demographics***

**Q29) Please indicate your gender.**

- Male
- Female

- Non-binary
- I prefer not to say

**Q30)** Please indicate your age.

0    10    20    30    40    50    60    70    80    90    100

Age	^
-----	---

**Q31)** Please indicate your country of residence.

v	Afghanistan ... Zimbabwe
---	--------------------------

**Q32)** Please indicate your highest level of education.

- High school
- Bachelor's degree
- Post graduate
- Master's degree
- PhD
- Other

**Q33)** Please indicate your current occupation.

- Student
- Working student
- Employed
- Master's degree
- PhD
- Other

*End of Block 7: Demographics*

## **Appendix B: Survey – Study 2**

*Start of Block 1: Introduction*

Dear participant,

Firstly, I would like to thank you for taking the time to participate in this survey. Your participation is greatly appreciated! This survey is being conducted as part of my master's

dissertation. Its main purpose is to analyze the impact of the workplace (office vs. home) on creative performance. You will be asked to answer some questions and to complete two tasks. The estimated time to complete this survey is between 8 to 10 minutes. This survey is available in two languages – English and Portuguese. Please choose the language you feel most comfortable with on the upper right corner. All answers will be collected anonymously. I kindly ask you to answer all questions with utmost honesty.

If you have any doubts or wish to know more about this study, please contact me:

If you have any doubts or wish to know more about this study, please contact me:

s-smcaetano@ucp.pt

**Thank you for your collaboration!**

Sandra Caetano

*End of Block 1: Introduction*

*Start of Block 2: Condition WFH/WATO & Creative Tasks*

**Q1)** You are **working from home** in your usual home office setup. Please take a moment to look around and connect with your surroundings. Be fully aware of where you are right now and of what is happening. You will now be asked to complete 2 work-related tasks. Your colleagues will also be at their homes working on the same tasks as you. Please find the instructions to complete the first task below.

Or

**Q1)** You are **working at the office** in your usual office setup. Please take a moment to look around and connect with your surroundings. Be fully aware of where you are right now and of what is happening. You will now be asked to complete 2 work-related tasks. Your colleagues will be next to you at the office working on the same tasks as you. Please find the instructions to complete the first task below.

**Q2)** Please list as many **modes of transportation** as you possibly can. There are no wrong or right answers. They can be as commonplace or as creative as you want. Take as much time as needed to work through this task.

**Q3)** Now, we will move on to the second work-related task. In this task, you will have 2 minutes to solve each of the 3 insight problems. Please keep your answers short. I remind you that your colleagues will also be at their homes working on the same task as you.

Or

**Q3)** Now, we will move on to the second work-related task. In this task, you will have 2 minutes to solve each of the 3 insight problems. Please keep your answers short. I remind you that your colleagues at the office are also working on the same task as you.

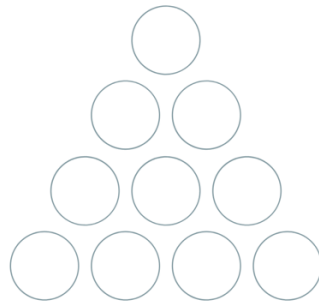
**Q4)** A prisoner was attempting to escape from a tower. He found a rope in his cell that was half as long enough to permit him to reach the ground safely. He divided the rope in half, tied the two parts together and escaped. **How could he have done this?**

---

**Q5)** A dealer in antique coins got an offer to buy a beautiful bronze coin. The coin had an emperor's head on one side and the date 544 B.C. stamped on the other. The dealer examined the coin but instead of buying it, he called the police. **Why?**

---

**Q6)** Explain **how** you can make the triangle below point downward by moving only 3 of the circles.



---

**End of Block 2: Condition WFH/WATO & Creative Tasks**

**Start of Block 3: Condition Perception**

**Q7)** When working from home, how **distant** do you feel from the office?

Or

**Q7)** When working at the office, how **distant** do you feel from the office?

	1	2	3	4	5	6	7
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Not distant at all		Extremely distant
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**Q8)** When working from home, how **comfortable** do you feel from the office?

Or

**Q8)** When working at the office, how **comfortable** do you feel from the office?

	1	2	3	4	5	6	7	
Not comfortable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely comfortable

**Q9)** When working from home, how **creative** do you feel from the office?

Or

**Q9)** When working at the office, how **creative** do you feel from the office?

	1	2	3	4	5	6	7	
Not creative at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely creative

**Q10)** When working from home, how **safe** do you feel from the office?

Or

**Q10)** When working at the office, how **safe** do you feel from the office?

	1	2	3	4	5	6	7	
Not safe at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely safe

**Q11)** When working from home, how **productive** do you feel from the office?

Or

**Q11)** When working at the office, how **productive** do you feel from the office?

	1	2	3	4	5	6	7	
Not productive at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely productive

**Q12)** When working from home, how **bored** do you feel from the office?

Or

**Q12)** When working at the office, how **bored** do you feel from the office?

	1	2	3	4	5	6	7	
Not bored at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely bored

**Q13)** When working from home, how **happy** do you feel from the office?

Or

**Q13)** When working at the office, how **happy** do you feel from the office?

	1	2	3	4	5	6	7	
Not happy at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely happy

**Q14)** When working from home, how **pressured** do you feel to perform well or impress your colleagues and supervisors?

Or

**Q14)** When working at the office, how **pressured** do you feel to perform well or impress your colleagues and supervisors?

	1	2	3	4	5	6	7	
Not pressured at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely pressured

**Q15)** When working from home, do you feel **concerned** about what others might think of your work output?

Or

**Q15)** When working at the office, do you feel **concerned** about what others might think of your work output?

	1	2	3	4	5	6	7	
Not concerned at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely concerned

**Q16)** When working from home, do you think that your colleagues and supervisors might be **judging** the quality of your work?

Or

**Q16)** When working at the office, do you think that your colleagues and supervisors might be **judging** the quality of your work?

	1	2	3	4	5	6	7	
Not at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Definitely

**Q17)** When working from home, how **motivated** do you feel?

Or

**Q17)** When working at the office, how **motivated** do you feel?

	1	2	3	4	5	6	7	
Not motivated at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely motivated

**Q18)** When working from home, how **anxious** do you feel?

Or

**Q18)** When working at the office, how **anxious** do you feel?

	1	2	3	4	5	6	7	
Not anxious at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely anxious

**Q19)** When working from home, how **relaxed** do you feel?

Or

**Q19)** When working at the office, how **relaxed** do you feel?

	1	2	3	4	5	6	7	
Not relaxed at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely relaxed

**Q20)** When working from home, do you have concerns conforming to **social norms**?

Or

**Q20)** When working at the office, do you have concerns conforming to **social norms**?

	1	2	3	4	5	6	7	
Not at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Definitely

End of Block 3: *Condition Perception*

Start of Block 4: *Self-Assessment*

Q21) How are you feeling right now?

	1	2	3	4	5	6	7	
Extremely bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely good

Q22) How well do you think you performed in the previous task?

	1	2	3	4	5	6	7	
Extremely poorly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely well

Q23) How important was for you to perform well in the previous task?

	1	2	3	4	5	6	7	
Not important at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely important

Q24) Do you prefer working from home or at the office?

	1	2	3	4	5	6	7	
Definitely from home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Definitely at the office

Q25) Would you describe yourself as a **creative** person?

	1	2	3	4	5	6	7	
Not creative at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely creative

Q26) Do you consider yourself a **curious** person?

	1	2	3	4	5	6	7	
Not curious at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely curious

**Q27) Are you an **introvert** or an **extrovert**?**

	1	2	3	4	5	6	7	
Definitely an introvert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Definitely an extrovert

**Q28) Do you consider yourself a **sociable** person?**

	1	2	3	4	5	6	7	
Not sociable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely sociable

**Q29) How important is for you to conform to social norms?**

	1	2	3	4	5	6	7	
Not important at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely important

**Q30) How important is for you to feel belonged?**

	1	2	3	4	5	6	7	
Not important at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely important

**End of Block 4: *Self-Assessment***

**Start of Block 5: *Demographics***

**Q31) Please indicate your gender.**

- Male
- Female
- Non-binary
- I prefer not to say

**Q32) Please indicate your age.**

	0	10	20	30	40	50	60	70	80	90	100
Age	^										

**Q33) Please indicate your country of residence.**

∨	Afghanistan ... Zimbabwe
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**Q34)** Please indicate your highest level of education.

- High school
- Bachelor's degree
- Post graduate
- Master's degree
- PhD
- Other

**Q35)** Please indicate your current occupation.

- Student
- Working student
- Employed
- Master's degree
- PhD
- Other

*End of Block 5: Demographics*

## Appendix C: Sample Demographical Data

	Study 1 (n = 190)		Study 2 (n = 61)	
	N	%	N	%
<b>Gender</b>				
Male	58	30.53%	22	36.07%
Female	132	69.47%	39	63.93%
Other	0	0.0%	0	0.0%
<b>Country of Residence</b>				
Portugal	175	92.11%	61	100.0%
Other	15	7.89%	0	0.0%
<b>Education</b>				
High school	29	15.26%	2	3.28%
Bachelor's degree	97	51.05%	20	32.79%
Post graduate	12	6.32%	7	11.48%
Master's degree	49	25.79%	31	50.82%

PhD	2	1.05%	0	0.0%
Other	1	0.53%	1	1.64%
<hr/>				
<b>Occupation</b>				
Student	53	27.89%	0	0.0%
Working student	31	16.32%	4	6.56%
Employed	81	42.63%	57	93.44%
Self-employed	15	7.89%	0	0.0%
Unemployed	4	2.11%	0	0.0%
Other	6	3.16%	0	0.0%
<hr/>				