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ARTICLE

Team experiential cognitive style and team performance: The moderating impact of workplace setting

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With an increasing need in organizations to come up with novel and useful ideas to renew and survive, team creativity has grown in importance to managers and researchers. As the cognitive resources of team members are the core input for team creativity, researchers increasingly look at team cognition in general and team cognitive styles in particular. In this research stream, the environmental context in which team members are embedded has received limited attention. We therefore experimentally test variation in the physical workplace environment and how it influences the relationship between team experiential cognitive styles and team creativity. Manipulating the nature of architectural elements in the room, we distinguish between a physical workplace with (i) experiential cues and (ii) rational cues. We also use a control condition where architectural elements are absent in the workplace environment. We rely on resource-matching theory to build our hypotheses. Using data of 75 student teams of a Dutch university, we find that the relationship between teams' experiential cognitive style and team creativity was positive in the control condition. This positive relationship became insignificant in the two conditions where experiential or rational cues were introduced. Theoretical and practical implications are discussed.

1 | INTRODUCTION

Given the increasing complexity of work in organizations, teams are increasingly used, resulting in a growing interest of researchers in studying team cognition and team performance (e.g., DeChurch & Mesmer-Magnus, 2010; Mathieu, Wolfson, & Park, 2018). Many studies have shown that team cognition, which describes the knowledge architecture of the team, is an important determinant of team performance (e.g., DeChurch & Mesmer-Magnus, 2010; Edwards, Day, Arthur, & Bell, 2006; Lim & Klein, 2006; Zhang, Hempel, Han, & Tjosvold, 2007). Research on team cognition has focused mainly on the content of knowledge in the team (e.g., Austin, 2003; DeChurch & Mesmer-Magnus, 2010; Mesmer-Magnus, Niler, Plummer, Larson, & DeChurch, 2017). Recently, some researchers have shifted attention to cognitive styles, i.e. the way people perceive, organize and process information, leading to a particular content of knowledge (Aggarwal & Woolley, 2019; Schilpzand & Martins, 2010).

Cognitive styles are important inputs for team creativity or team's ability to conduct a creativity task (i.e., to generate a wide variety of ideas on a specific task) (Aggarwal & Woolley, 2019; Rietzschel, De Dreu, & Nijstad, 2007). Previous research indeed found a direct impact of cognitive styles on team creativity (Norris & Epstein, 2011). Researchers also found some evidence that the relationship between cognitive styles and team creativity is mediated by team cognition (Aggarwal & Woolley, 2019). However, not much is known about the context in which cognitive styles may lead to team creativity, while probably the context is an important moderator (Maloney, Bresman, Zellmer-Bruhn, & Beaver, 2016).

In this study we address this gap, considering team cognitive style as an aggregate of the cognitive styles of the team members (de Visser, Faems, Visscher, & de Weerd-Nederhof, 2014; Post, 2012; Stewart, 2006). We focus on the experiential cognitive style of teams, reflecting team members' pooled preference in undisciplined thinking, in using divergent approaches to tasks and problem solving, and in having a holistic perspective (de Visser et al., 2014;

Epstein, 2003; Pacini & Epstein, 1999; Post, 2012). This cognitive style has been regularly used in team creativity research (e.g., Norris & Epstein, 2011). We study the relationship between team experiential cognitive style and team creativity and examine the moderating role of the physical working environment. We consider and compare three settings of the physical working environment: (1) a working environment with elements that are pleasant for people with high experiential cognitive style, (2) a working environment with elements that are pleasant for people with high rational cognitive style, and (3) a neutral working environment. We rely on resource-matching theory to develop hypotheses. This theory states that there is only efficient information processing when the cognitive resources available are equal to the resources required. In all other situations, there is a misfit, leading to impoverished information processing (Anand & Sternthal, 1989; Mantel & Kellaris, 2003). We test our hypotheses using data of 225 students of a Dutch university. These students are equally divided over the three conditions and work in teams of three people to perform a team creativity task.

Our study enriches team cognition literature in two ways. First, it shows that the physical environment matters (Maloney et al., 2016) and, in particular, that a 'rich' environment is not always beneficial for team creativity (Mitchell-McCoy, 2005). Moreover, we show that cognitive styles may influence team creativity, but not in each context. Second, we bring forward resource-matching theory as a viable alternative framework to theorize on the moderating impact of the physical workplace setting.

2 | TEAM COGNITION AND TEAM COGNITIVE STYLES

With the growth of team work in organizations, we also see an increasing interest of researchers in the study of team performance. Reviews (e.g., DeChurch & Mesmer-Magnus, 2010; Edwards et al., 2006; Lim & Klein, 2006; Zhang et al., 2007) show that team performance is predominantly determined by behavioural, motivational and cognitive processes within the team. Team cognition, the manner in which knowledge important to team functioning is mentally organized, represented and distributed within the team, has been found to strongly influence behavioural and motivational team processes and team performance (e.g., Austin, 2003; DeChurch & Mesmer-Magnus, 2010; Kozlowski & Ilgen, 2006; Mesmer-Magnus et al., 2017). Researchers have explored two particular aspects of team cognition: shared mental models—i.e., the common knowledge of team members—and transactive memory—i.e., the complementary knowledge of team members (Aggarwal & Woolley, 2019; DeChurch & Mesmer-Magnus, 2010). Both aspects have been found to be of importance to team performance (DeChurch & Mesmer-Magnus, 2010; Mesmer-Magnus et al., 2017). While a lot of research has focused on the content of knowledge within a team (e.g., Austin, 2003; DeChurch & Mesmer-Magnus, 2010; Mesmer-Magnus et al., 2017), researchers have recently shifted attention to the cognitive styles of team members, reflecting team members' processing of

information leading to common or complementary knowledge with a particular content (Aggarwal & Woolley, 2019; Schilpzand & Martins, 2010).

Cognitive styles are defined as the way people perceive, organize and process information (Pacini & Epstein, 1999). Within cognitive styles research, several dimensions have been identified: reflection vs. impulsivity (Kagan, 1958), verbalization vs. visualization (Aggarwal & Woolley, 2013, 2019), and experiential vs. rational (Epstein, 2003; Pacini & Epstein, 1999). For this study, we rely on the experiential-rational distinction. Experiential cognitive style refers to undisciplined thinking, divergent approaches to tasks and problem solving, and having a holistic perspective, while rational cognitive style concerns disciplined thinking, convergent approaches to tasks and problem solving, and having a relatively narrow perspective (Epstein, 2003; Pacini & Epstein, 1999).

In this study we consider cognitive style as a team variable. Team cognitive style reflects team members' pooled preferences in cognitive functioning, thus, the team's experiential and rational preferences in cognitive functioning which is supposed to increase with members' averaged preferences in each style (de Visser et al., 2014; Post, 2012; Stewart, 2006). In the language of LeBreton and Senter (2008), we consider team cognitive style as a compilation process instead of a composition process. This choice was driven by the nature of our theorizing, where we focus on the extent to which a team engages in experiential thinking instead of focusing on the heterogeneity of information processing within a team. Moreover, meta-analyses have shown that the relationship between the deep-level team variables and team performance is stronger when they are operationalized as a team mean instead of a diversity index (Bell, 2007; Stewart, 2006).

Previous research has shown a direct significant influence of team cognitive styles on team performance (Armstrong, Cools, & Sadler-Smith, 2012; Miron-Spektor, Erez, & Naveh, 2011; Norris & Epstein, 2011). Some scholars have further enriched our understanding of the team performance implications of team cognitive styles by considering particular mediators. Aggarwal and Woolley (2019), for instance, found a mediating role of transactive memory in the relationship between team cognitive style diversity and team creativity.

In this study, we shift attention to the potential moderating effect of the external context, an issue that is largely ignored in extant research (Maloney et al., 2016). In particular, we concentrate on the moderating role of the physical working environment on the relationship between the experiential cognitive style of teams and their creativity. We focus on team experiential cognitive style (instead of team rational cognitive style) as this particular style has been identified as the most prominent style in shaping team creativity (Dane & Pratt, 2009; de Visser et al., 2014). In the next section, we first introduce extant research on the physical environment. Then, we introduce our core theoretical framework (i.e., resource-matching theory) to clarify why we expect the physical environment to influence the relationship between team experiential cognitive style and team creativity.

3 | PHYSICAL ENVIRONMENT, TEAM COGNITIVE STYLES AND TEAM PERFORMANCE

3.1 | Physical environment

Environmental psychologists have paid extensive attention to the relationships between people and their physical environment (e.g., Sundstrom, Bell, Busby, & Asmus, 1996). More recently, the physical work environment also received some attention in the management domain (e.g., Elsbach & Pratt, 2007; Schippers, West, & Dawson, 2012). The physical environment of the office consists of at least five distinctive but interrelated components: spatial organization (size, shape and division of space), architectural details (aesthetics of the place, ornaments and materials to decorate the environment), views (outside view on a garden, or other buildings), resources (computers, telephones, food services) and ambient conditions (illumination, heating, acoustics) (Mitchell-McCoy, 2005).

The majority of studies examined the link between physical work environment and job satisfaction and job performance (e.g., Lee & Brand, 2005; Peters & O'Connor, 1980). The core results of this literature stream show that physical environment clearly impacts organizational action. However, it also shows that each choice has advantages and disadvantages, implying complex trade-offs (Elsbach & Pratt, 2007). Research from environmental psychology suggests, for instance, that it is positive for job satisfaction and job performance to give people some control over their work environment (lighting, temperature, customizable office arrangements). However, research also shows that this freedom to customize is not always used in the right way, sometimes leading to a lower satisfaction (Elsbach & Pratt, 2007). In a similar vein, personalization of the office gives people the opportunity to show their status (diplomas on the wall) and their distinctiveness (photos of being a parent, or an athlete), which again can have positive or negative consequences (Elsbach & Pratt, 2007).

In our study, we focus on a particular architectural feature of the physical environment, i.e., the ornaments and materials to decorate the environment. We decided to focus on architectural elements as first indications are present that variety in such elements can impact creativity. Researchers have found that the use of natural materials in interior design (vs. use of manufactured composites) increased the creative work potential and creative performance in the work space (Mitchell-McCoy & Evans, 2002). In a literature review, Mitchell-McCoy (2005, p. 184) concludes: "Architectural details can provide meaning and feedback to support the creative focus of the team, or they can offer distress and distraction." And "the physical environment cannot determine or predict creativity from a team. It may, however, support and enhance the team's capacity to be creative."

3.2 | Resource-matching theory

To theorize on how the physical environment can influence the relationship between team cognitive styles and team creativity, we rely on resource-matching theory (Anand & Sternthal, 1989; Mantel &

Kellaris, 2003). This theory is widely used in consumer research (e.g., ad processing, brand website attitudes). In resource-matching theory, it is hypothesized that information processing is most efficient when the required cognitive resources match the available cognitive resources (Martin, Sherrard, & Wentzel, 2005; Meyers-Levy & Peracchio, 1995). This hypothesis holds for high levels as well as low levels of cognitive resources required. This is called the 'fit' situation. Information processing efficiency is predicted to decline when there is a 'misfit', i.e. cognitive resources required exceed or fall short of the cognitive resources available. In the first condition, when the required cognitive resources exceed the available cognitive resources, it is quite natural to assume that this misfit will lead to impoverished information processing. People often fall back on heuristics to reduce the information that should be considered and processed, and they use these simplifying heuristics in decision-making, which may lead to errors. In the condition where available cognitive resources exceed the required cognitive resources needed, it is anticipated that people will employ the surplus resources to engage in cognitive elaboration of personal associations with the issue at hand, which will shift attention from the core information to peripheral information. In this way, the amount of core information that is used in the information processing decreases (Anand & Sternthal, 1989).

Relying on this theoretical perspective, we argue that a workplace setting may substantially impact the relationship between team experiential cognitive style and team creative performance. In this study, we consider and compare three settings with different architectural details: (i) experiential cue setting in which a photography book, a flyer about art, pens, and sheets of papers with drawings are positioned in the workplace, (ii) rational cue setting with a statistics book, a flyer about maths, pens, and sheets of papers with formulas, and (iii) neutral setting where none of these details are present. In the next section, we use the neutral setting as our baseline, hypothesizing a positive relationship between team experiential cognitive style and team creative performance. Subsequently, we theorize on how the presence of experiential/rational cues changes this relationship. We focus on two different mechanisms in this respect. First, we point to the congruency/incongruency of experiential/rational cues with the team creativity task and explain how such congruency/incongruency impacts the cognitive resources required. Second, we also explain how experiential/rational cues might distract the attention of the team members, which in-turn constrains the availability of the cognitive resources (Anand & Sternthal, 1989; Mantel & Kellaris, 2003). Bringing these two mechanisms together, we develop specific hypotheses on how experiential/rational cues change the relationship between experiential team cognitive styles and team creativity performance.

4 | HYPOTHESES

4.1 | Neutral, no cues condition

A creativity task requires a certain amount of cognitive resources to process information. In general, existing research on team cognitive

styles (CSs) (Armstrong et al., 2012; Epstein, 2003; Puccio, Treffinger, & Talbot, 1995) suggests that teams with a relatively high experiential CS are more likely to have the necessary cognitive resources available to perform such creativity task than teams with a relatively low experiential CS. In particular, teams with a relatively high experiential CS process information in a rapid, preconscious, automatic manner, and react according to their gut feelings and intuitions (Epstein, Lipson, Holstein, & Huh, 1992); they rapidly combine (or associate) information that has been implicitly stored in memory over long time periods with sensory information and without effortful thinking and intervention (Sowden, Pringle, & Gabora, 2015). Teams with a relatively high experiential CS therefore are more likely to experience a *fit* situation between the *cognitive resources required* to process information and the *cognitive resources available* to process information because *cognitive resources available* correspond with *cognitive resources required*.

At the same time, teams with a relatively low experiential CS are more likely to experience a *misfit* situation between the *required* and the *available cognitive resources* to process information because the *cognitive resources available* do not correspond, being at a lower level, with the *cognitive resources required* to process information (Figures 1 and 2). In sum, we expect that, for teams with a higher experiential CS, a fit situation is more likely to be present, which leads to more effective information processing, which in turn positively influences team creativity performance.¹

Hypothesis 1. *Team experiential CS has a positive impact on team's ability to conduct a creativity task when no cues (i.e., neither experiential cues nor rational cues) are present in an environment where such teams are working.*

4.2 | Experiential cues condition

When teams are working in a workplace setting with experiential cues, these cues are congruent with the creativity task and this *congruity* will imply effortless processing to comprehend the elements from the stimulus environment (Heckler & Childers, 1992; Mantel & Kellaris, 2003). This has implications for cognitive resources required. In particular, compared with a (neutral) workplace setting with no cues, we expect that experiential cues present within a workplace setting will

FIGURE 2 Illustration of our expectation: H1

only lead to a slight increase in *cognitive resources required* to process information because congruent items are easily comprehended and integrated with previous expectations (Heckler & Childers, 1992; Lee & Mason, 1999). When a painter, for instance, is visiting the studio of another painter, then items such as easels, brushes and canvasses may be easily identified. The painter builds on previous expectations and easily identifies the items as being congruent with his or her own knowledge repository. In other words, the painter engages in effortless processing (Heckler & Childers, 1992; Mantel & Kellaris, 2003) of the elements from the studio.

When teams with high experiential CS are working in a workplace setting with experiential cues, they are likely to experience the cues as *very pleasant* and they are likely to devote a lot of their attention to the source of pleasantness (Mantel & Kellaris, 2003). This has implications for the cognitive resources available. In particular, experiential cues are very distractive for teams with high experiential CS and, as such, experiential cues substantially constrain the availability of cognitive resources to process information. This implies that, in a workplace setting with experiential cues, teams with high experiential CS are likely to have *considerably lower cognitive resources available* to process information than in a setting where such cues are absent.

When teams with low experiential CS are working in a workplace setting with experiential cues, they are likely to experience the cues as *slightly pleasant* and they devote some of their attention to the source of pleasantness (Mantel & Kellaris, 2003). This again has implications for the cognitive resources available. In particular, experiential cues are slightly distractive for teams with low experiential CS and, as such, experiential cues slightly constrain the availability of cognitive resources to process information (Heckler & Childers, 1992; Mantel & Kellaris, 2003). Teams with low experiential CS, working in a workplace setting with experiential cues, will therefore have *slightly lower cognitive resources available* to process information than teams with low experiential CS working in a workplace setting where such cues are absent.

FIGURE 1 Fit and misfit situations for the baseline condition

This implies that, when an experiential cue is introduced, both teams with high experiential CS and low experiential CS are more likely to experience a *misfit* situation between the *cognitive resources required* to process information and the *cognitive resources available* to process information because the *cognitive resources available* are likely to be lower than the *cognitive resources required* to process information (Lee & Mason, 1999; Mantel & Kellaris, 2003). In comparison with a neutral workplace setting where cues are absent, teams are likely to experience an increase in cognitive resources required. In addition, teams with high experiential CS are likely to experience a considerable decrease in cognitive resources available, whereas teams with low experiential CS are likely to experience a slight decrease in available cognitive resources (Figures 3 and 4).

Overall, based on the above arguments and underlying mechanisms, we argue that, when teams are working in a workplace setting with experiential cues, team experiential CS has a weaker positive impact on team's ability to conduct a creativity task than when such teams are working in a neutral workplace setting. We thus expect:

Hypothesis 2. *Team experiential CS has a weaker impact on team's ability to conduct a creativity task when experiential cues are present in an environment where such teams are working than when no cues are present.*

4.3 | Rational cues condition

In comparison with a workplace setting with no cues, when teams are working in a workplace setting with rational cues, these cues are incongruent with the creativity task and this *incongruity* will require effortful processing to comprehend the elements from the stimulus environment. This has implications for the cognitive resources required. In particular, compared to a workplace setting with no cues, rational cues present within a workplace setting will lead to a considerable increase in *cognitive resources required* to process information because incongruent items are difficult to comprehend and integrate. In comparison with a workplace setting with no cues, substantially more retrieval of previous information is required and more and complex

FIGURE 4 Illustration of our expectation: H2

pathways are developed (Heckler & Childers, 1992; Lee & Mason, 1999). For instance, when a painter is visiting the laboratory of a physicist, items such as spherometers, screw gauges and ripple tanks may be identified with difficulty. The painter cannot build on previous expectations to easily identify the items as incongruent ones require more information retrieval. In other words, the painter engages in effortful processing (Heckler & Childers, 1992; Mantel & Kellaris, 2003) of the elements from the physics laboratory.

When teams with high experiential CS are working in a workplace setting with rational cues, they are likely to experience the cues as *very unpleasant* and they are likely to devote a lot of their attention to the source of unpleasantness (Anand & Sternthal, 1989; Mantel & Kellaris, 2003). This has implications for the cognitive resources available. In particular, rational cues are very distractive for teams with high experiential CS and, as such, rational cues substantially constrain the availability of cognitive resources to process information. This implies that, in a workplace setting with rational cues, teams with high experiential CS are likely to have *considerably lower cognitive resources available* to process information than in a setting where such cues are absent.

When teams with low experiential CS are working in a workplace setting with rational cues, they are likely to experience the cues as *slightly unpleasant* and they devote some of their attention to the source of unpleasantness (Anand & Sternthal, 1989; Heckler & Childers, 1992). This again has implications for the cognitive resources available. In particular, rational cues are slightly distractive for teams with low experiential CS and, as such, rational cues slightly constrain the availability of cognitive resources to process information. Teams with low experiential CS, working in a workplace setting with rational cues, will therefore have *slightly lower cognitive resources available* to process information than teams with low experiential CS working in a workplace setting where such cues are absent.

As such, in the presence of rational cues, a substantial *misfit* is likely to be present for teams with high experiential CS given the considerable increase in *cognitive resources required*. For teams with low

FIGURE 3 Misfit situations for the experiential-cue condition

experiential CS, the presence of rational cues will also considerably increase *cognitive resources required* and will slightly decrease *cognitive resources available* compared to the baseline no cue condition. This means that, in the presence of rational cues, the *misfit* between *cognitive resources required* and *cognitive resources available* will be larger than in the baseline no cue condition. At the same time, because *cognitive resources available* only slightly decrease for teams with low experiential CS, we expect that, in comparison with the baseline condition, the increase in *misfit* for teams with low experiential CS is less dramatic than for teams with high experiential CS (Figures 5 and 6).

Overall, based on the above arguments and underlying mechanisms, we argue that, when teams are working in a workplace setting with rational cues, team experiential CS will have a weaker impact on team's ability to conduct a creativity task than when such teams are working in a neutral workplace setting. We thus expect:

Hypothesis 3a. *Team experiential CS has a weaker impact on team's ability to conduct a creativity task when rational cues are present in an environment where such teams are working than when no cues are present.*

Situational cues or primes can automatically activate associated representations in memory, making them more accessible (Berger & Fitzsimons, 2008). In other words, priming a given construct leads to a spontaneous activation of *perceptually-related constructs* in memory (Berger & Fitzsimons, 2008; Chartrand & Bargh, 1996). As previously mentioned, teams with high experiential CS are more likely, compared to teams with low experiential CS, to process information in a rapid manner, combining (or associating) information that has been implicitly stored in memory (Pacini & Epstein, 1999).

Known to affect judgement/behaviour, direct exposure² to rational cues is very detrimental for teams with high experiential CS and slightly detrimental for teams with low experiential CS. Specifically, exposing teams with high experiential CS to rational cues will determine a spontaneous activation of *perceptually-unrelated constructs* in memory (Berger & Fitzsimons, 2008; Chartrand & Bargh, 1996).

FIGURE 5 Misfit situations for the rational-cue condition

FIGURE 6 Illustration of our expectation: H3a

The activation of *perceptually-unrelated constructs* in memory makes it very difficult for teams with high experiential CS to comprehend and integrate such constructs (Heckler & Childers, 1992; Lee & Mason, 1999); this will considerably diminish their *cognitive resources available* to process information. Exposing teams with low experiential CS to rational cues will also determine a spontaneous activation of *perceptually-unrelated constructs* in memory (Berger & Fitzsimons, 2008; Chartrand & Bargh, 1996). However, the activation of *perceptually-unrelated constructs* in memory makes it slightly difficult for teams with low experiential CS to comprehend and integrate such constructs (Heckler & Childers, 1992; Lee & Mason, 1999); this will slightly diminish their *cognitive resources available* to process information. Given these considerations, we argue that when teams with high experiential CS are exposed to rational cues, the *misfit* between the *cognitive resources available* and the *cognitive resources required* is more dramatic than in the presence of experiential cues (Anand & Sternthal, 1989). When teams with low experiential CS are exposed to rational cues, the *misfit* is even larger than in the experiential-cues condition. We therefore argue that the slope of the relationship between team experiential CS and team's ability to conduct a creativity task will be smaller in the presence of rational cues than in the presence of experiential cues (Figure 6).

Overall, a spontaneous activation of *perceptually-unrelated constructs* in memory (Berger & Fitzsimons, 2008; Chartrand & Bargh, 1996) comes in contradiction with the experiential CS as the natural way of information processing of teams; for teams with high experiential CS, this diminishes considerably their *cognitive resources available*, while for teams with low experiential CS there is a slight diminution of *cognitive resources available*. We thus expect:

Hypothesis 3b. *The slope of the relationship between team experiential CS and team's ability to conduct a creativity task will be smaller in the presence of rational cues than in the presence of experiential cues.*

5 | METHOD

To test our hypotheses, we designed and conducted one laboratory experiment. We randomly distributed 75 three-member teams to three conditions, assessing teams' ability to execute a creativity task in (i) the absence of any environmental cues (neutral workplace), (ii) the presence of experiential cues, and (iii) the presence of rational cues.

5.1 | Participants and design

We used a sample of 225 bachelor and (pre-)masters students from a Dutch university in our research. All students were from the Economics and Business Faculty. They were used to conduct short-term team work. In almost all of their courses, they have to make assignments in continuously changing teams of three to five students. In this way, they had some experience in dealing with team members to carry out a short-term task (Espinosa & Ortinau, 2016). The sample consisted of 103 females and 122 males, the mean age was 21.35 years with $SD = 2.96$ and a range between 17 and 37. They participated for either course credits (two credits) or money (€4). We randomly distributed the students in 75 three-member teams for our three-condition experiment. Specifically, using similar lab rooms (), we manipulated the physical environment and created three experimental conditions: (1) an experiential-cues condition (i.e., using a flipchart with a drawing on it; a photography book; a flyer about art; pens; sheets of paper with drawings, on a table); (2) a rational-cues condition (i.e., using a flipchart with formulas on it; a statistics book; a flyer about maths; pens; sheets of paper with formulas, on a table); (3) a no-cues condition (i.e., none of the above-mentioned cues present).

5.2 | Procedure

We used Qualtrics, the web-based survey software. By means of a short online questionnaire, we first measured individuals' CS traits using the Rational-Experiential Inventory (REI) of Pacini and Epstein (1999). Subsequently, the study took place in the laboratory, participants being randomly distributed in 75 three-member teams, which were randomly assigned to one of the three experimental conditions. Before starting with the lab study, participants read and signed the informed consent. Next, the experimenter invited each team into a lab room (i.e., either in the no-cues condition, the experiential-cues condition or the rational-cues condition) and intentionally left the team alone in the room for 3 minutes; the experimenter invoked that the materials necessary for the study needed to be prepared. This was meant to give time for the team to check and observe the room setting. After 3 minutes, the experimenter entered the lab room with the materials (i.e., each participant received two sheets of paper with the team member initial on the first page—A, B or C—a pen and, on a separate sheet of paper, the team task). In line with the widely-used creativity tasks (De Dreu, Baas, & Nijstad, 2008), teams were asked to write down possible ways to improve the quality of teaching in the faculty (A.2). An example of a generated team idea is: Smaller tutorial

groups to make better contact with tutors. Each team member read in the instructions that they should not replicate ideas already suggested by another team member; only non-redundant ideas would count. The task lasted 20 minutes. Finally, participants filled in a short questionnaire. Overall, the experiment took no more than 40 minutes; participants were thanked, paid/credited and debriefed.

5.3 | Measures

5.3.1 | Independent measure

Team experiential CS was measured by aggregating individual scores on experiential CS at the team level (de Visser et al., 2014; Post, 2012); we used the 12-item Rational-Experiential Inventory (REI) (Pacini & Epstein, 1999) (e.g., "I like to rely on my intuitive impressions"). Answers were given on a 5-point Likert-type scale (i.e., 1—"Definitely not true" to 5—"Definitely true"). Before aggregating individual scores, an experiential CS index was created ($\alpha = .84$).

5.3.2 | Dependent measure

Team performance was measured by considering team's ability to conduct a creativity task. As in previous research (Rietzschel et al., 2007), we looked at team's ability to generate a wide variety of ideas, i.e., we counted the total number of ideas generated by a team (Rietzschel et al., 2007; Rietzschel, Nijstad, & Stroebe, 2010), which resulted in team fluency.

6 | RESULTS

6.1 | Descriptive statistics

Table 1 shows the descriptive statistics of the whole sample, while Table 2 shows the descriptive statistics of the samples per condition.

6.2 | Hypotheses testing

To test our hypotheses, we first split the dataset to compare groups based on the experimental conditions (i.e., no-cues, experiential-cues and rational-cues). Then, we performed a univariate analysis of variance considering team experiential CS as independent variable and team fluency (i.e., total number of ideas) as dependent variable.³ When teams worked on a creativity task within the no-cues condition, results⁴ showed a significant effect of team experiential CS, $F(1,23) = 4.69$, $p = .04$, $\eta_p^2 = .17$ (H1 confirmed). When teams worked

TABLE 1 Descriptive statistics whole sample ($N = 225$)

Variable	Mean (%)	SD	Min.	Max.
Experiential cognitive style	3.53	0.52	1.67	4.83
Age (in years)	21.35	2.96	17	37
Gender (% female)	46	—	—	—

TABLE 2 Descriptive statistics per experimental condition

Condition	Variable	Mean (%)	SD	Min.	Max.
No cues	Experiential cognitive style (N = 75)	3.49	0.61	1.67	4.75
	Age (in years) (N = 75)	21.13	2.66	17	31
	Gender (% female) (N = 75)	40	—	—	—
	Team fluency (N = 25)	16.20	7.78	6	64
Experiential cues	Experiential cognitive style (N = 75)	3.53	0.42	2.33	4.58
	Age (in years) (N = 75)	21.37	3.29	18	37
	Gender (% female) (N = 75)	48	—	—	—
	Team fluency (N = 25)	16.64	11.45	6	37
Rational cues	Experiential cognitive style (N = 75)	3.57	0.53	2.17	4.83
	Age (in years) (N = 75)	21.55	2.94	18	32
	Gender (% female) (N = 75)	49	—	—	—
	Team fluency (N = 25)	15.67	7.28	3	37

TABLE 3 Means and standard deviations across experimental conditions

	No-cues condition	Experiential-cues condition	Rational-cues condition
Teams with <i>high</i> experiential CS	19.00 (6.87)*	12.67 (4.68)*	
	19.00 (6.87) <i>ns.</i>		17.47 (7.61) <i>ns.</i>
		12.67 (4.68) [†]	17.47 (7.61) [†]
Teams with <i>low</i> experiential CS	14.00 (7.98) <i>ns.</i>	16.67 (6.56) <i>ns.</i>	
	14.00 (7.98) <i>ns.</i>		14.33 (5.41) <i>ns.</i>
		16.67 (6.56) <i>ns.</i>	14.33 (5.41) <i>ns.</i>

Notes. Standard deviations are in parentheses;

* $p < .05$; [†] $p < .10$;

ns. = non-significant.

on a creativity task within the experiential-cues condition, results showed a non-significant effect of team experiential CS, $F(1,23) = 1.30$, $p = .27$, $\eta_p^2 = .05$ (H2 confirmed). When teams worked on a creativity task within the rational-cues condition, results showed a non-significant effect of team experiential CS, $F(1,23) = 1.21$, $p = .28$, $\eta_p^2 = .05$ (H3a confirmed). Finally, although we expected the slope of the relationship between team experiential CS and team's ability to conduct a creativity task to be smaller in the presence of rational cues than in the presence of experiential cues, we find no significant difference (H3b not confirmed).

We also conducted a robustness check to test for a potential inverted U-shaped relationship (Haans, Pieters, & He, 2015). The first regression model was a good fit of the data, $F(1,73) = 5.78$, $p = .02$, $R^2 = .07$, and when we included the squared⁵ term, the result became not significant, $F(2,72) = 2.85$, $p = .06$, $R^2 = .07$. This implies that we did not find indications for an inverted U-shaped curve.

6.3 | Additional analyses

To get more insights regarding our results, we first removed two outliers (i.e., a team with 64 ideas from the experiential-cues condition and a team with three ideas from the rational-cues condition) (N = 73); removing the observations does not affect our main findings. We then performed a mean split of team experiential CS and created a new variable to distinguish between teams with high experiential CS

and teams with low experiential CS by assigning value 1 to scores above the mean (i.e., teams with high experiential CS) and value 0 to scores below the mean (i.e., teams with low experiential CS). To run our analyses, we further split the dataset to compare groups based on team' experiential CS. A univariate analysis of variance was performed, considering experimental conditions (i.e., no-cues, experiential-cues and rational-cues) as independent variable and team fluency (i.e., total number of ideas) as dependent variable.

Overall, our results showed a marginally significant main effect of condition number, $F(2,35) = 2.97$, $p = .06$, $\eta_p^2 = .15$. Specifically, post-hoc tests (LSD; $p = .03$) indicated that when teams with high experiential CS, worked on a creativity task under the no-cues condition, they came up with more ideas than when such teams worked on a creativity task within the experiential-cues condition (M = 19.00; SD = 6.87 vs. M = 12.67; SD = 4.68). Post-hoc tests (LSD; $p = .07$) indicated that, when teams with high experiential CS worked on a creativity task under the experiential-cues condition, they tended to come up with fewer ideas than when such teams worked on a creativity task within the rational-cues condition (M = 12.67; SD = 4.68 vs. M = 17.47; SD = 7.61) (Table 3).

7 | DISCUSSION AND CONCLUSION

In this study, we experimentally tested the relationship between team experiential cognitive style and team creativity in three

different workplace settings. Based on resource-matching theory (Anand & Sternthal, 1989; Mantel & Kellaris, 2003) we hypothesized and found that the relationship between team experiential cognitive style and team creativity was stronger in a neutral workplace setting with no cues compared to workplace settings with experiential or rational cues. The relationship between cognitive styles and team creativity was insignificant in the latter two cases. Although we expected the relationship between team experiential cognitive style and team creativity to be stronger in the experiential cue condition than in the rational cue condition, we did not find such effect. This might indicate that teams in the experiential cue condition with a high experiential cognitive style devote so many of their available cognitive resources to scrutinize the experiential cues that this leads to a dramatic decrease of their available resources to conduct the creativity task.

Below, we first discuss the theoretical and practical implications of these findings, before subsequently discussing the main limitations and identifying interesting avenues for future research.

7.1 | Theoretical implications

Our findings enrich our theoretical understanding of the performance implications of cognitive team characteristics in two ways. Prior research (e.g., Aggarwal & Woolley, 2019; Armstrong et al., 2012; DeChurch & Mesmer-Magnus, 2010; Edwards et al., 2006; Lim & Klein, 2006; Norris & Epstein, 2011; Zhang et al., 2007) on team cognition in general, and on cognitive styles in particular, has not paid a lot of attention to environmental factors. Instead, using experimental designs, scholars have tried to keep the context as constant or neutral as possible to avoid confounding effects. In this study, however, we took a different approach, manipulating the physical environment in which teams had to execute a creative task by adding different architectural elements. In this way, we were able to demonstrate the importance of considering contextual factors when looking at the performance implications of cognitive team characteristics.

Second, we show the relevance of resource-matching theory to theorize on the moderating effect of the physical workplace on the relationship between cognitive team characteristics and team performance. Prior research (e.g., Aggarwal & Woolley, 2019; Norris & Epstein, 2011) on the relationship between team cognitive styles and performance has relied heavily on the well-established dual process theory. While this theory is valuable and important to theorize the direct effect of cognitive styles on team performance as well as to make arguments about the interaction between different cognitive styles, it does not really provide concepts and mechanisms to highlight the potential moderating effect of contextual factors. In this paper, we demonstrated how the notion of fit between available and required cognitive resources, a core notion in resource-matching theory, can help to theorize on such moderating effects. Relying on this theory, we were able to develop arguments on how adding different types of architectural elements in the physical workplace can influence

the required cognitive resources as well as the available cognitive resources, leading to a situation of misfit.

7.2 | Practical implications

In the popular press, numerous anecdotes can be found, describing how both large established companies and high-tech startups hire fancy architects to develop inspiring working environments for their employees to spur creativity. Environmental psychologists already warned against too much optimism in this respect, highlighting that changing the physical workspace often implies trade-offs between advantages and disadvantages (Elsbach & Pratt, 2007). Our findings point to potential disadvantages of creating architectural changes in the workplace. In our study, a neutral workplace setting turned out to be the most productive team setting in terms of generating ideas. In other words, our findings suggest that workplace settings, which are designed to stimulate team members to think different, might actually turn out to be environments that mainly distract team members, reducing their idea creation ability.

7.3 | Limitations and future research directions

Our study is not without limitations. An important limitation is that we used student samples in our experiment, which can raise concerns regarding the external validity of our findings. To test the generalizability of our findings, we therefore encourage quasi-experimental design with professionals that have extensive work experience. Moreover, it would be valuable to also consider more longitudinal research designs to capture the emergent character of the team cognition process (Grant & Wall, 2009; Kozlowski, 2015).

Another limitation is that we focused on generating variety in the nature of environmental cues (i.e. experiential vs. rational), but kept the number of cues constant. However, we do expect that more drastic interventions, where the architectural design of workplaces is changed more dramatically, might have different implications on the creativity of teams, providing an interesting avenue for future research.

Finally, we need to highlight that we focused on team creativity as our dependent variable. It might be that the moderating impact of contextual changes might be different when considering a different performance outcome (i.e., speed of task execution, ability to exploit existing ideas). We therefore encourage future research on this topic to consider alternative outcome variables.

7.4 | Conclusion

Our research provides robust evidence that the physical workplace is an important contingency factor in the relationship between cognitive team characteristics and team performance. Using resource-matching theory, we theorized how changing architectural elements in the workplace setting can influence the fit between required and available cognitive resources. We find that, in a neutral workplace setting, the experiential cognitive style of teams is most productive in terms of

creative idea generation. We hope that our findings can stimulate scholars to explore the importance of contextual factors for team cognition and its performance implications in a wide variety of organizational settings.

ENDNOTES

¹For extremely high levels of team experiential CS, it could be argued that a *misfit* situation could also emerge given that the available resources are substantially higher than the required cognitive resources. This would result in a nonlinear relationship between teams' experiential CS and team's ability to conduct a creativity task. In this paper, we assume, however, that such extreme situation is rather unlikely. Still, we conduct robustness checks to test this alternative option.

²Psychological research has demonstrated that 'mere exposure' effects shape information processing without individuals' awareness (e.g., Chartrand & Bargh, 1996).

³Analyses using Originality (i.e., 1—not at all original to 5—very original) as dependent variable showed a non-significant effect of team experiential CS when teams worked on a creativity task (1) in the no-cues, $F(1,23) = 0.12$, $p = .73$, $\eta_p^2 = .01$; (2) in the experiential-cues, $F(1,23) = 0.06$, $p = .80$, $\eta_p^2 = .00$; (3) in the rational-cues, $F(1,23) = 3.22$, $p = .09$, $\eta_p^2 = .12$, conditions.

⁴When teams worked on a creativity task within the no-cues condition, results showed a significant effect of team experiential CS on team fluency, $F(1,22) = 4.65$, $p = .04$, $\eta_p^2 = .17$, even when controlling for team rational CS, $F(1,22) = .15$, $p = .70$, $\eta_p^2 = .01$, which was not significant. When teams worked on a creativity task within the experiential-cues condition, results showed a non-significant effect of teams' experiential CS on team fluency, $F(1,22) = 1.86$, $p = .19$, $\eta_p^2 = .08$, even when controlling for team rational CS, $F(1,22) = 1.76$, $p = .20$, $\eta_p^2 = .07$, which was not significant. Similar to the experiential-cues condition, when teams worked on a creativity task within the rational-cues condition, results showed a non-significant effect of team experiential CS on team fluency, $F(1,22) = 1.54$, $p = .23$, $\eta_p^2 = .07$, even when controlling for team rational CS, $F(1,22) = .59$, $p = .45$, $\eta_p^2 = .03$, which was not significant.

⁵Before computing the squared term, we mean-centred the variable (Dalal & Zickar, 2012).

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APPENDIX A

A.1 | No-cues condition

A.2 | Experiential-cues condition

A.3 | Rational-cues condition

APPENDIX B

B.1 | Creativity task

"Dear Group member X,

The Faculty of Economics and Business attracts more and more students each year and this might put some pressure on the quality of teaching. **Your group is asked to generate possible ways to improve the quality of teaching** in the faculty. The teaching staff is therefore interested in your problem solutions.

Your group has 20 minutes to write down as many ideas, solutions or suggestions as you can think of. Group members should not replicate ideas already suggested by another group member; only non-redundant ideas will count. Your ideas will be anonymous; no one will ever be able to link ideas to names or student identification numbers".