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Let's Argue!

Riding the Wave of Productive Dissonance in Creative Groups

by

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Abstract

Title	Let's Argue! Riding the Wave of Productive Dissonance in Creative Groups
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Course	BUSN49, Degree Project in Managing People, Knowledge and Change
Authors	Esther Karl & Alexandra Kärcher
Supervisor	Christina Lüthy, Lund University, Sweden
Purpose	The purpose of our thesis is to explore how productive dissonance can be cultivated in creative groups.
Methodology	Our qualitative study used the interpretivist tradition and followed an abductive approach within a single organization. We collected our empirical data at VATILac through two observations and 14 semi-structured interviews over MS Teams throughout March and April 2024.
Theoretical Framework	This paper examined productive dissonance; the heart concept of the friction model proposed by Schaefer (2023). Later, in this paper we tie this concept to a new conceptualization of Hua et al.'s (2022) wave-particle duality to reframe productive dissonance and its cultivating factors.
Conclusion	Our investigation into how productive dissonance is cultivated revealed three key elements at play: a balance of dissensus and consensus, diversity, and effective communication. We make use of our reconceptualization of the wave-particle duality as a analogy to better understand the relationship between these elements in fostering productive dissonance.
Key Words	Productive Dissonance, Creative Groups, Diversity, Communication, Dissensus and Consensus

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We hope you enjoy reading our thesis and our findings on productive dissonance ☺

Esther Karl and Alexandra Kärcher

Lund, 20th May 2024

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1 Introduction

Consider the exchange below…

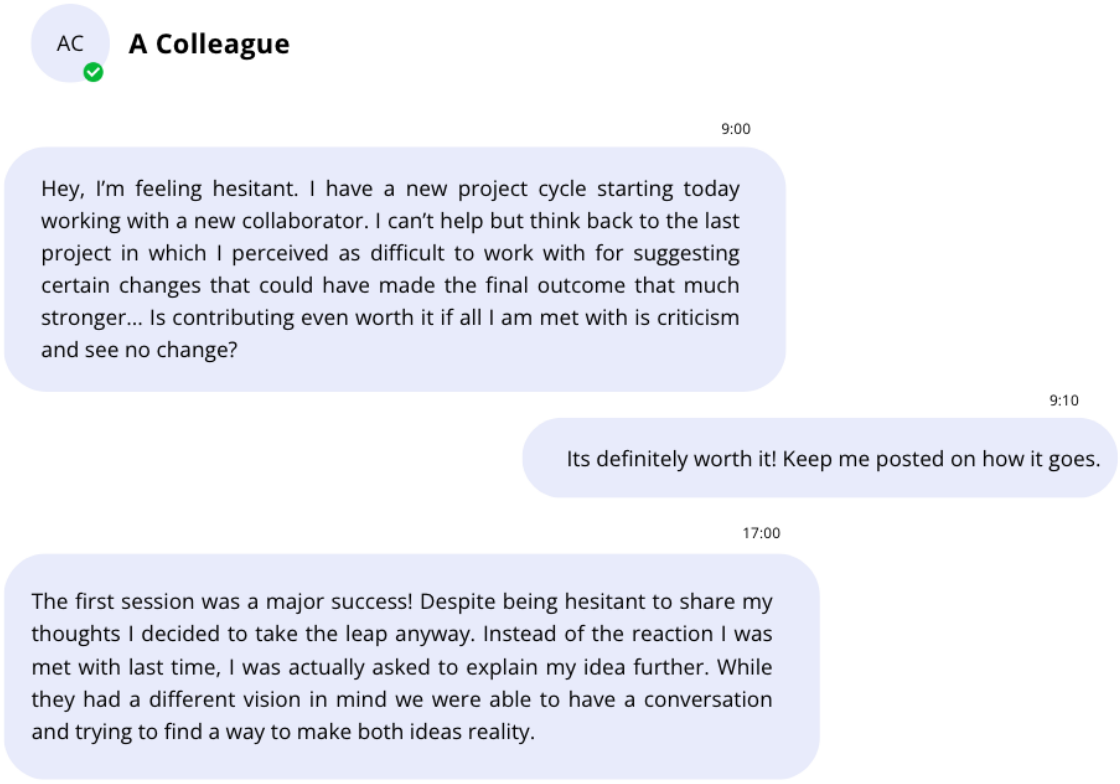

Figure 1: An exchange on productive dissonance (own illustration based on gathered data)

While the above dialogue is based on a version of a story shared by an interviewee, it could easily have been a screenshot within any organization where creative teams are at play. In many contexts, the pursuit of group harmony and quick consensus overshadows the potential for conflict. We overlook that conflicts, or as we see it a simple exchange of ideas (even if opposing), can mean the difference between making an idea good or great.

1.1 Background

A paradox would be the best way to describe how conflict (or as referred to in this paper productive dissonance) is viewed by individuals in organizations. This is because they typically see conflict as a negative factor and something to be avoided at all costs in a search for harmony (Chen, 2006). The chat exchange above in figure 1 exemplifies this view at first, suggesting that alternative viewpoints and engaging in discussion can be viewed as 'disruptive' and unwanted. But is being disruptive something to truly shy away from? Nemeth and Staw (1989) would disagree, their study claiming that engaging in 'dissent' is key in the creative process and is what leads to innovative ideas thus highlighting the premise of our study to follow.

Before diving deeper, one must first understand the overarching concept of creativity in which this study operates. Over the last decades, the understanding and theorization of this term within organizations have evolved considerably (Amabile et al. 1996; Lubart, 2001). Historically, creativity was often viewed as an intrinsic trait or the domain of individual genius, however, contemporary research has shifted towards recognizing creativity as a dynamic, collective process that can be nurtured and enhanced within organizational settings (Amabile, 1988; Elisondo, 2016; Hargadon & Bechky, 2006; Schaefer, 2023). Nowadays, in a highly competitive environment, the constant need to develop and innovate has elevated creativity to become a key success factor in maintaining competitive advantage (Kurtzberg & Mueller, 2005; West & Sacramento, 2023). Thus, organizations that prioritize creativity are better positioned to meet the increasing complexity and rapid pace of change imposed by the global market (Anderson et al. 2014).

In research progression, different levels of creativity have been defined and studied extensively. While phrasing varied, literature described three distinct levels: organizational, group, and individual creativity (Woodman et al. 1993). This multi-level research acknowledges that creativity is not merely a solitary and rigid process, as outlined by earlier researchers, but benefits from interaction, resulting in the creation of breakthrough ideas (Wallas, 1926; Harvey, 2014). Group creativity, however, requires a plethora of factors to ensure truly innovative ideas emerge, ranging from a supportive task context to social and cognitive processes (Paulus et al. 2012). At their core, innovative ideas are heavily reliant on dialogue and interaction in which various individuals can use their diverse perspectives to enhance their creative output (Amabile, 1988; Harvey and Kou, 2013; Kurtzberg & Amabile, 2001; Nemeth, 1997; Sawyer et al. 2007).

The need for divergent viewpoints in generating, developing and evaluating ideas is echoed by Schaefer (2023) and his conceptualization of the friction model. This iterative cycle is captured in five steps; firstly, an idea is articulated, second, discussed in a group with divergent perspectives (dissonance), third, the perspectives held in tension (productive dissonance), fourth, a synthesis is found (creative synthesis) and fifth, a temporary order is reached (negotiated order) (Schaefer, 2023). This framework and its core concept of 'productive dissonance' is the driving factor behind this thesis. While researchers believe that when correctly harnessed, conflict or dissonance can be productive in enhancing creative ideas (Chen, 2006; Kurtzberg & Mueller, 2005; Schaefer, 2023) further research on its cultivation is needed. Therefore, gaining an understanding of the inner workings of productive dissonance and how to foster this within creative groups is crucial to leverage in today's highly competitive business landscape.

1.2 Research Purpose

As established above, creativity plays a crucial role in generating innovation and sustaining a competitive advantage (Amabile, 1996; West & Sacramento, 2023). Although there is no universal definition of creativity, it is a highly dynamic researched domain that still requires further investigation (Csikszentmihalyi, 2009; Mumford, 2003; Sawyer, 2012). Various researchers in the domain have recognized that creativity and its process are collaborative in nature (Elisondo, 2016; Schaefer, 2023). In order to harness the aforementioned group creativity, individuals need to engage in dialogue to exchange ideas (Amabile, 1988; Harvey and Kou, 2013; Kurtzberg & Amabile, 2001; Nemeth, 1997). This process is echoed by Schaefer's (2023) conceptualization of productive dissonance on which this study centers.

One can think of this paper as a contribution to understanding how the metaphorical puzzle piece of productive dissonance fits into the greater puzzle of group creativity. Therefore, we research what cultivating elements are needed to ensure this piece fits to form the image. While research on what enables and detracts group creativity has garnered more interest, further investigation into the nature of its collective processes is needed (Shalley & Perry-Smith, 2008; Harvey, 2014) thus highlighting a clear gap and need for this study into productive dissonance and its influential variables (Kurtzberg & Amabile, 2001). Based on this gap, as productive dissonance conceptualizes a novel way of understanding how radical and transformative ideas emerge from the tension of opposing views (Schaefer, 2023), we see this area as great field for our thesis to contribute theoretically and practically. Thus, we aim to investigate how this

tension is cultivated in creative groups to achieve productive dissonance and thereby contribute to closing the gap in existing literature. While we acknowledge that studies on conflict in creative groups exist (Chen, 2006; De Dreu et al. 1999; Kurtzberg & Amabile, 2001; Nemeth, 1992; Nemeth et al. 2004) this literature does not consider the nuanced perspective Schaefer (2023) has put forth with productive dissonance, thus underscoring the importance of dedicating further research into this concept and how it is nurtured. In considering these gaps in literature, our study aims to answer the following question:

How is productive dissonance cultivated in creative groups?

This research topic aims to contribute to a greater understanding of productive dissonance and to explore its cultivating elements.

1.3 Main Findings

Our empirical findings, collected through observations and interviews, indicated that a variety of elements are at play in cultivating productive dissonance in creative groups. Our exploration revealed an interplay of dissensus and consensus, diversity and communication. Many interviewees seemed to favor early comprise and routine heading for consensus early on and eliminating moments of productive dissonance from occurring. Novel findings included the group's practices of green housing and siloed working as potential detractors to both productive dissonance and group creativity. Diversity, within this context, positively helped enrich the group's collaboration by utilizing the varied perspectives available in the group to hold the tension needed for productive dissonance. Both cultural as well as professional diversity played a key role here. Yet our study revealed a careful balance between too much and too little diversity. Too much diversity may result in highly specialized group members not having a thinking partner, while too little could result in unhealthy competition and unproductive conflict. Communication as the final element, was determined to be a key enabler in cultivating productive dissonance by navigating the cultural and professional differences. To leverage communication, clarity in dialogue across communication styles, business objectives, and vocabularies was underscored as being crucial to cultivating fruitful productive dissonance. A novel finding within this element was uncovering the effects communication technology (e.g. e-mails) has on productive dissonance.

Ultimately, the findings clearly show that balancing each element is a fine line and finding the so-called 'sweet spot' can be complex for creative groups. Our analysis and discussion

culminated in a further conceptualization of productive dissonance and its cultivation by generating a new link to the wave-particle duality as an analogy translated to this domain of research by Hua et al. (2022).

1.4 Thesis Outline

To investigate our research topic, *how productive dissonance is cultivated in creative groups,* the following paper has been organized into six chapters. Within the first chapter, we introduce the reader to our research topic and present the existing gap in literature we aim to tackle with our research question. Next, we dive into the existing literature needed to problematize our research topic. We start by broadly defining creativity, and then narrow our focus by discussing group creativity. Thereafter, we present Schaefer's (2023) productive dissonance, a concept at the heart of the friction model, and focus of our study. The third chapter explores the methodology selected for our investigation. Here we outline the research process, design as well as the data collection and analysis. The presentation of our empirical findings is elaborated on in the fourth chapter. Based on this analysis, we engage in a discussion with the existing literature in the fifth chapter, while forging an understanding of productive dissonance through the wave-particle duality framework. Our contributions are concluded in the last chapter, chapter six. We close by presenting the limitations of our work and our recommendations for future avenues of research.

2 Literature Review

The chapter to follow, explores our overarching phenomenon of group creativity in more detail. It aids us in problematizing why this study into the inner workings of productive dissonance is needed. We begin by providing background on creativity, highlighting various definitions of the term and ultimately follow Schafer's (2023) definition of "individuals and groups of individuals, who generate, develop and evaluate potentially transformative ideas continuously" (p.10). Thereafter, we dive into the topic of group creativity exploring what this constitutes and how ideas emerge in this context by referencing Hua et al.'s (2022) wave-particle duality analogy. Next, we dive into the concept of productive dissonance itself as well as Schaefer's (2023) friction model that holds this as its central idea. Within this chapter we illuminate a gap in literature on this crucial concept. The chapter finally culminates in our chosen research question.

2.1 Creativity

Creativity continues to be an immense topic that is simultaneously everywhere and nowhere in literature (Kaufman & Glaveanu, 2019). While similar understandings of the concept exist, so do grave deviations in its definition (Guilford, 1967). Schaefer (2023) agrees with this statement confirming that "a conclusive definition of creativity is neither feasible nor desirable, as this would limit a broader understanding of the complexity and multidimensionality of creativity" (p.9). This being said, many researchers have attempted to capture the term in a general definition. According to Amabile (1997), one of the key voices in this research domain, creativity involves producing novel and suitable ideas that must be appropriate to the problem presented. Amabile et al. (1996) furthermore views creativity as the beginning of innovation as she described it to be the "successful implementation of creative ideas" (p.1). When looking at how creativity and innovation are connected, Gurteen (1998) supports Amabile's et al. (1996) statement while setting these two terms apart as creativity is about generating a novel idea while innovation is more so centered on the implementation of said ideas. West and Sacramento (2023) argued that in a highly competitive environment, continuous innovation is needed, therefore creativity is now a key driver of maintaining competitive advantage, this highlights the interlinkage of these two terms.

In this thesis, we have chosen to follow the depiction of creativity as "individuals and groups of individuals, who generate, develop and evaluate potentially transformative ideas continuously" (Schaefer, 2023, p.10). This decision was made as this definition highlights the

creativity process as socially constructed, based not only on individual but group interactions (Elisondo, 2016; Schaefer, 2023). Furthermore, it underscores both the transformative and iterative nature of the creativity process which is key to our later discussion of productive dissonance. This definition's sentiment is shared by Csikszentmihalyi (2009) who argued that creativity is more of a universal phenomenon and not an individual one as it does not solely occur in one's mind but is based on the interaction of individuals in a sociocultural context. Strengthening our argument for this definition further is Woodman et al. (1993) who defines organizational creativity as the development of something novel and valuable "by individuals working together in a complex social system" (p. 293). Thus, creativity can be seen as a dynamic circuit influenced by both individuals and the groups, they are part of, which are shaped by the traits of their organization and the external environment.

With different definitions of creativity come various conceptualizations of this concept as a process (Guilford, 1967). Viewing creativity as a process has garnered much discussion in literature as conflicting perspectives exist on whether such a complex phenomenon can be captured in such a linear way. One of the first to conceptualize it as a process was Wallas' (1926) and his contribution of the four-stage model which still serves as a common framework for understanding creativity nowadays (Busse & Mansfield, 1980; Osborn, 1953). According to Wallas (1926), the first step in this model concerns the investigation of the problem 'in all directions' (preparation), then the unconscious mind wanders to ideate (incubation), next, reaching a conscious moment of illumination and direction (illumination) and lastly, developing and evaluating the chosen idea (verification). Since his contribution of this founding framework, further views on the process developed. Unlike, Wallas whose model focused mainly on individual creativity as well as a difference in conscious and unconscious processes, later models highlighted the need for a more collaborative approach to creativity as divergent ideas are not formed in isolation but are influenced by their context (Amabile et al. 1996; Elisondo, 2016). Amabile (1983) supports this further by highlighting that the interplay of collaboration and context can heighten creativity (Amabile et al. 1996). A universal process often referred to in this paper that accounts for this collaborative nature consists of the following three steps: idea generation, development, and evaluation (Schaefer, 2023).

2.2 Group Creativity

Creativity has been studied on three levels: organizational, group and individual (Woodman et al. 1993). This study has chosen to focus on the group level, as we see this as the most critical

form that thrives on interaction and collaboration. For background, organizational creativity focuses on the interaction between individuals, groups, and the broader organizational setting whereas individual creativity centers on individuals independently ideating (Amabile, 1988; Ford, 1996; Woodman et al. 1993). Group creativity is unlocked when an established set of individuals unite under a common goal to develop novel and useful ideas by engaging in divergent thinking (Amabile, 1983; Harvey, 2014; Nemeth & Kwan, 1987; Paulus & Kenworthy, 2018). Factors that have been known to influence group creativity include psychological safety (De Dreu & Weingart, 2003), leadership (Paulus et al. 2012), conflict (Chen, 2006), cohesion (Mullen & Copper, 1994), and trust (Carmeli & Spreitzer, 2009). Further research highlights the importance of social interaction and collective intelligence in being key elements shaping the outcomes of creative groups (Elisondo, 2016; Kaufman & Glaveanu, 2019).

An early advocate for group creativity was Osborn (1963), who saw group brainstorming as a method of involving the exchange of numerous ideas within a non-judgmental environment. Thereby, he believed that the sharing of ideas would encourage group members to further generate innovative concepts (Osborn, 1963; Paulus & Nijstad, 2003). Group interaction, from this perspective, holds immense practical and theoretical value, as it serves as a significant source of innovation and thus competitive advantage. Hence, a crucial element of group creativity is the practice of sharing ideas (Paulus & Nijstad, 2003). Johnson and Johnson (2009) furthermore link this to collaborative learning thus understanding others' views and forging an individual perspective. This in turn leads to individual ideas being aggregated into the group's creative output (Nemeth, 1986; Paulus, 2000). In connecting with this, having diverse perspectives in a group can enhance the sharing of thoughts (Kurtzberg & Amabile, 2001). Harvey and Kou (2013) emphasize the importance of dialogue, as individual ideas are, thereby, transformed into collective and truly novel thoughts. As underscored in literature, the collaborative development of creative output needs the involvement of diverse members to effectively leverage these to generate novel and potentially valuable ideas (Amabile, 1988; Nemeth, 1997).

Wave-particle duality

Another way to understand creativity and how it emerges in a group setting is through an analogy called the wave-particle duality, a view on studying ideas (Hua et al. 2022). Originally, the wave-particle duality concept was derived from quantum mechanics, in which particles,

such as electrons, are simultaneously seen as waves depending on the experimental context (Chang, 2021). In this reimagined analogy within the research domain of creativity, the wave-particle duality is based on the assumption that ideas can inherently exist in two different states at the same time, being concrete (particle) and simultaneously unspecific (wave) (Hua et al. 2022). Conventionally, ideas are often viewed as particles and treated as distinct and identifiable entities such as proposals or concepts (Hua et al. 2022). This can be exemplified by considering ideas as ingredients in a recipe. Each ingredient contributes its unique flavor and texture to the dish, much like how individuals bring in their perspectives and qualities. Yet, just as ingredients can be mixed and matched to create new culinary creations, ideas can be combined and transformed to generate novel solutions. Despite their potential for blending and adaptation, each idea retains its distinct essence (Hua et al. 2022). However, an alternative perspective views ideas as waves, emphasizing their continuous and emergent nature over time, deeply embedded within actions and relationships (Hua et al. 2022). Therefore, ideas cannot be fully comprehended without considering their context (Hua et al. 2022; Schaefer, 2023). Imagine for example a river winding through a landscape. Each drop of water adds to its flow and character, but it's the collective movement that defines its essence. Similarly, in the realm of ideas, individual contributions merge to shape overarching concepts. Focusing on just one overlooks the dynamic interplay within the collective flow of ideas.

While these two views exist, Hua et al. (2022) propose that the analogy of the particle and wave must come together to enable a truly creative outcome. Hua et al. (2022) visualized this in the following example: consider a group of friends bringing up individual ideas on how to spend the day (particle view). One of the friends brings up the weather and thereby prompts another friend to suggest another activity (wave view). By considering the context of the situation and the idea itself they were enabled to forge a new thought, thus highlighting the importance of combining these two views.

The wave-particle duality framework broadens the understanding of where to look for ideas and, when linked to Harvey's (2014) study, underscores the constant, dynamic, and collaborative nature of ideas. Yet, the wave-particle duality framework remains unexplored and relatively new in empirical research. Furthermore, the impact of context on shaping the development of ideas, along with various influences (such as productive dissonance) in generating novel ideas, has not been researched.

2.3 Productive Dissonance in Creative Groups

Literature discusses a plethora of factors needed to harness group creativity, to name a few, an openness to ideas, a commitment to the project and the ability to provide critical feedback (Amabile et al. 1996; Harrison et al. 1998; Phillips & Loyd, 2006). Nemeth and Staw (1989) echo this last factor claiming that engaging in 'dissent' or friction is an enabler for consensus when it comes to the ideation process leading to innovative ideas. This argument is often viewed as a paradox as individuals typically see conflict as a negative factor and something to be avoided at all costs in a search for consensus (Chen, 2006). Decades of research in the field of creativity, however, suggest that interpersonal interaction such as conflict is essential to the creation of transformative novel ideas (Kurtzberg & Mueller, 2005). Schaefer (2023) develops this idea of 'conflict', 'dissent' or as he refers to this 'friction', further by developing the friction model. This framework, illustrated in figure 2, details the iterative cycle of evaluating creative ideas. This model consists of five steps; first, an idea is articulated, second, a clash of perspectives engages called 'dissonance', third, a tension of these perspectives acknowledging each creates 'productive dissonance', fourth, a 'creative synthesis' is reached, finally, a temporary 'negotiated order' is established by all (Schaefer, 2023). The process is iterative and may restart if prompted by a crisis (Schaefer, 2023). To exemplify this model in action, consider a creative team brainstorming a new book cover. A team member voices their idea for a new cover showing a sketch to two colleagues (articulated idea). Next, the colleagues begin to share their thoughts, one member voices a way to change the design that reduces the amount of material needed and another suggests the use of a different material to adjust the color scheme (dissonance). Thereafter, all three perspectives are held in tension exploring all options (productive dissonance). Then, the group finds a way to combine this tension by finding a solution that allows them to use less material and adjust the color scheme (creative synthesis). This compromise has allowed them to collaborate and move forward with the idea (negotiated order). Should something else occur in the process of developing this idea, for example unexpected costs increase (crisis), the group may start the friction process over.

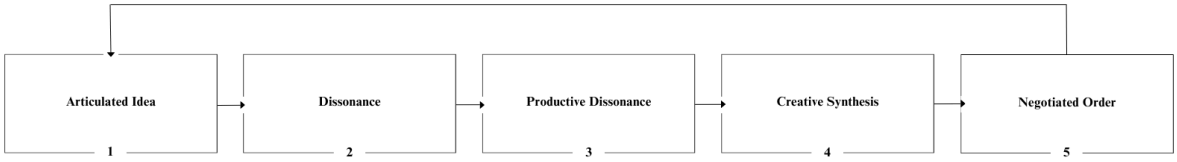

Figure 2 – Friction model based on Schaefer (2023)

Considering the above-displayed friction model, the next subchapters will explore each step in more detail to better understand the role and importance of productive dissonance. We also incorporated factors alluded to in literature that could help cultivate productive dissonance.

2.3.1 Articulating an Idea and Engaging in Dissonance

As mentioned above, the model starts with an articulated idea which is defined as the presentation of truly novel ideas (Schaefer, 2023). Upon doing so the next step is to move into dissonance. Dissonance, as a concept, originates from the musical world and is defined as a clash of different tones that create an unpleasant sound (Johnson-Laird et al. 2012). Within the context of creativity, this stage requires different individuals to exchange their divergent viewpoints in order to evaluate and shape their idea (Schaefer, 2023). This can often be perceived as uncomfortable and unpleasant. Key to ensuring this stage is fruitful, the individuals involved should represent different perspectives or as described by Schaefer (2023) orders of worth. In his understanding 'orders of worth' are needed for two reasons, to ensure a social order and to create a means of ascribing value (Schaefer, 2023). This concept shows the pluralistic side of creativity and its evaluation; individuals can have complementary or contradictory orders of worth both being simultaneously true and in need of consideration (Schaefer, 2023). Originally theorized by Boltanski and Thévenot (2006) the orders are: inspiration, market, domestic, industrial, fame, civic and green. Other papers do not define orders of worth as such but rather explore how diversity is a factor that can enable dissonance. While the definitions of diversity vary throughout the literature and are highly debated, diversity in general implies any type of difference that is compared to a set of accepted social norms (Beardwell & Thompson, 2017). Therefore, we will follow suit and focus on diversity at large and not the orders of worth proposed by Boltanski and Thévenot (2006).

Various researchers confirm that diversity has a significant benefit in groups allowing them to engage in more meaningful interaction, divergent thinking, and by extension increased creativity (Harrison et al. 1998; Nemeth & Kwan, 1987; Phillips and Loyd, 2006). A study by Martin (2014) adds that diversity, particularly on a cultural level, contributes to employee's creativity as various perspectives come together and build a bigger knowledge base for creativity to flourish. Here, cultural diversity refers to ethnicity or country of birth (Martin, 2014). One's cultural background is important to consider as it can influence how individuals think and act (Hofstede & Minkov, 2010). Nemeth's (1992) study echoes Martin (2014) who showcased that when group members are exposed to marginal perspectives creative thinking

can be nurtured and inspire others. A conflicting yet notable research in connection to this is Harvey's (2013) study on deep-level diversity (non-visual characteristics) ultimately concluding that too much diversity can have an adverse effect on the creative process. Challenges in deep diverse groups can arise due to challenges in interpersonal relationships which in turn impact the recognition and synthesis of creative ideas (Harrison et al. 1998; Harvey, 2013). An example to showcase why this occurs is the 'similarity-attraction theory' which claims that similarity in attitudes and beliefs creates interpersonal connection and attraction (Mannix & Neale, 2005). In deep diverse groups this similarity may not exist and therefore create barriers in building strong interpersonal ties remain (Harvey, 2013). Further limitations in this include miscommunication, interpersonal conflicts, dysfunctional behaviors, and difficulty achieving harmony (Martin, 2014; Nemeth & Nemeth-Brown, 2003; Paulus & Nijstad, 2003). This presents a further paradox in this research domain as we often believe the more diversity the better, when in this case too much diversity can significantly affect the interpersonal relation. We see a potential in this study to elaborate on the role that diversity plays in productive dissonance as existing literature showcases a gap in this intersection.

2.3.2 Productive Dissonance

Dissonance shifting to productive dissonance is about creating a tension between the orders of worth (Schaefer, 2023). Stark (2011) agrees that organizations must learn to harness 'heterarchy' or distributed authority/perspective instead of jumping to consensus. They should rather find a way to combine their conflicting perspectives holding them in tension (Schaefer, 2023). Successfully doing this and engaging in productive dissonance has proven to be as difficult yet rewarding as it is pivotal leading to benefits such as the fostering of learning and flexibility (Carnevale & Probst, 1998). Productive dissonance is a unique concept in the sense that it goes beyond what researchers typically refer to as conflict; this concept only focuses on the type of interaction that leads to productive outcomes in the creative process (Kurtzberg & Mueller, 2005; Schaefer, 2023). Literature often describes two types of conflict namely, task and interpersonal conflict (Chen, 2006). Task-related conflict is often characterized by providing constructive feedback or utilizing different perspectives to ultimately improve the quality of an idea and comes closest to the definition of productive dissonance (Jehn, 1997). Moderate levels of this conflict are considered positive as they stimulate interaction and exchange of group members' capabilities and knowledge (Jehn, 1995).

On the other hand, research on interpersonal conflict, also referred to as relationship conflict, revealed detrimental effects for teams resulting in them ceasing communication, causing rifts in trust and overall issues surrounding psychological safety (De Dreu & Weingart, 2003). This ultimately has negative effects on not only group dynamics but their creative outcomes (Deutsch, 1969) thus presenting a major barrier to reaching productive dissonance. While the friction model does not explore this further, we believe it must be considered in the research to follow. Interpersonal conflict, being an inhibitor, can be considered evidence of unproductive conflict (Chen, 2006) and showcases the thin-line groups must learn to navigate in order to stay productive and reach the next stages of this model.

As alluded to above, creativity and the stages of the friction model in a diverse group often come with difficulties in maintaining group cohesion, harnessing conflict, and productive communication (Chatman et al. 1989; Jehn et al. 1999; Paletz et al. 2016). This being said, effective communication can be a means of circumventing these challenges (Mannix & Neale, 2005). Issues surrounding communication in such creative groups can often be traced back to group members encountering challenges in articulating and identifying creative ideas due to the variety of divergent perspectives present (Harvey, 2013; Millike et al. 2003). A solution proposed in the literature to cultivate better communication in task conflict is to ensure group members feel safe to do so and nurture psychological safety (De Dreu & Weingart, 2003, Harrison et al. 1989; Lovelace et al. 2001; Phillips & Loyd, 2006). In a group in which such safety is not nurtured individuals may feel the need to censure their novel ideas and rather focus on mutual ones (Harvey & Kou, 2013). While such social conformity, at times, contributes to maintaining needed cohesion in a team it can also have the adverse effect and thereby stifle creativity (Goncalo & Staw, 2006). This links directly to cultivating trust, more precisely affect-based trust. Unlike cognitive-based trust, which is rooted in rational assessment and predictability of behavior, affect-based trust is described in the literature as based on emotional connections between individuals (McAllister, 1995). Creating a trusting environment based on connection increases the likelihood of group members communicating new ideas and engaging in collaboration (Dirks & Ferrin, 2001; McAllister, 1995). The importance of communication and a trusting environment in promoting creativity and enabling an open dialogue is outlined (Mumford, 2000). As productive dissonance is reliant on effective dialogue, the importance of communication in this relationship requires further illumination in literature.

2.3.3 Creative Synthesis and Negotiated Order

It is only when the above-described fine line of dissonance to productive dissonance is navigated that the stage of creative synthesis can be attempted. Harvey's (2014) paper defines creative synthesis as the integration of the group's diverse perspectives into a common understanding that can be built upon to ideate breakthrough ideas. It is key to highlight that only in this stage the model moves from seeking dissensus to consensus. Harvey's (2014) paper additionally theorizes that three types of resources are required for this process: 'cognitive' or the individual's divergent perspectives, 'social' or unique group interaction and 'environmental' or group support in knowledge sharing. The balance on these resources and shared understandings of a creative group then lead to the final stage of the friction model: the negotiated order. This last step is considered a temporary order or compromise established between opposing individuals that guide the creative process (Drazin et al. 1999).

2.4 Research Question and Chapter Summary

This chapter provided a summary of the relevant literature connected to our study. Beginning broadly with an introduction to creativity and its many definitions we began to funnel down to a focus on group-level creativity. Overall, the literature describes creativity as a complex and multifaceted concept, which is crucial for achieving innovation in a competitive environment (Kaufman & Glaveanu, 2019; West & Sacramento, 2023). Schaefer's (2023) definition highlights creativity as a socially constructed process involving both individuals and groups continuously generating transformative ideas. Furthermore, the chapter outlined that group creativity emerges when individuals unite under a common goal to develop novel ideas through divergent thinking (Amabile, 1983; Harvey, 2014; Nemeth & Kwan, 1987). These group interactions were explored further in the context of the wave-particle duality analogy conceptualized by Hua et al. (2022). Thereafter, we explored the main inspiration for this study: Schaefer's (2023) friction model composed of five steps in an iterative cycle that is fueled by what he conceptualizes as 'productive dissonance'. This concept can be defined as a dialogue in which individuals with divergent perspectives hold these in tension to ultimately shape a creative idea. The novel concept of productive dissonance offers a nuanced understanding of conflict within creativity that goes beyond current research, making this worthy of further investigation by this thesis.

As stated in the introduction, research into group creativity and the nature of its collective processes, like productive dissonance, has garnered more interest in contemporary research (Harvey, 2014; Shalley & Perry-Smith, 2008; Kurtzberg & Amabile, 2001). Thereby a clear need for this study's contribution is highlighted. Furthermore, while studies on conflict in creative groups exist, understanding the intricate workings of productive dissonance and how to cultivate this to fuel breakthrough ideas requires further attention. Therefore, we have chosen to explore this space further via the following research question: *How is productive dissonance cultivated in group creativity?*

3 Methodology

The chapter to follow showcases the methodology used as a basis for our research. Firstly, we outline our research approach by highlighting our assumptions regarding ontology and epistemology. Secondly, we describe our research design by elaborating on our research context, data collection, and analysis process. Lastly, we address potential limitations as well as the credibility of our research. Before starting the chapter, we want to point out that we used the AI tool ChatGPT for language editing purposes. The prompts we have used are listed in the appendix (Appendix A).

3.1 Research Approach

As solidified earlier, our thesis aims to understand how productive dissonance is cultivated in creative groups. Blumer (1954) stated that individual experiences should be prioritized over fixed definitions to gain a deeper understanding of a phenomenon. Consequently, to understand group members' interpretation of productive dissonance we want to study it from the inside by taking various perspectives into account (Flick, 2009). The qualitative design serves to provide a deep understanding of this social phenomena and their accompanying "processes, meanings and qualities" (Rennstam & Wästerfors, 2018, p.14). It was selected as the creative process is dependent on the context as well as the people's way of making sense of it (Denzin & Lincoln, 2018; Elisondo, 2016). Hence, we find the qualitative research approach suitable for our thesis.

Within the qualitative design, this thesis follows the interpretative tradition, emerging from the stance that human interpretation is the commencement of forming an understanding about the social world (Prasad, 2018). This tradition is rooted in phenomenology which operates under the assumption that reality is socially constructed (Prasad, 2018). Our study within the field of creativity relies on understanding its social construction through the perspectives of our interviewees, acknowledging that various interpretations can exist at once (Lubart, 2001; Schaefer, 2023). Our choice to work with the interpretivist tradition has ontological and epistemological implications (Prasad, 2018). While ontology is related to the study of the social world (research assumptions about the nature of reality), epistemology is concerned with the nature of knowledge (research assumptions on how knowledge is generated and obtained) (Ormston et al. 2014). Instead of the positivist perspective in which reality is viewed as objective, interpretivism acknowledges that reality is subjective and based on social construction (ontology) and thus, can be made sense of by researching individual interpretations (epistemology) (Bell et al. 2022; Hughes & Sharrok, 2016). As creativity, as a concept, is based

on social construction, we acknowledge that there is no singular truth in understanding creativity and therefore follow interpretivism.

In interpretivism, researchers aim to understand a certain phenomenon by interpreting the meanings people attach to them, focusing on their subjective experiences. The abductive approach was therefore followed as it is closely linked to this tradition. This approach fits well within this tradition because it involves generating interpretations or explanations based on the observed data, taking the context and perspectives of the individuals into account (Denzin & Lincoln, 2018). Therefore, we employ this approach as we strive to uncover the underlying meanings and patterns in the data to create plausible explanations of the phenomena and to generate new ideas or theories based on the analysis of the empirical data. Hence, the abductive approach in line with interpretivism allows us to understand and explain our chosen phenomenon.

3.2 Research Design and Process

In alignment with our research question of identifying how productive dissonance can be cultivated in creative groups, we believed it was suitable to undertake the research within a singular contextual setting. Researching a single organization enables us to get in-depth insights into a creative group and their process, thereby allowing for a nuanced understanding of our chosen phenomenon (Panke, 2018). In this chapter, we begin with a description of the organization we conduct our research with. This is followed by an explanation of our data collection and lastly our approach to the analysis of the retrieved data.

3.2.1 Case Context

We conducted our research on a global operating company named LacTAE (this name is a pseudonym selected to ensure the organization's anonymity). The company operates in over 150 countries and employs over 20,000 employees offering innovative solutions for customers and suppliers within the food industry. As LacTAE creates value for society and the environment while pioneering new technologies the company is widely known as highly international, innovative, and sustainable.

As LacTAE is a large multinational company, we chose to isolate our study to a highly creative department within the company. The company is divided into three different market regions: North, Central, and South America (AMER), Asia and Pacific (APAC) and Europe, the Middle

East, and Africa (EMEA). They operate with the mission to increase growth by capturing customer needs to create value through expertise. Our research is based on a department subsidiary located in EMEA and henceforth referred to under the pseudonym VATILac. This group aims to support its customers by offering value to them throughout the entire creative process. This is achieved by incubating novel ideas, materializing these concepts, and providing guidance to clients through the implementation phase. The team of innovation and marketing experts is divided into eight different markets located throughout the EMEA region. Hence, the team is geographically spread out and most of the communication occurs online. To keep everyone updated the team has a weekly update call where each team informs the others about ongoing projects. Moreover, each individual market team has weekly hybrid meetings as well as weekly one-on-one meetings with their division team manager.

In preliminary conversations with our LacTAE supervisor, VATILac's collaborative nature within the creative process is underscored. This character also extends to their contact with customers, as they are involved throughout the different steps of the process to create novel output in line with pre-established goals. For a better understanding, we briefly want to outline their creative process. The initial step involves personalized briefings, facilitating collaborative discussions to define objectives. The second phase is comprised of the generation and co-creation of ideas. This is followed by the prototyping of formulations, intricately interlinked with the final phase where the finished product is designed as a prototype. Throughout these four stages, VATILac team members usually work in pairs of two to three collaborators selected to best serve the project. In addition, further expertise is obtained on demand from other team members. The team and its project pairs are highly diverse and thus must constantly navigate the inclusion of distinct perspectives into their work to create value for their customers. Additionally, the VATILac team is geographically spread across the EMEA region, hence most of their interaction and communication takes place virtually through calls, e-mails, and short messages via Microsoft Teams chat. As a prime example of a collaborative creative group, VATILac acts as a fitting subject for studying our chosen phenomenon.

3.2.2 Data Collection

For data collection, we used observations and interviews as primary sources of information, as these are research tools within the interpretive tradition (Prasad, 2018). Observations within interpretivism are participative and aim to enter the *Lebenswelt* (life world) of those studied to gain a deeper understanding of their sensemaking processes (Prasad, 2018; Weber, 1949). As

we want to research how productive dissonance is cultivated in creative groups, we searched for a highly creative and innovative company and have come across VATILac a team within LacTAE. Following two informative conversations regarding research opportunities and necessary resources, we were appointed a company internal thesis supervisor to serve as our point of contact within VATILac, further related to as contact person. Prior to conducting our research, we shared a one-pager containing information about us and our thesis topic with our participants. This was done to ensure that the team already had a broad understanding of the purpose of our research. Nevertheless, we were careful not to be too detailed to not bias the team members beforehand. To ensure we were able to collect the data we needed in our given timeframe, we tried to incorporate their unique corporate jargon in interviews and understand as much about their interactions and process as possible. Furthermore, we used the two observations, various informal interactions, as well as their website to give us more of an understanding of how they interact to tailor our interview process.

Observation

It was important for us to conduct the observation prior to the interview. This was key for us in building rapport with the group and to understand how they interact during gatherings. This enabled us to gather data directly from their social context and retrieve insights on the dynamics of their interactions (Cohen et al. 2018). Therefore, our first source of empirical material gathered were two observations. Both observations were conducted during March 2024. During the first observation, we attended a weekly VATILac team meeting that spanned 60 minutes. As this event was held in a hybrid form, we were present with half of the team at one of their offices while the remaining team members were added via the conference room circuit. The call as well as the layout of the conference room allowed us to capture detailed reactions whereby the risk of missing meaningful interactions was reduced. The second observation was conducted during the weekly update call with all eight different sub-markets within the VATILac team present. The observation was 90 minutes in duration. As the team is geographically spread the meeting was conducted virtually over Microsoft Teams and an interaction-enhancing setup through the camera, chat, and reaction function was used.

During the observations we both were present and paid attention to the atmosphere, their interactions as well as individual behavior but did not actively participate in the core activities of the meeting We did, however, engage in peripheral activities (small talk to create a

welcoming atmosphere) with the team members at the beginning of the meeting which is why we took on the role of what is referred to as a peripheral observer (Adler & Adler, 1987). This enabled us to gain a deeper understanding of the creative group by creating a personal connection while keeping a flexible level of involvement based on our research objective (Adler & Adler, 1987). To gain as many insights as possible we divided our areas of attention. Therefore, one of us focused on the interactions while the other focused on the individual behaviors. Immediately after each observation, we complied our field notes as well as our impressions together.

Interview

For our second empirical approach, we conducted 14 interviews from end March to early April 2024. The aim of the interviews was to gain a deeper understanding of the team member's point of view on productive dissonance and its cultivation (Kvale, 2007). Within our qualitative study the technique of purposeful sampling was selected to identify and select the right participants (Bell et al. 2022; Patton, 2015). In contrast to random sampling, purposive sampling enabled us to answer our research question by gaining information from people who have had experiences with our chosen phenomenon within VATILac (Bell et al. 2022; Patton, 2015; Silverman, 2016). Furthermore, we chose to follow criterion sampling within purposive sampling. Criterion sampling involves selecting participants who meet pre-established criteria which is relevant to the research purpose (Patton, 2015). Hence, the interviewees were selected based on the characteristics 'VATILac group membership' as well as their job description as creative individuals (Ritchie et al. 2014). Furthermore, as a creative process is based on interaction, we wanted to conduct interviews with key organizational members who often interact throughout the group's creative process (Elisondo, 2016). By following this approach, we ensure that the interviewees possessed the necessary attributes to provide valuable insights into the research topic. We thereby selected a closed group of 14 individuals who operate in different markets while closely collaborate throughout the creative process as they are all part of the VATILac team. This selection of interviewees allowed us to gain the necessary depth and insight into how productive dissonance can be cultivated within a creative group. Our sample included individuals of different backgrounds, genders, and hierarchical positions. An overview of the selected interviewees can be found in the appendix (Appendix B).

Prior to conducting the interviews, we ensured the interviewees were briefed on the fact that the collected data is fully anonymized and cannot be traced back to the individual team member.

To ensure this, we gave the interviewees a gender-neutral name and avoided sharing any detail that could reveal their identity. As Yin (2009) stated this is important to ensure anonymity to create a safe space where respondents feel comfortable to answer freely and truthfully. Moreover, we shared that as researchers we have signed a non-disclosure agreement with the organization providing further security to them. With the respondents' oral and written permissions (via a consent form), we recorded the interview to ensure full focus on the conversation. As we both attended all the interviews, we split our tasks during the conversation. One of us conducted the interview while the other was focused on the interviewee's response, remarked follow-up questions, and took notes. The interviews spanned 35 minutes each (5 minutes of small talk and 30 minutes of interview), allowing for enough depth and understanding of the phenomena. As LacTAE is a multinational organization with English as its corporate language, the interviews were conducted in English and the difficulties of non-native English speakers were taken into account. We considered this limitation to be low in impact as most interaction within LacTAE occurs in English.

Due to the geographical distance, the interviews were conducted via Microsoft Teams with cameras on to increase interaction and enable us to partially observe non-verbal cues. We are aware that a face-to-face interview would be more suitable to pick up reactions or body language (Grahe & Bernieri, 1999). As the VATILac team members also interact primarily via Microsoft Teams, we considered the limitation to be low in impact as this channel gave us a realistic impression and deeper understanding of how they interact.

Kvale (1996) sees interviewing as a means of understanding the world through the individual's perspectives and thereby unraveling the significance of people's experiences. To uncover these, we organized the interviews in a semi-structured manner following a basic interview guide to ensure sufficient structure yet flexibility for follow-ups, providing more data to examine (Styhre, 2013). We asked a range of questions, for example: "how do you communicate a suggestion or alternate idea that may deviate from another collaborator's opinion" or asked for concrete evidence by inquiring "Can you share an example of this" to gain insights into their understanding of the phenomena. This interview structure allowed us to have a conversation with the interviewee and to react if further explanation was needed (Kvale & Brinkmann, 2009). The interview guide served as a red thread and was structured as follows: an introduction question, a follow-up question, and a probing question (Kvale, 1996; Kvale, 2007). We are aware that our interview questions as well as the used vocabulary may have influenced the

interviewees understanding thus representing a potential limitation outlined later on in depth (chapter 3.3).

3.2.3 Data Analysis

For the analysis of the empirical material, we followed Rennstam and Wäterfors's (2018) process of sorting, reducing, and arguing. Gubrium and Holstein (1997) highlighted the importance of the *how* next to the *what* in understanding our chosen phenomena in full depth. Therefore, we integrated our observations and interviews, in our analysis to explore *how* the team members conveyed their message, paying attention to their reactions and what wording they used in the context of productive dissonance (Gubrium & Holstein, 1997). Thus, analyzing both the content (*what*) and process (*how*) allowed us to make a comprehensive interpretation of the phenomenon (Gubrium & Holstein, 1997). Thereby the "results become more complex and nuanced" (Rennstam & Wästerfors, 2018, p.83).

As our qualitative datasets offered a large pool of field notes and transcriptions, we decided to sort the data in two steps (Bell et al. 2022). Rennstam and Wästerfors (2018) described the sorting step as coding the data, hence after transcribing the interviews we personally reviewed the transcriptions against the audio recording to ensure accuracy. Thereby we also repetitively went through the written data. While reviewing the transcriptions, we individually looked for reoccurring topics and other components suitable for categorization/coding without delving into comprehensive analytical insights at this stage (Rennstam & Wästerfors, 2018). These components were for example repetitions, metaphors, or analogies, as well as highlighted differences (Ryan & Bernard, 2003). This stage also included that we re-read our field notes multiple times to discover links in this further empirical material. Doing so helped us strengthen our filtering of reoccurring topics and reinforced our created codes ensuring that these were not too broad (Bell et al. 2022; Rennstam & Wästerfors, 2018). To be in line with our research approach, we individually conducted the initial categories/codes based on patterns we found within the various data sets (Bell et al. 2022; Tavory & Timmermans, 2014). We decided to work on the initial step separately to limit mutual influence and allow for a nuanced perspective and diverse codes to arise. A second reason for doing this step individually was to stay true to our abductive approach (generating explanations to make sense of observed phenomena) and therefore avoid imposing preconceived categories onto the data. Yet we are aware that we have prior knowledge from diverse experiences (work experience, undergraduate and master's program) and thereby acknowledge our subjectivity (see more in our limitation chapter 3.3).

While this can be seen as a limitation, we also view this as an enriching element to our research as we can engage with the material on a deeper level and create an open dialogue with the empirical material (Alvesson & Kärreman, 2007; Strauss & Corbin, 1997). After creating codes, we presented and justified these codes to one another and merged our preliminary codes, synthetizing our analyses (Bell et al. 2022).

To code the data post-synthesis of our individual analyses (both transcriptions and field notes), we created a color scheme, highlighted quotes within the data, and then compiled these in an excel-data sheet. Within this document we inserted extracted statements as well as the main codes. Afterward, we ordered our codes based on their relevance and complexity in relation to the research aim. As we found a plethora of codes, we had to reduce our data as not all findings fully supported the purpose of our study. A few of these peripheral findings can be found in our reflection on potential areas of future research (chapter 6.4). To reduce the material, we categorically reduced these to focus on the cultivation of productive dissonance (Rennstam & Wästerfors, 2018). To follow, we briefly outline the three main codes (dissensus and consensus, diversity, and communication) that guide our analyses while highlighting their relevance to our research aim. These codes were chosen as the basis of our analysis as they support us in finding the elements that ensure productive dissonance is cultivated in the empirical puzzle of group creativity.

The first main code ‘dissensus and consensus’ aimed to capture the various perspectives on the need for both of these elements in cultivating productive dissonance. Within this overarching code, we wanted to capture various group members’ meaning-making of the concept dissensus and their thoughts on the need for alignment. Thereby we uncovered what made dissonance productive and what might turn it unproductive, hence uncovering the value of this tension. Secondly, we selected ‘diversity’ as a main code in which we gathered various viewpoints on the need and interpretation of this crucial topic. Our third and last main code is summarized under the title ‘communication’. With this code, we wanted to highlight the relevance communication plays in cultivating productive dissonance.

To present findings that potentially challenge and further develop existing concepts we followed Rennstam and Wästefors’s (2018) concept of organizing our narrative via excerpt-commentary units. These allowed us to interpret and analyze the phenomenon in depth. Hence, after swiftly introducing the coding subject we linked this to a theme, presented an analytical

point, gave this an orientation, showed a supporting excerpt from our data, and gave our analytical commentary (Emerson et al. 1995).

3.3 Limitations and Reflexivity

Despite crafting a methodology tailored to our chosen research topic, limitations persist. Therefore, the ability to reflexively approach qualitative data collection and its analysis is key to ensuring our study's success (Darawsheh, 2014). According to Palaganas et al. (2017), reflexivity is a process that requires the introspection of the researcher on their subjectivity by understanding how their unique background and preconceptions affect the research. We acknowledge that the collected data can be influenced by the researcher as no findings are entirely objective (Alvesson & Sandberg, 2022; Silverman, 2011). Furthermore, Strauss and Corbin (1997) highlighted that researchers are subjective due to their prior knowledge from education or profession. Working in a pair for this thesis and both taking part in all interviews (as interviewer and notetaker respectively) allowed for increased reflexivity. However, our similarities as individuals may have still resulted in some overlooked preconceptions that shaped our work that we may be unaware of (Alvesson & Sköldberg, 2018).

In the interpretivist tradition, researchers enter the *Lebenswelt* of their interviewees and it is, therefore, essential to build rapport and question individuals' motives while collecting data (Prasad, 2018). Particularly while posing questions on group dynamics and the presence of conflict, individuals may be dishonest and quick to tell the interviewers no conflict exists, and everything is going well (Bell et al., 2022). Similarly, we had to be wary of interviewees answering to satisfy our perceived interests or following conversational norms (Alvesson, 2011). While we do not believe this to has been the case, as almost every interviewee was able to share instances of conflict with examples, we can only account for what was shared. We attempted to mediate this by making individuals feel at ease by assuring them about the measures being taken to preserve anonymity creating as safe a space as possible to allow them to express themselves (Yin, 2009). Additionally, we engaged in small talk before and after (approximately 5 minutes excluded from 30 minutes) each interview to reaffirm the safe space we tried cultivating.

Furthermore, we chose to use the wording 'productive conflict' instead of 'productive dissonance' to ease interviewees understanding. The wording of 'conflict' in our line of questioning, despite the addition of 'productive', sparked some negative connotations with

select interviewees. This shows that interviewees' attitudes and past experiences shape their meaning surrounding particular words thus influencing their perception (Heise, 1966). This could have skewed certain answers to describe the negative (relationship) conflicts explored in the literature review that often do not reach the productive stage (Deutsch, 1969). While we attempted to minimize this by explicitly defining productive conflict, we recognize individuals' innate meaning-making is at play and that the paradox of conflict as a negative concept runs deep.

A further limitation is the narrow timeframe given to conduct this research. Especially in our chosen tradition of uncovering the group's unique constructions of reality, prolonged access and repeated data collection would have significantly enriched the data as we could have created a stronger rapport and dive deeper into the topic (Alvesson, 2011; Bell et al. 2022). The fact that we studied the group for only one point in time (all interviews conducted in a span of two weeks with no follow-ups) is, unfortunately, limiting as we now only have one snapshot of their thoughts on productive dissonance in group creativity which is a concept constantly shaped by its context, process, and practices (Panke, 2018; Schaefer, 2023).

3.4 Chapter Summary

This chapter explored our methodological considerations. Starting with the selected research approach we elaborated on our choice for a qualitative design enabling us to gain a deep understanding of the social phenomena of productive dissonance as well as the groups' unique understanding (Rennstam & Wästerfors, 2018). Additionally, this justified our choice to follow the interpretive tradition while staying true to the abductive approach. Next, we provided background information on our chosen case company (LacTAE) and chosen creative group (VATILac). Thereafter, we expanded on our process of data collection for the two observations and 14 interviews conducted. For the data analysis we followed Rennstam and Wäterfors's (2018) process of sorting, reducing, and arguing. Based on the sorting we retrieved three main codes: 'dissensus and consensus', 'diversity' and 'communication', which served as a guiding structure for our analysis and discussion. In closing, we use a reflexive approach to pinpoint the limitations of our study mainly revolving around subjectivity, interviewees' motivations, and timeframe. In the following chapter, we evaluate our empirical data collected via observation and interviews and highlight the most significant categories.

4 Analysis

This chapter outlines the noteworthy findings in our investigation into how productive dissonance can be cultivated in creative groups. The empirical data was collected through observations and interviews. The participants to follow have been anonymized and were given gender-neutral names thus the pronouns they/them will be used going forward.

As introduced earlier on, we see productive dissonance as a key puzzle piece in group creativity that requires cultivation to ensure it effectively 'fits'. The first sub-chapter will explore when productive dissonance occurs in VATILac's creative process. The subchapters to follow will take a deep dive into the cultivating element of productive dissonance focusing on balancing dissensus and consensus, highlighting the role of diversity and communication in this context as well as the interlinkage of these key pieces.

4.1 Productive Dissonance in the Creative Process

When talking about dissensus within a creative group it is at first important to reflect on the overall process. Here it is essential to highlight that dissensus can occur throughout the whole creative process and is not bound to a specific stage. At VATILac the creative process begins with a challenge statement voiced by a customer, and it is the role of this creative group to work with and solve said challenge (e.g. Casey, Emery, Ellis, Nova). While considering that dissonance is not bound to a certain stage, Ariel emphasizes that dissonance is an omnipresent element when working in creative teams and is most likely to occur in their point of view:

"So, the first conflict for us comes when we need to scope the challenge. So, we are all stating, 'I understand this and this and I didn't understand that'. The second one that for me is the biggest one, is to answer this challenge, because here is where all the background and experience comes."

By mentioning the two stages where conflicts typically arise, they link the occurrence to team members often bringing different perspectives and levels of understanding to the table. The interviewee refers to one person 'understanding this' and the other 'that' showing that varied interpretations can exist simultaneously and thereby highlighting the potential for productive dissonance. Ariel then suggests that the most significant conflicts emerge during the second stage: answering the challenge. This phase equally requires an exchange and tension of diverse backgrounds to generate novel ideas and approaches. This highlights that tension is nurtured

through a heterogenous team setup and that the team attempts to navigate the various interpretations of the task at hand (chapter 4.3). Thereby it is implied that the different understandings and correct handling of these set the tone for dissonance either being productive or unproductive.

4.2 The Tension between Consensus and Dissensus

As explored in the previous chapters, productive dissonance is largely based on achieving a state of dissensus and holding different perspectives in tension before combining into a creative synthesis and negotiated order (Schaefer, 2023). Consider the field note below to exemplify this within VATILac:

Observation 2 – 13.03.24

Field Note: Carter takes time in the call to speak on a topic. Carter asks if anyone has an opinion on the new approach of guiding a creative process they suggested. Blake highlights global versus local discrepancies and that this must be kept in mind when speaking to diverse stakeholders. Nova shares another idea they have thought of based on this comment. Carter thanks everyone for good points and says that they also thought of something while in discussion, shares the point and the group move on.

The above captures a collaboration moment between group members showcasing an exchange of different ideas sparked by the group's interaction itself. The enabling element in this observation is Carter initiating the discussion by showing their willingness to engage on the topic at hand and inviting further opinions. What this shows is that being open to receiving input or tension and actively seeking it is a crucial ingredient in making productive dissonance flourish. By harnessing the different perspectives of their group members and holding these in a state of dissensus, not immediately agreeing or disagreeing with the ideas shared, Carter creates productive dissonance. Furthermore, Carter's inspiration from this exchange is evidence of productive dissonance fueling the creative process. Without this tension of different viewpoints inspiring creativity to flourish, Carter may not have had this moment of illumination as the points made by their colleagues would have never been explored. Overall, this field note highlights the importance of sharing divergent viewpoints, even dissenting ones, before immediately converging into a final set idea and that emitting openness and taking initiative is needed in cultivating productive dissonance.

The sentiment of this observation is mirrored by many interviewees. Rowan shares the importance of tension in their creative process in the except below:

"For me getting a difference of opinion is something that sparks those light *bulbs in your mind. That takes you to different places, you know, it really makes you explore unexplored areas and uncharted territories."*

Here, Rowan highlights that they seek a difference in opinion again solidifying that dissensus and by extension productive dissonance is something this individual actively pursues in order to 'spark those lightbulbs' in their head. By using this common analogy for creativity and its inspiring moments, the interviewee highlights the impact of productive dissonance on them in a very visual way. Another way to interpret the lightbulb is in a more mechanical sense as it can be turned on and off. This indicates that engaging in the exchange of different opinions (productive dissonance) is something that requires those involved to actively seek it out and turn it on. Adding to this Rowan describes the dissonance they seek as a journey that helps take them and their group to new and unexplored areas of thought. Much like the lightbulb, this part of the quote captures the transformative power of conflicting opinions in being a catalyst for creativity and novel ways of thinking. It underscores that individuals seek out dissensus and view this as value-adding and not as something to be avoided at all costs.

Another interviewee who largely agrees that dissensus is needed in cultivating productive dissonance is Finely in the quote below:

"I mean you have this kind of different mindsets and opinions about things that need to be changed and I would say in most cases turns into something better… but you do tweak the things based on disagreements and agreements, conflict sounds very dramatic, but I mean it, it is basically mini conflicts all the time."

Finley adds to our discussion on dissensus by describing the creative process as being composed of what they call a plethora of constant 'mini conflicts'. Thereby, they emphasize that conflicts are an integral part of the process and of fostering creativity. By viewing dissonance as a constant component of the creative process, Finley reframes it as a natural and necessary rather than a part of the process to be feared or avoided. They also underline how both disagreements and agreements lead to continual adjustments, ultimately resulting in improved outcomes and showcasing both the iterative and dissonance-driven nature of creativity in groups. In coming back to Finley's discussion of conflict as 'mini', one can interpret that it is downplayed in order

to get more of a positive connotation out of a word described by others as “too dramatic of a word” (e.g. Emery). It portrays the conflict as being small tensions rather than large-scale disagreements. This phrasing could also uncover an aversion to large-scale conflict and a preference for smaller moments of dissensus over time.

The idea that dissensus in a creative group setting is a positive attribute in their process is an idea shared by other interviewees including Blake who contributed the following quote:

> *“Maybe there is still an option that you haven't considered so that's good… without any conflict it becomes a bit too boring, I would say repetitive, and everything becomes very alike”*

At first glance, this quote suggests that encountering alternative opinions and actively seeking dissensus is essential in ensuring the creative process and its outcomes do not become monotonous and hinder the emergence of disruptive ideas and approaches. However, this quote also contains an interesting temporal element. By stating that ‘maybe there is still’ Blake suggests that they may need to take time to consider various viewpoints implying that they may not always prioritize the seeking of opinions within their process. This element of time and not considering others’ opinions until you are solid within your own combined with the general time pressure felt by interviewees, as each project works on a set timeline, is thereby a hindrance. Productive dissonance as a concept does rely on articulating an idea from which to start the friction model but also relies on the fact that this idea is malleable and will be reshaped by interaction with others. What this quote underlines is that this is not the way in which productive dissonance currently works within the group, only involving other viewpoints at a more established stage which may be more difficult to provoke true change in ideas.

4.2.1 The Search for Alignment

While the quotes thus far show a very positive outlook on utilizing dissensus to fuel group creativity, other interviewees shared a divergent view on the balance between dissensus and consensus. An example is given by Casey in the quote: *“you can only have one captain, having three means the boat won’t move”*. This quote highlights the importance of decision-making power. This interviewee voices a clear preference for a leader-follower structure within group creativity. This connects to the argument of dissensus by underscoring that this practice is not valued in their idea of the process. Casey seems to place more focus on ensuring consensus

from the start by expecting that a direction is set by the 'captain' or leader of said group constellation and that dissensus is not welcome as it would result in the 'boat' or idea not moving forward. By not valuing dissensus and rather rushing towards consensus, as direction is set by one person and others must follow. This approach does not lay the groundwork to cultivate productive dissonance as such a structure does not allow for any tension between divergent viewpoints to occur. The metaphor of the boat, in and of itself, is an interesting choice as it creates a visual of a self-contained, self-governed environment. This implies a disconnect from others signaling a setting in which one person makes decisions and others have no choice but to follow due to the absence of alternatives. Additionally, one may question how such a governance structure is determined and who's opinion is considered to be the best fit to lead. This approach may highlight a fundamental flaw in their view of group creativity that is usually characterized by a collaborative nature rather than the classic autocratic structure showcased by this metaphor.

The exploration of the concept of creating consensus and the metaphor of the captains leading the way is further clarified in the following quote by the interviewee, Riley:

> *"But I think if we are aligned on the expectations, how we will do this process and make decisions to move forward, it's as important as understanding what is the concept that you're creating."*

In this statement, Riley shares the belief that consensus on decision-making processes are key to ensuring the success of a project. The interviewee contributes a comparison of how much value they place on this, seeing the alignment of expectations and decision-making processes equally as vital as the conceptual understanding of the matter at hand. Thereby they imply that before meaningful contributions can be made all must be in agreement. The quote indicates that without consensus on these fundamental aspects, efforts to move forward with any concept or initiative may be impeded, leading to unproductive disagreement or inefficiency. This quote simultaneously highlights a potential barrier for allowing spontaneous dissensus and productive dissonance to occur as this approach limits group members' sense of exploration due to seeking constant consensus.

4.2.2 Impeding Dissensus

Next, several interviewees voice making use of a process called 'green housing'. They define this as a means of growing their idea based on the ideas of previous collaborators who have solved a similar challenge. In the quote below, Nova elaborates on this:

"We might throw it out to the rest of the team and just say has anyone had a similar challenge? What did you deal with it before? Have you heard anything else? Just to kind of get some what we call gree*n housing. So, building on a little bit of each other."*

One can interpret the act of green housing as a means of searching for consensus before beginning the creative process in the first place. By drawing upon past experiences and collective wisdom, the team can avoid repeating mistakes and leverage successful strategies from previous challenges. From a business perspective, it can be interpreted that this approach has time-saving benefits for the team as they surpass or at the very least speed up their creative process as they are not starting from the ground up. While this process allows them to embrace knowledge-sharing practices and benefit from past perspectives, they may also be reusing solutions to similar problems, preventing truly novel ideas from flourishing. By engaging in green housing, groups may be disregarding the value of leveraging diverse viewpoints in productive dissonance to generate completely novel ideas and opinions. Nova then goes on to suggest that as an improvement the team needs to *"encourage a bit of trying different things so we don't get trapped in our own, you know,* routine". The use of the word 'routine' in this quote indicates that this practice of green housing is applied on a regular basis, leaving little room to seek out new and spontaneous perspectives. The statement further signals that, to a certain extent, they also acknowledge that the routine is impeding their creation of truly novel ideas via processes like productive dissonance. It stipulates the group has developed a certain tunnel vision, no longer trying anything new. Furthermore, this highlights an interesting tension; the first quote shows the group rushing for consensus and avoided productive dissonance while the latter quote, seeks out dissensus seeing it as the key to novel contributions and escaping the cycle they are 'trapped in'.

A further trap in their routinized alignment is the practice of 'siloed thinking'. Blake voiced the following on the subject: *"you know we all try to not work in silos but in reality, that is the tendencies that one has".* In this quote, Blake is referring to the group's challenge of needing to constantly align internally and with the customer alongside the time pressure. Several interviewees describe these dynamics as *"working together alone"* (e.g. Casey, Taylor) to deliver creative solutions to customer challenges. While this concept may help navigate these challenges fast it may also cause new issues to arise as working separately eliminates much of the dialogue that is key to not only group creativity but productive dissonance (a concept to be explored further in chapter 4.4). By working individually, they also do not harness the diversity

of their group constellation (an idea explored in chapter 4.3). These diverse viewpoints can only be leveraged for a positive creative outcome by engaging in productive dissonance which is currently impeded. This further complicates the narrative often spun that the more diverse a team the better, if this diversity is not productively activated in dissonance it serves no purpose to the organization and its outcomes.

Yet another element that impedes productive dissonance is certain individual's tendency to compromise thus eliminating the chance of dissonance in order to reach faster consensus. The following quote by Charlie showcases this:

"Sometimes if I see that someone is really passionate about something... I'm not trying to make it like my way, really, it's not worth it, you know for me."

Noteworthy, in Charlie's quote is the mindset of this interviewee believing that sharing their opinion would mean that they are forcing their opinion on others and thus feel this would be unpleasant and worthless. This agreeable nature may also point towards avoiding relationship conflicts that such creative tensions could lead to. While this statement reflects the importance of recognizing and respecting others' passions and viewpoints it also highlights that an exploration of differing ideas and solutions is not sought out by this individual. By embracing this approach, individuals may contribute to fostering mutual respect while giving in to the opinions of others to not jeopardize collaboration. In doing so they impede the creative process and potential for productive dissonance to be cultivated.

Carter agrees that a negative mindset towards voicing disruptive ideas is present within the team, as confirmed by their statement: *"it's just a matter of showing that you are not like crazy, you are just bringing something different"*. What this alludes to is that sharing new ideas or alternative ways of approaching a task can be considered 'crazy'. This in turn highlights that it is not encouraged, as in a group no one wants to be perceived as crazy, thus these individuals may not be inclined to share in an effort to ensure group cohesion and belonging. This reluctance to share may contribute to a larger finding surrounding psychological safety in a team contributing to productive dissonance (this will be elaborated on in chapter 5). The characterization of being crazy has often been linked to disruptive creatives who took high risks in sharing their thoughts and ideas. While these paid off for some, in a typical business context like this one, such disruption is not always valued or practical. This desire for something practical and predictable is evidence of our earlier argument on seeking fast consensus rather

than disruptive dissensus. Carter furthers their perception on sharing disruptive ideas by expressing:

> *"Ah sometimes it's not that easy to unlock this kind of conversation because they are expecting you to kind of be aligned with what they were already thinking previously."*

The usage of 'unlocked' in this context suggests it is difficult to do yet possible to access this conversation should the individual possess the right metaphorical key or means of provoking change. It may also hint at the fact that truly disruptive productive dissonance is an exclusive dialogue that only some can unlock. In considering both Charlie and Carter's statements, it seems that disagreement and difference in opinions are not favored in certain instances and a search for quick consensus and routine is preferred.

4.2.3 The Value of Dissensus

Now having gained insights on the balance between dissensus and consensus as well as the rush to agreement the group seems to find themselves exploring the value of dissensus in more detail. Consider the below quote by Harper in reflecting on instances of productive and unproductive dissonance:

> *"…I had my points on 'maybe we can change some things' and was kind of perceived as very hard to work with. But then with another collaborator I worked with I shared the same comments… Their reaction was more 'oh' you know 'tell me more'. I told them more; they explained their point of view and then we changed."*

The quote above is what inspired the exchange initially presented in the introduction of this thesis. It highlights a clear difference between unproductive and productive dissonance. The first collaboration reflected here was unproductive because dissensus was not welcome. This was exemplified by Harper feeling discouraged by being perceived as 'difficult to work with' when expressing suggestions for change. The second collaboration offers a stark contrast, by inviting Harper to say more about their divergent viewpoint enabling a dialogue and leading to productive dissonance. As both collaborators were able to hold differing opinions in tension, they showed a willingness to actively listen and engage in dialogue with one another to create a mutual understanding. This allowed them to reshape the idea together and lead to positive change. Harper's experience highlights how different group members' willingness to engage in productive dissonance can contribute to more fruitful creative ideas. However, the

interviewees' interaction with a different collaborator demonstrated the power of open-mindedness in fostering productive dissonance.

The aforementioned idea of open-mindedness and cultivation of a safe environment for group members to share their diverging ideas, can be seen below:

Observation 2 – 13.03.24

Field Notes: Carter made a joke about Casey's location (a business trip in the sun seen as they turn on their video). Everyone talks about how jealous they are of the sun, many start to smile, laugh, and place full focus on the call – leaning in, and making eye contact with the screen. Ariel asks if anyone else would like to share anything. People ask questions they have and clear up misunderstandings but haven't voiced in the previous hour when things were being presented live.

This field note was taken at the end of a group call when rounding off the meeting. It showcases a group member attempting to use humor at the end of the call to ensure participants feel more at ease as seen in their leaning in, smiling, and eye contact. We see this method as successful as when asked to pose any open questions participants feel free to do so. It is a clear example showing that when team members feel heard, valued, and supported, they are more likely to engage in constructive dialogue and share ideas more freely. Particularly when dealing with divergent ideas this safe space is what helps cultivate productive dissonance.

The next observation, while in the same call, shows a different approach being taken to creating a safe space for dissensus:

Observation 2 – 13.03.24

Field Notes: Riley (as designated timekeeper) stops individuals while talking or trying to bring up new topics reminding them of the time limit. For topics not relevant to the full group they suggest solving in a 'task force' on another call. They explicitly say "we only have an hour and this may not fit topic wise" without knowing where Charlie was taking their point as they were disrupted before sharing. Charlie immediately gets quiet and leans back.

This field note was recorded during an earlier moment of the call in which each group member had a timeslot to present their topic. While keeping time in a meeting can be beneficial in reaching the goals set for that conversation, stopping individuals from expressing themselves

can be seen as a hindrance to interaction and potential productive dissonance as sharing a conflicting opinion can be daunting. Charlie had a visible reaction to being told this was not the time to bring up any points by leaning back and remaining silent for some time thus disengaging visibly from the dialogue. Combined, the observations showcase a need for a safe environment to cultivate dissensus and productive dissonance.

4.3 We are Different – The Need for Diversity

As outlined throughout this analysis chapter, various interviewees make sense of productive dissonance in combination with diversity. When talking about their understanding of diversity within dissonance and reaching this tension, the 14 interviewees talk about differences in cultural as well as professional backgrounds. The voice that diversity can be described as a facilitator for productive dissonance while simultaneously being a potential hindrance in creative groups. Consider Charlie's explanation of conflict in line with diversity below:

"We are constant*ly in the conflict and for me that's not a bad word because we are bringing our diverse backgrounds and our opinions to the table and trying to figure it out"*

Charlie describes a reality where individuals struggle to collaborate effectively (due to different backgrounds), yet throughout this challenge, productive exchange still occurs. By stating that they are trying to figure it out, they imply that it is not a simple task and a situation where one needs to delve into the discussion to activate diverse perspectives. Charlie's remark portrays conflict as positive, framing it as a constant yet natural element within the collaborative and creative process. Far from being unfavorable, it is understood as an asset as seen by the description 'not a bad word'. Moreover, they recognize the importance of diversity in backgrounds, seeing it as a facilitator of productive dissonance as it enables teams to confront challenges head-on; with conflict serving as a catalyst for greater understanding and sensemaking. In essence, Charlie argues that when conflict is approached constructively it can enable profound insights. Embracing individuals with diverse viewpoints appears essential, as it fosters an environment where productive dissonance thrives. Without this element, dissonance risks leading teams into semi-valuable solutions through homogenous thinking patterns thus stifling creativity and innovation. Therefore, it is suggested that conflict, when approached constructively, can lead to greater understanding.

In taking the idea of diversity as a source of productive dissonance further, some interviewees mention that they appreciate a difference in perspectives resulting from divergence in cultural and professional backgrounds. For example, Blake states:

"Diversity gives you different types of way of looking at things... If the team was all the same, we would think in the same way and maybe not spot an issue. Having different ways of seeing and approaching things also helps you to broaden competencies."

The interview describes diversity as a framework within which conflict, particularly productive dissonance, can arise. Overall, Blake finds the exchange of views facilitated by diversity inspiring, as this exchange serves as a catalyst for creativity. According to Blake, diversity broadens the scope of dialogue and dissonance, allowing for a more comprehensive examination of challenges. By considering a multitude of viewpoints, teams can approach problems from various angles, thus enhancing their ability to find effective solutions. Lastly, Blake emphasizes the importance of nuanced perspectives, which form the roots for productive dissonance. These varied viewpoints lay the groundwork for meaningful dialogue and constructive disagreement, leading to deeper conversations. Furthermore, by the exchange of diverse perspectives competencies are broadened and only enrich future discussion.

Aligned with Blake, Casey mentions how being a diversified team is a strength for their creative process:

"*So, diversity gives us a strength, I would say, to tackle challenges. And if someone of us is stuck, there is always another person who would have a solution."*

Firstly, Casey underscores the fundamental role of exchanging ideas in fostering productive dissonance when individuals encounter obstacles, highlighting that the collaborative exchange of views can often lead to novel perspectives. As this exchange lies at the core of productive dissonance, its potential to spark new ways of thinking is showcased by the interviewee. Moreover, they suggest that despite the occasional struggle in collaboration, working with individuals from diverse perspectives can be both inspiring and strengthening. This dynamic adds depth to the experience of dissonance, making it more bearable, engaging, and ultimately, productive when discussing opposing views. Thereby, Casey highlights the collaborative nature of group creativity, emphasizing that interaction like productive dissonance is crucial for generating solutions. Ultimately, the interviewee underlines productive dissonance as an enabling response to novelty. Rather than shying away from conflicting viewpoints, individuals

embrace them as opportunities for growth, ultimately leading to the discovery of new and creative solutions they may have otherwise not considered.

4.3.1 The Influence of Professional Diversity

Through our investigation the theme of diversity and its value in enabling productive dissonance became clear. Besides a difference in cultural perspective, a difference in professional background was highlighted by several interviewees. Moreover, the impact of similarity and diversity within groups was explored as showcased by Ellis mentioning:

"Professionally some are very similar. Our manager created a team of mini-me's as everyone is very ambitious and there is only one role to grow into, so this created unhealthy competition."

Ellis's example highlights the potential drawbacks of homogeneity within a team by linking this to a competitive element and the resulting unproductive dissonance. The challenge of competition arises when individuals prioritize personal gain over a collaborative exchange potentially withholding information to seek advancement. Such behavior hinders the free flow of ideas and impedes the needed exchange of viewpoints, consequently resulting in unproductive conflict. Moreover, Ellis's quote shows that professionally similar individuals may struggle to nurture productive conflict as discussions can evolve into interpersonal conflicts. Furthermore, Ellis used the term 'unhealthy', implying that detrimental behavior is showcased which can influence the chance for productive dissonance. When team members share homogeneous viewpoints, discussions often lack depth and fail to explore issues from diverse angles, limiting the potential for novel ideas. Thereby, the sentiment that teams should seek not only diversity in terms of cultural but also professional background is underscored. The element of competition can also be viewed as evidence of interpersonal conflict. The individuals' respective ambitions, and resulting unhealthy competition, may play a negative role in fostering an environment conducive to constructive disagreement, meaningful dialogue, and sharing divergent thoughts. It brings up questions of trust and psychological safety explored later in this paper. While previous interviewees highlight the importance of having a diverse group to achieve productive dissonance this interviewee adds to the discussion by forewarning that professional sameness can result in competition as an impeding factor.

However, Finley also highlights the flip side of this, noting that individuals with a unique professional background within a team may feel isolated in their skill sets. Finley explains:

"*When you're sitting on a capability that is quite unique to yourself, it's a little bit harder as I don't have anyone else to bounce ideas off of.*"

The interviewee underscores that amidst the importance of diversity, there is a simultaneous need for a thinking partner, especially when possessing unique capabilities within a group. This partner would serve as a sounding board, challenging assumptions, and prompting new questions enabling Finley to reconsider ideas in novel ways, ultimately stimulating creativity. Without such a professional counterpart, productive dissonance may not reach its full potential as a thinking partner with a different background or understanding may not be able to challenge them in the right way stifling creativity. Finley also acknowledges that the uniqueness of one's perspective can lead to a sense of isolation which may hinder such individuals from sharing their perspectives openly.

While creativity thrives on diverse perspectives, it's equally as essential to have someone who understands the practical implications of what individuals are capable of, ensuring that the feedback provided is constructive and productive. Group members engaging in productive dissonance must understand one another to voice productive counterthoughts otherwise such interaction becomes unproductive. Thereby the importance of having a balance between divergent viewpoints and understanding practical feasibility is being underlined, something not yet covered in the conceptualization of productive dissonance. Without this balance, dissonance may become unproductive, lacking the necessary grounding to translate new ideas into actionable plans. This highlights the need for like-minded partners in a professional sense to generate productive interactions. This being said it is important to consider that it is a fine line of balancing professional diversity and homogeneity and balancing feasibility and creativity.

4.4 Let's Talk – Communication is Key

Throughout the interviews, VATILac team members emphasized the connection between communication and productive dissonance. Various interviewees shed light on the challenges that arise from differences in communication which they linked back to the interaction of divergent backgrounds. For example, Rowan expresses:

"I think it all starts with a difference in communication… when you start working with teams from very different places, sometimes it's difficult to understand what they are saying and for them to understand what you are saying."

Through Rowan's way of making sense, one can note that they believe communication barriers arise from diverse ways of discussing and perceiving ideas. These differences in communication styles can hinder effective dialogue and collaboration, leading to misunderstandings and potential conflicts. Moreover, Rowan emphasizes the pivotal role of communication in setting the tone for dissonance, highlighting that effective communication is essential for guiding whether dissonance manifests as productive or unproductive. By this statement, the concept of 'understanding' can be seen as a two-way street, as Rowan states that both conversation partners need to seek understanding. Thus, misunderstandings need to be voiced from both sides because only through mutual understanding can productive dissonance occur. However, if there is a lack of understanding or miscommunication, dialogue becomes difficult, impeding the potential for productive dissonance. This highlights the importance of fostering clear and effective communication to achieve productive dissonance.

Aligned with Rowan's understanding, Blake describes the existence of different communication ways as an asset. This is exemplified by their quote:

"We use our own perspective to challenge colleagues whenever you see that maybe they are saying something that is not making sense"

Blake's statement reflects on the value of leveraging individual understandings to challenge and clarify each other's meaning effectively in order to overcome or prevent inconsistencies. Encouraging team members to question additions made by colleagues in discussions lays the foundation for the tension of perspectives needed in fostering productive dissonance. It thereby underscores the value of diverse viewpoints in fostering critical thinking and robust discussions. By challenging one another, individuals are prompted to reflect on their ideas and articulate them in a manner that is more conducive to the situation and audience at hand. This highlights that a culture where constructive feedback and viewpoints are valued and encouraged is the foundation of productive dissonance. This process fosters deeper understanding and facilitates the generation of innovative solutions. Furthermore, Blake highlights the necessity of clarity for productive dialogue. Clear communication is essential for ensuring that ideas are effectively exchanged and understood, preventing misunderstandings, and facilitating constructive dialogues.

A more proactive approach towards different communications is taken by Emery who discusses dissonance in miscommunication:

"There is a lot of misunderstandings and misguiding things. Some cultures can be passionate and outspoken and say what they're thinking without filtering…So there is a lot of things going on in terms of understanding the environment and culture and understanding with empathy how this looks like for him or her that is not from the same country"

Emery identifies miscommunication as a primary source of dissonance within the team. When communication is unclear or misunderstood, productive exchange becomes hindered as misunderstandings overshadow and impede the sharing of different viewpoints. Emery emphasizes that effective communication isn't solely about accounting for diverse backgrounds but also understanding different styles of expression and not letting the delivery affect the message. They underline that when communication occurs in an inclusive and understanding way all dissonance can be productive. Therefore, the quote underscores the importance of striking a balance between cultural competence and communication skills in fostering effective exchanges of ideas within diverse teams. This balance requires individuals not to take things personally when feedback is unfiltered, as personal reactions may hinder rational explanations and engagement in productive dissonance. Aligned with this argument, Emery highlights the significance of self-reflection in communication as individuals must be capable of putting themselves in others' shoes and empathizing with alternative perspectives and communication styles. By doing so, they can bridge communication gaps facilitate more productive exchanges within diverse teams, and decrease the risk of unproductive conflict.

Key to avoiding misunderstandings and unproductive dissonance is the skill of active listening. This became clear through the two conflicting field notes in one of our observations. The first observation displays a positive example of how listening nurtures productive dissonance:

Observation 2 – 13.03.24

Field Note: Ellis presents. During the presentation Ariel actively listens, nodding, and giving a thumbs up reaction. After the presentation, Ariel asked clarifying questions to make sure they understood.

The observation underscores the necessity of seeking clarity when communication is unclear. By actively engaging in an exchange where both parties state what was said and understood, a foundation for productive dissonance and dialogue is established. This interaction highlights that dialogue as it is not merely about one person presenting their viewpoint while the other responds with a simple yes or no. True engagement requires active participation in a

conversation, where ideas are exchanged, challenged, and refined through meaningful exchange to enable productive dissonance fully.

The second observation displays an example of how a lack of listening and consideration of dissenting perspectives results in unproductive dissonance:

Observation 1 – 12.03.24

Field Notes: Charlie talks about working with an old stakeholder that previous group members have collaborated with. Blake comments about the stakeholder, sharing that what Charlie is suggesting has not worked in the past on the local challenge they oversaw and believes it equally 'won't work now'. Charlie responds that the stakeholder has made some structural changes since then. Blake retorts 'but still'. Charlie immediately says, 'Let's still give it a try and we can still discuss afterward how to go about it'.

The field note presents evidence of challenges within the group dynamic, particularly in active listening and respecting other's input. Here, both team members exhibited a pattern of "no, but" behavior, indicating an unwillingness to fully consider each other's perspectives. This inability to truly hear and understand one another prevented the emergence of productive dissonance, where differing viewpoints could have been leveraged to generate innovative solutions. Instead, the interaction led to unproductive dissonance, characterized by a failure to acknowledge, and respect each other's views. This lack of mutual respect and recognition of past expertise hindered the collaborative process as team members were unable to capitalize on each other's knowledge and insights. In order to foster a more constructive and collaborative environment, this observation showcased a need for team members to cultivate active listening skills and a mindset of openness to diverse perspectives.

Based on the two observations outlined above, the need for an environment beneficial for productive dissonance becomes evident. This understanding is also shared by Emery, as they even go a step further and emphasize the importance of respect and listening:

"I think it's about respect and actually listening and you know say that, OK. So, I, you know, I hear what you say. I disagree, but let's try it."

Emery's quote underscores an aspect vital for fostering dissensus and, consequently, enabling productive dissonance to flourish: the establishment of an environment characterized by respect and trust. The interviewee emphasizes that cultivating respect, active listening, and an openness

to exploring differing viewpoints is essential for nurturing productive dissonance. In this context, respect entails valuing and acknowledging the perspectives of others, even when they diverge from one's own. By stating ‘I disagree, but let's try’ Emery demonstrates the existence of an open environment where disagreement can be voiced while remaining open to trying a new approach. In contrast to this a closed environment, where a person is very set in their ways, doesn’t give the space to hear any other opinion and thereby further decreases the chance of having dissonance. Consequently, by prioritizing respect, individuals can create a foundation conducive to the exchange of diverse viewpoints and the constructive resolution of conflicts. In doing so, they lay the groundwork for harnessing productive dissonance.

4.4.1 Interdisciplinary Interaction

Consider the following field note:

Observation 2 – 13.03.24

Field Note: Charlie speak for five minutes about one highly complex and filled excel sheet. During the call some individuals took notes, others looked at a different screen not paying attention to the presentation. When the presentation ends, Blake gives input from a more global marketing perspective that reshapes the presented excel sheet.

This field note displays an intersectionality of perspectives within VATILac regarding the interplay of a more data-driven perspective and a marketing business perspective. Charlie's presentation may have provided a detailed view from a particular angle, but Blake's input from a different perspective reshapes the understanding of the Excel sheet, leading to a new approach. The diversity of viewpoints within the creative group thus allows for the clash of ideas that characterizes productive dissonance. Through this tension, the group can refine their understanding, incorporating different perspectives to arrive at a more comprehensive and novel idea. This intersectionality is also experienced by Nova who states:

“When dumping ideas and then start to refine them, that’s where you see the marketeers and the more technical individuals linking things. Our purpose is having more ideas, then you will take one and refine it and that's where you see the conflict…maybe an idea is not going to work because of the technical aspect. That’s where we always ask each other to narrow ideas down to reality”

Through this quote, Nova emphasizes the role of conflict in examining ideas from various perspectives. This conflict arises during the evaluation process, where different viewpoints clash, contributing to the refinement of ideas. Moreover, the concept of tension in modifying ideas, framing it within the context of productive dissonance is being introduced. This tension serves as a catalyst for refinement, leveraging the essential clash of ideas to enhance the uniqueness of the final idea. Additionally, the interviewee views the process of narrowing down ideas through different lenses (two different professional identities) as inherently valuable for enhancing productive dissonance. However, Nova also acknowledges the importance of pragmatism and feasibility in creativity. While exploration and divergence are essential, creativity must ultimately be bounded by practical considerations to ensure viability. In essence, Nova's insights highlight the dynamic interplay between conflict, tension, and refinement in the creative process through different professional identities which ultimately foster productive dissonance throughout the evaluation.

Emery furthermore highlights that context also shapes communication and thus dissonance, they reason that:

> *"We have people from different points of views, but we're still work for an engineering company. So that's where the chaos lies, and you need to bridge that understanding."*

Through this quote the interviewee draws a connection between different modes of discussing ideas and chaos. Chaos is often perceived as undesirable, messy and unproductive. However, chaos also holds creative potential, as it necessitates the discovery of a new order. This duality of chaos can either hinder or foster innovation, highlighting the importance of balance. While companies typically strive for structure, creativity thrives on a degree of chaos. Yet Emery argues that chaos facilitates conversation by enabling the bridging of different understandings. In the absence of chaos, discussions may stagnate, lacking the spark needed for productive dissonance and the emergence of new ideas. Thus, without the chaos dissonance would become non-existing. However, Emery also claims that conversation may be guided by context, such as the engineering core inherent to LacTAE. Therefore, acknowledging various viewpoints is crucial for facilitating a productive discourse. Moreover, Emery underscores the role of context in shaping creativity, which presents an avenue for future research. Overall, Emery's insights shed light on the nuanced relationship between chaos, dissonance, context, and creativity in relation to productive dissonance.

While reflecting on the aforementioned chaos in dissonance, Nova shares the positive contributions that can be brought on by bridging various professional identities:

"We're just talking two different languages and sometimes it's not seen that we're trying to add value to each other on that part. So, I think that there's times that marketing doesn't understand fully the engineering side of things. But we're all talking in the end the same solution and they all have to make sense to everybody… But both are essential in different path to make creativity work."

With the quote, Nova highlights the challenge of articulating and discussing an idea, noting that sometimes it may not be valued due to a lack of understanding. They emphasize the importance of combining both the marketing and engineering perspectives to generate truly novel outcomes, acknowledging that unproductive dissonance may arise when attempting to explain ideas across different perspectives. Unproductivity arises as the conversation shifts more towards discussing fundamental understandings instead of having a dialogue about an idea. Thus, the challenge is about making sense communicatively of a problem when people come from different professional backgrounds. The combination of these specific perspectives is crucial, as each brings unique strengths to the table, resulting in unified creative solutions. Even though one perspective may be associated with being more creative while the other is perceived as more functionally oriented, it must be underlined that creativity can be found everywhere. In summary, Nova underscores the importance of productive dissonance in the collaborative process, highlighting the need for different viewpoints to carry the conversation forward and reach a negotiated order where both positions can contribute meaningfully.

Lastly, the description of chaos is shared by Finley who describes the existence of different business vocabulary as crucial:

"Where the techn*ology meets marketing and it's not that I find it a dangerous place to be but it is for sure a place where there are different targets, different goals, different perspectives that can be, you know, leading to conflicts."*

Based on Finley's statement a clash of two professional identities, representing divergent perspectives or goals, can be observed. This misalignment in objectives can lead to unproductive dissonance, as agreement on crucial aspects may prove indefinable. Furthermore, Finley's explanation of differences in targets, goals, and perspectives reflects a hierarchy, with business-driven metrics often taking precedence over collaborative evaluation. This

prioritization sets the stage for conflict, particularly when different business objectives collide. Finley acknowledges the critical nature of dealing with diverse business vocabularies. They explicitly recognize the potential for the emergence of conflicts when technology intersects with marketing, as misunderstanding can arise through the difference in communication. When reflecting on the language chosen around the word 'meeting', Finley suggests a distinctness and the need for being acquainted. Furthermore, the wording adds a temporal element, emphasizing that this meeting occurs occasionally, likely in specific settings or moments. Thereby this crossing of the different viewpoints might not be a constant element and thereby hinders the cultivation and existence of productive dissonance. When reflecting on the meeting point of the different professional identities, Finley uses the term 'dangerous place', implying a drastic interpretation. This description may stem from an overall misconception that views conflict and collaborate negatively. By highlighting this danger, Finley perhaps seeks to challenge such perceptions, showcasing that they view conflict as an opportunity rather than a harm. Finally, the interviewee underscores the importance of communication and awareness of these differences in maintaining productive dissonance. Acknowledging and addressing conflicting perspectives seems to be essential for fostering collaboration and encouraging constructive dissonance rather than avoidance.

4.4.2 Technology in Communication

Another finding connecting to the notion of communication was the use of technology by the creative groups studied and its effects on cultivating productive dissonance. Consider the field note below to exemplify this further:

Observation 2 – 13.03.24

*Field Note: During a presentation Nova has a new idea which they types in chat to not disturb current spea*ker. *Marion says, 'take this offline' 'discuss and build on this verbally in another call, not now'.*

In this observation, Marion instructs Nova to take a conversation ,that could lead to productive dissonance, offline and into another session that focuses on this idea development. This field note evidences the group members' willingness to share their ideas, engage in productive dissonance and to seek a dialogue throughout the entire process (connecting back to chapter 4.1). A variety of interpretations can be deduced from this, one being that due to the crowded nature of the call productive dissonance is crowded out due to the information being shared. No

opportunity exists because the call observed works based on a clear agenda in which updates are shared and productive dissonance moments are not encouraged. This instruction may also be given because Marion recognized that, in this case, the discussion partners needed for productive dissonance are only the select individuals involved not everyone. This emphasizes that despite productive dissonance taking place throughout the entire process (as interpreted in chapter 4.1) the moments in which it occurs must consider both the quality and quantity of dialogue partners involved. Furthermore, the focus on offline as a preferred method is highlighted. Therefore, it can be interpreted that Marion may be attempting to build and normalize certain communicative spaces.

In continuing, to another medium of online communication, consider the quote below by Finley on a preference for dialogue over e-mail:

"I need to have a dialogue, so of course it needs some more detail because I couldn't really do anything with a mail right"

This quote continues to highlight a need for dialogue as details are needed that cannot be captured through technology. Therefore, technology is not always an enabler in reducing or enhancing interaction. Furthermore, productive dissonance can only flourish when context and clarification are available and shared. An e-mail simply cannot capture the complexity of an idea, particularly in a professional setting where e-mail etiquette exists. Adding to this, such a format limits the collaborative nature needed for dissonance. Furthermore, the chance for unclarity in written communication is heightened. Ultimately, this further proves that teams must critically engage with one another through dialogue and resolve potential misunderstandings or inconsistencies.

Lastly, another technological tool in communication, the visual presentation instrument PowerPoint, is reflected on by Harper:

"All our PowerPoints have a lot of text which I don't get, so I could just send it to you, and you read it. Why should I waste time? The customer doesn't know how to find a solution and that's what they're looking forward for. So, we need to actually talk about ideas."

Harper's statement accentuates the importance of having dialogue and engagement within the creative process to find a fitting solution to the challenge at hand. By expressing dissatisfaction with text-heavy moments leading to *"death by powerpoint"* (e.g. Emery) Harper advocates for

meaningful dialogue instead. They highlight a commitment to delivering value by focusing on talking about ideas directly tied to the challenge rather than overwhelming participants with information. Thus, rather than relying only on written content, the value of interactive discussions in addressing needs and fostering novel ideas is recognized. This quote raises the question on whether a set agenda and direction via presentation material means productive dissonance and its opportunities are preset and influenced in an effort to not 'waste time'. The usage of PowerPoint in this setting relates back to earlier findings on rushing to consensus.

4.5 Chapter Summary

Our analysis commenced by delving into the dynamic nature of productive dissonance within the creative team studied to give the findings context. Our analysis explored the interplay of dissensus and consensus, diversity, communication, and its influences on productive dissonance within the creative group VATILac. In investigating the balance between dissensus and consensus in fostering productive dissonance, interviewees showcased how the clash of perspectives (dissensus) fuels creativity while also posing challenges to group dynamics. Our findings underscored the importance of initiating discussions and inviting diverse opinions thus demonstrating how embracing dissensus can lead to fruitful exchanges and inspire creative breakthroughs. However, some team members expressed a preference for consensus over dissensus, potentially hindering its emergence and stifling the cultivation of productive dissonance. Despite challenges, moments of productive dissonance persist in the group studied by fostering a safe and open environment where team members feel valued and heard.

Thereafter, the significance of diversity in fostering productive dissonance within creative groups was explored. Interviewees highlighted how diverse backgrounds and perspectives contribute to a fruitful exchange of ideas, despite the challenges they may present. Diversity is seen by many participants as essential in facilitating productive dissonance by broadening the scope of dialogue and allowing creative groups to approach problems from various new angles. The influence of professional diversity is also recognized, highlighting the value of balancing these perspectives with practical considerations. Lastly, the crucial role of communication in fostering productive dissonance within creative groups was outlined. Differences in communication styles, often stemming from diverse backgrounds and professional identities, were perceived as both enablers and disablers of the productive exchanges of ideas. Clear, respectful, and inclusive communication practices are highlighted as essential in ensuring

productive dissonance is cultivated. The medium of communication also played a significant role, particularly when it comes to the hindering influence technology can impose on dialogue.

What can be concluded from this analysis is that a variety of elements work together to ensure the puzzle piece of productive dissonance fits into the puzzle which is group creativity. The following chapter aims to delve deeper into how these findings contribute to existing literature and what novel contributions have been uncovered that warrant further investigation.

5 Discussion

The following discussion is inspired by Schaefer's (2024) *conversation metaphor* which implies this section will resemble a dialogue with the main researchers and discuss where and why our findings add to this conversation. Ultimately, this chapter works towards our goal of understanding how to cultivate the puzzle piece of productive dissonance and allow it to fit into the metaphorical puzzle of group creativity. While our findings add to the understanding of productive dissonance further investigation is required to fully fill the gap.

To structure our discussion with existing literature, we follow the three main elements outlined in the analysis chapter above: navigating dissensus and consensus, leveraging diversity, and optimizing communication. Furthermore, we relate these back to the literature in our field to further interpret the results while highlighting novel findings. After showcasing all factors that play a significant role in nurturing productive dissonance, we present our conceptualization of how productive dissonance can be cultivated by applying the wave-particle duality analogy. As stressed earlier, while research on what enables and detracts group creativity exists, further investigation into the nature of its collective processes like productive dissonance is needed (Harvey, 2014; Kurtzberg & Amabile, 2001; Shalley & Perry-Smith, 2008). Similarly, studies on conflict in creative groups exist (Carnevale & Probst, 1998; Chen, 2006; Kurtzberg & Amabile, 2001), yet an understanding of the intricate workings and particularly the cultivation of productive dissonance requires further attention.

To set the ground we want to briefly highlight that the basics of what makes up creativity as outlined in theory were supported by empirical evidence. Thus, the creative process through which novel ideas emerge is based on a given challenge or problem which builds the foundation thus we are aligning with Amabile et al. (1996) who argued this as the starting point of the creative process. Furthermore, by seeing VATILac members collaborate and engage in conversations we are aligning with the standing that creativity is socially constructed as transformative ideas must be discussed (Todorov, 1984; Csikszentmihalyi, 2009; Elisondo, 2016; Schaefer, 2023). Based on the VATILac team, we also acknowledge that group creativity is influenced by various factors (Harrison et al. 1998; Harvey, 2013; Shalley & Perry-Smith, 2008). We will now focus our discussion on the influential elements of how productive dissonance can be cultivated.

5.1 Navigating the Tension between Dissensus and Consensus

In this section of the discussion, we will delve into the dynamics of the balance between dissensus and consensus at VATILac, while connecting our findings to existing literature and highlighting novelties for further investigation. Managing to navigate this delicate aforementioned equilibrium is a fundamental element and yet a challenge for many creative groups seeking productive dissonance. The need for this balance in creative group was supported by interviewees and visible through the observations (e.g. Rowan). This is in line with Schaefer's (2023) original conceptualization of productive dissonance. According to him, this balance acts as a facilitator in the creative process as it leverages opposing views in dissensus and afterward enables consensus in synthesizing ideas (Schaefer, 2023). An interviewee mirrored this by voicing that their work can be likened to constantly dealing with 'mini conflicts' making adjustments based on both 'agreements and disagreements' (e.g. Finley). The description of mini-conflicts highlighted the natural and cyclical element of productive dissonance that Schaefer's model proposes. The latter reference to adjustments based on agreements and disagreements echoes Harvey's (2014) creative synthesis, the step following productive dissonance. This only further showcases the practical applicability of this theoretical framework (friction model). Furthermore, it highlights the need for this study to understand productive dissonance and how to cultivate it on a deeper level. A key way of ensuring productive dissonance is fostered is by inviting divergent opinions and showing a willingness to seek and engage in productive tension. Interviewees as well as observations showcased this by dialogue partners explicitly asking one another to 'tell them more' thus fueling the interaction needed to cultivate productive dissonance (e.g. Harper).

A novel finding in our exploration was a temporal element in seeking dissensus within the creative group VATILac. An interviewee shared that although they see value in dissenting, they feel that seeking dissensus is only needed, if at all, once their individual idea is fully developed (e.g. Blake). This indicates that productive dissonance is sought out by this individual only at a later stage of the process and when it is needed. This mindset impedes the cultivation of productive dissonance, as it is seen as a choice rather than a key part of the process. Only by changing this mindset and actively seeking dissensus can balance be restored and productive dissonance truly be cultivated. This finding has not been discussed by researchers; therefore, we suggest this as an avenue for future research (see chapter 6.4).

Past literature has described two types of dissensus within creative groups: task conflict and relationship conflict (Chen, 2006; De Dreu & Weingart, 2003). Our paper chose to explore productive dissonance which operates under a more refined definition but can be likened to a productive version of task conflict. It must be highlighted that not all group members at VATILac agreed with this productive outlook on conflict, linking back to the paradox described earlier in this paper (that dissent is viewed as something negative). This misalignment in viewing conflict can in itself be a barrier to productive dissonance. Only if everyone welcomes a certain degree of dissensus productive dissonance can thrive. The participants that disagreed, expressed a preference for consensus over dissensus within their creative process. This was stressed by the metaphor of having multiple captains on a ship resulting in little to no movement (e.g. Riley). We interpreted that the interviewee believes that having multiple, equally strong opinions or 'captains' means the idea or 'ship' would struggle to move forward. This can be seen as evidence of a strain for consensus which has been noted in literature as the reason for a creative groups' lack of performance and a rise in groupthink (Janis, 1982 cited in Nemeth & Nemeth-Brown, 2003; Troyer & Youngreen, 2009). Chen (2006), on the other hand, believes dissensus to be a key driver in the creative process, claiming task conflict can promote divergent thinking and lead to high-quality innovative outcomes. This again takes us full circle to Schaefer's (2023) concept of the friction model in which productive dissonance lies at the heart, reaffirming the need for this study into the concept and what cultivates it. What the captain-boat-metaphor further highlighted was the role of leadership and governance in such creative groups and how this may block processes like productive dissonance from occurring (see chapter 6.4 for more).

Another hindrance to cultivating productive dissonance was a reluctance to engage in dissensus out of fear of repercussions and disrupting collaboration (e.g. Charlie). This restraint is recognized in another example given by an interviewee who was perceived as disruptive due to their sharing an opposing view (e.g. Harper) or another who describes presenting innovative ideas as being perceived as crazy (e.g. Carter). Most likely the conflict these individuals fear is interpersonal conflict. A conflict which Chen (2006) has linked to have negative effects on both creativity and group cohesion as it can result in the occurring of unproductive dissonance. Literature also echoes that when psychological safety is absent in creative groups, individuals will not risk negative reactions that accompany radical ideas, preferring to stay rather silent than contributing (Paulus et al. 2012). This once again underscores the importance of creating psychological safety in ensuring a dialogue and tension needed for cultivating productive

dissonance and as a byproduct improving the group's creative outcomes (De Dreu & Weingart, 2003). This paper showcased two examples of psychological safety within VATILac. In the successful example of creating a safe space, group members used humor and the aforementioned inviting of divergent perspectives to make individuals feel at ease and encourage interaction thus encouraging opportunity for productive dissonance.

Another novel finding in relation to this balance of dissensus and consensus in our research at VATILac was the practice of 'green housing.' As defined in the previous chapter, this technique was primarily used to accelerate the creative process by building new ideas on the backs of previous ones ideated by the group in the past (e.g. Carter, Nova). We understand this method to be a hindrance in productive dissonance as reaching a consensus too early in the creative process eliminates potential moments of dissent. This again underscores the aforementioned temporal element of rushing to consensus. The need for dissent in creative groups is supported in the literature by Nemeth and Staw (1989), who claim that dissent is an enabler in creativity over consensus. A pressure toward consensus has also been explicitly linked with the creation of non-creative solutions in other literature (Harvey & Kou, 2013; Stasser, 1999). One could also view green housing as a high form of social control which Nemeth and Staw (1989) concluded causes groups to converge on conventional solutions employing little to no innovative thinking in their solutions. The same interviewee who discussed green housing also hinted that the group has fallen into a routine through this process, and it is one they should break out of in order to develop novel ideas (e.g. Nova). This highlights that in order to cultivate productive dissonance, dissensus needs to be embraced and not rushed in a group creative processes thereby adding a new insight to literature. Yet it also shows that productive dissensus is something that might get lost through routine practices. By needing to find consensus after productive dissonance (after the tension of diverging perspectives), a circular relationship between these two aspects becomes visible.

A further unexpected finding that hindered dissensus and thereby opportunities for productive dissonance is the presence of siloed working. While an interviewee shared that siloed working is not a constant state for their group, working on elements and bringing them together without discussion can be a reality in a business context at times (e.g. Blake, Casey, Taylor). It seems this way of working is, yet another tool, used to avoid potential dissonance in an effort to rush to consensus on an idea. The practice of siloed working goes against the fundamentals of group creativity in literature, as group interactions serve as a significant source of both innovation and

competitive advantage (Paulus & Nijstad, 2003; West, 2002). Therefore, we conclude productive dissonance is cultivated by interaction and collaboration and thus would benefit from an opposed practice to siloed working.

In conclusion, the balance between dissensus and consensus is a difficult yet necessary one to strike. Our findings and the literature paint a similar picture underscoring the importance of balancing consensus and dissensus for productive dissonance within creative groups. The novel findings in this section centered around the idea of rushed consensus and thereby avoiding dissensus. This rush is fueled by techniques, like green housing and siloed working, as well as a general fear of interpersonal conflict. Thus, Productive dissonance is cultivated when there is sufficient space for constructive dialogue and a truly collaborative environment in which group members feel safe to voice new, divergent ideas.

5.2 The Role of Diversity

To showcase another puzzle piece, we focus on the element of diversity and its influence on how to cultivate productive dissonance. Based on the empirical findings, we discovered how diversity is viewed in creative groups and the effects attributed to diversity in the context of dissonance. As already outlined in the literature review, there is no singular definition of diversity. However, when asked about what diversity meant for them, the interviewees all gave similar answers, stating that they interpret diversity in terms of cultural and professional backgrounds, as these two aspects influencing one's way of understanding and perspectives (e.g. Blake, Marion, Rowan). Thereby, we focus on diversity through their lens.

Based on the existing literature, diversity is often referred to as a means of enriching interaction, which can result in increased creativity (Harrison et al. 1998; Nemeth & Kwan, 1987; Phillips and Loyd, 2006). This happens as various perspectives come together and inspire one another (Martin, 2014; Nemeth, 1992). Through our analysis, we support the literature in the value they place on diversity, as we found that diversity plays an important role in cultivating productive dissonance. We see that diverse perspectives (culturally and professionally) enrich conversations by seeing things in a different light and bringing up topic's others might not have reflected on (e.g. Blake). Moreover, the data suggested that diversity is crucial for enabling productive dialogues. Aligned with our assessment, the interviewees elaborated on the benefits that derive from diversity as they emphasized that diverse opinions broaden the scope of their dialogues and expressed the importance of embracing conflicting viewpoints as opportunities for growth (e.g. Blake, Casey).

Nemeth and Kwan (1987) argued, in the context of group settings, heterogeneous groups have the advantage of having varied perspectives. We, grounded in our empirical research, agree with the literature as our data showed that having a variety of viewpoints can broaden the understanding of complex issues. Therefore, diversity is viewed as a strength within group discussions. Furthermore, this strength prompts divergent thinking, as during discussions, nuanced understandings come together to allow a synergy of opposing viewpoints and thereby enrich them (e.g. Blake, Casey, Charlie). Additionally, it is argued that the tension needed for productive dissonance arises due to the presence of diverse perspectives (e.g. Charlie).

Although Martin (2014) stated that a bigger variety of perspectives, thus an enriched knowledge base, can increase creativity, he also emphasized the challenges arising from this. Similarly, we found that diversity needs to be seen as a double-edged sword. In looking at the positive effect of diversity, we agree with Martin (2014) as the interviewees expressed that diversity inspires them to voice new aspects, thereby engaging in productive dissonance. Meanwhile, they also highlight a need for clear and open communication as otherwise diversity can also be hindrance (elaborated on in chapter 5.3). Next to linking communications to diversity, our empirical data led us to discover that diversity can also lead to unproductive conflict as interpersonal difficulties in collaboration can arise (Chen, 2006). Furthermore, the empirical findings showcased that a too-diverse group can impose a challenge, as there needs to be at least one like-minded team member to exchange thoughts with as a thinking partner (e.g. Finley). This finding supports Mannix and Neale's (2005) research as their similarity-attraction theory stated that individuals with similar attitudes create a connection. Our data indicated that this is essential for feeling free to express diverging opinions. Additionally, these empirical findings align with Harvey (2013), who discovered that in highly diverse groups people without any similarities hinder the possibility of building strong relationships needed for an open discussion and thereby productive dissonance.

Concurrently, while discussing the need for similarity, an exceedingly homogenous group can pose a further challenge. Thus, we found unhealthy competition as a relationship conflict impeding a chance for productive dissonance and creativity to occur. An interviewee remarked that, while culturally unique and stemming from different backgrounds, they viewed parts of the team as 'mini-me's', all competing for one role, which they believe causes unhealthy behaviors (e.g. Ellis). This finding matches Chen (2006) who claimed that by engaging in competition and accompanying hostile behavior can decrease the creativity of those

collaborating. One of these hostile behaviors can include withholding novel ideas in an effort of self-preservation and avoid engagement in productive dissonance. We likewise support Harvey's (2013) findings concluded that deep-diverse groups can face challenges in exchanging diverging ideas, potentially reducing productive dissonance and creativity to some extent.

To conclude, diversity in a creative group proved to be an asset in enabling productive dissonance. While the value of diversity is underscored it is also emphasized that there is a need for balance and understanding within teams to ensure that diverse perspectives lead to productive outcomes. Ultimately, diversity can be seen as an influential element on the puzzle piece, that is productive dissonance, and how this fits into the overall metaphorical puzzle.

5.3 Communication and its Challenges and Opportunities

Next to diversity, our study highlighted that fostering effective communication across diverse creative groups plays a pivotal role in cultivating productive dissonance. This section explores the effects of cultural and professional diversity on communication as well as the impact technology has on this interaction.

While some research believes that heterogenous groups can have adverse effects on cohesion, conflict, and communication (Chatman et al. 1998; Jehn et al. 1999), others believe communication can be seen as the tool used to link individuals with varied perspectives together for an improved creative outcome (Mannix & Neale, 2005). As explored in the previous section, group members spoke about two types of diversity, namely cultural and professional, that can have direct effects on communication. Interviewees underscored how differences in communication style, based on cultural backgrounds, caused misunderstanding and complicated collaboration (e.g. Emery). This sentiment is echoed in literature by researchers claiming that a too-diverse group causes challenges surrounding miscommunication, interpersonal conflicts, and difficulty achieving harmony (Harvey, 2013; Martin, 2014; Paletz, 2016). Strategies the interviewees presented in circumventing this is to utilize empathy for the other and their cultural communication style (e.g. Emery) as well as challenge one another's understanding to reach clarity (e.g. Blake, Rowan). This is in line with Tsoukas (2009) who defines productive dialogue as removing any unclarity and thus allowing for mutual influence to occur. Thereby this researcher links communication and clarity which our interviewees see as key in cultivating productive dissonance.

The interviewees' strategies also echo the earlier importance of creating a psychologically safe space where productive dissonance can flourish. Lovelace et al. (2001) claim that success in task conflict is dependent on how freely members felt to express themselves and how collaboratively arguments were communicated on. Various other studies similarly claim that task conflicts can only be beneficial for creativity if the group possesses high degrees of psychological safety, trust, and shared openness (De Dreu & Weingart, 2003; Harrison et al. 1998, Phillips & Loyd, 2006). An example that makes this apparent in our findings was the observation in which dialogue partners did not hear one another and displayed 'no, but' behavior. The lack of openness displayed in this instance was not conducive to cultivating productive dissonance as no tension of viewpoints was held in the dialogue that would allow a creative synthesis to occur. Another interviewee voiced that they believe collaboration is about trying even when disagreeing (e.g. Emery) which again echoes the principles of productive dissonance.

Our analysis also discusses the effects of professional diversity and how the intersectionality of professional backgrounds affect communication. Some group members voiced that the balance between the two is like speaking 'two different languages', making work slightly 'chaotic' and often 'leading to conflict' (e.g. Finley, Nova). Kaufman and Sternberg (2010) highlight that this disconnect may result from a difference in their definition of creativity. Engineering and technical backgrounds, for example, place higher value on criteria like adaptiveness over novelty and innovation and thus focus communication on elements pertaining to this (Kaufman & Sternberg, 2010). As productive dissonance accounts for multiple perspective the importance of achieving a balance between creativity and feasibility is emphasized. Additionally, this underscores a gap in research regarding when dissonance becomes productive or unproductive (chapter 6.4). On a positive note, when communication is bridged between these conflicting business vocabularies and objectives creativity is enriched, and productive dissonance can be fruitful.

Another finding on communication as a cultivating factor of productive dissonance was surrounding the influence of technology. Interviewees voiced concern about a lack of interaction and by extension creativity caused by communication via email and 'death by PowerPoint' (e.g. Emery, Finley). Many claimed that such communication technology prevents dialogue in which a tension of perspectives can take place, thereby eliminating room for productive dissonance to occur. While some studies state that a virtual collaboration of creative

teams has little to no effect on the final results (Chulvi et al. 2017) others support what was voiced by interviewees claiming that face-to-face interaction is more conducive to creativity than virtual (Hoever et al. 2012). E-mail in particular was an interesting tool explored in our findings as interviewees believed dialogue on creative ideas requires more interaction than written communication. In this medium, productive dissonance can easily be lost as the needed tension and overarching goal of the dialogue can become blurred in the email chains. PowerPoint was another communication technology reflected on, an interviewee expressing that such tools may also result in an information overload and a steer discussion into a preset direction (e.g. Harper) which may leave little room for spontaneous productive dissonance to occur. This finding also relates back to chapter 5.1 in which a rush for consensus was voiced. One may question if the use of these tools is another means of reaching quick consensus by influencing whether dissonance occurs or what it centers on. This presents another gap in the literature that would benefit from additional investigation to better understand the mechanisms at play in productive dissonance (more in chapter 6.4).

In conclusion, this subchapter emphasized the critical role of effective communication in cultivating productive dissonance within diverse creative groups. It discusses how cross-cultural diversity impacts communication highlighting strategies such as empathy, seeking clarification, and fostering psychological safety as vital in fostering productive dissonance. Professional diversity, particularly between different professional identities, posed both challenges and opportunities in communication due to differing priorities and vocabularies. Finally, the influence of technology in communication was explored, particularly with tools like email and PowerPoint showcasing the value of clear in-person communication in achieving productive dissonance.

5.4 Further Conceptualization of Productive Dissonance

Resulting from our discussion, we propose using the wave-particle duality analogy to answer our research question on how to cultivate productive dissonance. By using the analogy in connection to productive dissonance we enable a better understanding of this key process in creative groups. We see a link between the two concepts as both are iterative and active across all phases of the creative process. In this subchapter, we explore Hua et al.'s (2022) understanding of 'waves' and 'particles' in creativity, this is followed by our expanded use of this analogy. Furthermore, we highlight the enabling factors needed for our conceptualization

of productive dissonance. We end this section by funneling these findings into a visual (figure 3), showing the sweet spot needed for productive dissonance.

Based on the assumption that ideas can inherently take two different forms at the same time ('particle' and 'wave'), we illuminate the process of productive dissonance using the wave-particle duality metaphor based on our empirical findings. Originally, Hua et al. (2022) proposed for ideas to be seen as 'particles' or in other words as identifiable, discrete entities (e.g. proposals, concepts, sketches) that can be coded or judged. Ideas as 'waves', on the other hand, are described as continuous and emergent over time, embedded in actions and relationships. The interplay of the wave and particle view of ideas is essential for a holistic understanding of the creative process. To understand the interlinkage of these two forms, where ideas are particles and waves at the same time, a context needs to be considered: imagine a group meeting to brainstorm an idea. Zooming in on one person would not enable one to observe the wave but would rather see that individual's contribution to the brainstorm. By taking the whole context into account, one could see that ideas are shaped by the group's collective influence. This shaping can be done through productive dissonance, as this is the dialogue leading to novel outcomes.

The conceptualization of the analogy to follow helps to reveal how productive dissonance emerges from the interplay between the particle and wave states, ultimately contributing to the creative outcome within the group. In our conceptualization of this analogy, 'particles' can be seen as consensus, the convergence of ideas into a singular, unified outcome. This agreement represents a solid, tangible state where all members of the group align their views or decisions towards a common goal. In linking our understanding of the particle to the empirical findings, we see evidence that VATILac's approach does not yet capitalize on the wave-particle duality but rather takes a particle view (not considering the wave). This particle behavior is best exemplified by their ideas not being based on interaction as many group members are quick to rush to consensus throughout the creative process. By not engaging in interaction or productive dissonance their ideas cannot be truly transformed by the duality of both the wave and particle as only the latter is considered. On the other hand, the 'wave' in our application of this analogy is the dynamic interaction and overlap of diverse perspectives within a creative group. Dissensus can therefore be compared to a wave-like behavior because it involves the divergence of ideas or perspectives, creating ripples of varying opinions and viewpoints within the group. Dissensus represents a dynamic, fluid state where multiple perspectives coexist and interact,

similar to wave interference in physics. By framing consensus as particle-like and dissensus as wave-like, the analogy highlights the dual nature of creative group dynamics, where the group alternates between moments of convergence and divergence in their pursuit of innovation. Thereby it showcases that creativity requires embracing both the wave and particle. Encouraging discussions and exploration (wave) while also knowing when to crystallize and focus these ideas into actionable agreement (particle). Hence, productive dissonance can be seen as the interplay between these states, where diverse and conflicting ideas (waves) interact and eventually converge into innovative solutions (particles).

In the context of wave-particle duality, there are certain factors that enable the manifestation of either wave-like or particle-like behaviors. These enabling factors can be applied to productive dissonance to understand how ideas can transition between fluid, interactional states and concrete, actionable forms. Based on our empirical findings diversity and communication are key enabling factors. Diversity acts as a catalyst that introduces a spectrum of perspectives and ideas, similar to how light passing through a prism produces a range of colors. Therefore, diversity is needed to confront individual and discrete ideas through divergent ways of understanding. Just as diverse wavelengths of light contribute to the richness of color, diverse backgrounds, experiences, and viewpoints enrich the pool of ideas within a creative group. Ideas thrive on diversity (Harrison et al. 1998; Phillips and Loyd, 2006; Nemeth & Kwan, 1987) by drawing inspiration from various sources that are actively interlinked through dissonance and need to be cultivated to form a wave. Next to diversity, the findings presented that communication can be seen as a further key to cultivating productive dissonance and thereby enabling the wave. Communication serves as the medium through which these diverse perspectives interact and converge (Mannix & Neale, 2005). Effective communication facilitates the exchange of ideas, allowing particles of consensus to form from the waves of dissensus. Clear and open communication fosters understanding and collaboration, enabling the group to navigate between moments of divergence and convergence in their creative process.

In funneling down we present our further conceptualization in figure 3. Here we showcase the friction model with productive dissonance at its center (Schaefer, 2023). Zooming in into productive dissonance we see the analogy where we view dissensus as wave-like and consensus as particle-like (as described above). In order to utilize this duality to the fullest of its potential the catalysts of diversity and communication are needed within the given context. Our figure,

therefore, highlights the dynamic interplay between divergence and convergence, wave and particle needed in finding the sweet for productive dissonance in creative groups.

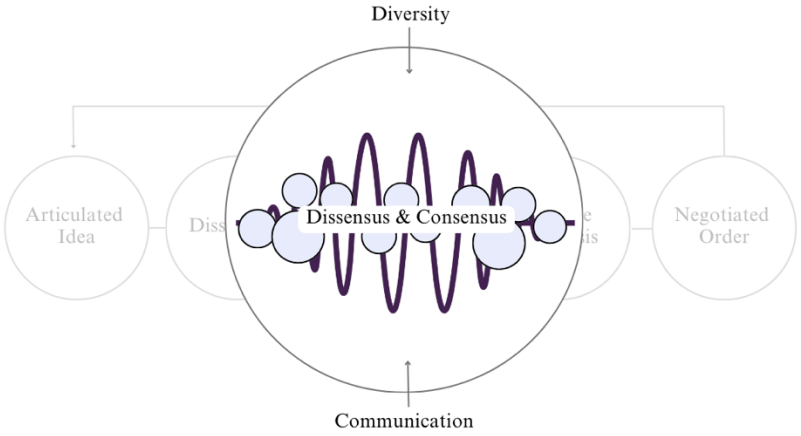

Figure 3 – The Sweet Spot (own visualization, based on Schaefer, 2023; Hua et al. 2022)

Overall, diversity and communication interact synergistically within the wave-particle duality analogy. Together, they contribute to the cultivation of productive dissonance and the generation of innovative ideas within creative groups. For cultivating productive dissonance, particles (consensus) as well as waves (dissensus) need to be present. Hence, highlighting the importance of the interlinkages of dissensus and consensus as well as the catalysts diversity and communication.

5.5 Chapter Summary

In this chapter, we facilitate a conversation between our findings and existing literature to address our question regarding how to cultivate productive dissonance in creative groups. We explored three overarching elements within this investigation namely dissensus and consensus, diversity, and communication. The first element investigated is the delicate balance between dissensus and consensus within creative groups; findings and literature indicating the management of this balance is crucial. A novel finding here was a temporal element to their creative process in which the group rushed to consensus limiting the chance of productive dissonance. Further challenges such as green housing, the fear of interpersonal conflict, and siloed working highlighted the need for a psychologically safe and collaborative working

environment to truly cultivate productive dissonance. The next element, diversity, revealed that both cultural and professional backgrounds have a significant influence on productive dissonance. The findings here highlighted the challenges of unhealthy competition within homogenous individuals within the group while simultaneously underscoring the need for a like-minded thinking partner. The last theme of communication examined the roles the aforementioned diversity, as well as technology, play in cultivating productive dissonance. Here, interviewees contributed strategies such as empathy and seeking constant clarification in bridging understanding. Literature once again supports the idea of psychological safe space being vital in ensuring productive dialogue and dissonance occur. A novel finding here that requires further investigation was around the role technology plays in productive dissonance and creativity.

The culmination of this chapter led to a reconceptualization of productive dissonance and how it is cultivated within creative groups using the wave-particle duality metaphor by Hua et al. (2022). The conceptualization of the analogy reveals how productive dissonance emerges from the interplay between the particle (dissonance) and wave (consensus) states, ultimately contributing to the creative outcome within the group. The elements of diversity and communication, found in our data collection, are catalysts in this relationship that enable the wave to occur and thus cultivate productive dissonance. Our further conceptualization adds to the understanding of this analogy within the context of creativity.

6 Conclusion

In this final chapter, we recapitulate our empirical findings and present both our theoretical and practical contributions of how our paper answers the question of how productive dissonance is cultivated in creative groups. Additionally, we highlight the potential limitations of our research and end our thesis by pointing out new avenues for future research.

6.1 Theoretical Contributions

In this subchapter, we outline the theoretical contributions of our research. This thesis investigates how to make the puzzle piece of productive dissonance fit to fulfill the metaphorical puzzle that is group creativity. While productive dissonance is rather novel in its conceptualization by Schaefer (2023) this paper is able to build on its existing understanding and forge a new theoretical connection to the wave-particle duality analogy in this field.

In an effort to better understand this puzzle piece and its cultivation, we discover that productive dissonance can be cultivated by three elements: the balance of dissensus and consensus, diversity, and communication. Among our findings on dissensus and consensus a temporal element in seeking dissensus within creative groups becomes visible. This temporal component can be viewed as a hindrance to cultivating productive dissonance since creative groups can rush past dissensus to immediate consensus; this is exemplified well in practices like ‘green housing’. This insight provided a valuable addition to literature, highlighting the importance of striking the balance between dissensus and consensus. Furthermore, our research underscores the critical roles of diversity and communication in cultivating productive dissonance within creative groups. Agreeing with Martin (2014), who voiced that diversity serves as a catalyst for introducing a spectrum of perspectives, we find, effective communication enables the merging of these diverse perspectives, allowing the group to engage in productive dissonance. To fully embrace productive dissonance, in addition to existing literature (De Dreu & Weingart, 2003; Deutsch, 1969) our findings highlight the importance of fostering a psychologically safe space, where diverse perspectives can be embraced, and open communication can be channeled.

Derived from the cultivating elements (dissensus, consensus, diversity and communication) we were able to contribute a novel theoretical understanding of how productive dissonance can be cultivated within creative groups by applying the wave-particle duality analogy (Hua et al. 2022). Through the lens of the wave-particle duality, we appreciate the dynamic and multifaceted nature of dissonance and offer a link to a novel conceptual framework that explains how ideas within creative groups can both manifest as discrete ideas (particles) and dynamic

interactions of diverse perspectives (waves). By further conceptualizing this analogy, we aim to clarify the interplay between dissensus and consensus in productive dissonance and thereby the creative processes. By framing consensus as particle-like and dissensus as wave-like, we highlight the dynamic interplay between convergence and divergence within the journey of productive dissonance. Furthermore, diversity and communication can be described as catalysts for wave-particle duality in the context of creativity, which provide rich perspectives and enable a dialogue between diverging views. Together they balance dissensus and consensus and truly cultivate productive dissonance. The analogy thereby emphasizes the importance of considering the collective influence of the group, rather than merely individual contributions, in cultivating productive dissonance through balancing diversity and communication styles within a psychologically safe environment. Due to the simultaneous transition of the particles and the wave, the wave-particle duality can also be regarded as continuous. Just as consensus and dissensus are intertwined in productive dissonance and always continue to shape each other. Embracing this iterative duality can encourage a productive dialogue enabling a deeper understanding of creative ideas and inspire new approaches to foster creativity. Overall, the incorporation of this physical analogy in social sciences not only enhances the understanding of productive dissonance but also contributes to the consideration of creative groups, offering a new angle on the dynamic interactions that drive creativity and lead to innovations.

All in all, based on our collected literature and empirical findings, we are able to identify crucial elements in helping to answer our initial research question. Thereby we contribute to enabling a fit of the productive dissonance puzzle piece into the metaphorical puzzle of group creativity. We believe, our thesis enriches the understanding of productive dissonance and how it can be cultivated in creative groups, showcasing the interconnectedness of dissensus and consensus as well as the interplay of diversity as well as communication.

6.2 Practical Contributions

The practical contributions of this paper center around how a balance of dissensus and consensus, diversity, and communication are key factors in cultivating productive dissonance. From these elements, several practical contributions can be derived.

We find that the presence of dissensus and consensus can be actively achieved by encouraging frequent exchanges of differing viewpoints and actively seeking discourse rather than rushing to superficial agreement. We encourage creative groups to reflect on their current creative

practices (in the case of VATILac: green housing and siloed working) to ensure these are conducive to productive dissonance and collaboration. While these practices are efficient in a business setting, as they cut down the time and resources needed to go through the creative process, they limit open dialogue and innovation since creative friction needs time to arise.

In exploring how diversity cultivates productive dissonance, we highlight that both cultural and professional backgrounds must be considered. While groups may be culturally diverse there is potential for them to be professionally similar which may result in unhealthy competition. Key in circumventing this is to ensure that despite career ambitions, the creative group can still foster a psychologically safe space in which individuals feel empowered to openly share ideas and productively dissent. We link this to a general feeling of trust that must be nurtured amongst these individuals to ensure collaboration over individualism (Chua et al. 2011; Dirks & Ferrin, 2001; McAllister, 1995). Another finding we highlight is that some individuals are also professionally very diverse from the rest of the team and require a like-minded thinking partner. Not having this is like having a panel of experts discussing a topic but only one of them shows up. To solve this practically the team may consider cross-exposure of certain expertise to ensure all members are knowledgeable about each capability in the team and can engage in productive dissonance.

Research warned that diverse creative groups often face difficulties in communication (Jehn et al. 1999; Chatman et al. 1989; Paletz, 2016). To ensure frictionless communication to foster productive dissonance our findings stress several strategies; the first is to utilize empathy, particularly in cross cultural interaction to bridge understanding. The second is the idea voiced earlier on building a safe space to allow for a free exchange of viewpoints as only when this is cultivated do individuals feel safe in voicing novel ideas over mutual ones (Harvey & Kou, 2013; Mueller, Melwani & Goncalo, 2012). Lastly, the consideration of communication technology was noteworthy. We recommend establishing a way of working around how to engage in productive dissonance that uses technology as an enabling tool by deciding when it is constructive and managing the amount of information shared.

6.3 Limitations

In the following subchapter, we elaborated on the limitations of our research. As previously mentioned in chapter 3.3 there are important limitations, such as the limited time to collect data. Next to these there are a few limitations which we now want to draw our attention to.

Firstly, we want to shed a light on our role as peripheral observers during the observations and the resulting findings. As we were solely shadowing during the observations, we had no way to concretely follow up on what was said as we could not disrupt the meeting for more clarification as we would enter their *Lebenswelt.* This imposes the limitation of following up on further sensemaking of the participants in these events.

Further in this paper we did not critically reflect on productive dissonance as a concept. We believe Schaefer's (2023) friction model and proactive dissonance offer an elevated definition of the traditional conflict reflected on in past literature. Being such a new concept, little conversation exists within the literature on this nuanced view of conflict, thereby making a critical stance fully backed by past research challenging. Simultaneously, this novel quality to this theory made for an excellent start to this theoretical conversation on productive dissonance.

Lastly, we did not consider the customer around whom VATILac's entire creative process is built. This was due to the time frame of this investigation as well as company contracts that hindered us from including this viewpoint.

6.4 Future Research

Through our investigation into the topic of cultivating productive dissonance in creative groups, we have come across related topics that require investigation to build on the aforementioned empirical puzzle.

First of all, an interesting avenue for investigation would be to explore the role of communication technologies in group creativity. There appears to be a gap in the literature on this topic in a business context. Further investigation would support this paper in better understanding the mechanisms at play in group creativity, particularly in this digital era. A second avenue voiced by interviewees subliminally was psychological safety as an enabling factor in being able to openly share opinions and engage in productive dissonance. Due to the limited time of our research, we were unable to elaborate on the factors needed to enable psychological safety in this context.

Further, West and Farr (1989) already identified factors such as leadership support as an essential component of nurturing a creative climate within organizations. Linking this factor with our findings on the captain-boat metaphor, the role of leadership and governance in productive dissonance in creative groups is highlighted as relevant for future investigation.

Another avenue of research worth investigating are the effects of the temporal element found in this paper on the creative process and in general, group creativity.

When reflecting on the existence of different professional identities in a creative group setting and their influence on cultivating productive dissonance, we realize there is a potential for further investigation. Specifically, the need to understand how divergent viewpoints intersect with practical feasibility has not been thoroughly explored within the conceptualization of productive dissonance, thereby representing a new research area. Further, interviewees discussed the influence of business objectives on their creativity. Therefore, it would be interesting to find out what impact these business metrics (KPI's) have on productive conflict, as they can be seen as a guiding factor in this context. This also has implications on the degree of creativity possible in this context as this may carry risk not affordable to for-profit companies.

Next to researching further factors influencing the cultivation of productive dissonance, we recommend our study on the determined factors to be replicated in an interdependent context. This duplication is needed to determine whether a uniform classification is possible or whether these factors remain subjective due to our participant's specific social construction of reality.

In conclusion to this regard, we want to highlight that further research into productive dissonance can only add value as this is a key process and can, as we believe, deepen specific aspects of our findings in making group creativity flourish.

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Appendix A: AI Prompts

We used the AI tool ChatGBT for language editing as well for checking grammar. We used the following prompts for the whole thesis:

Prompt 1	You are an experienced writer, tasks with the revision of select sentences of a master's thesis. Can you suggest a synonym for the word X in the following sentence…
Prompt 2	You are an experienced writer, tasks with the revision of select sentences of a master's thesis. Identify any typos, errors and other minor grammatical issues in the following text:…
Prompt 3	You are an experienced writer, tasks with the revision of select sentences of a master's thesis. What do you understand as the key message in the following paragraph:…
Prompt 4	You are an experienced writer, tasks with the revision of select sentences of a master's thesis. How can suggest how to separate this sentence into two for additional clarity:…

Appendix B: List of Interviewees

Name (pseudonym)	Interviewee #
Blake	Interviewee 1
Rowan	Interviewee 2
Carter	Interviewee 3
Riley	Interviewee 4
Ariel	Interviewee 5
Finley	Interviewee 6
Casey	Interviewee 7
Charlie	Interviewee 8
Harper	Interviewee 9
Emery	Interviewee 10
August	Interviewee 11
Nova	Interviewee 12
Ellis	Interviewee 13
Marion	Interviewee 14

Anonymized List of Interviewees