Original Research

The Effects of Multi-Level Diversity on Team Innovation: The Role of Collaborative Capability

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Abstract

Objective: This study examines the effects of surface-level, deep-level, and functional-level diversity on team innovation. This study also examines the moderation effect of the collaborative capability toward diversity and team innovation.

Design/methodology/approach – The sample for this research was 175 creative team members who were then integrated into 38 creative teams of radio and television broadcasting institutions. Data collection was done using a survey method.

Findings – This study indicates that surface-level and deep-level diversity negatively impact team innovation, while functional-level diversity has a positive. In addition, the study found that collaborative capability has been moderated on surface-level diversity and team innovation. However, collaborative capability does not moderate the effect of deep- and functional-level diversity on the innovation team.

Originality/value – This research contributes to the team innovation literature by examining the influence of three characteristics of team diversity consisting of surface level, deep level, and functional comprehensively on team innovation, as well as the moderating role of collaboration capability as a contextual factor.

Practical/Policy implication: From a practical perspective, this study has important implications for how practitioners in creative teams overcome surface and deep-level diversity challenges and take advantage of the functional-level diversity of members in creative teams. This research also increases understanding of the value of diversity in the context of team innovation.

Keywords: Team innovation, Collaborative capability, Surface-level diversity, Deep-level diversity, Functional-level diversity.

JEL Classification: O0, O3

1. Introduction

Nowadays, every organization should deal with various challenges in dynamic and complex environmental conditions by designing various innovations to survive and build competitiveness. These challenges put pressure on organizations to encourage them to build teams considered 'weapons' to face challenges and competition (Kozlowski & Bell, 2003). A team plays a vital role in developing creative ideas and innovation (Sutton & Hargadon, 1996). Innovation can be defined as creating or modifying ideas by developing and implementing the ideas in an organization (Zhuang, 1995; Nohria & Gulati, 1996). According to Woodman et al. (1993) and Anderson et al. (2014), innovation is a complex interaction between individuals and work situations at various individual, team, or organizational levels. The innovation built in a team is an innovation that can adapt to dynamic environmental change (Janssen et al., 2016). Team innovation is one way to adapt within the team through the team's adoption and implementation of various innovative solutions to improve the quality of team performance (Tushman & O'Reilly, 2002; Yuan & Woodman, 2010). The innovation team has a crucial role in overcoming business challenges. Teams that are able to creatively respond to changes in markets, technology and customer needs can create innovative solutions that increase a company's competitiveness.

Team diversity stands as a frequently examined variable (Wang et al., 2016). It refers to the extent of differences among team members (Van Knippenberg et al., 2004). Generally, diversity is categorized into three levels: surface, deep, and functional (Bunderson & Sutcliffe, 2002; (Harrison et al., 2002; Milliken & Martins, 1996). Surface-level diversity involves noticeable distinctions like age, gender, and race/ethnicity. In contrast, deep-level diversity encompasses differences that are not immediately apparent, such as values, beliefs, and attitudes. This multifaceted view of diversity extends further to functional-level diversity, which is less observable and revolves around team members' distinctions in knowledge, skills, information, and expertise (Milliken & Martins, 1996). Understanding these dimensions of diversity is crucial for navigating the intricacies of collaborative work within teams. While surface-level differences are readily apparent, recognizing the subtleties of deep-level diversity, including personal values and attitudes, is equally important for fostering a harmonious and effective team dynamic. Moreover, acknowledging the less observable functional-level diversity is vital for tapping into the varied expertise and skills that each team member brings to the table.

Previous studies have consistently demonstrated a correlation between diversity and team innovation (e.g., Gibson & Gibbs, 2006; Østergaard et al., 2011). Several investigations have supported the idea that diversity within teams enhances learning processes and performance, including creativity and innovation (Rink & Ellemers, 2007; Stewart, 2006). When a team comprises members with diverse backgrounds and skills, it tends to exhibit higher levels of innovation and creativity in problem-solving compared to homogeneous teams (Earley & Masakowski, 2000). However, while knowledge diversity among team members, stemming from varied backgrounds and experiences, can contribute to forming a valuable team, improper management of this diversity can turn these benefits into vulnerabilities. Therefore, developing relationship-oriented skills that integrate heterogeneous knowledge resources among team members is crucial in fostering trust, effective communication, and commitment (Batarseh et al., 2016). The ability to build and manage relationships based on trust, communication, and commitment is called collaborative capabilities (CCAP) (Blomqvist & Levy, 2006).

In addition, the focus of diversity research has developed. However, in principle, diversity can involve various characteristics; many researchers focus on diversity in age, gender, ethnicity, length of a workgroup, and functional and educational backgrounds (Jackson et al., 2003; Van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998). Therefore, synthesizing research results becomes increasingly difficult because of the increasing focus on diversity and the varied theoretical perspectives used (Guzzo & Dickson, 1996; Harrison & Klein, 2007; Ilgen et al., 2005; Jackson et al., 2003; Milliken & Martins, 1996; Williams & O'Reilly, 1998). Then, whether diversity brings advantages or disadvantages to teams is still challenging to understand and remains a crucial question in diversity research (Van Knippenberg et al., 2013). Some previous research on diversity within the team still obtains inconsistent results in increasing team innovation. Therefore, this research aims to address the gap in diversity research by comprehensively exploring the impact of diverse characteristics, including age, gender, ethnicity, workgroup length, and functional and educational backgrounds, focusing on synthesizing results from diverse theoretical perspectives. The increasing complexity in understanding whether diversity contributes to team advantages or disadvantages will be scrutinized, particularly in the context of team innovation, where previous research has yielded inconsistent results.

On the other hand, diversity will improve team innovation, yet diversity can also be an obstacle to manifesting the innovation team (Knippenberg & Schippers, 2007; Knippenberg, 2017). In previous studies, innovation research within the team has received relatively little attention for research (Kurtzberg & Amabile, 2001; West, 2002; Knippenberg, 2017). So far, most research related to innovation is only at the individual and organizational level (Leifer et al., 2002; Zhou & Hoever, 2014). Then, Janssen et al. (2016) stated that the innovation within the team is the most able to adapt to changes in a very dynamic environment. Therefore, to provide a deeper understanding regarding the role of team diversity in influencing team innovation, this study examines the individual effect of each team diversity level on team innovation in the current research.

The main objective of this research is to examine how surface-level diversity, deep-level diversity, and functional-level diversity impact team innovation. Social Categorization Theory will highlight how creative team members in radio may experience a categorization process based on their differences in background, experience, and expertise. Social Categorization Theory discusses how individuals tend to group themselves and others into different social categories and how this process can influence group perceptions and interactions (Tajfel & Turner, 1979). In a radio industry that involves such diverse elements as broadcasting, production, and marketing, diversity in these categories can be a source of strength (Rahmi & Indarti, 2019). Team members representing various aspects of the industry bring unique perspectives, creating an environment where creative ideas can bloom (Rahmi & Indarti, 2019). For example, someone experienced in audio production may have a different approach than someone skilled in broadcasting or marketing. Meanwhile, information processing theory emphasizes the importance of diversity in information processing by individuals in a team (Miller, 1956). In the radio industry, this diversity can refer to differences in technical approaches, knowledge of current music or news trends, and the ability to adapt to technological changes. This processing of diverse information enriches the creative process in developing programs, advertising, or other radio content. Diversity in recording information also allows time to be more responsive to changing trends and market needs, supporting innovation relevant to the audience (Rahmi & Indarti, 2019).

Additionally, this study seeks to explore the moderating role of collaborative capability in the relationship between surface, deep, and functional-level diversity. The findings of this study involving creative teams in radio and television broadcasting institutions reveal significant adverse effects of both surface-level and deep-level diversity on team innovation. The primary goal of this research is to investigate how surface-level diversity, deep-level diversity, and functional-level diversity influence team innovation. Furthermore, this study attempts to investigate the moderating impact of collaborative competence in the relationship between surface, deep, and functional-level diversity. The results of a study involving creative teams in radio and television broadcasting institutions demonstrate considerable detrimental impacts of surface- and deep-level diversity on team innovation.

This study provides substantial contributions in both theoretical and practical realms. By thoroughly investigating the influence of three distinct aspects of team diversity-surface-level diversity, deep-level diversity, and functional-level diversity on team innovation, it expands upon the current knowledge base. Furthermore, the research delves into the moderating function of collaborative capability, further enriching the understanding of the subject matter. These findings provide valuable knowledge for practitioners who work in team-oriented settings, emphasizing the importance of addressing the potential adverse effects of diversity on team collaboration. It highlights the need for team leaders to take charge and create a highly collaborative environment within creative teams. This involves fostering interactions among team members regardless of their status, bridging gaps within the team, and promoting a shared commitment to tasks and goals, achieving the desired innovative outcomes.

The subsequent sections of the study delve into the literature review, development of hypotheses, the methodology employed, and the results obtained. The final section provides a comprehensive discussion of the main implications of the study for both theory and practice. Furthermore, the study acknowledges its limitations, which are also addressed in the concluding part of the paper.

2. Literature Review and Hypotheses Development

2.1. Social Categorization Theory

Social Categorization Theory is a psychological concept that explores how individuals classify and mentally categorize people into social groups based on shared characteristics, such as race, gender, age, nationality, or other relevant criteria (Trepte & Loy, 2017). Social categorization involves perceiving similarities among individuals within a category and differences between individuals from different categories. This categorization contributes to the formation of social identity the sense of belonging to a particular social group (Miller, 1956; Trepte & Loy, 2017). Social Categorization Theory will highlight how creative team members in radio may experience a categorization process based on their differences in background, experience, and expertise (Trepte & Loy, 2017). In a radio industry that involves such diverse elements as broadcasting, production, and marketing, diversity in these categories can be a source of strength. Team members representing various aspects of the industry bring unique perspectives, creating an environment where creative ideas can bloom (Trepte & Loy, 2017).

In team diversity investigation, diverse viewpoints offer explanations for the varied impacts of diversity or uniformity on positive and negative outcomes (Harrison & Klein, 2007; Joshi & Roh, 2009; Williams & O'Reilly, 1998). Certain diversity characteristics can yield positive effects, while the management of specific diversity attributes is necessary to mitigate negative consequences (Jackson & Joshi, 2011). This study's primary objective is to examine surface, deep, and functional-level diversity characteristics using two divergent theoretical frameworks that present both favorable and unfavorable implications for diversity. These frameworks encompass

the social categorization perspective and the motivation for knowledge processing in teams. The social categorization perspective, originally formulated by Turner and Oakes (1986), delves into forming social categories within a community based on shared characteristics and distinctions among its members. Traditionally applied to analyze intergroup relationships, this theory has been instrumental in understanding relational demographics—ways individuals differ from others within a group (Tajfel, 1981; Turner & Oakes, 1986). Tajfel and Turner further refined this perspective into the "Social Identity Theory" to explore group relationships and social conflicts (Turner & Giles, 1981; Brewer & Kramer, 1985). According to this theory, individuals define themselves based on their social identity, whether as individuals or team members, compared to other group members (Tajfel & Turner, 1986). This research aims to investigate these diversity characteristics within the framework of two opposing theoretical perspectives, each offering insights into diversity's positive and negative aspects.

The impact of self-categorization is observed in various conditions where individuals fulfill expectations by aligning their behavior with others. Self-categorization involves mentally grouping similar characteristics of multiple stimuli into a distinct category. Within the social categorization concept, there are two significant levels of categorization: in-group and out-group. In-group members tend to communicate more frequently and exhibit higher levels of trust compared to out-group members because they share similar views and perceptions (Moynihan & Pandey, 2007). Therefore, diversity can influence the formation of in-group and out-group dynamics and other cognitive biases. Previous studies have demonstrated the negative effects of social categorization on processes and outcomes (Tajfel, 1981; Turner & Oakes, 1986).

2.2. Information Processing Theory

The Information Processing Theory is a cognitive psychological framework that seeks to understand how individuals acquire, store, process, and retrieve information. It views the mind as a complex information-processing system similar to a computer, and it aims to explain the mental processes that occur as individuals interact with information. In this theory, sharing information with the team is a form of motivated behavior (De Dreu et al., 2008; Nijstad & De Dreu, 2012). Information Processing Theory is often applied in educational psychology to understand how learners acquire, store, and retrieve knowledge (Trepte & Loy, 2017). It helps educators design instructional strategies that optimize attention, encoding, and retrieval processes to enhance learning outcomes. The theory is also relevant to understanding problem-solving, decision-making, and other cognitive processes in various contexts (Wickens & Carswell, 2021).

According to this theory, people are encouraged by social and epistemic motivations to share information with the team that needs the opportunities to share knowledge (Nijstad & De Dreu, 2012), such as team innovation (De Dreu et al., 2011). In epistemic motivation, the people are encouraged to learn more and share the information with the team. The diversity in a team (Nijstad & Kaps, 2008; Schulz-Hardt et al., 2006), for example, functional diversity, has the potential to build an epistemic motivation since the members of the group tend to be curious about the new information that they obtain when a member has different ideas or perspectives, or a diversity (De Dreu et al., 2011). In other words, epistemic motivation encourages people to learn and share new information (De Dreu, 2007; De Dreu et al., 2008).

The diversity in a team is due to a combination of pro-social and pro-self-motivation. Pro-social motivation attracts someone's attention to the collective results and justice (De Dreu et al., 2008), while pro-self-motivation attracts someone's attention to personal interests and motivates the person to ignore other people's ideas or preferences (Nijstad & De Dreu, 2012). In terms of team innovation, knowledge processing motivation theory reveals that the team members will be more innovative if they realize that there are any differences or diversity compared to the innovation proposed by their superior (Goncalo & Staw, 2006; Goncalo & Duguid, 2012). De Dreu et al. (2011) stated that the motivation possessed by the member is an epistemic motivation combined with social motivation. Collectivity, which emphasizes collaboration and suitability, can reduce the main ideas rather than recognize the uniqueness of each individual (Goncalo & Staw, 2006). The unique value possessed by each individual collaborates with others to bring innovative ideas to the team.

2.3. Level of Diversity

The diversity literature is perplexing - difficult to grasp and difficult to synthesize. It is challenging to summarize because consistent findings and cumulative insights have not arisen, but also because the literature is heterogeneous. Much of it addresses within-unit differences in demographic variables: gender (e.g., O'Reilly, Williams, & Barsade, 1997), race and ethnicity (e.g., Riordan & Shore, 1997), age (Pelled, 1999), tenure (e.g., Hambrick, Cho, & Chen, 1996), education (e.g., Jackson, Brett, Sessa, Cooper, Julin, & Peyronnin, 1991), functional background (e.g., Jehn, Northcraft, & Neale, 1999), and marital status (e.g., Harrison et al., 2002). The many theoretical approaches utilized to govern diversity studies also make synthesis challenging. These viewpoints frequently propose contradicting results. In empirical investigations, each position has garnered some (although divided) support. In the context of this research, researchers focus on the level of diversity, which is divided into functional level, surface level, and deep level.

2.3.1. Surface-level diversity

According to Jehn et al. (1999), surface-level diversity refers to the diversity that arises from social categories or demographic characteristics (O'Reilly et al., 1989). Individuals utilize these characteristics to categorize themselves and others, resulting in patterns of thinking, attitudes, and behavioral similarities (Fiske, 2000). Harrison et al. (1998, p. 97) define surface-level diversity as the observable differences in biological attributes among group members, typically manifested through physical characteristics. Surface-level diversity captures the distinctions among team members that hinder forming close relationships (Mehra et al., 1998; Gibbons & Olk, 2003) and hinder social interaction and communication (Jehn et al., 1999). Thus, for the purposes of this study, surface-level diversity is defined as the degree to which the similarities or differences among group members are associated with their demographic characteristics, such as age, gender, and race/ethnicity (Tajfel, 1978).

2.3.2. Deep-level diversity

As defined by Milliken & Martins (1996), deep-level diversity encompasses various differences that are not immediately apparent in a person's observable characteristics. These differences include values, beliefs, and attitudes, which are revealed through prolonged or personal interactions that involve gathering information over time. Building positive alignment and fostering interactions among individuals who possess these diverse characteristics require a considerable amount of time. Such deep-level diversity is manifested through behavioral patterns, verbal and nonverbal communication, and the exchange of personal information, becoming evident as team members interact repeatedly (Milliken & Martins, 1996). According to Harrison et al. (2002), deep-level diversity refers to the degree of variation in the psychological characteristics of group members, such as cognitive abilities, attitudes, values, knowledge, and skills.

2.3.3. Functional-level diversity

Functional-level diversity is characterized by attributes that are not easily observable, as they pertain to differences in knowledge, skills, information, and expertise among team members. In this particular study, functional-level diversity is defined as a team possessing a wide-ranging knowledge base that can be utilized for innovative problem-solving (Pelled et al., 1999; Pinjani & Palvia, 2013). It refers to the extent to which team members differ in their functional backgrounds, thereby contributing to a diverse and complementary skill set and knowledge base that can significantly impact team performance (Horwitz & Horwitz, 2007).

2.4. Collaborative Capability

Effective collaboration plays a crucial role in the achievement of team success. Collaborative capabilities facilitate the alignment of goals, encourage a dynamic and transparent exchange of knowledge, and foster a willingness to share risks and rewards (Galunic & Rodan, 1997; Luca De & Atuahene-Gima, 2007). As theorized by Blomqvist and Levy (2006), the concept of collaborative capability revolves around relationship-oriented capabilities. Successful interpersonal collaboration is built upon establishing and maintaining relationships founded on trust, effective communication, and commitment. The level of trust built among team members is called team trust (Pinjani & Palvia, 2013). Credibility and mutual goodwill demonstrated by each team member contribute to a sense of predictability in their behavior (Ulbrich et al., 2011). Mutual trust brings several advantages to collaborative relationships, including open communication, improved cooperation, and effective decision-making (McKnight et al., 1995). Numerous studies highlight the significance of internal communication in achieving team success. Reed and Knight (2010) underscore the negative impact of poor communication on knowledge transfer, which poses a risk to overall team performance. Insufficient communication reduces team effectiveness in fostering relationships and coordinating tasks efficiently (Montoya et al., 2009). This communication deficit incurs resource costs, often leading to confusion and uncertainty that weaken team cohesion (Reed & Knight, 2010). Therefore, establishing appropriate and frequent communication channels is crucial to facilitate the exchange of valuable resources, such as knowledge.

Commitment can be classified into affective, normative, or continuity forms, according to Meyer and Allen (1991). Affective commitment, in particular, proves most beneficial for teams, as indicated by a study showing a strong positive correlation between affective commitment and team performance (Meyer & Herscovitch, 2002). According to Meyer and Herscovitch (2002), commitment is a binding force that drives individuals to act toward one or more objectives. These psychological forces significantly influence team member behavior and the quality of collaboration (Chang et al., 2012). Team members who possess a strong affective commitment to the team, prioritizing team performance and continuity, are more likely to engage in collaborative behavior, resulting in benefits (Kang et al., 2007). This research centers on exploring the application of collaborative capabilities within creative teams in radio and television broadcasting institutions.

2.5. Team innovation

The production or modification of ideas, followed by their development and execution inside an organization, is referred to as innovation (Zhuang, 1995; Nohria & Gulati, 1996). This process can result in a

variety of outputs, including a new product, service, method, or strategy, with its basic aspects centered on novelty and functionality inside the adopting organization (Read, 2000). An organization's innovation capability is generally defined as its ability to collect and apply internal and external information to promote developing and introducing novel products, services, or processes (Hagedoorn & Duysters, 1999). Team-level innovation is described as the introduction and application of a fresh concept, process, product, or procedure within a team to significantly enhance the team's performance and overall organizational outcomes (West & Farr, 1990).

2.6. Surface-level diversity on team innovation

Individuals may use prominent traits to unconsciously mark themselves into subgroups, resulting in undesirable effects (Lau & Murninghan, 1998). Various overarching deductive theories have been used to support assertions about the effects of surface-level diversity. Thus, according to their performance results, Jackson, Brett, Sessa, Cooper, Ulin, and Peyronnin (1991) revealed a conflicting link between surface-level diversity and team functioning. This finding is consistent with Turner's (1982) self-categorization hypothesis, which proposes that group members define and separate themselves from others based on characteristics such as age, gender, ethnicity, and so on.

When individuals possess a motivation to enhance their social identity, they tend to evaluate and align themselves positively with individuals or groups who share commonalities. Consequently, team members may develop negative attitudes and form weaker social connections with those they perceive as different (Tajfel & Turner, 1986). Surface-level diversity highlights the potential negative consequences of implicit subgroup categorization based on prominent characteristics; categorization can lead to adverse outcomes within teams, and this aligns with the self-categorization theory. Self-categorization theory suggests that individuals define themselves and differentiate themselves from others based on attributes like age, gender, and ethnicity. The team members will tend to have negative attitudes and form a less social attachment to those they perceive as different. Thus, the hypotheses formulated are:

H1: Surface-level diversity negatively affects team innovation.

2.7. Deep-level diversity and team innovation

Deep-level diversity refers to team members' values, attitudes, opinions, personalities, and viewpoints, which are not clearly visible. It has a greater impact on performance than surface-level diversity traits since these refer to individual behavior and are difficult to change (Harrison, Price, Gavin, & Florey, 2002). Several researchers noted that deep-level diversity is a two-dimensional analysis with beneficial benefits in some situations and negative ones in others (Milliken & Martins, 1996). Byrne (1971) suggests that the homogeneity of beliefs or personalities determines the basis of a relationship. Thus, people tend to feel uncomfortable interacting with colleagues with different values or opposite personalities (Goldberg, 1999). This condition can hinder communication effectively (Schaubroeck & Lam, 2002). If team members have opposing views due to deep-level diversity, it will increase the ability to incorporate innovative ideas collectively, thereby negatively influencing performance concerning innovation (Harrison & Klein, 2007; Harvey, 2013; McLeod et al., 1996). We assume that deep-level diversity, which includes values, attitudes, opinions, personalities, and perspectives, has the potential to hinder the innovation process within a team. We argue that deep-level diversity cannot be easily changed and can cause inconvenience and ineffective communication among team members, so when team members have opposing views, deep diversity will hinder their ability to combine innovative ideas collectively and hinder effective communication. Based on these reasons, the researcher proposes a hypothesis:

H2: Deep-level diversity negatively affects team innovation.

2.8. Functional-level diversity

Functional-level diversity refers to the degree of variation in team members' functional backgrounds, which contributes to expertise and diverse knowledge that can significantly influence team performance (Horwitz & Horwitz, 2007). The impact of functional-level diversity on team outcomes and performance is multifaceted, as it expands the talent pool and resources available to the team (Ely & Thomas, 2001). Previous research suggests that functional-level diversity stimulates innovative ideas, enhances critical thinking and problem-solving skills, and provides a broader perspective, knowledge, and expertise (Santa et al., 2011). However, Castellano et al. (2016) propose that individuals with different functional experiences may hold distinct perspectives and goals, potentially leading to emotional conflicts among team members.

Functional-level diversity brings valuable expertise and diverse knowledge to teams, positively impacting innovation and operational effectiveness. At the same time, it can introduce challenges related to conflicting perspectives and emotional conflicts, and the cognitive nature of functional diversity may help alleviate the negative effects of affective conflicts. By effectively managing and leveraging functional-level diversity, teams can harness the benefits of varied expertise and perspectives while minimizing potential drawbacks. Based on the previous literature we propose the hypotheses formulated are:

H3: Functional-level diversity positively affects team innovation.

2.9. Collaborative Capability

Collaborative capabilities encompass interpersonal collaborations that establish and maintain relationships built on trust, communication, and commitment (Blomqvist & Levy, 2006). These capabilities play a pivotal role in either facilitating or hindering the exchange of knowledge, thereby influencing the level of success achieved in team innovation (Winkler & Bouncken, 2011). Without exchanging ideas and perspectives on the problem-solving related to innovation, the innovation will not succeed. Thus, collaboration is the primary key if a team has a high diversity and wants to improve innovation (Nissen et al., 2014).

In other words, variety can lead to innovation (Winkler & Bouncken, 2011), even though a team with various diversities can give many responses toward a change (Bowers et al., 2000) and cause the threat of competitiveness (Hambrick et al., 1996). However, at the functional level, the benefits of the diversity of knowledge cannot be obtained without trust, communication, or commitment. Then, when there is a functional-level diversity in a team, such as in the knowledge, skills, and abilities, it is expected that collaboration occurs among the members based on trust, communication, and commitment, and we can achieve innovation. Based on the complexity of the group environment, we assumed that the success of team innovation is closely related to collaborative capabilities. Teams with deep-level diversity of values, beliefs, and attitudes can destroy the team's innovation if the team members are not supported by trust, communication, and commitment. Hence, members can be more cooperative when a team has diversity and possesses collaborative capabilities. Thus, the hypotheses formulated are:

H4: Collaborative capabilities positively moderate the relationship between surface-level diversity and innovation.

H5: Collaborative capabilities positively moderate the relationship between deep-level diversity and innovation.

H6: Collaborative capabilities positively moderate the relationship between functional-level diversity and innovation.
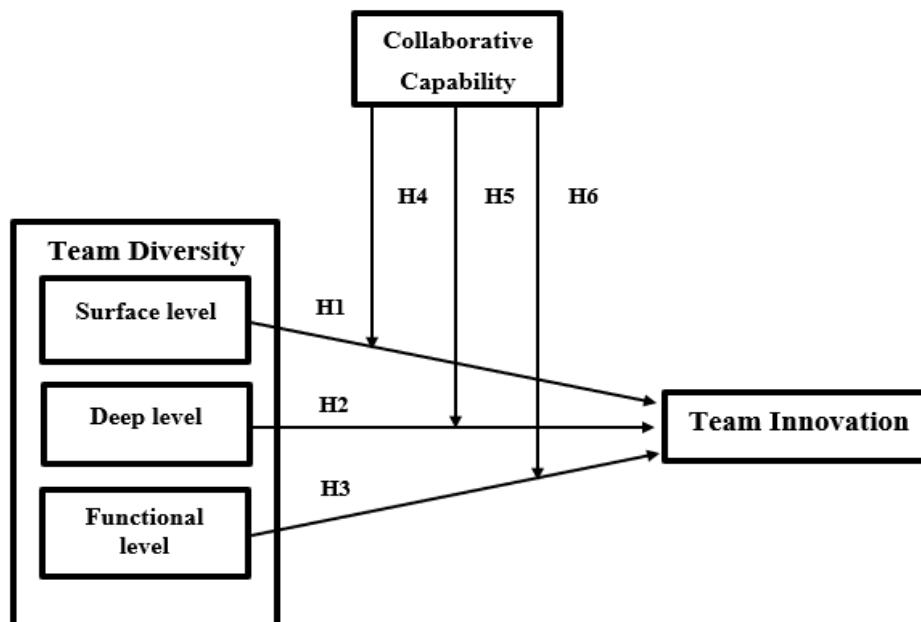

Figure 1. The conceptual research framework

3. Method

3.1. Sample and data collection

The sampling techniques applied in this study were non-probability sampling and the purposive sampling method (Cooper & Schindler, 2014). Research data collection uses a survey approach by distributing questionnaires offline to each creative team member working at a radio broadcasting company. Questionnaires were distributed to 204 members in 46 creative teams and were obtained the total sample in this study was 38 creative teams with 175 respondents completed responses were received. The total number of broadcasting institutions is 13, consisting of 12 radio broadcasting institutions (96.6 percent) and one television broadcasting institution (3.4 percent). The broadcasting institutions with the highest number of creative teams are RRI Yogyakarta, Star Jogja FM, and Radio Yasika, which are dominated by the members of the creative program team (16 members or 42,1 percent), eight members of the creative production team (21.1 percent), five members of

creative marketing teams (13.2 percent), and four members of creative event teams (10.5 percent). These four creative teams have the highest criteria and were the core teams in broadcasting institutions. The majority of the respondents were male (61.1 percent). In terms of age, they were dominated by the age range between 26-30 years (30.3%). Marital status is dominated by married (58.9%). Most of the monthly expenses are Rp. 2,500,001, to Rp. 5,000,000, - (46.9 percent). Most educational backgrounds are bachelor's (S1) (60 percent). The last education study program was dominated by communication science (35.4%). The majority of his previous job was in journalism (24.6%). Most of the respondents are in radio broadcasting institutions. Most respondents' tenure is 37-48 months (22.3%). Regarding job positions, most respondents were team members (83.4%). In terms of job desks, it is dominated by preparing ideas and concepts of the events (21.7 percent). Then, most of the respondents have been in the team for 19-24 months (26.3%), and the type of team is dominated by permanent teams (89.5%).

The sample criteria are members who join the creative teams in radio and television broadcasting institutions in The Special Region of Yogyakarta. The broadcast team was chosen because it had a highly innovative power frequency from each team member (Ball & DeFluer, 1988). Broadcasting institutions are interesting to observe because they must always provide well-packaged information to attract many viewers and listeners and convey it quickly to the audience (Ball & DeFluer, 1988). Television and radio broadcasting institutions are among 14 creative and innovative-based industrial sub-sectors in Indonesia (Pangestu, 2008). The creative team in broadcasting institutions, both on radio and television, consists of a creative production team, a digital creative team, an event creative team, a creative marketing team, a creative program team, and a creative news team. The creative team is considered capable of representing the team's criteria in this research because the creative team is tasked with creating ideas and implementing these ideas to present interesting broadcasting programs for viewers to see and hear (Rahmi & Indarti, 2019). This research uses team-level data by processing data from the individual level to the team level using the Hierarchical Regression Analysis (HRA) method and using the Warp PLS 7.0 analysis tool.

3.2. Measurement

This study used a 5-point Likert scale, such as 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5 (strongly agree). Surface-level diversity. We used the heterogeneity index proposed by Blau (1977) to measure gender diversity (Bantel & Jackson, 1989). Meanwhile, the age diversity was calculated based on the coefficient of variation (standard deviation is divided by the mean) as the continuous data, as Allison (1978) suggested. The expected value of the two values indicates the surface-level diversity. Deep-level diversity. The deep-level diversity was measured using Martins et al. (2003) proposed by (Martins et al., 2003)(Martins et al., 2003)(Martins et al., 2003)(Martins et al., 2003)(Martins et al., 2003)(Martins et al., 2003)(Martins et al., 2003)(Martins et al., 2003)(Martins et al., 2003)the nine items. Functional-level diversity. Functional-level diversity was measured using three items proposed by Pinjani and Palvia (2013). Collaborative capability. Team Trust: by using the four-item measurement scales proposed by Pinjani and Palvia (2013); Team Commitment: by using the four-item measurement scales offered by Han and Harms (2010); and Team Communication: by using the six-item measurement scales offered by Worley et al. (1999). Team Innovation using the three-item measurement scales proposed by Vera & Crossan (2005).

Table 1. Measurement Instruments

Questions	Reference
Functional-level diversity (FL)	
FL 1 Every team member has something in common functional skills matter.	Pinjani and Palvia (2013)
FL 2 Every team member has something in common regarding their educational background.	
FL3 Every team member has something in common regarding length of work experience.	
Deep-level diversity (DL)	
DL1 Every team member has something in common in terms of personal values.	
DL2 Every team member has something in common in terms of personality.	Martins et al. (2003)
DL3 Every team member has something in common in terms of attitudes towards work.	
DL4 Every team member has something in common in terms of attitudes towards work goals.	
DL5 It is important for every team member to consult with other members before make decisions.	
Collaborative capability	
Trust	
KK1 Each team member can rely on fellow members.	Pinjani and Palvia (2013)
KK2 Every team member is friendly with each other.	
KK3 Every member in this team mutually pay attention to each other's feelings.	
Commitment	Han and Harms (2010)
KK4 Every team member feels the taste have a strong attitude towards their team.	

KK5 Every team member feels connected emotional with the team.	
Communication KK6 All team members are involved decision-making. KK7 We tell each other what we are feel it. KK8 Within the team, members say about what they really mean. KK9 Every team member is encouraged to express concerns openly open.	Worley et al. (1999)
Team Innovation TI1 This team is very innovative. TI2 The team was quick to adopt the solution new innovative. TI3 The team frequently introduces solutions new innovative.	Vera & Crossan (2005).

4. Result and Discussion

4.1 Descriptive statistics

This research uses a team analysis unit, so team characteristics are important for respondents to know. Team characteristics in this research include the length of time they have been in the team, the type of team and the form of innovation carried out within the team. As seen in Table 2, the length of time most respondents joined the team was 19-24 months, namely 10 teams with a total of 26.3%. In terms of team type, permanent teams are mostly more dominant than temporary teams, namely 34 teams (89.5%) while only 4 teams (10.5%) are temporary teams, namely event creative teams. A total of 30 teams (78.9%) carried out product innovation and process innovation. Product innovation is a form of innovation carried out by broadcasting institutions related to changes and development of broadcasting institution products.

Table 2. Respondent Profile by Team

	Total (Team)	Percent (%)
Length of Joining the Team		
More than 3 months – 6 months	4	10.5
7-12 months	9	23.7
13-18 months	6	15.8
19-24 months	10	26.3
25-30 months	2	5.3
31-36 months	4	10.5
More than 36 months	3	7.9
Total	**38**	**100**
Team Type		
Permanent	34	89.5
Temporal	4	10.5
Total	**38**	**100**
Form of innovation carried out		
Product Innovation		10,5
Products Innovation	4 4	10,5
Process Innovation	30	78,9
Total	38	100

Source: data processed by WarPLS 7.

4.2. Validity Testing

Testing the validity of the construct validity by referring to the factor loading value. The factor loading value is a correlation of statement items with the construct being measured (Hair et al., 2014). Hair et al. (2014) stated that the convergent validity test criteria are said to be valid if the Loading factor indicator value is more than 0.7, however, values below 0.7 (still between 0.41 to 0.69) must still be considered. Whereas for indicators that have a loading factor of less than 0.4, these indicators must be deleted. The results of the validity test obtained two factor loading values from the deep level diversity construct (DL3 and DL4) with factor loading values of 0.378 and 0.02 so they had to be deleted.

Table 3. Validity Testing

Construct	Second Order	Indicator	Loading-factor	AVE	Decision
Deep-level diversity		DL1	0.906		Valid
		DL2	0.827		Valid
		DL3	0.378	0.58	Invalid
		DL4	0.02		Invalid
		DL5	0.406		Valid
Functional-level diversity		FL1	0.443		Valid
		FL2	0.915	0.544	Valid
		FL3	0.774		Valid
Collaborative capability	**Trust**	KK1	0.742		Valid
		KK2	0.75	0.61	Valid
		KK3	0.847		Valid
	Commitment	KK4	0.811		Valid
		KK5	0.811	0.658	Valid
		KK6	0.81		Valid
	Communication	KK7	0.594		Valid
		KK8	0.736	0.53	Valid
		KK9	0.755		Valid
Team Innovation		IT1	0.892		Valid
		IT2	0.885	0.66	Valid
		IT3	0.633		Valid

Source: data processed by WarPLS 7.

Presents the square root AVE values of all constructs and proves that the data used in this research meets discriminant validity. A construct has discriminant validity if the construct indicator has the highest loading value in its own construct group (Hair et al., 2019; Sudirman et al., 2023), Based on the results of discriminant validity testing with Fronell-Larcker criterion, it was found that the AVE root value of each construct used had a greater value than the other constructs, so that discriminant validity is fulfilled. The results of all measurement instruments used in this study reveal that all the constructs are reliable, as can be seen from the composite reliability value that is ≥ 0.7.

Table 4. Fronell-Larcker criterion and reliability test results

Construct	Composite Reliability	DL	FL	KPC	KMT	KMK	IT
Deep-level diversity	0.786	**0.762**	-	-	-	-	-
Functional-level diversity	0.769	0.044	**0.738**	-	-	-	-
Trust	0.824	-0.037	0.374	**0.781**	-	-	-
Commitment	0.794	0.124	0.099	0.613	**0.811**	-	-
Communication	0.817	0.095	-0.011	0.463	0.416	**0.728**	-
Team innovation	0.851	-0.132	0.246	0.290	0.342	0.250	**0.812**

Note: The data is processed by WarpPLS 7.0.

4.3. Data Aggregation Analysis and Measurement
Homogeneity of The Diversity within Group (Within-group Agreements)
       Homogeneity of the diversity within the group was analyzed using rwg(j), a minimum recommended value of 0.7, to indicate a consensus among team members. Homogeneity of the diversity within the group is needed to ensure that the data taken at the individual level can represent the data at the team level. The calculation of

rwg(j) is applied to each team for each variable. In Table 2, 38 creative teams have met the traditional value, while the cut-off value is >0.7. We can conclude that the entire team has met the requirements to be included in the testing and analysis process.

Table 5. Within-group Agreements (rwg(j))

Teams	Deep-level diversity	Functional-level diversity	Collaborative capabilities	Team innovation
1	0.96	0.90	0.99	0.96
2	0.92	0.85	0.99	0.95
3	0.97	0.89	0.99	0.96
4	0.96	0.90	0.98	0.88
5	0.94	0.96	0.99	0.92
6	0.98	0.94	0.99	0.89
7	0.95	0.90	0.99	0.91
8	0.94	0.95	0.98	0.97
9	0.97	1.00	0.97	0.97
10	0.91	0.95	0.98	0.92
11	0.93	0.95	0.99	0.94
12	0.91	0.83	0.98	0.89
13	0.96	0.93	0.98	0.94
14	0.88	0.87	0.99	0.93
15	0.85	0.93	0.99	0.97
16	0.96	0.85	0.99	0.95
17	0.92	0.87	0.98	0.93
18	0.94	0.86	0.98	0.92
19	0.95	0.93	0.99	0.93
20	0.89	0.92	0.99	0.94
21	0.84	0.92	0.98	0.90
22	0.92	0.90	0.99	0.92
23	0.89	0.90	0.99	0.90
24	0.88	0.90	0.99	1.00
25	0.94	0.97	0.99	0.97
26	0.95	0.94	0.98	0.97
27	0.92	0.94	0.99	0.98
28	0.86	0.97	0.99	1.00
29	0.94	0.96	0.99	0.96
30	0.88	0.94	0.99	0.97
31	0.97	0.94	0.98	0.97
32	0.97	0.94	0.94	0.97
33	0.95	0.92	1.00	0.95
34	0.97	0.94	0.99	0.97
35	0.96	0.94	0.99	1.00
36	0.99	0.86	0.99	0.96
37	0.88	0.98	1.00	0.96
38	0.97	0.92	0.99	0.90

Source: Processed Primary Data (2023)

4.4. Between Group

Differences between teams can be indicated by the intraclass correlation coefficients (ICC) (James, 1982; Bliese & Halverson, 1998; Bliese, 2000). ICC(1) and ICC(2) are calculated for each variable, namely deep-level diversity, functional-level diversity, collaborative capability, and team innovation. The calculation of the ICC(1) and ICC(2) scores uses one-way random because the responses to each respondent have differences in the variable items that they must score. The resulting score on the ICC(1) test must be equal to or greater than 0.12, meaning that the variance between teams is greater than the variance within the teams. The ICC(1) test

also shows ICC(2) scores on each research variable. Minimum ICC(2) score must be >0.7 (James, 1982). Based on Table 3, the ICC value (1) for each variable is >0.12. Thus, each variable has met the minimum cut-off value (0.12) ICC (1). The estimation results for ICC (2) also meet the standard minimum value >0.6. Thus, we can differentiate the 38 creative teams based on their answers.

Table 6. Intraclass Correlation Coefficients (ICC)

Variable	Intraclass Correlation Coefficients	
	ICC(1)	ICC(2)
DL	0.76	0.86
FL	0.84	0.91
CC	0.80	0.89
TI	0.87	0.93

Source: Processed Primary Data (2023)

4.5. Hypotheses Testing

HRA (Hierarchical Regression Analysis) analysis was applied to test the hypotheses. Specific hypothesis test results are displayed in Table 7.

Table 7. Significance Test Results

	Hypothesis	(β)	P-value	Result
H1 (-)	SL → IT	-0.537	<0.001	Supported
H2 (-)	DL → IT	-0.225	0.067	Supported
H3 (+)	FL → IT	0.356	0.007	Supported
H4 (+)	SL → IT	-0.537	<0.001	Supported
	SL → IT	-0.545	<0.001	
	KK → IT	0.450	<0.001	
	SL → IT	-0.233	0.060	
	KK → IT			
	SL*KK→IT	0.585	<0.001	
H5 (+)	DL → IT	-0.225	0.067	Not Supported
	DL → IT	-0.185	0.112	
	KK → IT	0.440	0.001	
	DL → IT	-0.203	0.090	
	KK → IT			
	DL*KK→IT	-0.318	0.015	
H6 (+)	FL → IT	0.356	0.007	Not Supported
	FL → IT	0.252	0.045	
	KK → IT	0.370	0.005	
	FL → IT	0.305	0.019	
	KK → IT			
	FL*KK→IT	-0.246	0.050	

Source: The processed primary data (2023)

Based on the analysis results, hypothesis 1, which investigated the impact of surface-level diversity on team innovation, obtained support. Surface-level diversity and team innovation were found to have a significant negative connection (β= -0.537, p 0.001). Similarly, hypothesis 2, which evaluated the effects of deep-level diversity on team innovation, was supported. Deep-level diversity was found to have a significant negative connection with team innovation (β= -0.225, p = 0.067). Hypothesis 3, on the other hand, discovered a substantial positive link between functional-level diversity and team innovation (β= 0.356, p = 0.007). As a result, hypothesis 3 was supported. In the case of hypothesis 4, which looked at the moderating effect of collaborative capability on the link between surface-level diversity and team innovation, the results showed a substantial positive moderation effect (β = 0.585, p 0.001). As a result, hypothesis 4 was supported. However, hypothesis 5, which looked into the moderating effect of collaborative capability on the connection between deep-level diversity and team innovation, was rejected. The results showed that moderation had no effect (β= -0.318, p

0.015). Similarly, hypothesis 6, which investigated the moderation effect of collaborative competence on the connection between functional-level diversity and team innovation, was not validated. The moderating impact was found to be non-significant (β= -0.246, p 0.050).

4.6 Discussion

The purpose of this study was to examine the impact of surface-level diversity, deep-level diversity, and functional-level diversity on team innovation, as well as investigate the moderating effect of collaborative capability on these relationships. The study formulated six hypotheses, out of which four were supported, and two were not supported.

The first hypothesis, which proposed a negative relationship between surface-level diversity and team innovation, was supported. Surface-level diversity refers to characteristics such as age, gender, and race/ethnicity that individuals use to categorize themselves and others. Previous research has shown that such diversity can lead to negative outcomes, including social isolation, reduced cohesion, communication difficulties, and higher turnover rates. The findings of this study align with the conceptualization of surface-level diversity as described by Harrison et al. (1998). Women may experience feelings of isolation and dissatisfaction, while men may have reduced organizational attachment. These findings are consistent with previous research by Wang et al. (2019) and Pinjani et al. (2013). In the context of this study, which focused on creative teams in radio and television broadcasting institutions in Yogyakarta, it was observed that team members had diverse age categories, with men dominating the gender ratio. The awareness of these diversities led team members to categorize themselves and others, which in turn affected their evaluation and identification processes. This self-categorization and preference for individuals with similar characteristics were found to hinder innovation within the creative team (Trepte & Loy, 2017). In conclusion, the study confirmed that surface-level diversity, particularly in terms of age and gender, has a negative impact on team innovation, specifically in creative teams at radio and television broadcasting institutions in Yogyakarta. The findings emphasize the importance of understanding and managing surface-level diversity to foster innovation within teams.

The study's findings supported the second hypothesis, indicating a negative association between deep-level diversity and team innovation. Deep-level diversity encompasses variations in the psychological characteristics of team members, including personality traits, values, and attitudes. Similar to the findings of Wang et al. (2019) and Pinjani et al. (2013), this study confirmed that deep-level diversity has a negative impact on team innovation. In the context of the creative team in radio and television broadcasting institutions, it was observed that team members tended to prefer interacting with individuals who possessed similar psychological characteristics. They felt discomfort when engaging with people who had different values or contrasting personalities. This discomfort and difficulty in effective communication can hinder the innovation process within the creative team (Goldberg, 1999). These findings align with the conceptualization of deep-level diversity as proposed by Harrison et al. (1998) and support the notion that deep-level diversity negatively affects team innovation.

Regarding the third hypothesis, which proposed a positive relationship between functional-level diversity and team innovation, the findings supported this notion. Functional-level diversity refers to differences in knowledge, skills, information, and expertise among team members. The study confirmed that the diversity of team members provides broader access to share new knowledge and solve problems related to team innovation. This diversity of functional expertise has a significant impact on team members' performance, as supported by research conducted by Baatarseh et al. (2016) and Yap et al. (2005), which also highlighted the positive effects of functional diversity on innovation within teams. Our finding confirm the conceptualization of deep-level and functional-level diversity variables and their impacts on team dynamics and innovation. In the context of this study, the creative team at radio and television broadcasting institutions comprises individuals with diverse educational and work backgrounds. The team members represent ten different educational categories and come from eleven distinct fields of work. This diversity enhances the team's knowledge, experience, and expertise. The functional-level diversity of team members is further amplified by the allocation of different tasks to each individual, which fosters a strong drive for innovative performance. This optimized utilization of functional-level diversity within the team contributes to an increase in innovation.

This study provided support for the fourth hypothesis, which stated that collaborative capability plays a positive moderating role in the relationship between surface-level diversity and innovation. It was found that when diverse teams possess strong collaborative capabilities, the impact of surface-level diversity on team innovation is amplified. The findings of this study shed light on how team members tend to categorize themselves in relation to others, which can disrupt innovative performance. However, this disruption can be mitigated or minimized through effective interpersonal collaboration facilitated by the dimensions of collaborative capability. Communication serves as a crucial channel for exchanging valuable resources, such as knowledge (Aririguzoh, 2022). Within the broadcasting institutions of television and radio in Yogyakarta, the existing collaborative capability encourages diverse creative teams, comprising individuals of different ages and genders, to enhance their innovative performance. The collaborative capability fostered by these teams emphasizes mutual trust

among members, transcending age and gender differences to establish productive cooperative relationships and successfully accomplish tasks in a timely manner. Open communication channels are established to facilitate information sharing, and effective coordination is achieved by setting aside self-categorization tendencies among team members. Furthermore, a strong commitment is fostered, ensuring each individual's dedication to the team's continuity and driving their best efforts toward achieving superior, innovative performance.

Additionally, the fifth hypothesis, which proposed a positive moderating effect of collaborative capability on the relationship between deep-level diversity and innovation, was not supported by the findings. These results align with previous research conducted by Batarseh et al. (2016), which also demonstrated the absence of a moderating effect of collaborative capability on the relationship between deep-level diversity and team innovation. Therefore, it can be inferred that collaborative capability is unable to overcome or mitigate the negative impact caused by deep-level diversity among team members. One possible reason for this lack of moderation is the limited interaction between team members, which might be the primary factor hindering the influence of collaborative capability on the relationship between deep-level diversity and innovation. Within the creative team at radio and television broadcasting institutions, individuals tend to avoid interacting with members who possess different psychological characteristics, impeding effective communication and information exchange. Consequently, coordination among team members to enhance each other's innovative performance suffers. Based on the research findings in the field, it can be concluded that the conceptualization of collaborative capability within broadcasting institutions, specifically television, and radio in Yogyakarta, does not demonstrate a moderating effect on the relationship between deep-level diversity and team innovation. The reluctance of individuals in the creative team to engage with members who exhibit diverse psychological characteristics limits the potential for collaborative capability to influence innovative outcomes.

Furthermore, the study results did not support the final hypothesis, which indicated a positive moderating influence of collaborative competence on the link between functional-level diversity and innovation. The findings revealed that collaborative capability had no moderating effect on the connection between functional-level diversity and team innovation. Although teams with diverse members possessing varied knowledge, skills, information, and expertise can access a range of valuable knowledge resources to aid in problem-solving (Horwitz & Horwitz, 2007), the collaborative capability formed through trust, communication, and commitment within the team may not always act as a facilitator. Instead, it can hinder the exchange of knowledge and subsequently impact the success of innovation (Blomqvist & Levy, 2006). These findings contrast with the research conducted by Batarseh et al. (2016), which demonstrated a positive moderating effect of collaborative capability on the relationship between functional-level diversity and team innovation in high-tech industries within developed countries such as America, Europe, China, Taiwan, and Singapore. In contrast, the present study's findings indicate the absence of a moderating effect of collaborative capability on the relationship between functional diversity and team innovation. Individuals within creative teams in radio and television broadcasting institutions still exhibit the initiative to share and exchange information related to diverse knowledge, skills, information, and expertise that contribute to achieving innovation, regardless of the presence of the collaborative capability factor encompassing trust, communication, and commitment. Hence, it can be concluded that the presence or absence of the collaborative capability factor does not alter the impact of information sharing or exchange related to diverse knowledge resources, skills, information, and expertise in achieving team innovation within television and radio broadcasting institutions in Yogyakarta.

5. Conclusion

This study reveals that surface-level diversity negatively impacts team innovation in radio and television institutions due to implicit subgroup categorization. Deep-level diversity also hinders innovation by reducing interest in contrasting values and personalities. However, functional-level diversity positively influences innovation, enriching insights and performance. Collaborative capability moderates the relationship between surface-level diversity and team innovation, with higher collaborative capabilities mitigating the negative impact. Effective interpersonal collaboration, based on trust, communication, and commitment, can manage disruptions caused by subgroup categorization, fostering innovation in creative teams. The results of this study also confirm the moderation effects of collaborative capability toward deep-level diversity and team innovation. In this case, collaborative capabilities do not influence the relationship between deep-level diversity and team innovation due to the lack of interaction between the team members. In addition, it affects the moderation and interaction between deep-level diversity and collaborative capabilities since the characteristics of deep-level diversity cannot be exchanged and identified. Finally, the empirical findings show the moderation effects of collaborative capability toward functional-level diversity and team innovation. In this case, the collaborative capability does not significantly impact the team members with diverse knowledge, skills, information, and expertise to achieve team innovation. It occurs when the creative teams in radio and television broadcasting institutions share information that can be referred to as collaborative and communicative skills and as innovation and communication resources.

5.1. Theoretical Implications

This study makes a valuable contribution to the existing literature by comprehensively examining the impact of three key characteristics of team diversity, surface-level diversity, deep-level diversity, and functional-level diversity, on team innovation. Moreover, the study explores the moderating role of collaborative capability. The findings reveal that both surface-level diversity and deep-level diversity have a detrimental effect on team innovation. This implies that when there are differences in surface-level and deep-level diversity among members of a creative team, it disrupts the communication and coordination processes required to achieve innovative outcomes, consequently leading to delays in the team's innovation process. On the other hand, functional-level diversity exhibits a positive influence on team innovation, indicating that a diverse range of functional expertise within the team acts as a strong driving force for innovation. This study also provides a theoretical explanation and confirms a moderating effect of collaborative capability on surface-level diversity and team innovation.

This study aligns with Social Categorization Theory, as evidenced by team members categorizing themselves into subgroups based on visible characteristics. This categorization impedes the innovation process within creative teams, supporting the theory's assertion that individuals tend to enhance their social identity by aligning with those who share similar characteristics. Additionally, the findings resonate with Motivated Information Processing in Groups Theory, as team members exhibit reduced interest in interacting with those holding contrasting values and personalities, hindering effective communication. The study also underscores the importance of collaborative capability as a moderating variable, aligning with the theory's emphasis on the influence of group processes on information processing and decision-making. This shows that individuals who tend to group themselves in interacting based on the same age and gender as other members can be overcome with excellent interpersonal collaboration based on the ability to build and manage relationships based on collaborative capability, which includes trust, communication, and commitment. Meanwhile, regarding the moderation of collaborative capability on deep-level diversity and functional diversity on team innovation, there is no moderating effect. Thus, the ability to build and manage relationships based on the collaborative capability that includes trust, communication, and commitment does not provide encouragement or influence in overcoming the negative impacts resulting from the surface-level diversity and deep-level diversity on members of the creative team.

5.2. Managerial Implications

This research engaged numerous practitioners from broadcasting institutions, encompassing both radio and television broadcasting institutions. We found that the negative impact of surface diversity on innovation within creative teams makes it necessary for managers to consider strategies for managing and reducing surface differences among team members in order to increase the team's ability to create innovative ideas. This may involve hiring policies and developing more diverse teams or training to increase understanding and collaboration among team members. Furthermore, deep levels of pollution also negatively impact innovation within teams. Managers must deeply understand individual differences within teams and may need to adopt strategies to facilitate better communication and understanding among team members. These steps may include communication training, team coaching, or creating an environment that supports open dialogue and understanding between team members. Then, the positive effect of functionality on innovation in creative time. Managers can utilize the skills and expertise of team members to stimulate creativity and innovation. Selection of teams with diverse skills can be encouraged, and managers can provide incentives or recognition to encourage cooperation and utilization of individual skills. This research also found interesting results in testing the moderating effect of the collaboration capability variable. Collaboration capability moderates the relationship between the level of surface diversity and innovation in a significantly positive way. These results can be taken into consideration by managers in order to increase collaboration capabilities within teams to overcome the negative impact of surface diversity levels on innovation. This could include collaboration training, forming teams with shared goals, or developing a work culture that supports collaboration and team engagement. On the other hand, collaboration capability does not moderate the influence of deep-level and functional levels on innovation team innovation. Therefore, managers may need to focus on other strategies to increase innovation in teams, regardless of the deep level of diversity, or managers may seek alternative ways to maximize the benefits of functionality, perhaps through careful project planning, good timing, or giving appropriate responsibilities to team members with certain memberships. Overall, building collaborative capabilities across all levels of diversity and ensuring leadership support for inclusive practices are essential for optimizing team innovation. Additionally, team members are encouraged to demonstrate commitment to assigned tasks and shared goals, ultimately driving the attainment of desired innovative outcomes.

5.3. Limitations and Suggestions

This study only uses respondents who join the creative team at radio and television broadcasting institutions. Within this research, our sole focus revolved around examining the attributes of team diversity, specifically surface-level diversity, deep-level diversity, and functional-level diversity. In this study, the diversity of surface-level characteristics examined only focused on age and gender. Tsui and Gutek (1999) stated that gender and age are the characteristics that are most easily seen and identified and are often used when assessing or viewing other people. Future research is expected to explore additional dimensions of diversity, such as ethnic background, socio-economic status, or education. By integrating these variables, research can provide deeper insight into the impact of diversity on team innovation (Rahmi & Indarti, 2019). This can be achieved by employing new models and incorporating different variables and methodologies to enhance our understanding in this area, such as integrating the concept of cultural diversity as a novel variable. By including cultural diversity as a variable, researchers can delve into the impact of varied cultural backgrounds on team innovation processes (Rahmi & Indarti, 2019).

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