# WHAT DOES HOMOPHILY DO? A REVIEW OF THE CONSEQUENCES OF HOMOPHILY

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## ABSTRACT

Understanding the consequences of homophily, which is among the most widely observed social phenomena, is important, with implications for management theory and practice. Therefore, we review management research on the consequences of homophily. As the consequences of homophily have been studied at the individual, dyad, team, organizational, and macro levels, we structure our review accordingly. We highlight findings that are consistent and contradictory, as well as those that point to boundary conditions or moderators. In conducting our review, we also derive implications for management research from insights gained by research in other disciplines on this topic. We raise specific issues and opportunities for future research at each level, and conclude with a discussion of broader future research directions, both empirical and conceptual, that apply across levels. We hope that our review will open new vistas in research on this important topic.

## INTRODUCTION

Homophily, the tendency to associate with similar others, is among the most robustly documented social phenomena. Given the importance of relationships in many spheres of organizational life and in numerous domains of interest to management scholars, understanding the consequences of homophily is important for researchers and practitioners. Whereas the antecedents of homophily are well understood, and the different attributes that serve as a basis for homophily are widely documented (Lawrence & Shah, 2020; McPherson et al., 2001), research on the consequences of homophily has not reached a similar level of saturation and presents numerous avenues for future research.

Considering the close attention that management scholars pay to outcomes such as performance, learning, innovation, knowledge transfer, and diffusion of practices, a clearer understanding of the consequences of homophily is also highly relevant for this discipline. For example, does homophily in individuals' advice or friendship networks impede task performance? Are homophilous entrepreneurial teams more successful in entrepreneurial resource mobilization? Do homophilous ties between venture capitalists and founders increase firm valuation? Our review provides a systematic overview and assessment of the literature on the consequences of homophily, across multiple levels (individual, dyad, team, organizational, and macro) and different types of outcomes. We also present directions for future research and outline opportunities about how scholars can leverage newly available kinds of data and methods to continue expanding and refining our understanding about the consequences of homophily.

By "consequences of homophily," we refer to those outcomes that go beyond the formation of ties and relationships. Since homophily refers to "the tendency of individuals to associate with similar others" (Lawrence & Shah, 2020: 3), our focus is on consequences that happen after the formation of such associations. Because we review the consequences of

homophily across levels, we also consider collective "actors," such as teams and organizations, that consist of an aggregation of individuals. Across the various levels of analysis, the outcomes we touch upon vary from performance to diffusion to polarization to mental health.

Systematically reviewing the consequences of homophily is important because existing studies provide somewhat diverging findings. Identifying patterns across different consequences, levels of analysis, and contingency factors is important to move the literature forward. In the organizing framework we propose, we suggest that the consequences of homophily could be understood as resulting from two sets of mechanisms. On the one hand, homophily leads to smoother coordination, better communication, and enhanced trust between an actor and contacts. On the other hand, homophily reduces diversity in knowledge, perspectives, and other resources that an actor can access through contacts. Therefore, the relationship between homophily and different outcomes may depend on which of these two sets of mechanisms is more dominant.

We provide an overview of research on the consequences of homophily at the individual, dyad, team, organizational, and macro levels. In our discussion of the consequences of homophily within each of these levels, we also bring in insights from other disciplines when we see them as advancing our understanding of and offering implications for management research. Given the broader interest in homophily across social science disciplines, this allows us to uncover avenues for research that might not come to the fore by looking exclusively at research within management.

Our review is based on 122 articles. Of these, 87 are published in management journals or investigate management phenomena. In addition to this systematically gathered set of articles, we also bring in a selectively assembled set of 35 articles from other disciplines that study the consequences of homophily. Throughout our review, we discuss and

extrapolate the insights of the studies in this latter set to outline their implications for management research. Taken together, these 122 studies provide a sound basis for us to discuss, within each level, (i) the consequences of homophily, including compatible and inconsistent findings, (ii) boundary conditions and moderators that relate to these consequences, (iii) insights from other disciplines about the consequences of homophily that have implications for management research, and (iv) future research directions. Following this review of the literature, and a brief discussion on patterns regarding the dimensions of homophily, we outline broader directions for future research on the consequences of homophily that can apply across levels, as well as data and methods that provide opportunities to expand and refine research on the consequences of homophily. Even though our understanding about the consequences of homophily continues to expand, there is much work to be done.

## HOMOPHILY

Homophily, as coined by Lazarsfeld and Merton (1954), is the "tendency for friendships to form between those who are alike in some designated respect." McPherson and collaborators define it as the principle that "contact between similar people occurs at a higher rate than among dissimilar people" (McPherson et al. 2001: 416) and Lawrence and Shah (2020: 3) understand it as "the tendency of individuals to associate with similar others." Seeing these definitions as consistent, and as indicating wide agreement in the literature, we take them to collectively provide a clear sense of what homophily is.

### Mechanisms and Theory Linking Homophily to Outcomes

Two sets of mechanisms emerge as dominant, in terms of capturing what researchers propose and invoke in linking homophily to outcomes. On the one hand, homophily leads to smoother coordination, better communication, and enhanced trust between an actor and contacts. On the other hand, homophily reduces diversity in knowledge, perspectives, and

other resources that an actor can access through contacts.

In most studies, the first set of mechanisms (i.e., homophily facilitating coordination, communication, and trust) is used in linking homophily to outcomes, such as promotion at the individual level (Opper et al., 2015) or interpersonal agreement at the dyad level (Castilla, 2011). These mechanisms are closely related to a stream of literature that builds on similarity-attraction theory (Byrne, 1971), which posits that individuals have positive affect for similar others. Numerous studies support to the idea that similarity generates liking or attraction, which then can result in positive outcomes.[1]

The second set of mechanisms (i.e., homophily reducing diversity in knowledge, perspectives, and network reach) is generally adopted from research on social networks (e.g., from arguments about redundancy in Burt, 1992) and diversity (e.g., Cross & Cummings, 2004; Horwitz & Horwitz, 2007), to formulate the negative effects of homophily, especially in contexts where heterogeneity of knowledge, perspectives, and resources play an important role in determining outcomes. The general assumption behind this set of mechanisms is that similar people are more likely to have similar knowledge and perspectives. This is relevant because homophily – being based on similarity – reduces the range of potential contacts a focal actor considers, to those who are more similar to the focal actor on the characteristic(s) being studied. As a result, a greater tendency to interact with similar others restricts an actor's access to novel sources of knowledge and ideas.

As with other social processes (such as network closure e.g., Gargiulo, Ertug, & Galunic, 2009; or embeddedness, e.g., Uzzi, 1997) and relationships (such as in immigrant communities, e.g., Portes & Sensenbrenner, 1993; or kinship, e.g., Ertug, Kotha, &

[1] While some studies refer to both homophily and similarity-attraction theory in building their arguments (e.g., Mitteness et al., 2016), others use only similarity-attraction theory (e.g., Chen & Kenrick, 2002) or the homophily literature (e.g., Centola, 2011). One difference between homophily and similarity-attraction theory is that whereas homophily refers to similarity that results in the formation of a tie or relationship (e.g., friendship, marriage, co-founding), similarity-attraction theory links similarity to liking or attraction, but does not require that this leads to a tie or relationship. This is relevant, because our review comprises studies that presume the formation of a relationship between actors, based on similarity, and investigates the consequences of this.

Hedstrom, 2020) that are linked to multiple mechanisms with different implications, both sets of mechanisms are indeed linked to and result from homophily. Accordingly, researchers can investigate the conditions under which one set ends up being more relevant, prominent, or important than the other, rather than postulating unconditional relationships (i.e., always positive, negative, or never present) between homophily and a given outcome. The studies we will discuss in our review show how the preponderance of one set of mechanisms over the other can be a function of the outcome being studied, the dimensions of homophily, the context, or other contingency factors.

It is not necessarily the case that the outcomes linked to the first set of mechanisms are always desirable or positive, or that the ones linked to the second set are without exception undesirable or negative. The underlying mechanisms and homophily's relationship to a particular outcome might be formulated ex ante, but whether the increase or decrease in that specific outcome is desirable often depends on a number of factors. To illustrate this with an example relating to macro-level implications of homophily,[2] the diffusion of smoking would be something to avoid whereas the diffusion of benevolence would be something to hope for. Similarly, if homophilous ties between organizational members lead to positive evaluations that are not meritocratic, this might be desirable for the recipient of the evaluation but not for the other members of that organization, nor for the organization as a whole.

**Specification of the Construct**

Researchers consider two broad categories in studying the emergence of homophily, structural and individual (McPherson & Smith-Lovin, 1987), sometimes also referred to as "baseline" and "inbreeding" homophily (McPherson et al., 2001). This distinction is important for our purposes, because the categories yield different implications in interpreting

[2] By the "macro" level, we refer to the wider setting, such as the industry, community, field, or society, that includes the focal actors. Depending on the setting, these focal actors can be individuals, teams, organizations, or other collective actors. The outcomes we investigate at this level do not refer to the focal actor but to the setting at large. The macro level is also sometimes referred to as the "network" level in network research.

the consequences of homophily. The first category refers to homophily that is "induced" by the structures of opportunity and constraint. The second category is about "choice" homophily, which refers to preferences and selection by actors, which can be inferred only after the effects of the structures of opportunity and constraint on tie formation are taken into account. Depending on whether the observed homophily is due to structural (induced) factors or choice homophily, inferences regarding the motivation and preferences of an actor would be different. For example, in a situation where the resources and expertise an actor needs are concentrated in individuals who are similar to this actor, the actor's formation of ties with these individuals might well be due to a preference by that actor, but might not indicate "choice homophily," since the effect of similarity as such in the formation of these ties might be negligible once the influence of expertise and resources are taken into account. This is why it is crucial to be able to attribute the formation of a tie to similarity as such, net of other factors that might correlate with similarity in that setting and that constrain an actor's choice. Even though most studies in our review, and most studies on homophily more generally, explicitly or implicitly invoke choice (rather than induced) homophily in their arguments, the empirical inference is seldom calibrated accordingly.

Another matter to clarify is that when we speak of homophily, we generally refer to a continuum between complete homophily at one end (where ties are formed solely on the basis of similarity), and at the other end a situation where there is no association between similarity and tie formation. However, if there are circumstances that make it reasonable to expect heterophily (where there is still a relationship between similarity and tie formation, but it is negative, instead of positive), then the continuum might instead be one with complete homophily at one end, complete heterophily at the other end, and no association between

similarity and tie formation as the mid-point.[3]

**Dimensions of Homophily**

Regarding the dimensions that serve as a basis for homophily, previous research distinguishes between characteristics that are ascribed and those that are achieved. Examples for ascribed characteristics are sex, race, ethnicity, and age, while examples for achieved characteristics are values, attitudes, preferences, as well as education or other types of life experiences. "Achieved" is not meant to imply a dimension that is necessarily desirable or positive. Rather, it refers to characteristics that are malleable as a function of one's preferences, behavior, and experience. We note that some scholars categorized dimensions of homophily differently. Harrison et al. (1998) distinguish "surface level" (or visible) characteristics from "deep" (and, sometimes concealed/hidden) characteristics. Lazarsfeld and Merton (1954) originally used "status homophily" (which includes both ascribed characteristics, such as sex and race; but also achieved characteristics like education and occupation) and "value homophily" (referring to a range of internal states that relate to individuals' attitudes or beliefs), in a distinction that continues to be used widely. Because there are streams of work in management that frequently refer to "status" to invoke status theory (e.g., Podolny, 2010), in our review we distinguish between homophily on achieved or ascribed characteristics.[4] Following our review of research within each of the five levels, we return briefly to the dimensions of homophily to discuss any patterns regarding the relationship between particular dimensions of homophily and their consequences.

**Measuring Homophily**

Lawrence and Shah (2020) recently drew attention to aligning the conceptualization

[3] In most cases where researchers investigate homophily (and its consequences) the null hypothesis would be "no association." While this would imply the use of a single-tailed test for significance, in practice almost all studies conduct two-tailed significance tests, not because they explicitly discuss the possibility of heterophily, but presumably because they wish to present evidence that can clear a higher bar of significance.

[4] Some characteristics might approximate ascribed dimensions in some settings but achieved dimensions in others, such as one's religion. Our use of these two categories is not meant to overlook these complexities, but reflects that they can serve as helpful analytical categories in grouping findings and highlighting patterns.

and the measurement of homophily. Therefore, we touch upon this crucial topic minimally in our review. The key take-away of their review for our purposes is that if the mechanisms that link homophily to the outcomes investigated in a study relate to actor preferences, thereby invoking choice homophily, the measure should capture choice homophily, carefully controlling for factors that might relate to structural homophily. Without continued progress on this matter, it will be a challenge to accumulate compatible findings and to achieve clarity about the mechanisms that drive observed relationships between homophily and the consequences being studied.

There is also variation in how researchers treat multiple indicators of similarity in studying homophily. Some studies control for some dimensions of similarity to concentrate on a single dimension and theorize about homophily on that dimension and its consequences. Other studies explicitly include multiple dimensions of similarity as possible bases of homophily in their arguments. This approach allows researchers to investigate the interplay between different dimensions of similarity, to see if they complement or substitute each other in prediction tie formation (e.g., de Oliveira Maciel, 2018; Reagans, 2011). Yet other studies construct aggregate indices that capture similarity on multiple dimensions (e.g., Ahlf et al., 2019; Greenberg & Mollick, 2017). Even though this last approach allows researchers to jointly study homophily based on multiple dimensions, it limits the options to look into the interplay across these different dimensions (Lawrence & Shah, 2020: 531).

**How is the Focus of Our Review Different and New?**

Our focus is on the consequences of homophily. This is distinct from the concerns of other reviews of homophily research. The classic review by McPherson et al. (2001) covers three themes. It summarizes the types of relationships (e.g., friendship) found to be homophilous, overviews the range of dimensions (e.g., gender) on which similarity breeds connections, and discusses sources of homophily, focusing on social structures (e.g.,

organizational foci) that induce propinquity, and the cognitive processes that make communication easier between similar people. Rivera et al. (2010) examine homophily as one of three aspects of their review on sociological research on dyadic tie formation and dissolution. They discuss "assortative mechanisms" related to actor attributes, specifically homophily and heterophily, and synthesize research on similarity in network position. Finally, Lawrence and Shah (2020) focus on the alignment between the meaning of homophily and its measurement. They recommend that researchers operationalize homophily in ways that are aligned with their own discussions of what homophily is assumed to capture.

## REVIEW METHODOLOGY

***Literature search procedure***. We implemented a five-step search process to identify relevant articles (detailed in Online Appendix A1). First, we searched in Web of Science (WOS) for articles that include "homophily" in their title, abstract, or keywords, limiting this search to relevant journals in the FT50 list and 30 other journals in related disciplines (listed in Online Appendix A2). This step yielded 168 articles. Second, because homophily is related to similarity, we also searched the same list of journals in WOS for articles that contain both "similarity" and "network" *and* any of the following keywords: "organization," "organizational," "intraorganizational," or "intra-organizational," in their title, abstract, or keywords. This step generated 56 articles. Third, we scanned the articles that cited McPherson et al. (2001), as indexed on WOS. Due to the large number of citations to this work, we read their titles and abstracts and downloaded 656 articles that seemed to be studying outcomes of homophily. Fourth, we searched for "homophily" in WOS in the title, abstract, or keywords, of any article (without restrictions on journal or disciplines) and downloaded the articles that, based on their abstract, appeared to examine the consequences of homophily and that had more than 100 citations in WOS. We identified 81 articles in this step, which largely overlapped with the articles identified in the previous three steps. This

fourth step was intended to reduce the chances that we would miss influential studies that examine the consequences of homophily. Fifth, we downloaded the 170 studies included in a recent review on the measures and meaning of homophily (Lawrence & Shah, 2020) as well as the 42 studies that were listed in an online appendix that provided an overview of homophily research in management and sociology journals (Greenberg & Mollick, 2017).

***Selection criteria***. We merged all the articles downloaded in the five steps above. Due to the overlap in the articles identified in different steps, 195 duplicates were removed, leaving us with 978 articles. Consistent with our focus, from this set we kept only those articles that study the consequences of homophily. By this, we mean articles that examined the similarity-interaction-*outcome* relationship, i.e., they go beyond the formation of a tie or relationship alone. Based on the same reasoning, we excluded studies that investigate consequences based on similarities alone, without assuming or discussing interactions between the actors. Overall, we identified 87 management articles that fulfill our criteria. During this selection and filtering process, we also paid close attention to non-management work on the consequences of homophily that would have implications for management research on this topic. As a result, we identified 35 articles from other disciplines and streams of work, which we label "non-management" for ease of reference, that have implications for management research on this topic (whether with respect to mechanisms, data, methods, or outcomes), all of which are referenced across the different sections of our review.

***Coding scheme***. These 122 articles were split among the team to code authors, year of publication, outcome of homophily, dimension(s) of homophily, nature of tie, methodology, setting, key findings, and information about moderators. We cross-checked each other's coding, and, in the few cases of disagreements, discussed to resolve these. Online Appendix A3 shows our coding for the complete set of 89 management articles in our sample, as organized by the level and the outcome studied.

## ORGANIZING FRAMEWORK AND REVIEW STRUCTURE

***Organizing framework.*** We propose a framework that highlights the underlying mechanisms, the importance of the ways in which homophily is measured, and the relevant moderators to organize, clarify, and expand our knowledge of the relationship between homophily and its consequences. Our framework also indicates the different levels under which we have grouped the outcomes studied in the literature. Across the five levels, we grouped the various consequences studied in the literature into ten groups overall, reflecting critical outcomes studied in management research. Some of these, such as performance, are relevant for multiple levels, whereas others feature in only one level.

Building on our discussion in the previous section, our framework in Figure 1 shows that homophily is linked to different outcomes through the two sets of mechanisms we explained above. As summarized in this figure, the first set of mechanisms is that homophily promotes trust, communication, coordination, positive affect, and attraction between similar actors. The other set of mechanisms is related to the idea that homophily reduces the diversity of knowledge. Another point highlighted in this figure is that the measure of homophily should be aligned with its meaning, as discussed extensively by Lawrence and Shah (2020), especially with respect to choice and induced homophily. The framework also indicates, as a matter that emerged from our review of the literature, that the relationships between homophily and its consequences are contingent on a set of factors, which we broadly categorize into four groups: (i) contextual factors that relate to the setting in which homophily is studied, (ii) the dimensions on which homophily is based, (iii) individual-level factors, and (iv) factors that are at the relational or network levels. Finally, the framework encompasses the different levels at which the consequences of homophily have been studied and the ten groups into which we have categorized them. We propose this framework to map and

navigate the literature on the consequences of homophily. We will refer to different components of it in our review, and also when we discuss the broader research ideas.

***Review structure.*** We structure our review by levels, going from the individual level, to the dyad, team, organizational, and concluding with the macro level. Our categorization is based on the level at which the consequences of homophily are investigated in a study, so that we are thinking about, for example, "individual" or "dyadic" consequences of homophily. If a study explores consequences at multiple levels (say for the individual but also for the team), then we refer to that study under both of those levels (both in the text below and in Online Appendix A3). Since homophily is fundamentally a dyadic, or relational, phenomenon, in the paragraph below we clarify what we have in mind for the different levels, both in terms of the consequences that are studied at those levels, as well as what we mean by "homophily" at each level. As will be seen, homophily remains at the dyadic level in its presumed operation, but is measured or proxied for in different ways in different studies, in terms of aggregating, collapsing, or otherwise carrying the information from the different relationships to the level at which the outcomes are studied.

At the individual level, we review studies that investigate outcomes measured at the individual level, such as employee performance or learning. In studying the relationship between homophily and such outcomes, homophily for the focal individual is taken to be an aggregate measure that captures the degree to which each of her/his relationships have been formed on the basis of similarity. For instance, Bunderson (2003) calculates functional background similarity as average distance between a focal manager's profile and the profile of all other members of the management team, subtracted from 1. For the dyad level, the consequences are those that relate to a given dyad, such as tie strength, which are studied as a function of the degree to which the relationship between this pair of actors was formed on the basis of their similarity to each other. At the team level, we consider outcomes such as team

performance as a consequence of the degree to which the formation of the team was influenced by similarity, specifically similarity between all different pairs of members of this team. As with the individual level, researchers use different ways to measure such an aggregate indicator based on data availability and the sophistication of methods at their disposal. At the organizational level, we include both outcomes that have to do with the organization as a whole, such as its performance or valuation, as well as outcomes that relate to intra/within organization matters, such as diffusion of practices. For the first case, homophily relates to the degree to which a given inter-organizational relationship, or, in the case of multiple such relationships, an aggregate measure of the degree to which each relationship in that set, is formed on the basis of similarity between the organization as a collective actor (or representatives of that organization, such as leaders) and its partner (or representatives of that partner). For the second case, researchers consider homophily on the basis of, for example, how similarity influences hiring practices between specific members of the organization and candidates, therefore indicating the establishment of a relationship on the basis of similarity. Finally, at the macro level, researchers study outcomes such as diffusion, segregation, or polarization that change as a consequence of the level of homophily between the actors in the system. The actual measurement and inference of the operation of homophilous processes in this case range from very precise, in simulation or modeling studies, as well as in the use of recently available time stamped datasets that capture online interactions, to aggregate and distant proxies that rely on archival data or surveys that might lack this level of granularity.

## INDIVIDUAL LEVEL

### Management Research

By individual-level consequences of homophily, we refer to the implications for individuals who have more homophilous relationships. In the studies we reviewed at this

level, homophily is assessed on the basis of various aggregate measures that capture the degree to which each of the relationships of a focal individual have been formed on the basis of similarity. Research investigating the consequences of homophily at the individual level makes up the largest set of studies in our review, and centers around six outcome categories.

***Performance***. Research on the performance consequences of homophily for individuals presents conflicting results. Some scholars find a positive effect, for example Crosby et al. (1990), in a study of the U.S. life insurance industry, show that similarity among salespeople and customers increases sales effectiveness, and Opper et al. (2015) demonstrate that homophily increases middle-level elites' recruitment chances to the top positions of state in China. Others provide evidence for negative effects. For example, Freeman and Huang (2015) show that researchers of similar ethnicity coauthor together more frequently, and they then associate this homophily with publication in lower-impact journals and with fewer citations. Yet others find no relationship in either direction. For example, studying managers in a Fortune 500 firm, James (2000) does not find a relationship between racial similarity among contacts and promotion rates or career-related and psychosocial support.

Offering one explanation for the conflicting findings, Ertug et al. (2018) demonstrate that the homophily-performance relationship is contingent on status. They reason that the performance of low-status individuals benefits from the easier access to information that is facilitated by homophily, since these actors would otherwise find it difficult to secure information from others, due to their low status. In contrast, because high-status individuals can leverage their status to secure information from other individuals, homophily is less helpful for them in this regard. In addition, the authors suggest that the performance of high-status individuals is especially dependent on the diversity of the information they have access to, more so than the performance of low-status individuals, given the tasks that are generally entrusted to these two sets of actors. As a result, even though both low-status and high-status

individuals would access a less diverse pool for information as a result of homophily, for low-status individuals this might be a tradeoff worth making, resulting in a performance increase overall. For high-status individuals, however, the loss in diversity does not come with appreciable benefits in terms of securing information, and therefore homophily reduces their performance overall. This study leverages the role of status, as an alternative mechanism to homophily, to secure cooperation, information, or resources. While the consideration of status is unlikely to reconcile all inconsistencies regarding performance that we note above – particularly given that these studies rely on different dimensions of homophily, as well as different performance indicators – the findings by Ertug et al. (2018) demonstrate that it could at least contribute to explain some of the variation.

***Evaluation***. A number of studies provide evidence that homophily benefits individuals who are targets of evaluations. Conducting a qualitative case-study in a multinational firm, Mäkelä et al. (2010) show that cultural and linguistic similarity between the decision makers involved in talent reviews and candidates in the talent pool are positively related to those candidates being labelled as talent. Studying the evaluation of founders, Matusik et al. (2008) demonstrate that value homophily among venture capitalists (VCs) and founders positively affects the VCs' perceived worth of the founders' human capital. While Grossman et al. (2012) do not find a direct effect of homophily on entrepreneurs' assessments of business contacts, they show that the interaction between resource multiplexity and homophily positively influences these assessments. The authors reason that the process benefits associated with interpersonal similarity, such as enhanced communication and greater interpersonal trust, alone are not sufficient as a basis for entrepreneurs' assessment of value. However, these process benefits play an amplifying role for the content benefits that are associated with resource multiplexity.

By contrast, others suggest that differences in status are the driving factor behind

variation in evaluations and outweigh the influence of homophily. Specifically, Pearce and Xu (2012) compare homophily, based on gender and age, with status contest explanations to account for biases in supervisory ratings of the performance of subordinates. The authors find that subordinates whose higher demographic status (measured as being older or being male) served to contest the supervisor's higher hierarchical status received lower performance ratings. Thus, supervisor ratings are biased towards similar subordinates only when a high-status subordinate contests the supervisor's status. Similarly, Belliveau et al. (1996) find that a status-based, rather than homophily-based, mechanism affects CEO compensation, as CEOs receive higher pay when their status is higher than the status of the compensation committee chairperson. In closing, we note that the studies that investigate evaluations as an outcome rely on formal rather than informal interpersonal relationships.

***Perceptions and attitudes***. Only a few studies associate homophily with perceptions and attitudes. Dellande et al. (2004) provide evidence that attitudinal homophily between nurses and their patients leads to greater role clarity and motivation for patients. Based on survey data collected from 108 women and 258 men in a U.S. university, Maranto and Griffin (2011) link gender homophily in academic departments that have a lower percentage of women to increased perceptions of exclusion among female department members. Finding opposite results for male-male and female-female pairs of entrepreneurs and bankers, Saparito et al. (2009) conclude that status expectations, rather than homophily, explain entrepreneurs' perceptions of trust, their satisfaction with credit access, and the bank's knowledge of the entrepreneur.

***Learning***. There is only one study that investigates individual-level learning: Lobel and Sadler (2016) present a mathematical model to highlight how network density and homophily interact in their influence on learning, such that homophily benefits learning in sparse networks but is detrimental to learning in dense networks.

***Behavior***. About half of the studies that investigate the consequences of homophily at the individual level study behavior as the outcome. This research shows that homophily influences investment decisions, with multiple studies emphasizing the positive effect of gender homophily on funding (Greenberg & Mollick, 2017; Harrison & Mason, 2007; Joshi et al., 2018). For instance, Ewens and Townsend (2020) study gender homophily in VC investment in the U.S. using data from AngelList, a platform through which investors can contact startups. They found that female entrepreneurs are more successful than male entrepreneurs when the investors are female. Likewise, male entrepreneurs are more successful than female entrepreneurs when the investors are male. Hegde and Tumlinson (2014) derive a formal model and provide empirical evidence showing that ethnic similarity between U.S. VCs and company executives positively influences funding decisions. Based on a mixed-method study using data on Chinese entrepreneurs, Qureshi et al. (2016) demonstrate that homophilous contacts discourage social enterprise formation, since such activity is seen as norm breaking behavior within this setting. Compared to dissimilar others, these contacts highlight reputational effects and negative repercussions of norm breaking behavior in their interactions with the potential entrepreneur. Marketing research demonstrates that homophily positively influences consumer behavior, such as word-of-mouth-influence (Gilly et al., 1998). Research in organizational behavior demonstrates that homophily negatively influences turnover (Kmec, 2007; Zatzick et al., 2003) and can lead to inefficient search (Singh et al., 2010). There are also some studies that do not find homophily to have an influence on the behaviors they study (Bapna & Umyarov, 2015; Bowler & Brass, 2006).

Attending to boundary conditions, Greenberg and Mollick (2017) show that the perception of belonging to a disadvantaged group, rather than mere similarity between an individual and someone who seeks funding, influences whether homophily matters for funding decisions. Specifically, the authors use an experiment in the context of crowdfunding

to demonstrate that individuals tend to provide funding to others whom they perceive to be like them. Further, they find that this tendency is mediated by the funder's belief that the other person faces constraints related to their common gender, coupled with the belief that it is important to overcome these constraints. Using field data on Kickstarter projects, the authors then provide evidence that female funders are comparatively more likely to support female, rather than male, founders and that the proportion of female funders supporting female founders increases the odds of a successful fundraising. Abrahao et al. (2017) uncover a baseline homophily effect in the sharing economy, such that demographic similarity positively influences investment decisions, but demonstrate that reputation systems override this tendency to trust and invest in similar others. Research studying homophily as a moderator shows that similarity on demographic characteristics reinforces social influence effects on behavior. Specifically, Dimmock et al. (2018) provide evidence for coworker social influence on committing misconduct, which is stronger for coworkers with a similar ethnic background, and Nitzan and Libai (2011) show that a mobile phone user's likelihood of switching to another provider increases if contacts who are demographically similar to the user also switch.

***Network-related consequences***. Research provides mixed findings regarding the influence of homophily on network centrality. Bunderson (2003) finds that similar functional background and team tenure, but not gender, race, or age, between an employee and his/her contacts are positively related to that employee's centrality. Moreover, he introduces power centralization as a moderator, showing that functional background similarity is positively related to decision involvement in centralized teams and negatively related to decision involvement in decentralized teams. Leonard et al. (2008) fail to establish a significant effect of race homophily on centrality among members of a U.S. doctoral student association. Ibarra (1992) uses survey data collected in a U.S. advertising firm to show that the effect of

homophily on centrality varies by gender and type of network. Specifically, she shows that gender homophily increases men's support network centrality while it reduces women's centrality in communication, support, and friendship networks. By detracting from women's centrality in expressive networks, gender homophily contributes to men's ability to reap greater returns from their positional resources. Qualitative research shows that homophily influences the effectiveness of networking behaviors. Whereas Phillips et al. (2013) provide evidence that entrepreneurs strategically use homophily to build an effective tie portfolio, Greguletz et al. (2019) point to homophily as one of the reasons for which women, specifically leaders working in large German corporations, build less effective networks.

**Non-management Research**

Non-management studies from different disciplines add to the research reviewed above and point to areas of future research of high relevance to management scholars. First, studying perception biases across cultures as an outcome, Lee et al. (2019) demonstrate that individuals' homophily in their personal networks (meaning the degree to which the formation of ties between the individual and his/her contacts was based on similarity) strongly affects their social perceptions, leading to false consensus and false uniqueness biases. The type of bias depends on whether the individual belongs to the minority or majority group: in homophilous networks, majority groups tend to underestimate the size of the minority group while minority groups tend to overestimate it. Vice versa, in heterophilous networks, majority groups tend to overestimate the size of the minority group while minority groups underestimate it. These biases can be reduced by relying on the perceptions of neighbors, however, only in heterophilous, and not in homophilous, networks. The findings of this study supplement the relative dearth of research on perceptions and biases as individual-level outcomes of homophily in management research, and point towards interesting areas for future studies. For instance, in line with recent developments in the

organizational network literature, homophily research should explore perceptual outcomes such as cognition, accuracy, or misperceptions of relationships and social networks (e.g., Byron & Landis, 2020).

Another stream of non-management research investigates health-related outcomes of homophily. Na and Hample (2016) find a positive direct effect of ethnic homophily on self-reported physical health. However, the authors caution that, overall, the benefits of being integrated in a diverse social network may surpass the benefits of homophily due to psychological mediators, such as control and trust. Brashears (2010) shows that individuals whose networks contain a larger proportion of religiously homogenous others, and who spend more time with those others, report lower levels of anomia and are happier. Finally, Schneider et al. (2017) provide evidence that homophily based on a negative attribute, namely criminal involvement, fosters distress and anxiety. These studies highlight the different dimensions of homophily that could lead to better or worse mental health. More broadly, given the implications of physical and mental health for work, future management research should investigate the link between homophily and individual health-related outcomes across organizational settings.

Finally, a stream of medical research draws attention to experiential homophily and its influence on behavioral (Grace, 2018) and health-related (Thoits et al., 2000) outcomes. "Experiential homophily captures the degree to which a person's networks are comprised of individuals who occupy the same social role, or who confront a similar array of stressors (e.g., fellow cancer survivors or combat veterans) (Thoits, 1986, 2011)." (Grace, 2018: 33). Moving beyond proxies, such as similar functional background, and more directly capturing similarity in work-related experiences could enable management researchers to clarify conflicting findings and address concerns regarding the salience of homophily bases, as recently discussed by Lawrence and Shah (2020).

## Conclusions and Future Research

There are conflicting findings with regard to several individual-level outcomes, most notably performance and evaluations. These conflicting findings highlight the necessity of investigating the boundary conditions of the influence of homophily.

Independent of the outcome studied, most research at the individual level conceptualizes homophily on ascribed characteristics, predominantly gender (e.g., Cooper, 1997; Greenberg & Mollick, 2017) and ethnicity/race (e.g., Dimmock et al., 2018; Hegde & Tumlinson, 2014). A distinctly smaller set of studies investigates homophily on achieved characteristics, studying the effects of similarities in functional background (e.g., Bunderson, 2003; Opper et al., 2015), values (e.g., Matusik et al., 2008), attitudes (e.g., Dellande et al., 2004), or behaviors (Bapna & Umyarov, 2015). As mentioned, non-management research additionally draws attention to experiential homophily, such as that based on recovery from illness (Thoits et al., 2000), which management research has not explicitly investigated. Relevant examples could be shared experiences with unemployment or abusive supervisors at work. Regarding the distinction and parallels between findings that relate to homophily on achieved and ascribed characteristics, only the positive influence of homophily on evaluations as an outcome could be confirmed across ascribed (e.g., Mäkelä et al., 2010) and achieved dimensions (e.g., Matusik et al., 2008). Only few studies compare the effects of homophily based on ascribed and achieved characteristics, with the findings suggesting that homophily on achieved characteristics has a stronger influence on attitudes (Dellande et al., 2004) and behavior (Gilly et al., 1998).

Research across different outcome categories demonstrates that status and reputation can neutralize or interact with homophily as driver of individual-level outcomes (e.g., Ertug et al., 2018; Pearce & Xu, 2012; Saparito et al., 2009). Accordingly, when making inference

about the effects of homophily, researchers should account for the ways in which homophily-based mechanisms interact with status- or reputation-based mechanisms.

Finally, individual-level studies carve out differences in the effects of homophily, depending on whether an individual is in a minority or majority category (e.g., Singh et al., 2010; Zatzick et al., 2003). Greenberg and Mollick (2017) explicitly incorporate this in their theorizing by distinguishing interpersonal choice homophily based on individual preferences from activist choice homophily, where in this latter case, relationships are formed based on the perception of shared structural barriers at the group level, such as belonging to the minority. The size of the category an individual belongs to, in terms of the homophily characteristic studied, has implications for the conceptualization and measurement of homophily, in line with Lawrence and Shah's (2020) discussion of relative and hybrid rate measures.

## DYAD LEVEL

### Management Research

Consequences of homophily that are studied in management research at the dyad or relationship level fall in two broad categories, similarity between members of a dyad and network-related consequences. By dyad level consequences, we have in mind outcomes that relate to a specific relationship or that are best understood as relating to a particular dyad, such as the frequency of communication between two individuals, levels of trust within a relationship, or similarity in the views of two people.

***Similarity***. Homophily between a given pair of actors has been found to be positively related to various dimensions of similarity that are a consequence of, i.e. come after, tie formation between similar actors. For instance, Castilla (2011) shows that similarity between two managers and between managers and employees in a U.S. service sector company leads to similar performance ratings. Gibbons and Olk (2003) establish a link between homophily

among MBA students and their similarities in network embeddedness, specifically in terms of structural equivalence and centrality. Ma et al. (2015), who infer homophily without measuring it, argue that homophily among customers of an Asian mobile phone provider leads to similarities regarding consumer behavior. Overall, research in this category relies on homophily on ascribed, rather than achieved, dimensions; studies homophily in various national and organizational settings; and does not attend to moderators.

***Network-related consequences***. Network-related consequences of homophily at the dyad level are typically captured as the quality of a relationship, oftentimes in terms of different dimensions of tie strength (see Granovetter, 1973; Marsden & Campbell, 1984). This research shows that homophily across a range of ascribed characteristics positively influences the frequency of interactions (e.g., Friedkin, 1993; Reagans, 2005; 2011), as well as affective closeness and trust (e.g., Ahlf et al., 2019; Oelberger, 2019), between individuals. For instance, Reagans (2005) establishes a positive relationship between tenure homophily and communication frequency among knowledge workers in an organization. As a rare study that investigates homophily on an achieved dimension, Oelberger (2019) provides qualitative evidence for a positive link between occupational value homophily and connection-based enrichment as a form of affective closeness. Besides tie strength, scholars also provide evidence that homophily has a positive influence on relational outcomes, such as leader-member exchange quality (Goodwin et al., 2009) and relationship persistence (Suitor & Keeton, 1997). Brennecke (2020) shows that engineers with similar organizational tenure and educational background but dissimilar unit membership are more likely to form a distinct type of multiplex relationship, namely dissonant ties consisting of both positive and negative components.

Several dyad-level studies introduce moderators in their investigation of the relationship between homophily and network-related consequences. For instance, being part

of a numerical minority (Reagans, 2005) and having opportunities for interaction (Reagans, 2011) reinforce the positive effect of homophily on tie strength. Comparing two cultural groups within a multinational firm, Rhee et al. (2013) find that homophily has a positive influence on closeness of friendship ties for Korean, but not for U.S. employees. Moreover, the effect of gender homophily among Korean employees was found to be stronger for women. Levin et al. (2006) demonstrate that, for homophily on ascribed characteristics, the newer the relationship is, the stronger is the association between homophily and trust. By contrast, for homophily on achieved characteristics, captured here as shared perspective, relationship length enhances the positive association with trust, such that the older the tie the stronger the association will be. Also looking into the role of moderators, Goodwin et al. (2009) show that advice network centrality reinforces the positive relationship between homophily and LMX quality.

**Non-management Research**

Non-management research studying the consequences of homophily at the dyad level draws attention to a number of settings and outcomes that have so far been neglected by, but seem relevant to, management scholars. In terms of outcomes, studies, mostly from the field of communication, demonstrate that homophily in a dyad positively influences perceptions of credibility and the evaluation of information (Wang et al., 2008), perceived trustworthiness and expertise (Ayeh et al., 2013), persuasion (Falk & Mills, 1996), as well as certainty, feeling good, and safety (Prisbell & Anderson, 1980) with respect to a given actor in that dyad. This research hence makes explicit some of the assumptions underpinning the first set of mechanisms, based on coordination, communication, and trust, that links homophily to outcomes. These assumptions are often assumed, but seldom explicitly tested or investigated in management studies, and the above non-management research provides direct support for their tenability.

Studies in other disciplines also draw attention to the consequences of homophily in online relationships (Ayeh et al., 2013; Baym & Ledbetter, 2009; Wang et al., 2008), which is an underrepresented setting in the management literature we reviewed. For example, Baym and Ledbetter (2009) show that while homophily drives the formation of (weak) ties online, it is not related to the conversion of these connections into strong ties.

In experimental research that studies cooperative human behavior, Mussweiler and Ockenfels (2013) demonstrate that perceived and geographic similarity influence altruistic punishment among cooperating individuals in opposite ways. Individuals who were induced to focus on (perceived) similarities showed more altruistic punishment – reciprocating low cooperation levels with costly punishment – than those who were induced to focus on dissimilarities. In contrast, individuals cooperating with geographically similar others (those who came from the same city) showed the opposite tendency; they showed less altruistic punishment than those interacting with others who came from a different city. These differences between homophily dimensions, as well as the focus on reactions to deviant behavior among cooperating individuals as an important outcome to understand more about, are highly relevant to collaborations in organizations.

Moving beyond management research that links individuals' personality to their network position (Fang et al., 2015), van Zalk et al. (2020) show that similarity in extraversion is positively related to interaction quality among dyads. Future research can extend such insights to organizational settings and to the outcomes of homophily across different personality factors, such as self-monitoring.

Finally, drawing on longitudinal social survey data from the Netherlands, Tulin et al. (2021) relate homophily to network tie dissolution. The authors show that ties with dissimilar others are more likely to dissolve and that they tend to dissolve in the early years of a relationship. As the mechanisms affecting the dissolution of relationships might be different

from those that influence their formation, and given that tie dissolution is understudied in organizational network research in general, future research should also further consider how homophily might affect this network-related outcome.

**Conclusions and Future Research**

Overall, our review of management research suggests that the effects of homophily at the dyad level are, by and large, positive. This might be due to the smaller number of outcome categories considered and to the choice of the specific outcome variables considered. Therefore, future research at this level can investigate the influence of homophily on negative ties, tie dissolution, and different configurations or multiplex ties, to see whether a relationship exists, and if so in what direction, to achieve a more nuanced picture regarding outcomes at this level.

Our review of the dyad-level outcomes of homophily also shows that it gives rise to similarity among pairs of actors, implying that the tendency of similar actors to form network ties ends up breeding further similarity between them. This finding underscores the importance of disentangling homophily-based selection mechanisms and their consequences from influence mechanisms, which few management studies have addressed in detail (for exceptions, see DellaPosta et al., 2015; Kovacs & Kleinbaum, 2019; van Zalk et al., 2020). Disentangling the effects of social influence and homophily, across different homophily dimensions and outcomes, is critical, among other reasons, because the implications of these two mechanisms give rise to very different implications for managers and policy makers (for a detailed discussion, see Bapna & Umyarov, 2015).

Regarding network-related outcomes at the dyad level, most management studies center on tie strength. Some of these studies conceptualize ties in terms of relational states (e.g., friendship, being colleagues), while others rely on relational events (e.g., communication, phone calls); some investigate formal while others study informal networks.

However, we are not aware of studies that explicitly compare the influence of homophily on subsequent tie strength, across these various types of ties. Given the increased interest in recent work to incorporate the content of relationships when studying the outcomes of networks (e.g., Shah et al., 2017), such comparisons would enrich the field.

## TEAM LEVEL

Next, we consider studies that investigate the team level consequences of team formation processes that evince homophily between the members of a team.

### Management Research

The consequences of team level homogeneity and diversity have long been a focus of management research, producing hundreds of articles (for reviews, see Williams & O'Reilly, 1998; Van Knippenberg & Mell, 2016; Guillaume et al., 2017). Most of this research has focused on externally assigned or staffed teams (see Wax et al., 2017). It has rarely studied the joint processes of how teams self-form, especially in terms of how this might be driven by homophilous processes, and how such homophily in turn affects team performance. Below we provide an overview of research that investigates how homophily as a process influences team composition, which in turn influences team performance and other team level outcomes.

***Founding team composition and consequences***. Ruef and coauthors (Ruef, 2010; Aldrich & Ruef, 2006) study the composition of entrepreneurial founding teams and find that gender, ethnicity, age, and occupational similarity are drivers of homophilous affiliation in founding teams. Homophilous team composition, in turn, has multiple consequences for entrepreneurial teams. For example, homophilous affiliations increases the likelihood that a startup will become legally established (Ruef, 2010). Homophily along ethnicity, gender, age, and occupation increases the likelihood of equal ownership share and control allocation (Ruef, 2010). It also increases trust among founding members, and homophilous teams are more innovative and have a higher survival rate (Ruef, 2010). Hellerstedt et al. (2007) study

team member exits in knowledge-intensive industries in Sweden. They measure homophily along age, gender, type and length of education, country of birth, and prior industry experience, and demonstrate that homophilous teams are less likely to experience team member exits. Henderson et al. (2017) analyze U.S. startups and find that net of firm characteristics and human capital characteristics, startups with racially diverse founding teams have higher net worth than their homophilous counterparts. Steffens et al. (2012) find no implications of homophily for short-term performance but show that more homogeneous teams are less likely to be higher-performing in the long term. Using simulation models, Parker (2009) analyzes the effects of cognitive biases that arise due to homophily on performance, and finds a negative effect of homophily of cofounder choice on venture performance because diverse top management teams undergo fewer changes to their structure and composition over time. While this finding might be seen to contradict some of the findings we reviewed earlier, it becomes less surprising when we consider that Parker builds into his model the negative effects of homophily, but not its positive effects, such as higher trust and lower communication costs. Overall, the findings across studies with respect to performance are mixed, if not in the sense of conflicting results on the same outcome, at least with respect to different indicators of performance that researchers have studied.

***Performance***. Apart from the influence of homophily on founding team performance, there have also been other studies that investigate this relationship in different settings. Studying 1,518 project teams in an R&D firm, Reagans, Zuckerman, and McEvily (2004) show that the relationship between homophily and performance is nuanced, since demographic diversity has opposing effects on two social network variables: internal density and external range, while each of these variables has a positive effect on team performance. Dong et al. (2020) study the effect of status homophily between producer and artistic teams in the Chinese movie industry. They demonstrate that, because similar-status associations can

make it difficult to form an informal hierarchy and thus are more likely to cause internal conflict, status homophilous teams have lower performance, as measured by box office revenues.

**Non-management Research**

The consequences of homophily-based team formation were studied outside the management domain as well. Laakasuo et al. (2020) investigate how homophily affects the formation of friendship teams within a college fraternity and also the consequent success of these teams. They find that the formation of the teams is influenced by similarity in conscientiousness and neuroticism, while similarity along the other three Big 5 personality dimensions does not predict friendship formation. They also find that the emerging friendship teams that were more homogenous had stronger group identification and group bonding. While this previous study shows some positive effects of homophily on team level outcomes, Weare et al. (2009) study the composition of Los Angeles neighborhood council boards and show that homophily leads to less diverse boards that are also politically less tolerant. Wax et al. (2017) study team formation and performance in a massively multiplayer online role-playing game. Documenting first that homophily among prior roles and expertise level contributes to team formation, they find a mixed effect of homophily on team performance: successful teams are more homophilous in terms of prior expertise level but more heterophilous in terms of prior success rate. These studies have relevant insights for management, as they call attention to outcomes (group identification and bonding, political tolerance) and settings (team formation, online gaming) that are likely to have implications for management research.

**Conclusion and Future Research**

Given the importance of the effect of team diversity on team performance, a large literature has been exploring different aspects of the diversity and performance link (for

reviews, see Williams & O'Reilly, 1998; Van Knippenberg & Mell, 2016; Guillaume et al., 2017). Findings about the main effects of team diversity on performance remain mixed, with results varying depending on the dimensions of diversity and the aspects of performance that are investigated. Therefore, research on team diversity has been trying to reconcile conflicting findings and emphasize the role of mediators and moderators, such as the role of information exchange and processing (Van Knippenberg & Mell, 2016). One aspect that is largely missing from the team diversity literature is incorporating the processes that lead to homogenous or diverse teams in the first place (Wax et al., 2017).

As in the larger team diversity literature, in the set of articles we reviewed, homophily is measured both along ascribed dimensions such as age, gender, or ethnicity, but also along achieved dimensions such as status or expertise. Similar to the situation in the team diversity literature, we also see inconsistent patterns in this set of articles. Homophilous teams do better than heterophilous teams on some dimensions, such as higher level of trust, higher innovation output, more equal distribution of equity, higher founding and survival rate (Ruef, 2010), lower employee turnover (Hellerstedt et al., 2017), stronger identification and bonding (Laakasuo et al., 2020). However, homophilous teams do worse than heterophilous teams on other dimensions, such as venture performance (Steffens et al., 2012; Parker, 2009; Henderson et al., 2017), box office revenues (Dong et al., 2018), and tolerance of board members (Weare et al., 2009). Some studies, such as the one by Wax and colleagues (2017) reviewed above, find both positive and negative effects of homophily on performance, depending on the dimension of homophily, even within their empirical setting.

Although our review of the literature on the effects of homophily at the team level has not resolved the puzzle around team diversity effects, it still contributes to that research stream by emphasizing that researchers need to take into account how the teams are formed. It may be that homophily and diversity issues play out differently for homogenous teams that

are self-formed, i.e., those in which homophily has played an important role in their formation, versus teams that were put together externally. Specifically, self-formed teams tend to be more homogenous than those that are externally formed (e.g., Pociask et al., 2017). As we note above, this is a double edged-sword. Homophilous teams are characterized by higher levels of task enjoyment and trust, which increase performance, but those same teams are also characterized by lower levels of diversity in skills and ideas, which may hamper performance. Overall, whether self-formed teams outperform externally formed teams may depend on which of these different factors are more important for the task at hand.

## ORGANIZATIONAL LEVEL

Because most research that investigates the organization-level consequences of homophily is management-related, in this section we do not include separate sub-sections for management and non-management research. We discuss these studies in six groups, organized by the types of outcomes they investigate.

***Organizational performance and firm valuation***. Homophily has been linked to classical organizational outcomes, such as productivity and innovation, as well as valuation and financial performance.

Some papers study how homophilous processes influence investments in firms by investors. For example, Claes and Vissa (2020) analyze how social similarity between Indian start-up founders and VCs influences VCs' pricing decisions and returns on investments. They find that cultural and social proximity increases pre-money valuation, but caste similarity decreases pre-model valuation. Another set of studies investigates the relationship between homophily and financial outcomes for more established firms. Biswas (2016) studies financial performance of Indian public firms and finds that linguistic homophily between the firm's promoter and the board is negatively associated with financial performance. Lee et al. (2014) show that alignment in political beliefs between the chief executive officer (CEO) and

independent directors decreases firm valuations, operating profitability, and increased internal agency conflicts. They suggest that these happen because homophilous relationships come with higher connectedness within the corporate board and the CEO, leading to lower scrutiny and accountability. Goergen et al. (2015) find that substantial age dissimilarity between the chair of the board of directors and the CEO gives rise to cognitive conflict and increases board monitoring and firm value for firms with greater monitoring needs. Overall, while there is some variance in the findings, most studies find that the influence of homophily on evaluations and financial outcomes is negative.

Homophily also influences inter-firm alliance performance. Luo and Deng (2009) study interfirm alliances between biotechnology firms and find that similar partners in a focal firm's alliance portfolio enhance the firm's innovation output up to a level, beyond which additional similar partners lead to lower innovation output. Su et al. (2020) explore how standardization (introduction of ISO 9001) improves the productivity of a supply chain. They show that ISO 9001 increases performance more in a low industry homophily environment, because firms operating in different industries are more willing to use ISO 9001 as a basis of communication. However, ISO 9001 is less effective in a homophilous tie, as firms in the same industry tend to share the same common language and may not need ISO 9001 to improve communication and productivity.

***Diffusion and learning***. The findings in this area of research suggest that homophily fosters diffusion and learning locally but can lead to lock-ins in the longer term. Studying the within-organization spread of practices, Peng and Mu (2011) show that the greater the similarity between projects, the faster the focal project team will follow the other team and adopt the same software. For inter-organizational diffusion, Wang and Soule (2012) show that social movement organizations are more likely to adopt tactics from other organizations that are similar and with whom they have a connection. Backman et al. (2015) investigate

organizational absorptive capacity from an inter-organizational aspect and find that development teams are more likely to learn from teams in other firms if the firms share a similar work-style (but they find no effect of social category similarity). Maula et al. (2013) study inter-organizational ties as structural antecedents of top management attention and show that an incumbent's homophilous relationships with peers lead to a negative relationship with its timely attention to technological discontinuities.

***Network-related consequences***. Different kinds of homophily are relevant for the type of partner in inter-organizational relationships (e.g., partners who have high or low centrality), dyadic attributes of such relationships (e.g., those that are symmetric or asymmetric, with higher or lower involvement, or exchange terms), or attributes of networks that result from these relationships (e.g., formation of shortcuts).

Ahuja et al. (2009) show that poorly embedded firms are more likely to take minority ownership positions in joint ventures versus joint ventures characterized by structural homophily, i.e., when firms similarly embedded within the network, which results in a more equal ownership structure. Knoben et al. (2019) study inter-organizational networks among health-care organizations in the Netherlands, and demonstrate that an organization's network accuracy, measured as the organization's precision of recall and awareness of ties among other organizations in the field, is a moderator of the relationship between cues (including similarity) and partner selection decisions: organizations with low network accuracy will rely on nodal attribute information and will thereby select homophilous partners. Organizations with high network accuracy, on the other hand, will make their partner selection decisions based on information from the network structure and thereby select partners that are structurally proximate. Wholey and Huonker (1993) show that homophily is an important determinant of inter-organizational network among non-profit agencies, where they find that similar non-profit agencies are more likely to give and receive support to each other in their

work with clients. Rosenkopf and Padula (2008) study inter-organizational ties among U.S. cellular communication firms and show that homophily, based on similarity in prominence between firms, predicts shortcut formation (where shortcuts refer to ties that span locally embedded clusters which were not connected) but not alliance formation within clusters. Schoenherr and Wagner (2016) study new product development and show that the higher the level of homophily within a project, the higher the supplier involvement.

***Hiring and promotion***. Multiple studies demonstrate the relevance of gender and status homophily for hiring, supervisor assignment, and promotion. Appold et al. (1998) demonstrate gender homophily in hiring in 114 multinational firms from the U.S., Japan, and Thailand. Damaraju and Makhija (2018) show evidence for caste/religion-based hiring of CEO's in India, but find that whether the hiring was homophilous or not has no effect on firms' performance (measured with ROA). Beckman and Phillips (2005) show that law firms are more likely to promote women attorneys when their corporate clients have women in key leadership positions. Glass and Cook (2018) show that firms with women CEOs or gender diverse boards are associated with stronger business and equity practices. Lefkowitz (1994) documents a significant tendency to assign new employees to supervisors of the same ethnic group. This homophilous assignment, however, does not result in higher performance and liking ratings from their supervisors.

**Conclusion and Future Research**

Even though there is a sizeable stream of work on the organizational level-consequences of homophily, there are nevertheless important organizational outcomes that have not been studied widely in this literature. For example, future research could explore the links between homophily – with respect to the hiring, promotion, or grouping of individuals within the organization, but also possibly with respect to an organization's partners in inter-organizational relationships – and organizational cultures, including socialization. We would

also welcome more research that explores the across-level consequences of homophily. Even though we expand upon the issue of multilevel research as a broader future research topic in a later section, we highlight it here as well, since it is especially prevalent in organizations, which naturally comprise multiple levels, such as the individual, team, department, and the organization as a collective. How homophily between individuals affects team-level outcomes, such as bonding, or how team-level homophily (e.g., similar teams communicating more easily and creating ties) influences organization-level processes, such as diffusion of information and practices across the organization are examples of concrete and important questions in this regard. The organizational level, specifically, is crucial in studying homophily, because organizations provide a middle ground between micro and macro level processes (Hannan, 1992). It is often the organizational level (be it banks, schools, daycares, or government offices) that has the strongest influence on structuring decisions and actions, and it is also the level that provides the social foci for individuals to "practice" homophily, by shaping whom we meet, whom we collaborate with, or whom we exclude from access to resources.

At the inter-organizational level, even though links to alliance formation and diffusion of practices have been made, there is a dearth of research on other important outcomes, such as competition, the exchange of information and exchange, or attributes of supplier relationships. We also note that there is little research on the dyad-level consequences for organizations. For example, future research could study how homophily influences the strength or duration of alliances, the subsequent number of joint projects between organizations, or tie multiplexity. Finally, we again note that most of the research we reviewed is observational, and we call for experimental evidence on how homophilous organizational processes affect organizational-level outcomes.

## MACRO LEVEL

We next synthesize research that investigates the implications of homophily at the macro level. By the macro level we have in mind the wider setting, such as the industry, community, field, or society, that includes the focal actors. Depending on the setting, these actors can be individuals, teams, organizations, or other collective actors. What we consider as the macro level is also sometimes referred to as the "network" level in network research (e.g., Provan, Fish, & Sydow, 2007). The relationships we review in this setting can generally be considered also as macro level implications of micro (or lower) level behavior (Coleman, 1986).

### Management Research

Because management scholars are typically focused on the individual, team, or organizational level, there is a smaller body of management research – focused on diffusion – that studies the macro-level consequences of homophily.

***Diffusion***. The general finding here is that homophily leads to greater diffusion. Greve et al. (2016) show that runs on banks are more likely to diffuse across communities with similar ethnicities, national origins, religion, and wealth, as well as across banks that are similar. Nejad et al. (2015) investigate how profits are affected by homophily among consumers and that homophily negatively affects the impact of seeding early adopters. Wang and Soule (2012) show that social movement organizations (SMOs) are more likely to enter into collaboration if they have similar tactics, and also that they are more likely to adopt tactics from similar organizations that they have connections with. Therefore, similarity influences the diffusion of tactics among collaborating SMOs.

### Non-management Research

The effect of homophily on macro-level outcomes have been studied extensively in sociology, economics, communication, and network studies. We discuss the main findings of

some of these studies, as grouped by their main outcomes: polarization and segregation, diffusion of innovations and practices, and inequality. We focus our review on articles that we believe have implications for management researchers, either based on the setting and phenomena they study, or in terms of the methods and constructs they use.

***Polarization and segregation***. The findings here are quite consistent in indicating that homophily leads to greater polarization and segregation. Using an MBA student network data and online reviews, Kovacs and Kleinbaum (2020) show how linguistic similarity predicts both homophilous selection, which then result to convergence in linguistic styles and result in a more polarized network structure. Barnes et al. (2016) show that the propensity for individuals to share information primarily with others who are most similar to themselves creates segregated networks that impede the diffusion of sustainable behaviors. Bessi et al. (2016) show that users' engagement with content correlates with the number of friends who have similar consumption patterns (which is a basis of "experience" homophily), suggesting that homophily leads to polarization in the age of misinformation. Stark and Flache (2012) find that friendship selection on the basis of similar opinions can foster ethnic segregation. Melamed et al. (2020) find that homophily promotes cooperation and that the sorting this yields has implications for increasing segregation between groups. The effect of homophily on polarization and segregation has been studied with formal models and simulations as well, again suggesting how homophily leads to segregation and polarization (Dandekar, Goel, & Lee, 2013; Melguizo, 2019; Dellaposta, Shi, & Macy, 2015; Golub & Jackson, 2012).

Although there is a large body of work in sociology and economics that investigates macro level polarization and segregation (as suggested by the literature in the previous paragraph, but also earlier work, e.g., Schelling, 1978), these topics are understudied in management research. They present a fruitful area for theoretical integration, in which management scholars could investigate the implications of individual, team, and

organizational level action for macro level polarization and segregation. At the same time, researchers studying macro level polarization and segregation could build on insights from the management literature at the individual, team, and organizational level to explore the macro level implications of these findings.

***Diffusion of innovations and practices***. Although some studies propose some refinements to and qualification of this, most studies find that homophily influences diffusion, especially to similar others, as expected. For example, Centola (2015) investigates how homophily influences the spread of social norms and innovative practices and shows that maximum level diffusion is reached at moderate levels of homophily. This is because a moderate level of homophily provides a connected network that at the same time also exhibits some local closure – both of which are needed for diffusion to happen. Halberstam and Knight (2016) analyze tweets during the 2012 U.S. elections in a social network of Twitter users and find that information reaches like-minded users more quickly than users of the opposing ideology. Anderson et al. (2015) show that homophily contributes to the diffusion of the use of LinkedIn. Aral et al. (2009) use data from a global instant messaging network and show that homophily explains more than 50% of the perceived behavioral contagion. This body of literature illustrates how homophily influences diffusion in the field, which is an aspect that in our review is mostly missing from most management research that focuses more on the direct and dyadic consequences of organizational action.

***Inequality***. Beyond its effects on polarization, segregation, and diffusion, at the macro level, homophily also has implications for inequality, in ways that are shown to increase inequality. DiMaggio and Garip (2011) show how network autocorrelation can reinforce within-individual differences that are associated with innovation adoption, leading to social inequalities far greater than one would otherwise expect. Others show that homophily can place minority groups at a disadvantage by restricting their ability to establish links with a

majority group or to access novel information, clients, or jobs (Karimi et al., 2018; Roth, 2004; Rostila, 2010; Zeltzer, 2020; Zaharieva, 2018; Takács et al., 2018). This body of literature is illuminating for management researchers by showing how individual, team, and organizational action could have wider macro level consequences for inequality in ways that is not readily apparent from an individual, atomistic view of decisions.

### Conclusion and Future Research

Overall, the research we review suggests that homophily produces segregation between groups, but also facilitates the diffusion of information, behavior, products, innovation, practices, and knowledge within groups. In addition, homophily leads to polarization due to individuals' biased consumption or adoption of information from similar others. Finally, in terms of its implications for inequality, homophily produces intergroup inequality by restricting certain groups to establish links with other groups who possess novel or valuable information.

While most research investigating macro level consequences of homophily are not in the management field, management researchers could build on these results to study industry and society level consequences. For example, the results showing how homophily contributes to macro level clustering could be applied to analyze industrial groups and clusters. Because homophily causes segregation, an organization's tendency to hire homophilously or to ally with similar organizations could put some groups of society or those from certain geographical regions at a disadvantage, which may also increase inequality and segregation. Future research can explore what interventions can address segregation and reduce inequalities.

## DIMENSIONS OF HOMOPHILY

Having reviewed the consequences of homophily for each level, and before moving on to discuss research directions that we see as applying to multiple levels, we provide a

summary of the dimensions of homophily that are studied with respect to their consequences.

Even though researchers have investigated the consequences of various dimensions of homophily, most studies focus on ascribed rather than achieved dimensions. The most frequently studied dimension of homophily in our sample is gender, with 36 studies across different levels. Most of these studies find that gender homophily leads to positive outcomes, such as a higher likelihood of receiving investment (Greenberg & Mollick, 2017) and greater trust (Saparito et al., 2009). However, in rare cases, studies find that gender homophily leads to undesirable outcomes, such as weaker business and equity outcomes (Glass & Cook, 2018). The second most frequently studied dimension of homophily is ethnicity, with 21 studies in our review looking into its consequences. Quite a few studies do not find an association between homophily and outcomes (e.g., Dellande et al., 2004), and some studies find that ethnicity homophily leads to negative outcomes, such as lower quality publications (Freeman & Huang, 2015) and lower probability of investment success (Gompers et al., 2016). Finally, to stop at the third most frequently studied dimension, 17 studies explore the consequences of age homophily. Similar to the pattern for ethnicity homophily, many studies do not find age homophily to be related to the outcomes they study (e.g., Ertug et al., 2018; Grossman et al., 2012), whereas we do not come across studies that report negative consequences of age homophily.

Further insights regarding the patterns of findings in the literature with respect to specific dimensions of homophily might be gleaned by returning to the studies in our review that investigate multiple dimensions of homophily. Whereas some studies find that all the dimensions of homophily they examine affect outcomes (e.g., Gompers et al., 2016, Mäkelä et al., 2010), others find that none of the dimensions of homophily they study are associated with outcomes (e.g., Bowler & Brass, 2006; Casciaro & Lobo, 2015). As might be expected, there are also a handful of studies which find that some dimensions of homophily they study

are related to the outcomes, whereas others are not (e.g., Dellande et al., 2004; Ertug et al., 2018; Joshi et al., 2018; Reagans, 2005; Reagans, 2011). Finally, a few studies find that some dimensions of homophily have a stronger effect on outcomes than other dimensions (e.g., Gilly et al., 1998; Hegde & Tumlinson, 2014). We also see in the findings from this set of studies – as in our overview in the previous paragraph – that the same dimension of homophily sometimes has an effect on the outcome studied, and other times it does not. For instance, whereas Hegde and Tumlinson (2014) find that ethnicity homophily has a positive effect on funding decisions, Joshi et al. (2018) do not find ethnicity homophily to impact funding decisions.

It is perhaps not surprising that findings with respect to the consequences of a given dimension of homophily are not consistent. Even if it were to be the case that some of the findings across studies were consistent, we would be cautious about generalizing from those findings to arrive at an abstract (or de-contextualized) inference about the consequences of homophily on a given dimension. Keeping in mind the two sets of mechanisms that link homophily to consequences, and the importance of contingencies, moderators, and boundary conditions, the context will play an important role in whether or how a given dimension is expected to relate to a given outcome in a given setting. For example, the prevalence and covariance of the different dimensions in a setting is likely to matter, in terms of how strongly homophily on a given dimension would relate to either of the two mechanisms (and therefore to the outcome studied). Similarly, the relevant attributes with which each of those dimensions might correlate in that setting, such as domain expertise, formal positions, or other roles, are likely to matter, such that homophily on a dimension that is (or perceived to be) positively related to expertise in one setting, negatively in an another, and not related to expertise at all in a third setting, would have different implications for an individual's performance in those three settings. The overall implication of homophily with respect to an

outcome is nuanced – both in general terms and with respect to a specific dimension in a specific setting – and needs to be considered carefully, keeping in mind the different mechanisms and the implications of the attributes of the setting for how homophily in a given dimension relates to those mechanisms.

## FUTURE RESEARCH DIRECTIONS ACROSS LEVELS

Beyond the specific future research directions we discussed at the end of each of the five levels, there are important points and opportunities for future research to consider that apply across levels. In this section, we present these ideas, starting with those that relate primarily to methods, data, and settings. We then discuss future research areas with respect to the outcomes being studied, the dimensions of homophily, moderators of the relationship between homophily and consequences, and opportunities for multilevel research. Tables 1 and 2 provide an overview of the specific future research directions for each level that we discussed earlier and the broader issues we discuss below.

As a matter that is relevant for all the points in this section, and for studies on the consequences of homophily more generally, we reemphasize that researchers should carefully specify which type of homophily they have in mind and be consistent in their argumentation and inference. Oftentimes homophily is taken to mean choice homophily, as implied the mechanisms discussed in motivating the predictions, but the inference, with respect to the measure or the estimations, makes inadequate effort in isolating choice homophily as such.

### Methods, Data, and Settings for Future Research

***Observational vs. interventional designs***. Most studies that link homophily to outcomes are observational. There are very few studies that use experimental methods, or interventions, whether in the laboratory or in the field. One concern with observational studies is that there might be reverse causality between homophily and outcomes. For instance, homophily based on a non-negative dimension leads to better health (Na & Hample,

2016; Rostila, 2010). The reverse may also be true, which is that individuals with better health are more homophilous, as they prefer to interact with others who are in good health conditions, rather than with those who are not. Another possible concern of observational designs is that the mechanisms linking homophily and consequences might not be clear. Earlier in our review, we summarized two sets of mechanisms that are generally invoked to explain the relationship between homophily and outcomes. It could be that one of these sets of mechanisms drives the outcome, or both play a role, but it is unclear which has a more pronounced effect. Experimental studies can test the mechanisms linking homophily and outcomes and thereby advance the field.

***Use of stochastic network modelling techniques.*** The use of advanced network modelling techniques, such as Exponential Random Graph Models (ERGM) or Stochastic Actor Oriented Models (SAOM), can further extend our understanding of the consequences of homophily. In our review, we identified only three papers that use such models: Brennecke (2020), who investigates the influence of homophily on positive-negative tie multiplexity; Wax et al. (2017), who study the effect of homophily while controlling for closure and preferential attachment processes using ERGM, and a non-management study by van Zalk et al. (2020), who use SAOM to study homophily in students' extraversion. SAOM have been developed to model change in network ties over time and have an extension that also allows accounting for change in outcome variables (Steglich et al., 2010). Thus, these models enable researchers to test for the previously mentioned causality issues and to disentangle homophily-based selection mechanisms and their consequences from other network processes, such as preferential attachment, prior friendship, or network closure. SAOM allow not only controlling for, but also directly investigating, temporal effects, such as temporal heterogeneity in different phases of network development, which we discuss below in terms of its potential for future research. As another advanced modelling approach that is gaining

traction in management research, ERGM is mainly used to test tie formation as an outcome. Regarding other outcomes, these models are well suited to investigate the influence of homophily on dyadic outcomes such as tie strength or multiplexity (see Brennecke, 2020), which are areas that we highlighted for future research at the dyad and organizational levels.

***Extending the data types used.*** Leveraging emerging data and methods can enhance our understanding of the consequences of homophily, whether with respect to the setting, dimensions, measures, other contingencies, or indeed outcomes, as outlined in Figure 1. For example, text analysis could help redress the disproportionate attention on ascribed dimensions of homophily, enabling scholars to measure experiential or affect-based homophily (including negative characteristics, such as anger), and investigate their consequences. While studies have explored some outcomes of linguistic convergence among MBA students (e.g., Kovacs & Kleinbaum, 2020), there are many outcomes not yet explored. For example, keeping with linguistic similarity as a dimension for homophily, would these individuals form a better team? Would they be more likely to start a certain type of new venture together? Text analysis can also be used to measure emotions and moods as potential outcomes of homophily, which management research has largely overlooked. Some of the non-management studies we review show the importance of this outcome category (e.g., Brashears, 2010; Schneider et al., 2017), which is also relevant for organizational scholars.

Second, at a very micro level, researchers could use brain imaging techniques such as fMRI to get at a more refined understanding of the consequences of homophily. For example, Parkinson, Kleinbaum, and Wheatley (2018) show evidence for neural homophily: neural responses when viewing audio-visual movies are exceptionally similar among friends, and argue that this has implications for interpersonal influence and attraction. We conjecture that this might also have implications for management-related outcomes, such as trust, advice taking, evaluation, performance, or learning.

Third, the increasing availability of geolocation data (from cell phones, Twitter feeds, restaurant reviews, etc.) can yield a better understanding of induced homophily, and therefore its consequences, by providing good measures of whom people have a chance to interact with (who are in the same room, same building, same wing of a building). This kind of data can be used in the spirit of Ingram and Morris (2007), who rely on electronic name tags to conduct a fine-grained analysis of the pattern of socializing dynamics, including those linked to homophily, at a mixer among EMBA students.

These approaches and data types could also help researchers to investigate and avoid possible biases that come with studies that rely on self-reported interaction data.

***Consequences in offline and online settings.*** Most research on the consequences of homophily is conducted in offline settings, even though a significant and increasing part of life is happening online. Although online settings feature more prominently in recent research, it is less clear how homophily operates in online environments. Some studies investigate homophily as a driver of tie formation online. For instance, Hwang, Singh, and Argote (2015) find that individuals prefer to interact with similar others in an online knowledge sharing community, which is similar to what they do offline. Johnson, Kovacs, and Vicsek (2012) demonstrate that the communication network between the employees of a bank is more homophilous along gender, age, and hierarchy in face-to-face interactions than in email networks. Linguistic style homophily, on the other hand, is more important in online friendship networks than in offline friendship networks (Kovacs & Kleinbaum, 2020). Future research can explore how homophily effects might differ in offline and online settings. Research is also needed to understand how online and offline relationships interact; for example, whether homophilous ties formed online will translate to such ties offline and thus effect offline behavior, or vice versa.

**Conceptual Issues for Future Research**

***Consequences over time (short-term / long-term effects)***. Most research on the consequences of homophily does not explicitly theorize about the temporality of these effects, implicitly assuming that short- and long-term effects are similar. In thinking about possible differences between the consequences of homophily in the short- and long-term, findings from research on the effects of diversity on performance can be instructive, since they suggest that the relationship to short- and long-term performance could be different. For instance, Richard, Murthi, and Ismail (2007) show that the relationship between racial diversity and short-term firm performance is U-shaped, whereas the relationship between racial diversity and long-term performance is linear and positive. It is possible that homophily also has short- and long-term effects that are driven differently by the underlying mechanisms, as we speculate below.

At the individual level, homophily might be positively associated with short-term performance because it facilitates timely access to useful resources from similar others. At the same time, homophily might be detrimental to long-term performance because it restricts access to diverse sources of information, which can keep the individual from continuing to look for better sources for resources. At the dyad level, homophily generally leads to positive outcomes, as individuals with similar attributes are more attractive to and trustworthy for each other, leading to positive short-term effects. Such positive consequences, e.g., on trust and evaluations, might become even stronger if the relationship continues to be long-term. At the team level, homophilous teams might outperform other teams in the short term because homophily improves coordination, trust, and communication among members. However, non-homophilous or heterophilous teams might surpass homophilous teams in the long term. This is because such teams can leverage their differences and be more creative than homophilous teams in the longer run, and at the same time, coordination, trust, and communication in those teams might improve over time. At the organizational level, our predictions would be similar

to the ones at the team level. Finally, at the macro level, even though homophily might yield short-term advantages for individuals who feel more comfortable to interact with those who are similar to themselves, homophily can create segregation between different groups in the long term, and might disadvantage members of minority groups by restricting their ability to establish relationships with members of a majority group, thereby reducing their ability to access resources possessed by members of that majority group.

In studying the short- and long-term effects of homophily, it is also important to keep in mind that actors' homophily tendency may change over time. For example, individuals or entrepreneurial teams who start as being homophilous might realize that homophily presents an obstacle for their long-term performance. They might then purposefully seek out more dissimilar contacts. Accordingly, future research can explore the dynamic nature of homophily (within-actor variance in homophily over time) and how such changes might impact the consequences of homophily. To provide a simple example for illustration, the temporal implications for performance of the following four strategies could be explored: First, starting as more homophilous and moving to being less homophilous over time. Second, starting as less homophilous and being more homophilous in the long term. Third, always being homophilous. Fourth, always being non-homophilous. The findings of Ertug et al. (2018), that homophily reduces performance for high status actors, suggest that the first of these might yield the best performance, if we speculate that on average individuals' status increases over time, after accounting for selection and retention.

***Continued study of both negative (i.e., undesirable) and positive (i.e., desirable) outcomes***. Similar to research on other social mechanisms, such as trust, embeddedness, and social capital, the majority of research on homophily investigates its link to desirable outcomes. The situation for homophily is not as lopsided as it is for others, such as trust, since researchers do acknowledge that homophily might indeed generate processes that are

not meritocratic, thereby being linked to negative outcomes. Nevertheless, research should continue to pay attention to the implications of homophily on both desirable and undesirable outcomes. Such an effort will move us closer to a balanced and neutral understanding of the consequences of homophily, to provide evidence-based implications for policy and practice.

One aspect to further explore in this connection is the implications of different dimensions of homophily at the individual level. If homophily is based on negative – or undesirable – dimensions, such as drug addiction, violence, and smoking, it is likely to lead to undesirable consequences. For instance, Schneider, Lancki, and Schumm (2017) found that young black men with criminal justice involvement (CJI) who have CJI homophily in their networks end up with higher levels of anxiety and distress. One mechanism that can lead to such undesirable consequences is that homophily based on these dimensions can reduce individuals' exposure to more positive influence from contacts who do not possess these characteristics. This point has implications for further investigation of outcomes, the dimensions of homophily, as well as the settings.

At the individual and team levels, because similar individuals are more likely to trust each other, homophily might pave the way for unethical behavior, due to lack of monitoring (e.g., Lee at al., 2014; Goergen et al., 2015). Investigating this issue with respect to its connection to trust, Langfred (2004) finds that a high level of trust between team members reduces their monitoring of each other, which in turn hurts team performance if team members have high autonomy. The trust induced by homophily could be associated with other undesirable consequences of trust as well, such as blind faith, complacency, and unnecessary obligations (Gargiulo & Ertug, 2006).

At the organizational level, homophily might reduce market evaluations. If a firm has inter-organizational relationships with only similar other firms, this might signal to investors that the firm might have a lower sustained capability to innovate, reducing its long-term

prospects and current market value. At the macro level, homophily could generate segregation, which could have multiple undesirable consequences. To take one example from the domain of our review, Zaharieva (2018) found that homophily separates two groups of workers, prevents exchange of information about open vacancies, and leads to more unemployment, especially in recessions. Future research can explore what interventions can be introduced, with respect to homophily specifically, to address such problems.

Future research could also explore the contingencies under which the relationship between homophily and its consequences (be they desirable or undesirable) is positive or negative, given the strong opposite tendencies implied in the two sets of mechanism that link homophily to outcomes. For example, Ertug and colleagues (2018) found that the relationship between homophily and performance is contingent on individuals' status. Whereas the relationship is negative for high-status individuals, it is positive or non-existent for low-status individuals. Research can unearth other factors that can aggravate, nullify, or reverse the links between homophily and outcomes, as similar to work on embeddedness in economic action (e.g., Portes & Sensenbrenner, 1993) or on the influence of kin ties on the performance of new ventures (e.g., Ertug, Kotha, & Hedstrom, 2020).

***Control group: heterophilous ties or no ties?*** Most studies that we reviewed assess the consequences of homophily by comparing homophilous ties/dyads/teams to heterogenous ones. Yet, one may argue that in some cases "no ties" might also constitute a plausible control group. For example, when a firm is considering entering a strategic alliance, the options are not only to enter a "homophilous alliance" or a "heterophilous alliance" but also whether to enter any alliance at all. Similarly, when a scholar is thinking about whether to add a co-author to a research project and whom to add, there are three kinds of outcomes in terms of homophily: similar coauthor, dissimilar coauthor, but also no co-author. Not accounting for the "no ties" alternative, when it is relevant, can constitute an important

shortcoming, because it leads to a selection bias by analyzing only observed ties. The incorporation of these processes is made possible in network modeling techniques, such as ERGM or SAOM models, which we refer to earlier in this section. Otherwise, omitting the no ties control case leads to a biased estimate. Overall, we call for more research on exploring such scenarios, with estimation techniques that match the characteristics and potential issues that come with the research question and setting.

Relating again to the matter of comparison groups, researchers could incorporate the costs of establishing and dissolving ties when assessing the consequences of homophily. For example, since establishing ties to similar others is generally less arduous, this might need to be incorporated in the overall implications of homophily with respect to an outcome. On the flipside, the dissolution of ties between similar others may also be less likely (e.g., Tulin et al., 2021) and more difficult. As a result, the implied costs on the overall adaptability of one's relationships might need to be taken into account as well. In sum, future research can further incorporate the costs of establishing and dissolving homophilous relationships, to make better inference about whether more or less homophily would be preferable to do better on a given outcome, in a way that reflects more of the "opportunity costs."

***Variance as outcome.*** While most research studies the effect of homophily on the average levels of the various outcomes discussed in our review, there is reason to believe that homophily would influence the variance in such outcomes as well. For example, research shows that homogenous groups are more likely to engage in groupthink (Janis, 1982) and take riskier decisions in a bank's investment portfolio choice (Berger et al., 2014). As a result, it might be that dyads, teams, and organizations that are formed through homophily might also be likely to take more risk and exhibit higher variance in outcomes.

***Homophily and social networks.*** Research can also continue to integrate knowledge from other social network processes with that on homophily. For example, the creation or

dissolution of ties in an actor's network, or network churn (Sasovova et al., 2010), could change the outcomes of homophily. Even though the primary mechanism that drives the negative effect of homophily on performance is a lack of diversity in knowledge or other resources one can access through contacts, over time, there might be cases in which this ends up being not so detrimental, due to changes in social networks (for a related idea, i.e., that benefits of open networks are lower in more stable networks, see Soda, Mannucci, & Burt, 2021). A homophilous individual's direct contacts might connect to novel sources of knowledge over time, such that they can bring non-redundant knowledge to this focal individual. Therefore, although a focal homophilous individual's direct contacts do not change, if those direct contacts' own networks change in ways that bring non-redundant resources (thereby serving as valuable sources of second hand social capital, e.g., Galunic, Ertug, & Gargiulo, 2012) to the focal individual, the disadvantages might diminish.[5]

As another example, two actors in a homophilous dyad might also be indirectly connected to each other through common third parties. Future research can investigate how such common third parties, in terms of their "type" or number, influence the negative and positive outcomes of homophily at the dyad level. Speculatively, sharing common third parties who are themselves similar to the two actors in the dyad might amplify the positive consequences of homophily, whereas having common third parties who are dissimilar to the two actors in the dyad might weaken the positive outcomes.

***Direct vs indirect effects.*** Most research on the consequences of homophily explores the direct effects of homophily. Yet, homophilous processes also have indirect implications because they can influence other network and structural processes. For example, homophily often goes together with reciprocity and closure (Flynn, Reagans, & Guillory 2010). This fact

[5] Actors who are connected to ego's direct contacts (i.e., alters who are connected to alters) might be more likely to be similar to ego (through selection or influence) and thereby still bring redundant knowledge. What we have in mind in our speculation are situations where ego's direct contacts connect to actors whom ego does not know (who are not alters), such that novel knowledge and perspectives they might have can be transferred to ego through ego's direct contacts.

has two important consequences. First, it underscores a point that we have made before, that when researchers want to study the direct consequences of homophily, they should account for the implications of other network processes such as closure, brokerage, and preferential attachment, for instance via SAOM. This would allow uncovering the indirect effects of homophily, and therefore provide more accurate estimates of its direct effects. Second, if a researcher is interested in the total effect of homophily, as comprising its direct and indirect effects, they need to be careful in interpreting models that control for other network processes, since homophily may have both direct effects, as well as indirect effects that come about through other network processes. These indirect effects might be relevant when one considers the ramifications of changing individuals' homophily. Not incorporating such indirect effects might result in undesirable externalities or crowding out effects, as well as other kinds of unintended consequences of interventions to change individuals' homophily.

***Multilevel research: Homology and cross-level analyses.*** Our review and organizing framework in Figure 1 show that several outcome categories have been studied at multiple levels. Similarly, the mechanisms argued to underpin the observed relationships – enhanced coordination, communication, and trust, but also reduced diversity in resources – are often very similar, if not the same, across levels. This raises the question of whether the observed relationships are generalizable, or homologous (Chen, Bliese, & Mathieu, 2005), across levels. Evidence for homology adds to the breadth and parsimony of theories, while the lack of such evidence helps uncover boundary conditions (Chen et al., 2005). Even though research has addressed homology with regard to the consequences of other network constructs, such as centrality (Brennecke & Stoemmer, 2018; van Wijk et al., 2008), there is hardly any work on cross-level comparisons of patterns with regard to the outcomes of homophily. Our review allows for such a comparison as a first step to discuss homology and stimulate future work to investigate it directly.

Performance as a consequence of homophily has been studied at the individual, team, and organizational levels. We observed inconsistencies in findings within each of these three levels. This lack of consistency within levels makes it difficult to draw conclusions regarding the generalizability of the homophily-performance relationship across levels. The same applies to learning as an outcome of homophily, investigated by one study at the individual level and two studies at the organizational level. The research designs and, possibly because of this, the findings of these studies are not directly compatible and require further research for clarification. As there is currently no research on this outcome at the team level, and given the interest of management scholars in team learning (e.g., Bell et al., 2012), we also call for an extension in this direction. In brief, given the inconsistent findings on performance and learning as outcomes of homophily, more systematic, multilevel research designs and analyses, as discussed by Chen et al. (2005), are needed to provide clarity.

On the other hand, a consistent pattern emerges with regard to the influence of homophily on diffusion across organizational and macro levels. Specifically, homophily fosters the diffusion of organizational practices such as tactics (Wang & Soule, 2012) and software (Peng & Mu, 2011), as well as macro level phenomena, such as bank runs (Greve et al., 2016). Thus, the homophily-diffusion relationship seems to be homologous. Even here, however, future research that investigates this relationship at the team level, and that potentially uncovers boundary conditions or temporal variation in diffusion speed at different levels would expand our knowledge in useful ways.

In addition to future multilevel research on homology, scholars can also pay greater attention to cross-level relationships when studying the outcomes of homophily. Only a few studies we reviewed investigate homophily-related phenomena while accounting for variables at multiple levels of analysis. Notably, some organizational level research links individuals' homophily to organizational level outcomes (e.g., Backman et al., 2015; Biswas, 2016). In a

multilevel study that focuses on individual-level outcomes, Bunderson (2003) brings in the team context as a higher-level moderator that determines the influence of managers' homophily on their decision involvement. He demonstrates that functional background similarity among managers positively affects decision involvement in centralized management teams and negatively influences decision involvement in decentralized teams. In line with this research, we call for future studies that explicitly investigate how higher-level contextual influences, which may be captured at the team, organization, or more macro levels, impact the relationship between homophily and the outcomes studied at lower levels. Such multilevel research can help clarify inconsistencies in existing research that focuses on one level of analysis only.

## CONCLUSION

As homophily is among the most pervasive and widely documented social phenomena, understanding its consequences is important for researchers and practitioners. In this review, we set out to provide an overview of research on these consequences at the individual, dyad, team, organizational, and macro levels. Guided by our organizing framework, we highlighted findings that are consistent and synergistic, but also those that are contradictory, on outcomes that vary from performance and learning, to mental health, to diffusion of practices. We also pointed to boundary conditions and moderators, and brought in research on the consequences of homophily from other disciplines to discuss its implications for management studies. Based on our review, we highlighted opportunities for future research within each of these levels, as well as issues and ideas that apply across multiple levels. Overall, we hope that our multilevel synthesis of management studies on the consequences of homophily and insights gained from selected non-management research will inspire future research that continues to refine and expand our understanding of the effects of homophily for management and organizations.

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**Figure 1. Organizing framework**

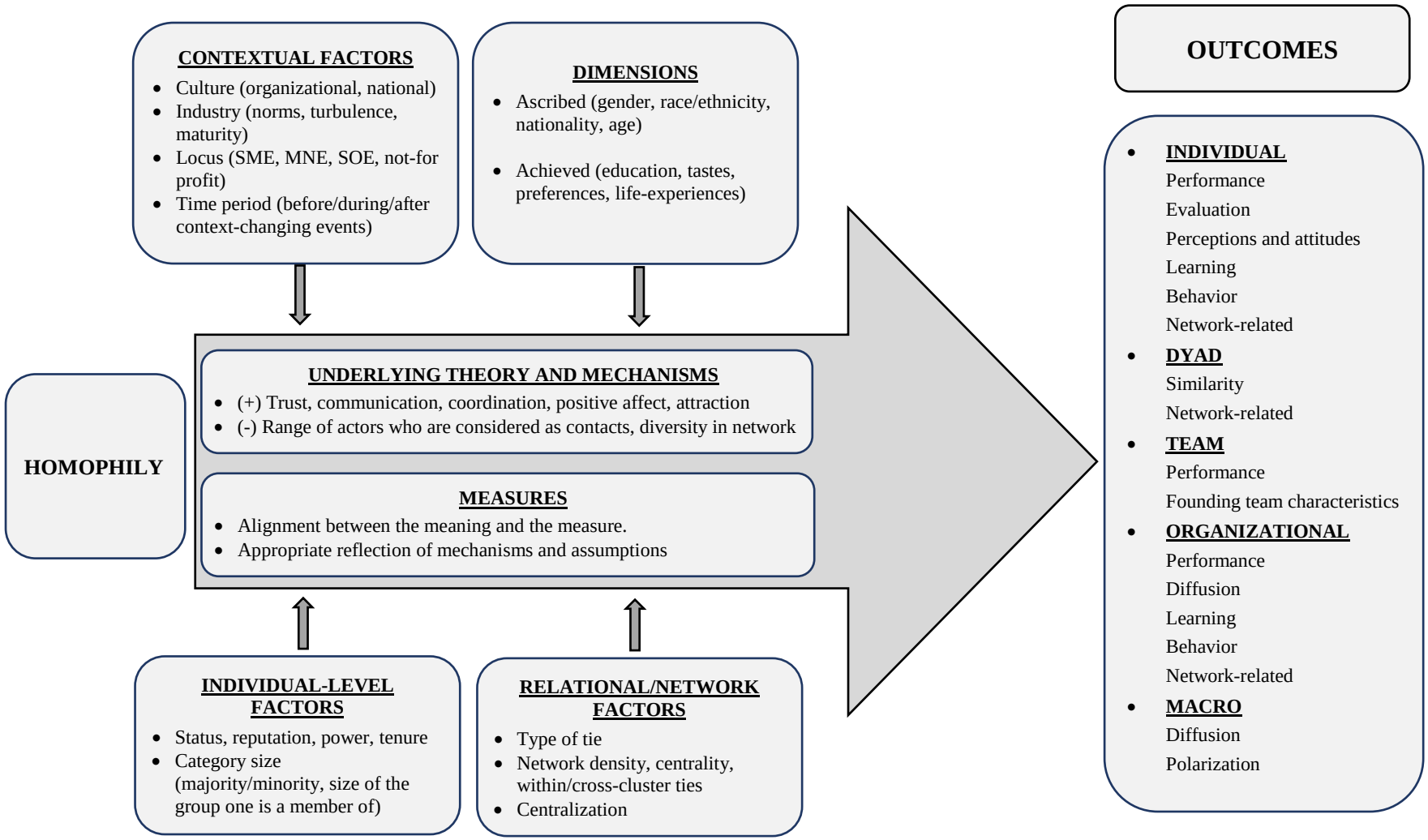


**Table 1: Directions for future research at each level**

| LEVEL | FUTURE RESEARCH DIRECTION |
|---|---|
| ***Individual*** | ▪ Exploration of perceptual outcomes, such as cognition, accuracy, or misperceptions of relationships and social networks.<br>▪ Exploration of (physical and mental) health related outcomes.<br>▪ More work on the consequences of homophily on achieved characteristics, as well as on the consequences of experiential homophily.<br>▪ How status- or reputation-based mechanisms moderate the consequences of homophily.<br>▪ How group size (majority/minority category) matters for the consequences of homophily. |
| ***Dyad*** | ▪ Disentangling homophily-based selection mechanisms and their consequences from influence mechanisms.<br>▪ How the type and content of relationships (e.g., formal versus informal ties, negative ties) influences consequences such as tie strength or multiplexity. |
| ***Team*** | ▪ How the manner of team formation (e.g., teams that are self-formed versus teams that are put together externally) influences the outcomes of homophily. |
| ***Organizational*** | ▪ Further work on the relationship between homophily and organizational culture, as well as socialization.<br>▪ How homophily between organizational members affects team- or department-level outcomes, how team- or department-level homophily influences organization-level outcomes.<br>▪ The relationship between homophily and inter-organizational outcomes, such as competition, or the exchange of information and employees, or attributes of buyer-supplier relationships.<br>▪ How homophily influences dyad-level outcomes at the organizational level, such as the strength or duration of alliances, the subsequent number of joint projects between organizations, or tie multiplexity. |
| ***Macro*** | ▪ Building on research macro level consequences of homophily in other disciplines to study industry and society level consequences.<br>▪ Investigating interventions that can address homophily-caused segregation and reduce inequalities between groups. |

**Table 2: Broader directions for future research**

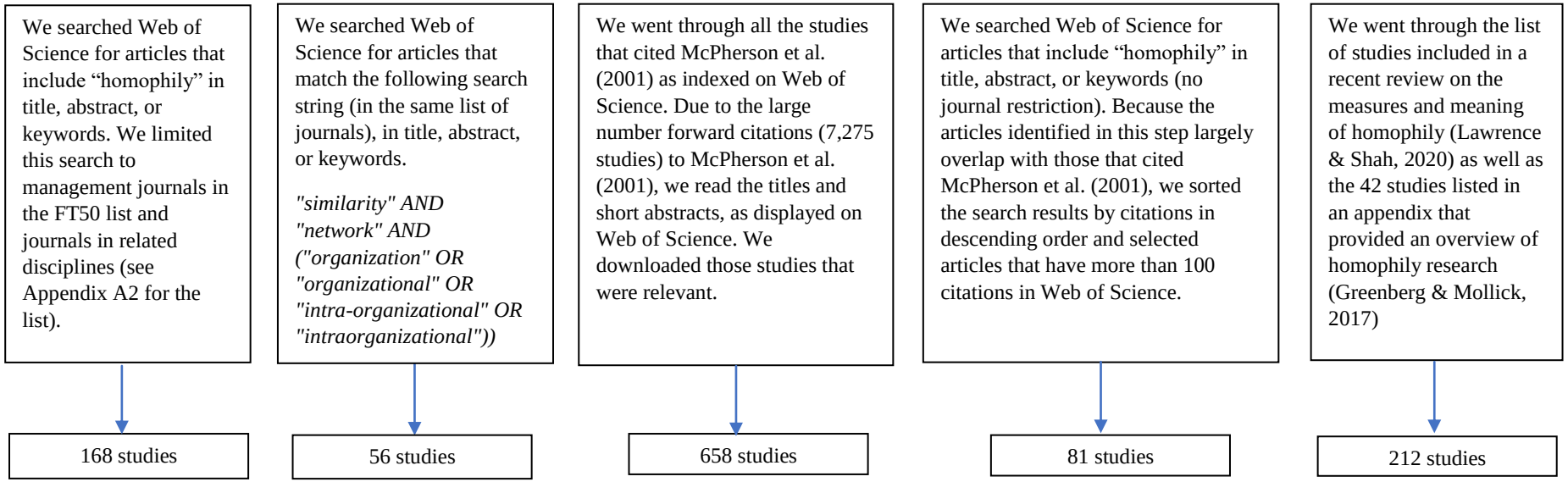
| TOPIC | FUTURE RESEARCH DIRECTION |
|---|---|
| ***Methods, data, setting*** | ▪ Further exploring and using interventional/experimental approaches.<br>▪ Leveraging stochastic network modelling techniques, or other inference methods, to isolate the effects of homophily from related, co-varying, effects and study causality and temporal dynamics.<br>▪ Using emerging data to study the consequences of homophily on different dimensions (as measured through these data) or outcomes that are measured using these data.<br>▪ Studying both homophily and outcomes in offline and online settings, including the interplay between these two settings. |
| ***Conceptual issues*** | ▪ Studying the consequences of homophily for a given outcome, or across different outcomes, over time – considering possible differences in the short- and long-term effects<br>▪ Continuing to study both the desirable (positive) and undesirable (negative) outcomes that are linked to homophily. Also, studying the consequences of homophily as based on both desirable and undesirable dimensions.<br>▪ Studying not only the direct, but also the indirect effects of homophily, since indirect effects might attenuate, crowd out, or amplify the direct effects of homophily on the outcomes studied.<br>▪ Considering what the relevant comparison group for homophilous ties are, or what the opportunity cost of homophily is, in light of realistic consideration sets (e.g., available partners), as well as the costs of establishing, maintaining, and dissolving ties.<br>▪ Investigating how homophilous processes in dyads, teams, and organizations influence variance in outcomes.<br>▪ Investigating the interplay between homophily and other social network processes, with respect to how these might amplify or nullify the different mechanisms that are linked to homophily, thereby changing the relationship between homophily and consequences.<br>▪ Investigating whether relationships about the consequences of homophily are generalizable, or homologous, across levels. |

**ONLINE APPENDIX FOR**

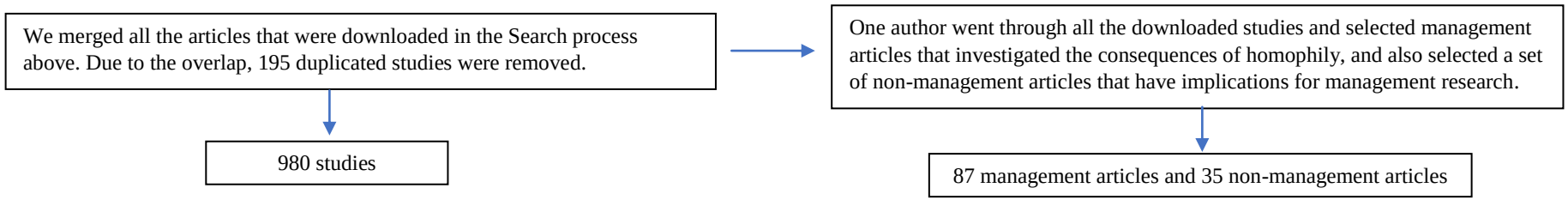
# WHAT DOES HOMOPHILY DO? A REVIEW OF THE CONSEQUENCES OF HOMOPHILY

## Appendix A1: Summary of article search, selection, and coding process

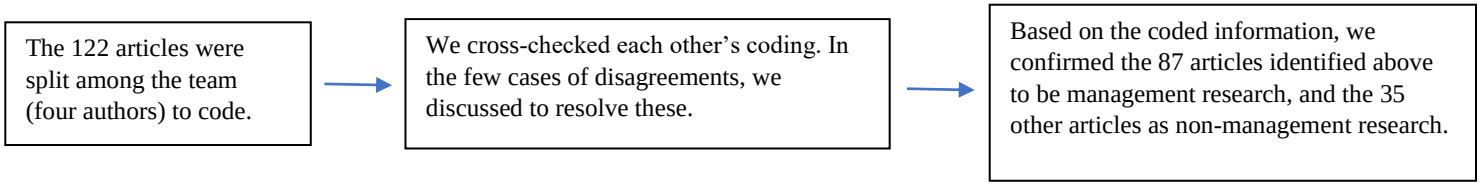
### *1. Search Process (yielding a total of 1175 studies)*




### *2. Selection Process (yielding a total of 122 studies, 87 management and 35 non-management)*




### *3. Coding Process*



## Appendix A2: Journals covered in our search in steps 1 and 2

| Group | Journal |
|---|---|
| ***Management journals used in the Financial Times Research Rank (FT50)*** | Academy of Management Journal |
| | Academy of Management Review |
| | Administrative Science Quarterly |
| | Entrepreneurship, Theory and Practice |
| | Human Relations |
| | Human Resource Management |
| | Journal of Applied Psychology |
| | Journal of Business Venturing |
| | Journal of Financial Economics |
| | Journal of International Business Studies |
| | Journal of Management |
| | Journal of Management Studies |
| | Management Science |
| | Organization Science |
| | Organization Studies |
| | Organizational Behavior and Human Decision Processes |
| | Research Policy |
| | Strategic Entrepreneurship Journal |
| | Strategic Management Journal |
| ***Other management journals, and journals in related disciplines (i.e. journals that, among other research they publish, also publish management research)*** | American Economic Journal |
| | American Journal of Sociology |
| | American Sociological Review |
| | Annual Review of Sociology |
| | British Journal of Industrial Relations |
| | British Journal of Management |
| | Business Ethics Quarterly |
| | European Journal of Operational Research |
| | Group and Organization Management |
| | Journal of Business Research |
| | Journal of Labor Economics |
| | Journal of Occupational and Organizational Psychology |
| | Journal of Organizational Behavior |
| | Journal of Personality and Social Psychology |
| | Journal of Product Innovation Management |
| | Journal of Vocational Behavior |
| | Journal of World Business |
| | Leadership Quarterly |
| | Long Range Planning |
| | Nature |
| | Organizational Research Methods |
| | Personnel Psychology |
| | PNAS |
| | Psychological Science |
| | Research in the Sociology of Organizations |
| | Science |
| | Social Forces |
| | Social Networks |
| | Social Science & Medicine |
| | Strategic Organization |
| | Work, Employment and Society |

## Table A3. Overview of management papers on the consequences of homophily

| Paper | Outcome | Dimension(s) of Homophily | Type of Tie | Methodology | Setting | Key Findings | Moderator |
|---|---|---|---|---|---|---|---|
| **1. INDIVIDUAL LEVEL** | | | | | | | |
| **1.1 Performance** | | | | | | | |
| Chen & Volker (2016) | occupational prestige, annual wages | occupational homophily | job search contacts | archival | U.S., German Democratic Republic, China | Job information provided by same-occupation contacts positively influences job outcomes in free market economies but not in centrally planned economies. Job influence provided by same-occupation contacts enhances job outcomes in centrally planned economies but not in free market economies. | homophily is a moderator; institutional setting |
| Crosby et al. (1990) | sales effectiveness | homophily scale (appearance, lifestyle, socio-economic status) | customer relationship (salesperson-customer) | survey | life insurance sales | Similarity among salespeople and customers is not related to relationship quality, but positively influences sales effectiveness. | none |
| Ertug et al. (2018) | bonuses | gender, nationality, age | advice | archival | investment banking | Homophily based on bankers' nationality and – to a lesser extent – gender, but not age, is negatively associated with bonuses for high-status bankers, while the association is positive or non-existent for low status bankers | status |
| Freeman & Huang (2015) | quality and citation of publications | ethnicity | co-authorship | archival | scientific papers written by U.S.-based authors | Researchers of similar ethnicity coauthor together more frequently. This ethnicity homophily is associated with publication in lower-impact journals and with fewer citations. | none |
| Gompers et al. (2016) | investment success | ethnicity, education, career background | syndication | archival | venture capitalists | Homophily among venture capitalists syndicating with each other reduces the probability of investment success. | none |
| James (2000) | Promotion, career-related support, psychosocial support | race | contact network (advice and friendship combined) | survey | financial services industry | There is no relationship between racial similarity with informal network contacts and promotion rates, career-related support, or psychosocial support. | none |
| Opper et al. (2015) | promotion | origin, school, place of work experience | joint membership in Politbureau Standing Committee | archival | China's political elite | Homophily determines recruiting of middle-level elites to the top positions of state. This effect has become more important since China became a member of the WTO in 2001. | period: before and after joining WTO |
| Ewens & Townsend (2020) | startup outcome (survival, successful exit) | gender | investment in startup | archival | startups | Female founders are less successful with male investors compared to observably similar male founders. In contrast, female founders are more successful than male founders with female investors. | none |
| **1.2. Evaluation** | | | | | | | |
| Belliveau et al. (1996) | CEO compensation decisions | social status based on background credentials such as board memberships and elite university attendance | role-based ties | archival | large U.S. public firms | While social similarity between the CEO and the compensation committee chair is not related to CEO compensation, compensation is higher if the CEO is of higher status than the chair. | none |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Grossman et al. (2012) | perceived value of business contacts | age and gender | business contacts | interview and survey | U.S. entrepreneurs | There is no direct effect of homophily on the perceived value of a business contact. However, homophily moderates the positive effect of resource multiplexity – the availability of multiple resources from a partner – on the perceived value of the partner. | homophily is a moderator |
| Mäkelä et al. (2010) | being labelled as talent | cultural and linguistic background | recruiter and candidate | qualitative | MNC | Cultural and linguistic similarity, between decision makers involved in talent reviews and candidates in the talent pool, are positively related to being labelled as talent. | none |
| Matusik et al. (2008) | evaluation of entrepreneurs / business plans | value similarity | investor and founder | field experiment | venture capitalism | Value homophily moderates the relationship between founder degree and founder start-up experience and the perceived quality of the founder. | homophily is a moderator |
| Pearce & Xu (2012) | supervisory ratings | age and gender | supervisor and supervisee | survey | U.S. firms | In a comparison of homophily and status contest explanations for biases in supervisory ratings of subordinates' contextual and task performance, they find support for the latter. Supervisory rating is biased towards similar subordinates only when a high-status subordinate contested the supervisor's status. | none |
| Golik & Blanco (2021) | being identified as talent | gender, education, technical skills, commitment, ambition, personality, social styles | talent spotter-candidate | qualitative | two Argentine conglomerates | Homophily constitute a functional bias to the talent identification process. | none |
| **1.3. Perceptions and attitudes** | | | | | | | |
| Carmon et al. (2010) | organizational commitment, organizational identification | attitude homophily scale | membership in the same organization | survey | family businesses | Homophily influences organizational commitment but not organizational identification. | none |
| Cooper (1997) | attitudes towards (female) leadership | values | leader and follower | lab experiment | female students | Nontraditionally oriented women evaluated female leadership in general more positively than did traditional women. | none |
| Dellande et al. (2004) | (1) customer role clarity; (2) customer motivation | attitudes regarding weight loss and dieting, gender, education, ethnicity, age | service provider (nurse) and customer (patient) | survey | weight control clinic | While attitudinal homophily leads to customer role clarity and customer motivation, the authors find no effect of demographic homophily. | none |
| Maranto & Griffin (2011) | perceptions of exclusion | gender | department membership | survey | U.S. university | Women in academic departments with a lower percentage of women will report greater perceptions of exclusion than women in departments with a higher percentage of women. | category size |
| Saparito et al. (2009) | (1) trust in bank; (2) customer satisfaction with credit; (3) bank's knowledge of the firm; and (4) likelihood to switch to an alternative bank | gender | entrepreneur-bank | archival | entrepreneurs and bank managers | Male-male pairs of entrepreneurs and bankers have the highest levels of trust, satisfaction, knowledge, and the lowest likelihood of switching banks, while female-female pairs showed the opposite results for each measure with mixed pairs in the middle on all accounts. | gender |
| **1.4. Learning** | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Lobel & Sadler (2016) | learning | not available | not available | modelling | not available | Homophily improves learning in sparse networks but is detrimental in dense networks. | network density |
| **1.5. Behavior** | | | | | | | |
| Abrahao et al. (2017) | investment decisions | age, gender, marital status, region | customer and host | online experiment | Airbnb | For online platforms, reputation systems can be used to override people's tendency to base investment decisions on social biases or heuristics, such as to invest in others who are similar. Reputation systems can significantly increase the tendency to invest in dissimilar users. | reputation |
| Greenberg & Mollick (2017) | funding decisions | homophily scales (perceived general similarity and similarity with regard to gender identity) for experiment, gender for archival study | funder and founder | lab experiment and archival | students participating in an experiment; Kickstarter projects | Activist choice homophily, that is perceptions of shared structural barriers stemming from a common social identity based on group membership, positively influence funding decisions, as well as the success of Kickstarter projects. | category size |
| Harrison & Mason (2007) | funding | gender | business angels and owners | survey | business angels | Women investors are marginally more likely to invest in businesses owned and managed by women. | none |
| Hegde & Tumlinson (2014) | VC funding | ethnicity, geographic proximity, industry | VC and executive | archival and modelling | U.S. venture capitalists | Ethnic similarity between U.S. venture capitalists (VCs) and company executives positively influences funding decisions over and above the positive effect of geographic and industry proximity. | none |
| Joshi et al. (2018) | phase II funding | gender, ethnicity | agency and entrepreneur | archival | federal small business research grants | Similarity between entrepreneurs and agency employees with regard to gender, but not ethnicity, positively influence the likelihood of women technology entrepreneurs obtaining Phase II funding. | none |
| Bapna & Umyarov (2015) | buying premium service | subscription behavior (e.g., playlists) | friendship | field experiment | users of an online platform | The authors disentangle homophily from influence and find that peer influence is a powerful force in getting users to subscribe to a premium service. | none |
| Bowler & Brass (2006) | interpersonal citizenship behavior | gender, age, race, education level, job tenure | friendship | survey | employees in manufacturing | The authors do not find a relationship between homophily and interpersonal citizenship behavior. | none |
| Dimmock et al. 2018 | misconduct | ethnicity | coworkers | archival | U.S. financial advisors | An advisor has a higher probability of engaging in misconduct if coworkers the advisor meets during the merger have a history of misconduct. This effect is stronger if those coworkers have an ethnic background that is similar to that of the advisor. | homophily is a moderator |
| Gilly et al. (1998) | word of mouth influence | demographic homophily (gender, age, education) and value homophily scale | consumer and source of information | survey | consumers | Homophily enhances word of mouth influence; the effect of value homophily is stronger and more consistent than the effect of demographic homophily. | homophily is a moderator |
| Kmec (2007) | job turnover | race | entry level workers and contacts in the job attainment process | archival | U.S. private organization | Race homophily reduces voluntary but not involuntary turnover. | none |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Nitzan & Libai (2011) | defection (switching to another provider) | gender, age, segment, socioeconomic status, tenure | phone calls | archival | customers of mobile phone company | The likelihood of switching to another provider increases if one's similar contacts also switch. | none |
| Qureshi et al. (2016) | decision to start a social enterprise | shared background or history | (aspiring or actual) social entrepreneurs and their social ties | qualitative | social entrepreneurship | Ties to similar others discourage engagement in institutional change, whereas ties to dissimilar others encourage it. These effects are contingent on tie frequency, sequencing of tie contact, and prevailing social norms. | tie frequency, sequencing of tie contact, prevailing social norms |
| Singh et al. (2010) | search | expert-related centrality, tenure, gender | search ties | field experiment | multinational professional services firm | Homophily leads to inefficient search behavior of individuals who have low expert-related centrality, short tenure, or are in the gender minority. | none |
| Zatzick et al. (2003) | turnover | race | joint membership in business unit and job level | archival | Fortune 500 service organization | The likelihood of turnover decreases as the proportion of employees in a job from one's own race increases. This relationship is nonlinear: Members of minority groups with low representation benefited more from an increased presence of their own race than those who already had a substantial presence. | category size |
| **1.6. Network-related consequences** | | | | | | | |
| Bunderson (2003) | (1) centrality in workflow network; (2) involvement in decisions | functional background, gender, race, age, team tenure | membership in management team | survey | Fortune 100 company | Management team members with similar functional background and team tenure, but not gender, race, or age, are more central in a workflow network. Functional background similarity is positively related to decision involvement in centralized teams and negatively related to decision involvement in decentralized teams. | power centralization |
| Greguletz et al. (2019) | effective networking | gender | professional networks | qualitative | high-profile female leaders working in large German corporations | Homophily is one of the key reasons for why women engage in less effective networking, implying that this leads to exclusion/suboptimal networks. | gender |
| Ibarra (1992) | network centrality (aggregate prominence) | gender | communication, advice, support, friendship | survey | advertising firm | Choice homophily differentially affects networks of men and women in organizations. Average homophily across different networks reduces women's communication, support and friendship centrality, but increases men's support network centrality. | gender |
| Leonard et al. (2008) | eigenvector centrality | race | friendship | survey | an organization composed of two different ethnic groups | Race homophily does not predict centrality in a friendship network. | none |
| Phillips et al. (2013) | building an effective tie portfolio | religious identity, nationality, sense of trauma, and experience of emigration | entrepreneur and partners | qualitative | case study of an entrepreneur | Homophily can be consciously and strategically used by an entrepreneur in the formation and growth of a venture. | none |
| **2. DYAD LEVEL** | | | | | | | |
| **2.1. Similarity** | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Castilla (2011) | (dis-)agreement in performance evaluation ratings for third parties | gender, race, nationality | work tie (joint unit membership) | archival | U.S. service sector company | Demographically similar managers disagree less in their performance evaluation ratings of a third employee than do demographically different managers. Moreover, demographic similarity between managers and employees decreases disagreement in managers' performance evaluation ratings of a given employee. | none |
| Gibbons & Olk (2003) | structural equivalence, betweenness centrality, indegree-based centrality | gender, ethnicity (race), professional background, length of work experience, years of higher education | friendship | survey | MBA students | Similarities in ethnicity, gender, work experience, and education drive structural equivalence, similarity in betweenness and indegree-based centrality, and tie strength (closeness) in networks of friendship ties among MBA students. Similar ethnicity is the most consistent driver of similarities across outcomes. | none |
| Ma et al. (2015) | similar consumer behaviour | "latent homophily" | frequent phone calls | archival | Asian telecom | "Latent homophily", implying that "consumers who are connected to one another are likely to have similar characteristics and product preferences" (p.454) leads to similarities with regard to purchase timing and product choice decisions. | none |
| Lawrence (2006) | perceived similarity between a focal individual and her career referents | gender, ethnicity, age, organizational tenure, education, career level | discussion | survey and archival | large organization | When considering all demographic attributes jointly, individuals with whom one discusses infrequently are more homogenous than individuals with whom one discusses frequently. | discussion frequency |
| **2.2. Network-related consequences** | | | | | | | |
| Ahlf et al. (2019) | relationship quality, intensity, and trust | demographic homophily scale | colleagues | survey | Korean organization | There is no influence of demographic homophily on relationship quality or intensity of interpersonal communication, but a positive influence on trust. | none |
| Brennecke (2020) | positive-negative tie multiplexity (dissonant ties) | hierarchical rank, tenure, educational background, gender, unit membership | problem-solving relationships | survey | aerospace organization in a Western economy | While tenure and educational background homophily are positively related to dissonant tie formation, similarity in unit membership is negatively related to it. There are no effects for hierarchical rank and gender. | none |
| de Oliveira Maciel (2018) | close ties | departmental similarity, structural equivalence, and demographic control variables (gender, age, marital status, education, institutional ties (e.g., church), tenure, function, hierarchy, satisfaction, work meaning, self-efficacy) | colleagues | survey | Brazilian engine factory | Departmental similarity and structural equivalence increase the likelihood of close ties. The interaction of the two dimensions of homophily reduces the likelihood of close ties. Of the control variables, similar gender, marital status, tenure, hierarchy, work meaning, and self-efficacy positively influence the likelihood of close ties, while similar age, education, institutional ties (e.g., church), function, satisfaction do not have an effect. | homophily is a moderator |
| Friedkin (1993) | (1) communication frequency; (2) influence | structural equivalence | communication | survey | teachers | Structural similarity predicts frequency of communication and interpersonal influence. The latter relationship is mediated by communication frequency. | none |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Oelberger (2019) | closeness | occupational values | close personal relationships | qualitative | international aid work | For individuals with high work devotion, similar beliefs about the importance of their work (occupational value homophily) leads to connection-based enrichment (closeness), whereas dissimilar beliefs lead to emotional distance. | homophily is a moderator |
| Reagans (2005) | communication frequency | tenure, knowledge, function, education, race, gender | communication | survey | R&D consulting | Similarity in knowledge, function, education, gender, and tenure positively influence communication frequency. The positive effect of tenure on communication frequency weakens as the number of people with similar tenure increases indicating that attraction-, identification-, and competition-based explanations interact in their influence tie strength. | category size |
| Reagans (2011) | communication frequency and relationship closeness | age, organizational status, race, gender, education, overlap in grades, subjects taught, floor, breaks | communication | survey | teachers | Similarity in age, breaks, floor, grades and subjects taught, as well as similarity in being part of a numerical minority (here: male and low education), had a positive effect on communication frequency. Organizational status similarity is not related to frequency. There is a positive interaction effect between age similarity and propinquity (same floor) on tie strength measured as frequency or closeness. | homophily is a moderator |
| Rhee et al. (2013) | closeness | nationality and gender | friendship | survey | employees in MNC | Homophily has a positive influence on closeness of friendship ties for Korean but not for U.S. employees. The effect of gender homophily among Korean employees is stronger for women. | nationality and gender |
| Casciaro & Lobo (2015) | instrumental and affective value of a tie | gender, nationality, and shared departmental affiliation | task-related ties | survey | small European functional-form company | Similarity does not influence the instrumental or affective value of a tie. | none |
| Goodwin et al. (2009) | leader-rated and follower-rated leader-member exchange (LMX) quality | perceived similarity on competence and Big5-personality factors | supervisor-subordinate ties | survey | U.S. nonprofit service organization | Perceived similarity between supervisors and subordinates with regard to competence and Big5-personality factors has a positive effect on LMX quality, when assessed from the perspective of the follower. When assessed from the perspective of the leader, follower advice centrality functions as a moderator such that if the follower is viewed as central, the relationship between leaders' perception of similarity and LMX quality is positive. | leader vs. follower rating and follower advice centrality |
| Saparito et al. (2009) | (1) trust in bank; (2) customer satisfaction with credit; (3) bank's knowledge of the firm; and (4) likelihood to switch to an alternative bank | gender | customer relationship (entrepreneur-banker) | archival | entrepreneurs and bank managers | Similarity in gender positively influences entrepreneurs' trust in their bank and customer satisfaction, as well as the bank's knowledge of the firm but not the likelihood to switch banks for men but not for women. | gender |
| Suitor et al. (1995) | relationship persistence | education | work-related emotional support, general emotional support, socializing | survey | women returning to university in mid-life | Educational similarity explains who remains in one's work-related emotional support network, but not general emotional support and socializing networks over a ten-year period. | none |
| Levin et al. (2006) | trust | age, gender, shared perspective | knowledge seeking | survey | a U.S. pharmaceutical company, British | Relationship length moderates the positive association between similar gender and shared perspective but not age and level of trust. For gender, the newer the relationship is, the stronger the | relationship length |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | bank, or Canadian oil and gas company | association, while for shared perspective the opposite is true. | |
| Crosby et al. (1990) | relationship quality (trust and customer satisfaction) | homophily scale (appearance, lifestyle, socio-economic status items) | customer relationship (salesperson-customer) | survey | life insurance sales | Similarity among salespeople and customers is not related to relationship quality, but positively influences sales effectiveness. | none |
| Arndt et al. (2020) | rapport and trust | gender | customer relationship (salesperson-customer) | lab experiment | sales | At the beginning of sales encounters with mixed-gender married couples, salespeople are prone to mutual gaze with the spouse who has the same gender as they do. This tendency is detrimental for rapport building and trust with the customer. | none |
| **3. TEAM LEVEL** | | | | | | | |
| **3.1. Founding team composition and consequences** | | | | | | | |
| Ruef (2010) | (1) likelihood of equal ownership share and control allocation; (2) legal incorporation of startup; (3) innovation output; (4) survival rate | gender, race, age, occupation | founding a company together | survey | entrepreneurial groups in the U.S. | Homophily along ethnicity, gender, age, and occupation increases the likelihood of equal ownership share and control allocation, leading to group level equality. Homophilous founding teams are more likely to have the startup firm legally established. Homophilous teams are more innovative and have a higher survival rate. | none |
| Steffens et al. (2012) | survival and profitability | gender, age, start-up experience | being part of the same startup | archival | a random sample of business start-ups in Sweden | There is no relationship between team homogeneity and short-term performance. More homophilous teams are less likely to be higher performing in the long term. | time horizon |
| Hellerstedt et al. (2007) | team member exits | age, gender, type and length of education, country of birth, prior industry experience | founding a company together | archival | knowledge-intensive industries in Sweden | Homophilous teams are less likely to experience team member exits. | none |
| Henderson et al. (2017) | net worth of startup | ethnicity | founding a company together | survey | US startups | Net of firm characteristics and human capital characteristics, startups with racially diverse founding teams have higher net worth than their homophilous counterparts. | none |
| Parker (2009) | venture performance | not available | founding a company together (simulation model) | modelling | not available | Diverse top management teams undergo fewer changes to their structure and composition over time. | none |
| **3.2. Performance** | | | | | | | |
| Reagans et al. (2004) | project duration | function and tenure | employees working together on projects | survey | a Midwestern contract research and development (R&D) firm | The relationship between homophily and performance is ambiguous. This is because demographic diversity has opposing effects on two social network variables: internal density and external range, while each of these variables has a positive effect on team performance. The relationship between team homophily and team project duration is mediated by internal network density and external network range. | none |
| Dong et al. (2020) | movies' box office revenues | status | being on the same production team | archival | Chinese movie industry | Status homophilous teams have lower performance. | none |

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| Wax et al. (2017) | group success | quest completion | online gamers playing together in a team | archival | digital traces from a massively multiplayer online role-playing game | Provides partial support for the idea that teams that assemble based on heterophily will outperform teams that do not assemble based on heterophily. | dimension of homophily |
| **4. ORGANIZATIONAL LEVEL** | | | | | | | |
| **4.1. Organizational performance and firm valuation** | | | | | | | |
| Su et al. (2020) | firm productivity | industry | supplier relationship between firm and supplier. | archival | U.S. public firms | ISO 9001 is more effective in a low industry homophily environment. | homophily is a moderator |
| Luo & Deng (2009) | innovation | alliance portfolio | strategic alliance | archival | biotechnology firms | Similar partners in a focal firm's alliance portfolio contribute to the firm's innovation up to a threshold, beyond which additional similar partners can lead to a decrease in innovation because of the trade-offs embedded in collaboration between similar partners. | firm age, industry norms of collaboration (moderating an inverted U-shaped relationship) |
| Lee et al. (2014) | (1) firm valuations; (2) operating profitability; (3) internal agency conflicts | political orientation | relationship between CEO and directors | archival | U.S. firms | Alignment in political orientation between the chief executive officer (CEO) and independent directors is associated with lower firm valuations, lower operating profitability, and increased internal agency conflicts | board size |
| Biswas (2016) | financial performance | linguistic affiliation | being on the same company board | archival | India public firms | Promoter homophily in board is negatively associated with financial performance of firms. | government vs non-government firms |
| Claes & Vissa (2020) | (1) VCs' pricing decisions; (2) returns on investments | Cultural, social and caste similarity | investment relationship between VCs and startup founders | archival | Venture capital investments in India | Cultural and social similarity increases pre-money valuation, but caste similarity decreases pre-model valuation. They resolve the paradox by showing that higher-caste VCs set higher valuations when matching with lower-caste founders that signal high quality. | stage of deals (early stage versus others), entering a new industry |
| Goergen et al. (2015) | (1) firm value, (2) level of monitoring | age | board chairman and CEO (hiring) | archival | German public firms | Substantial age dissimilarity between the chair of the board of directors and the CEO gives rise to cognitive conflict and increases board monitoring and firm value for firms with greater monitoring needs. | period: financial crisis (during or outside of crisis) |
| **4.2. Diffusion** | | | | | | | |
| Peng & Mu 2011 | adaption of an open source production software | project | projects are linked if they have members who worked together on other projects before | archival | behavior-link panel data obtained from an open source software (OSS) development network | The greater the similarity between projects, the faster the focal project will follow the other team and adopt the same software. | none |
| Wang & Soule (2012) | diffusion of tactics | tactics and degree centrality of actors | social movements are tied if they participate together in at least one protest | archival | social movements in the U.S. | Collaboration is a channel of tactical diffusion. SMOs with broader tactical repertoires adopt more tactics via their collaboration with other SMOs, but only up to a point. Engaging in more collaboration makes SMOs more active transmitters and adopters of new tactics. Finally, initial overlap in respective tactical repertoires facilitates the diffusion of tactics among collaborating SMOs. Organizational | square term |

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| | | | | | | collaboration is an important channel of tactical diffusion among SMOs, distinguishable from homophily-driven diffusion. | |
| **4.3. Learning** | | | | | | | |
| Backman et al. (2015) | team absorptive capacity | work-style and social-category | collaboration between project teams and relationships within teams | survey | R&D | Work-style similarity benefits absorptive capacity; social-category similarity does not have a significant effect. | none |
| Maula et al. (2013) | firm's attention to technological discontinuities | homophily=alliance or joint venture with firms within industry. Heterophily=ties with those outside the industry e.g., with venture capitalists as a result of co-investments. | alliance or joint venture with firms within industry; ties with venture capitalists as a result of co-investments | archival | longitudinal data from the largest companies (U.S.-based companies that are publicly traded in U.S. stock exchanges in four information and communication technologies (ICT) industries | Homophilous relationships, e.g., alliances with industry peers, lead to a negative relationship with incumbents' timely attention to technological discontinuities. | none |
| **4.4. Network-related consequences** | | | | | | | |
| Ahuja et al. (2009) | (1) type of tie; (2) terms of trade | the distribution of firms' inventions across 80 technological classes that chemical companies use | joint ventures | archival | data on the alliance activities of 97 global chemical firms from 1979 to 1991 | Poorly embedded firms are more likely to participate in ties characterized by social asymmetry than in ties characterized by structural homophily. A firm with low network centrality is more likely to form an alliance with a firm with high network centrality than with another firm with low network centrality. | square term |
| Knoben et al. (2019) | desired partner selection/choice | geography and organizational activities | choice of collaboration partner | survey | networks in the non-profit health care industry in the Netherlands in 2011 | An organization's network accuracy is a moderator of the relationship between cues (including similarity) and partner selection decisions | network accuracy |
| Wholey & Huonker (1993) | interorganizational linkages | distribution of clients, services, and funding | interorganizational linkages, were measured in terms of coordination, interagency service provision, and clients | archival | 52 nonprofit agencies providing services to youth in the Indianapolis area | Similar organizations link more than dissimilar organizations: similar non-profit agencies are more likely to give and receive the most support and assistance in their work with clients. | none |
| Rosenkopf & Padula (2008) | U.S. cellular communication firm alliance | Bonacich centrality | strategic alliance between firms | archival | U.S. cellular communication industry | Homophily, based on similarity in prominence between firms, predicts shortcut formation (where shortcuts refer to ties that span locally embedded clusters which were not connected) but not alliance formation within clusters | whether ties are within- or cross-cluster |
| Schoenherr & Wagner (2016) | supplier involvement in the fuzzy front end of new product development. | perceived homophily | firm-supplier relationship | archival | project-level new product development | The higher the level of homophily, the higher the supplier involvement in the fuzzy front end of new product development. | market turbulence |

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| **4.5. Hiring and promotion** | | | | | | | |
| Appold et al. (1998) | (1) employment of women; (2) employment of high-skill women; (3) separation of male/female positions/titles | gender | relationship between current employees influencing perception of future employees | survey data | 114 multinational firms from the U.S., Japan, and Thailand | The results point to male employees' preferences as the basis of gender inequality as an organizational practice. | none |
| Damaraju & Makhija (2018) | hiring/selection of candidates | caste/religion | firm-CEO hiring | archival | professional CEO hires over the 2001–2009 period by the top 1,000 publicly traded firms in India | Evidence supports "information/trust" reasons for same caste/religion CEO hiring. There are no adverse performance consequences of same caste/religion CEO hiring. | none |
| Beckman & Phillips (2005) | demographic composition of the focal organization | gender | employment relationship | archival | U.S. elite law firms and their publicly traded clients | Law firms promote women attorneys when their corporate clients have women in three key leadership positions: general (legal) counsel, chief executive officer, and board director. | number of clients |
| Glass & Cook (2018) | corporate governance, product, community, and diversity strengths | gender | co-working relationship between CEOs and board members | archival | Fortune 500 companies, 2001-2010 | Firms with women CEOs or gender diverse boards are associated with stronger business and equity practices; gender diverse leadership teams demonstrate stronger business and equity outcomes than teams characterized by gender homophily. | none |
| Lefkowitz (1994) | assigned to a supervisor of same race dummy | race | supervisor – employer tie | archival | a large commercial bank in the Northeast | Significant tendency to assign new employees to supervisors of the same ethnic group. This homophilous assignment, however, does not result in higher performance and liking ratings from their supervisors. | none |
| Acharya & Pollock (2013) | prestige of the newly hired director | prestige | board hiring external CEOs | archival | cross-sectional data on the five years following the initial public offerings (IPOs) of 210 firms that went public between 2001 and 2004 | When a new outside director is recruited, a firm's preexisting board prestige and the presence of a prestigious CEO has a positive relationship with the likelihood the new director is prestigious. | average board tenure, CEO ownership power; CEO structural power (factors that increase the salience of risk of potential losses) |
| **5. MACRO LEVEL** | | | | | | | |
| **5.1. Diffusion** | | | | | | | |
| Greve et al. (2016) | bank runs | forms used by banks (hypothesis 1); ethnicity, national origin, religion, and farm size (hypothesis 2) | similarity ties and bank correspondence relationships | archival | U.S. banking | Negative information associated with an organization has greater influence on (a) members of the same organizational (sub)form than on members of other (sub)forms, (b) on organizations in communities with similar identity-relevant characteristics, and (c) on structurally equivalent organizations. | none |
| Nejad et al. (2015) | (1) net present value for firm; (2) diffusion of product | not available | not available | modelling | not available | The effect of consumer homophily on the profit impact of seeding depends on the seeding target. Consumer homophily negatively affects the profit impact of seeding early adopters but it exhibits a U-shaped relationship with the profit impact of seeding social hubs and random seeding. | squared term |

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