Reflections on organizational team diversity research

In search of a logical support to an assumption

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Abstract

Purpose – Research on organizational team diversity operates under the assumption that team diversity matters for organizational team behavior. The purpose of this paper is to outline this assumption by referring to three aspects which this type of research has conventionally employed, that is, the conceptual definition, IPO logic, and the concept's operationalization. The authors subsequently search for its logical support.

Design/methodology/approach – The search covers several pieces of information: the possible origins of organizational team diversity research, models on group composition, and models on collective behavior.

Findings – The authors do not find strong evidence in favor of the field's assumption.

Originality/value – The implications of this are put into context with contemporary research practices and diversity's popularity.

Keywords Organizations, Team diversity, Assumption

Paper type Research paper

Introduction

For organizations, it is important that work groups are effective. Threats to group effectiveness are often understood to arise with the existence of differences among group members (e.g. Guzzo and Dickson, 1996). Investigating the possible impact of differences has been prominent among various scientific disciplines. One of them is the field of organizational team diversity. This type of research has usually aimed at identifying what degree of team diversity is optimal, that is, what differences are most beneficial/detrimental for team processes and team outcomes.

While there are theories used to predict the direction of diversity-effects, there is no specific theory that explains why team diversity influences team processes and team outcomes in the first place (van Knippenberg and Schippers, 2007). The field's adaptation, mostly implicit, to input-process-output (IPO) thinking is the closest that this type of research gets to a theory which would suggest such an association. In accordance to this, studies on organizational team diversity usually treat diversity as input influencing team processes, team outcomes, or both (Bell, 2007). Although IPO logic has been prominent throughout group behavior investigations, there is emerging consensus that it cannot sufficiently account for the dynamics of group behaviors (e.g. Ilgen *et al.*, 2005). Even without this, applying IPO logic, a rationale originally developed for systems analysis, without further explanation, to research on organizational team diversity, equates to assuming that diversity can be considered as influential for team processes and/or team outcomes. The purpose of this paper is to investigate the adequacy of this assumption; that a team structural feature, i.e. team diversity, ultimately influences team behaviors.

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The absence of theory, therefore, marks the starting point for our line of reasoning: it warrants an investigation of an assumption, research on organizational team diversity has, as we argue, subtly employed. At the same time, the dearth of theory also raises the question about the origins of such an assumption given that theories provide the very logic which necessitates having assumptions. To address this, we refer to three theoretical aspects which accompany much of the contemporary literature: the concept's definition, the aforementioned IPO logic, and the concept's operationalization. We use all of them, in the first section of this paper, to highlight a critical assumption of research on organizational team diversity.

In support of such an approach, we propose that these three aspects represent theoretical constituents to this type of research and thus, can be used for outlining an assumption. Specifically, a theory on organizational team diversity would most certainly contain a definition of its focal object of study, a model which outlines some sort of fundamental logic, and information on the phenomenon's measurement. In addition, the fact that the definition of the concept, IPO logic, and its operationalization are conventionally employed implies that they are systemic to the contemporary literature. Because of this, we claim that they resemble, or equate to, some form of wide-spread theoretical understanding on organizational team diversity.

In what follows we seek to find information and arguments in support of the identified assumption. In the first half of our search, we adopt the rationale of Aristotle (350 BC) who proposed that the examination of the origins of a phenomenon provides the examiner with the clearest view on that very phenomenon. In our paper, the phenomenon is research on organizational team diversity. And although diversity merely refers to structural characteristics of work groups, the origins of research on organizational team diversity could contain information on how team diversity became associated with team behavioral consequences. In the second half, we search for clues in the team diversity literature which describe how this structural team feature influences team processes and team outcomes. By searching for clues, we adopt the conjectural approach where the interpretation of clues is used to explain reality (cf. Ginzburg and Davin, 1980). In this regard, models on group compositional effects and collective behavior theories will be reviewed. Based on what we find, we discuss the adequacy of making the assumption outlined in this paper.

The assumption

An assumption is understood to refer to the act of taken something for granted which is theoretically not proven. While research on organizational team diversity, as most other research fields, makes several assumptions, we focus on one particular assumption. We outline it by drawing on several pieces of information: the definition of team diversity, IPO logic, and the operationalization of team diversity.

Organizational team diversity has been defined as "an aggregate team-level construct that represents differences among members of an interdependent work group with respect to a specific personal attribute" (Joshi and Roh, 2009, p. 600). Hence, the concept describes the structure of a group or team. In particular, it refers to an aggregation of differences of team members on a particular individual attribute. The concept is then, assigned with a quasi-causal role by putting it into models following IPO logic. In general, group behavior investigations have adapted to this design (e.g. Ilgen *et al.*, 2005) and maybe because of that it is less surprising to find it also in research on team diversity. Somewhat regardless of that, the IPO design is

almost omnipresent throughout the literature on organizational team diversity – in empirical examinations (e.g. Pieterse *et al.*, 2011; Herring, 2009) as well as in frameworks (e.g. van Knippenberg *et al.*, 2004; Pelled, 1996). Through such a practice, a structural team feature is associated with team behavioral consequences. Last, team diversity is operationalized with measures of variation (cf. Harrison and Klein, 2007) and so, the concept is indicative of varying degrees of alignment among specific differences (Stewart, 2006).

By combing the information from the concept's operationalization with its definition, it can be argued that team diversity research measures various degrees of alignment on a particular attribute and aggregates those differences into one measure, i.e. the team-level construct. And by combing information from the definition of team diversity with IPO logic, it can furthermore be argued that team-level differences are put into association with group behaviors. Based on that, we propose an assumption underlying research on organizational team diversity as following:

Assumption 1. In organizations, varying degrees of alignment amongst differences on team member attributes can be associated with team behavioral effects (hereafter also referred to as A1).

Because of the abstract character of this assumption, we offer a highly simplified example of what it implies. Consider two organizational teams: one (1) which can be described by a mean age of 30 years and a standard deviation of two years and another one (2) with a mean age of 30 years and a standard deviation of zero years. The assumption of interest now suggests, ceteris paribus, that team (1) would behave differently from team (2) and that such behavioral differences are attributable to team (1)'s deviation in age. In this paper, we will search for a logical support for *A1*.

The origins of organizational team diversity research

In this section, we search for the origins of research on organizational team diversity. We do so by following the logic proposed by Thomas S. Kuhn in his seminal work on *The Structure of Scientific Revolution* (Kuhn, 1970, 2012). He argued that the origins of a research field are usually associated with the discovery of new phenomena. Thus, we investigate what new discovery could have marked the hour of birth for research on organizational team diversity.

According to Thomas S. Kuhn (2012) all sciences accept and subsequently, operate under a particular belief system. Kuhn (2012) calls such belief systems paradigms. Any given paradigm is understood to be made-up of assumptions about reality, theories, and methodologies which enable researchers to answer their research questions. A paradigm that is continuously successful in answering research questions is considered as dominant. Dominant paradigms are considered resistant to change as they mark the distinguishing feature of a particular discipline.

Following the same author, paradigm shifts, i.e. scientific revolutions, do not occur in a gradual and unopposed fashion but are rather the outcome of radical changes in researchers' perspective. Such changes are usually stimulated by the discovery of new phenomena. Kuhn (2012) states that "[d]iscovery commences with the awareness of an anomaly, i.e. with the recognition that nature has somehow violated the paradigm-induced expectations that cover normal science" (pp. 52-53). In other words, any dominant paradigm is understood to eventually leave something unexplained. Unexplained in the sense that more and more research findings accumulate which in turn suggests that the dominant paradigm's logic only provides a partial understanding. The unexplainable

parts of reality, i.e. the anomalies, are then, analyzed and described in greater detail. As research on these anomalies proliferates, the anomalies receive labels.

Kuhn (2012) provides three detailed examples on how this process has unfolded before. In the case of the discovery of oxygen, he argues that experimental evidence had accumulated which did not fit to the dominant paradigm of the day. It was called pneumatic chemistry and it examined, among other things, what gases exist. Under this paradigm, more and more evidence had been found which did not match the paradigm's expectations. Eventually, an explanation for this mismatch was the possibility of the existence of another gas, behaving quite differently from other gases, and thus affecting the findings. This gas was given the name "oxygen" and its existence marked the hour of birth for a new paradigm: the oxygen theory of combustion. It must be emphasized that such a paradigm shift is considered as paradigm-induced. To Kuhn (2012) this means that only through the application of pneumatic chemistry's logic, could findings emerge which contradicted the same paradigm's logic, and ultimately, enabled the identification of oxygen.

Unfortunately, the significant role of dominant paradigms in the detection of anomalies in our case is, what hinders the direct application of Kuhn's (2012) logic. A paradigm shift can be thought of as a sequenced three-staged model: dominant paradigm (1), anomaly (2), and new dominant paradigm (3). Notice that moving from a dominant paradigm (1) to a new dominant paradigm (3) necessitates an anomaly (2). In the case of organizational team diversity, however, we have to reverse Kuhn's (2012) logic – we begin with (3) and search for (2) and (1). From the contemporary point of view, such a reversed approach is necessitated by the very existence of research on organizational team diversity, which according to Kuhn (2012) suggests that there is a dominant paradigm. The popularity of research on team diversity further strengthens such a claim. Understanding, how this dominant paradigm came into existence, requires treating it as a (new) dominant paradigm (3). With this perspective we search for an anomaly (2) arising out of an outdated, or what was formerly considered as dominant, paradigm (1).

Our search for the origins of research on team diversity, therefore, begins with the identification of the contemporarily dominant paradigm. Without aiming at being exhaustive, the dominant paradigm of this type of research can be described as following: scholars assume that team composition influences the behavior of organizational teams, refer to social identity theory and information-processing-logic for predicting the direction of diversity-effects, and employ methodologies which allow hypotheses generation and testing. We then place this paradigm into the three-staged model as new dominant paradigm (3) because we are interested in how it came into existence. Subsequently, we would have to search for an anomaly (2) and a dominant paradigm (1). But to our regret, we are not sure of what the dominant paradigm (1) was, whose predictions did not match actual team behavior observations and as a consequence, resulted in an anomaly (2).

Given this, we can merely speculate on what the discovery was, which at the moment of discovery, represented an anomaly (2). A guess would be that in the course of investigating team behaviors, unexplainable irregularities emerged. The latter could have been attributed to differences among team members. Such an understanding could be obtained from articles on organizational team diversity. The titles of such studies often ask whether or not differences among group members matter (e.g. Herring, 2009; Jehn *et al.*, 1999). The same understanding could also be obtained when reviewing the two theories which are commonly used to predict team

diversity-effects (cf., e.g., Mannix and Neale, 2005). Both theories propose that differences can be used for predicting behaviors. This is, however, not a "good" guess in a sense that a focus on differences does not set this type of research apart from other fields (cf. Tsui and O'Reilly, 1989). As a consequence, differences cannot fully account for the existence of the concept referred to as organizational team diversity.

A different guess would be that the concept of team diversity was the discovery which represented an anomaly (2) in the course of predicting team behaviors. Then, the anomaly (2) could have laid the foundation for the new paradigm (3). This would mean that, at one point in time, researchers discovered the existence of team-level differences. In our mind, such a discovery is rather questionable.

One reason is that the concept of team diversity is not readily detectable. While individual team member differences often become salient, i.e. they are being perceived and/or are directly observable; observing team-level differences is difficult. After all, the idea of a team-level construct implies that teams have a life of their own, or stated differently, team behavior is somehow more than the sum of individual team members' behavior. While it is rather clear that such higher level constructs are prominent in modern times (e.g. nation states), directly observing their behaviors remains a rather daunting task. Also, examining individual attributes which are rather non-visible (e.g. functional background) opens the quite philosophical question of how research determined what meaningful team-level differences are. Hence, team diversity observations are rather imprecise and thus, the discovery of team diversity would have been subject to a high degree of imprecision. This build-in imprecision, in our mind, would hardly justify the founding of a new paradigm.

Another reason is that the absence of team diversity cannot be well-demonstrated. For this let's reconsider Kuhn's (2012) oxygen example. Albeit oxygen being invisible to the human-eye, today it is known as a constituent of our reality. It has received this status because of the ability to test for its presence/absence (e.g. through combustion). In analogy, what would be detected if one tested for the presence/absence of organizational team diversity? In our mind, the outcomes of such tests would always detect some degree of diversity, i.e. we can always extricate differences on team member attributes and aggregate them. Strictly speaking, this means that what is often referred to as a homogeneous team, the (implicit) benchmark in empirical studies on team diversity, is more of a hypothetical case than a precise description of a team where all team members are really the same on a particular attribute. But if this is true, then there cannot be a control group, and thus, imagining how team-level differences were detected becomes increasingly complex.

In contrast to this, an answer to our inquiry can be found in the course of history. Anti-discrimination movements, in the USA (Ashkanasy *et al.*, 2002) and in Europe (Danowitz and Claes, 2012), are regarded as the political and social events which constitute the origin of research on organizational team diversity. Accordingly, the relevance of these events was that they altered workforce composition and so, also the composition of organizational teams. They did so by increasing both the degree of diversity and the number of diversity types. Enhanced diversity levels, in turn, are said to have made the concept of team diversity salient, to both managers and researchers, and in consequence, it became a subject of investigation.

While this explanation provides an answer to our search for the origins of research on organizational team diversity, it does not contain detailed information which could be used for assessing *A1*. In a sense, the explanation could imply that, in the era before anti-discrimination movements, diversity levels were low – so low that diversity-effects

remained unnoticed or were non-existent. Such an understanding would rather question what is proposed by *A1*. Alternatively, the explanation could also imply that higher levels of workforce diversity caught the interest of researchers and managers, simply because they represented a new phenomenon. The fact that the workforce was now made-up of, for instance, non-white workers was unquestionably new implying that the structure of teams changed. But this structural change does not provide any information for or against associating team diversity with team behaviors.

In sum, by searching for the origins of research on organizational team diversity we did not discover any information that could be used in assessing the adequacy of *A1*. From a phenomenological point of view, it remains ambiguous what discovery marked the defining moment for this type of research. From a historical perspective, the founding moment lies in anti-discrimination movements. This explanation, however, does not contain information which would provide us with a clearer view on how team diversity became associated with team behaviors.

Potential origins of the association between organizational team diversity and team behaviors

In this section, we search for a theoretical explanation of how varying degrees of alignment among differences on team member attributes are supposed to influence team behaviors in organizations. We therefore, search for arguments in support of *A1*. Because such an explanation is unknown to us from the outset, we have to search for clues. A clue is any description which can be used to verify/falsify *A1*.

We began our search by electronically searching the Business Source Premier Database via EBSCO for literature on organizational team diversity. Because a myriad of studies has been published on this subject, the population of relevant studies was refined by limiting our review to top management journal publications. Among those journals were the *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Journal of Applied Psychology*, *Journal of Organizational Behavior*, *Management Science*, and *Organization Science*. Our final sample consisted of 31 journals. We then reviewed a time period ranging from 1985 to 2014, searching for key terms by following the recommendation of others (Harrison and Klein, 2007). Our search identified 278 studies in total out of which 38 were conceptual, while the large bulk was empirical, by design. We then manually searched these studies for clues and found two promising ones: group composition models and collective behavior models.

Group composition models

Because team diversity research, in a broader sense, can also be referred to as research on group composition (Levine and Moreland, 1990), a clue might be found in models on group compositional effects. According to some, Kanter's (1977) work on group life is one of the best developed models in this respect (Smith-Lovin and Brody, 1989). The starting point of her logic is that groups consist of individuals with varying cultural and social characteristics. These differences are understood to split groups into proportions: group members with a particular attribute vs group members without such an attribute. The resulting proportions, in turn, indicate majority-minority constellations which influence group interactions (Kanter, 1977). While proportions can be obtained through aggregation techniques, it is Kanter's (1977) concept of a skewed group suggesting that deviations from group means' are meaningful for group behaviors.

According to Kanter (1977), skewed groups are characterized by a majority-minority ratio of at least 85:15 and minorities can come in two forms: several individuals or one individual, i.e. a token. The presence of a token, and by analogy, although to a lesser extent, the presence of a minority, is associated with more stereotyping and marginalization behavior on behalf of the majority. The identification of a token equates to searching for extreme values or measuring an individual's dispersion away from the group's mean. Tokens do not, therefore, provide a rationale for team diversity investigation as the concept exists at a different level-of-analysis. But minorities made up of several individuals, in the sense that they deviate significantly from the group's mean, do indeed provide some initial explanation for the logic inherent to *A1*.

However such an interpretation is rather rudimentary when current investigations are put into context. The reason is that the logic was proposed only for the special case of skewed groups. If this is acknowledged then it would seem that team diversity studies, more or less by convention, check for the degree of group skewedness. To the best of our knowledge such checks usually do not occur. In addition, the defining feature of skewed groups, 85:15 majority-minority constellations, can most readily be applied when studying gender composition. But for other attributes, essentially all non-dichotomous ones, as well as for investigations that examine several attributes simultaneously, determining what a skewed group is needs additional explanation. While it is beyond this paper to ponder on these aspects, we propose that discussions on this matter should indeed exist within the reviewed body of literature if the logic of group compositional models would have been used for suggesting *A1*.

Collective behavior models

Another clue might be found in theories on collective behavior. The reason for this is that team diversity research is concerned with the group level-of-analysis (van Knippenberg and Schippers, 2007) and hence, must presuppose that a group behaves as one collective. Simple threshold models seem to be especially intriguing in this regard because they suggest using variations among group members' attributes, instead of majority counts, when aiming at predicting collective behavior (Granovetter, 1978). Because threshold models belong to the broader category of critical mass models (Oliver, 1993), an explanation for using variation measures can be found in the Theory of the Critical Mass (Oliver *et al.*, 1985).

It states that collective behavior presupposes the development of a critical mass. A critical mass, is thought to exist, when a sufficiently large number of members of a collective start contributing toward its collective objective, thereby, stimulating other members to follow. In other words, the critical mass can be thought of as the threshold, after which, all of the remaining individualistically behaving members adopt a collectivistic approach. Critical mass members are usually those that are different from the rest of the collective and so, Critical Mass Theory suggests that the degree of heterogeneity in a collective can be used to determine when individuals overcome their barriers and behave as a collective.

Borrowing this idea and applying it to any type of collective, however, is not straightforward. One reason is that threshold models are built on the neoclassical assumption of rational individuals possessing complete and relevant information (Granovetter, 1978). This implies that individuals act independently. In cases where the collective under investigation is a team, the condition of independence among members does not hold. Interdependence, one of the defining team characteristics (e.g. Mathieu *et al.*, 2008), collapses the logic of threshold models.

To show this, consider Granovetter's (1978) original example of a riot: the population of a city is said to be uniformly distributed in terms of inhabitants' propensity to riot. This means that 1 percent of the population possess a propensity to riot of 0 percent, 1 percent has a propensity of 1 percent, …, and 1 percent has a propensity of 99 percent. From this population, a sample of 100 individuals is drawn and critical mass logic is applied. This implies that individuals with a rioting propensity of 99 percent will need little incentive to riot and thus, will engage in rioting behavior first. These individuals, then, stimulate people with a rioting propensity of 98 percent to join and so on. In essence, if the sampling distribution is the same as the population distribution, there will always be a riot and, if the concept of sampling variability is introduced, the distribution is either skewed to the left or right, there might or might not be a riot. Notice that this logic is fundamentally based upon individuals' ability to act independently, i.e. their propensity to riot equates to their actual behavior. But by introducing the notion of interdependence, an individual's rioting propensity does not necessarily have to align with that same individual's actual behavior.

More generally stated, interdependence allows for individuals to display deviant behaviors from what their own dispositions would imply. As a result, while threshold models indicate the usefulness of examining variations, these variations are only meaningful if they translate into actual behaviors. But because interdependence allows for a discrepancy between an individual's propensity to act and the same individual's actual behavior, the formation of a critical mass is difficult to predict. As a result the logic of threshold models does not support *A1*.

Discussion

The purpose of this paper was to investigate the adequacy of making an assumption that underlies research on organizational team diversity. In order to be able to do so, the assumption had to be made explicit. This was accomplished by referring to three conventionally employed aspects – the concept's definition, IPO logic, and the concept's operationalization – to this type of research. In retrospect, the act of outlining this assumption has been the paper's main contribution. In addition, given that all theory rests on specific assumptions, by highlighting a particular assumption, this paper can serve as an incremental step in the formulation of a theory on organizational team diversity.

Whether or not it is adequate to assume *A1* – in organizations, varying degrees of alignment among difference on team member attributes can be associated with team behavioral effects – could not be determined conclusively. The reviewed information and logic did not provide us with arguments which suggest a causal relationship between team diversity and team behaviors. We would therefore cautiously propose that it is not adequate to further rely on *A1*.

Because of this we encourage taking a new perspective on organizational team diversity investigations. In that regard, some of the aspects which we used in outlining *A1* might purposely be excluded from future research. For example, IPO logic has been described as inadequate when teams are considered as adaptive, complex systems (Ilgen *et al.*, 2005). More unconventional might be to reconsider the very practice of associating structure with behaviors. In our mind, associating structure with behaviors is rather limiting and, in some cases, might even be discriminating. A new perspective on team diversity should therefore, discuss the purpose of treating differences as something that guides behaviors.

Indicating that support for *A1* might even be harder to come by than we experienced in the course of this paper, is an aspect of *A1* that we did not focus on: the

organizational setting. It has been found before that the setting has a more profound impact on behaviors than individual dispositions (Davis-Blake and Pfeffer, 1989). Given that organizational teams are part of an overall organizational structures where, in all imaginable cases, some sort of hierarchy prevails, it could well be, that the position in the hierarchy is what largely drives behaviors. Similarly, even within certain organizational team types (e.g. top management team) hierarchies might not allow for individual attributes to unfold their proposed effects.

We are not conclusively convinced, however, that rejecting *A1* is appropriate because the concept is so popular, nowadays. The German government, for instance, adopted a bill which obliges publicly traded companies to staff their Boards of Directors, at a minimum, with 30 percent nonexecutive females from 2016 onwards (Dauer, 2014). And organizational team diversity is popular among business organizations because a diverse workforce is often associated with competitive benefits. A major consulting firm, for example, proposes positive association between top management team diversity and firm financial performance (Barta *et al.*, 2012). Similarly, another strategy consultant suggests that diversity is beneficial for firm internationalization; it enables easier foreign market entry accomplished through hiring nationals from the prospective entry candidate (Knauß, 2012). We wonder, therefore, how decision makers, in politics and in business, are capable of arguing that team diversity-effects are positive, while research can often not verify their very existence (Joshi and Roh, 2009; Webber and Donahue, 2001).

Another reason for not rejecting *A1* is the possibility of us making a sampling error. While we reviewed the top management literature, we did not review other research fields which might contain relevant information (e.g. social psychology). Seemingly, future research can set out and do so.

Conclusion

Nature is diverse. Diversity describes that there are differences among the things that exist in nature. Often the idea exists that the presence of differences influences the behaviors of the things in nature. This idea, as we have demonstrated in this paper, also prevails in research on organizational team behavior.

In order to understand this idea better, we searched for information and arguments in its support. Ultimately, we could not find support for the idea. By putting this into context with the popularity of research on organizational team diversity and the positive connotation of diversity in social debates, we hope that this paper invites a more nuanced approach. Whether this means building a theory on organizational team diversity, stripping away the concept's behavioral consequences, or redefining it altogether – all of that matters very little to us. What matters is that, as things stand now, we do not have an explanation for associating team diversity with organizational team behaviors.

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