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The impact of multiple project team membership on individual and team learning: A micro-meso multi-level empirical study

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Abstract

In this paper, we investigate the effects of multiple project team membership on individual and team learning. Data from 435 members of 85 project teams shows that, at the individual level, membership variety has a positive impact on individual learning. Moreover, this positive relationship is stronger for individuals with an average need for cognition, in comparison to individuals with a high or a low need for cognition. At the project team level, the simultaneous inter-organizational memberships of a project team have a positive impact on the team's external learning. However, the simultaneous intra-organizational project team memberships negatively moderate this positive relationship. Furthermore, cross-level analyses show that individual learning has a positive impact on both internal and external team learning. Our findings are relevant for project management practice as they suggest ways in which work design can be configured to increase individual and team learning.

Keywords: Project teams, multiple project team membership, individual learning, team learning, multi-level analysis.

Highlights

- Multiple project team membership variety is positively correlated to individual learning.
- The need for cognition moderates the relation between multiple project team membership variety and individual learning.
- Inter-organizational project team membership is positively correlated to external team learning.
- Intra-organizational membership negatively moderates the relation between inter-organizational project team membership and external team learning.
- Individual learning is positively correlated with internal and external team learning.

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1. Introduction and theoretical background

A growing number of organizations are using projects and project teams to organize their activities in a wide range of economic sectors (Midler, 1995; Hobday, 2000; Wageman et al., 2012; Bertolotti et al., 2015). A related consequence is that employees are increasingly involved in more than one project team at the same time, called multiple project team membership (MPTM). One of the underlying assumptions for configuring employees in such work arrangements is that the employees and their project teams will benefit in terms of learning. As part of multiple project teams, project members have access to information that they could transfer across teams and use as a tool for learning. Learning is defined as a behavior-oriented construct in which individuals and teams engage in behaviors such as monitoring performance against goals, gathering new information, testing assumptions, and creating new work possibilities (Edmondson, 1996, p. 164; Chan et al., 2003a).

This focus on the relationship between MPTM and learning is academically relevant but also has managerial relevance. After all, learning is a basic building block, for example, for creativity, innovation, performance, competitive advantage, and ultimately the survival of the organization. Hence, increasing insight into factors that enable or hinder organizational learning is relevant. Furthermore, engaging in MPTM is a strategic managerial decision as it concerns the allocation of scarce and specialized (human) resources. It also implies issues related to (project) managers' independence, prioritization, the division and assignment of resources, and customization (Margolis, 2020).

Despite the prevalence of MPTM in organizations (e.g. 65–95% of employees work in more than one project team at a time (Crawford et al., 2019)) and the constant challenge for organizations to learn and adapt (Sessa & London, 2015), empirical research connecting the two concepts is relatively limited. Scholars have previously examined conditions and antecedents of MPTM (Mortensen et al., 2007; Chen et al., 2018), with most of the research focusing on the impact of MPTM on individuals or teams. Studies of the impact of MPTM on individuals include roles (Pluut et al., 2014), creativity (Alfaro, 2015), and performance (Van De Brake et al., 2017). As far as the effect of MPTM on teams is concerned, performance and productivity represent the most dominant research foci (Bertolotti et al., 2015; Incerti et al., 2017; Crawford, et al. 2019). However, the connection between MPTM and learning has not yet been tested empirically, despite the potential of MPTM for learning, both at an individual and at a project team level.

Individual members serve as conduits of learning by carrying the lessons they have learned across the project teams of which they are members and share them with their team members (O'Leary et al., 2011). Scholars have called for more consideration to be given to learning across project teams (Mathieu et al., 2008). The seminal paper of O'Leary et al. (2011) approaches this topic, albeit in a theoretical fashion. More research is therefore needed to empirically establish the implications of MPTM on individual and team learning.

The current paper builds on, and substantially extends, the conceptual *Academy of Management Review* paper of O'Leary et al. (2011) regarding the relation between MPTM and learning. It has three major goals.

The first goal is to empirically examine the proposed positive effect of membership variety on learning. When individuals are immersed in a variety of teams, they are exposed to diverse inputs. Hence, they have more opportunities to learn (Marks et al., 2005). In their paper, O'Leary et al. (2011) define membership variety as the extent to which there is diversity in terms of tasks, technologies, and locations that characterize the project teams of which individuals are members. In this study, this conceptualization of variety is further nuanced by advancing that membership variety (MV) is the extent to which project team members are exposed to both intra-organizational (MPTM-Intra) and inter-organizational (MPTM-Inter) project team memberships. An increasing body of literature points out that learning does not only result from being a member of *intra*-organizational projects, but also from being involved in *inter*-organizational projects (Jones & Lichtenstein, 2008; Bstieler & Hemmert, 2010; Bakker et al., 2011; Ahola, 2018; Braun, 2018; Stjerne et al., 2019). This study, contributes to the MPTM field of research with an empirical test of these effects, while at the same time contributing to a more nuanced conceptualization of MV.

The second goal of this study is to test the interplay between MPTM-Inter and MPTM-Intra and their effects on external team learning. This study differentiates between internal project team learning (InTL), which refers to specific behaviors within the project teams related to monitoring performance against goals and obtaining new information, and external project team learning (ExTL), which refers to the extent to which project teams exchange information with other teams or parties outside their boundaries to achieve better coordination and relevant information (Edmondson, 1996). As the model of O'Leary et al. (2011) focuses mainly on internal team learning, the addition of external learning is a further extension of the current study.

The third theoretical and empirical goal of this study is to investigate the extent to which organizational phenomena that occur at lower levels of analysis, such as individual learning, are related to phenomena situated at higher levels of analysis, such as ExTL and InTL. This focus on different forms of learning is highly relevant. All organizational members and units (un)deliberately learn, which is crucial for their future existence (Cohen, 1991). In a recent literature review, Wiewiora et al. (2019: 93) observe the following regarding organizational and project-based learning theory: (1) learning is theorized as a dynamic and multilevel activity; (2) it is argued to flow between individual, team/project, and organizational levels in different directions; (3) research on multilevel project-based learning is limited, with research to date predominantly focusing on explaining project-to-organization linkages; and (4) management scholars have begun investigating linking mechanisms across levels.

The theoretical model proposed in this paper acknowledges the multilevel nature of learning, but theoretically and empirically addresses the under-researched individual-to-project linkage. Most multi-level models deal with so-called meso-micro effects, where individual behaviors or effects (micro) are nested at higher levels, such as the team or organizational level (meso). As stated, multi-level micro-meso modeling and theorizing are very rare in the project and organizational learning literature (also see Kozlowski, 2018). Consequently, addressing this research gap is an important aim of this paper.

The review of Wiewiora et al. (2019) also highlights the often used so-called ‘bridging mechanisms’, which are mechanisms that trigger multi-level learning flows in general and are unique to the project-based context. Examples of these triggers are culture, leaders, organizational structure, or employee actions. Concerning the latter, Wiewiora et al. (2019: 108) state that “the role of employees in triggering multi-level learning appears to be largely under-researched”. This gap is addressed by including an individual employee characteristic (the need for cognition) as a moderator for the relation between MV and individual learning. The tendency of individual project members to engage in and enjoy thinking has the potential to influence their ability to absorb the variety of information contributed by different teams into their learning process. Hence, the need for cognition is a relevant moderator in this project context.

Table 1: Core concepts, definitions, and abbreviations

Concept	Extension in the current study	Abbreviation
1. Multiple team membership = knowledge workers who are members of more than one project team at a time (O’Leary et al., 2011)	1. Multiple project team membership = knowledge workers who are members of more than one project team at a time	MPTM
1.1. Number of teams = number of teams of which an individual is concurrently a member (O’Leary et al., 2011)	1.1. The number of teams of which an individual is concurrently a member can be further divided into:	
	1.1.1. Intra-organizational project teams = project teams within the organization	MPTM-Intra

Concept	Extension in the current study	Abbreviation
	1.1.2. Inter-organizational project teams = project teams outside the boundaries of the organization	MPTM-Inter
1.2. Variety of team memberships = diversity (in tasks, technologies, locations, etc.) characterizing the teams of which individuals are members (O'Leary et al., 2011)	1.2. Membership variety reflects the extent to which project team members are working in both intra-organizational project teams and inter-organizational project teams	MV
2. Individual learning = focus on improving abilities and mastering the task they perform; a preference for challenging work, a view of oneself as being curious, and a search for opportunities that permit independent attempts to master material (Sujan et al., 1994)		IndL
3. Team learning	3. Team learning can be further differentiated into:	
	3.1. Internal team learning = the extent to which team members engage in behaviors to monitor performance against goals, obtain new information, test assumptions, and create new possibilities (Edmondson, 1996).	InTL
	3.2. External team learning = an assessment by several of the team's customers and/or managers about the extent to which the team engages in behaviors such as seeking new information or asking those who receive or use its work for feedback (Edmondson, 1996).	ExTL
4. Need for cognition = the tendency of individuals to engage in and enjoy thinking (Cacioppo & Petty, 1982)		NC
5. Gender		
6. Education separation		EduSep

Table 1 highlights a summary of the core concepts, definitions, and abbreviations, as presented in the paper of O'Leary et al. (2011), together with the extensions made in this study. In the remainder of this paper, the concepts of team and project team will be used interchangeably. In all instances, teams are project teams. One project can comprise multiple project teams. This will be the case, in particular, for large projects. Because the levels of analyses of this study are on the individual and project team levels, the project level, as such, is not the object of study and is thus of less relevance. However, it would be an issue if many project teams were involved in the same project. The Methodology section of this paper will elaborate on these issues.

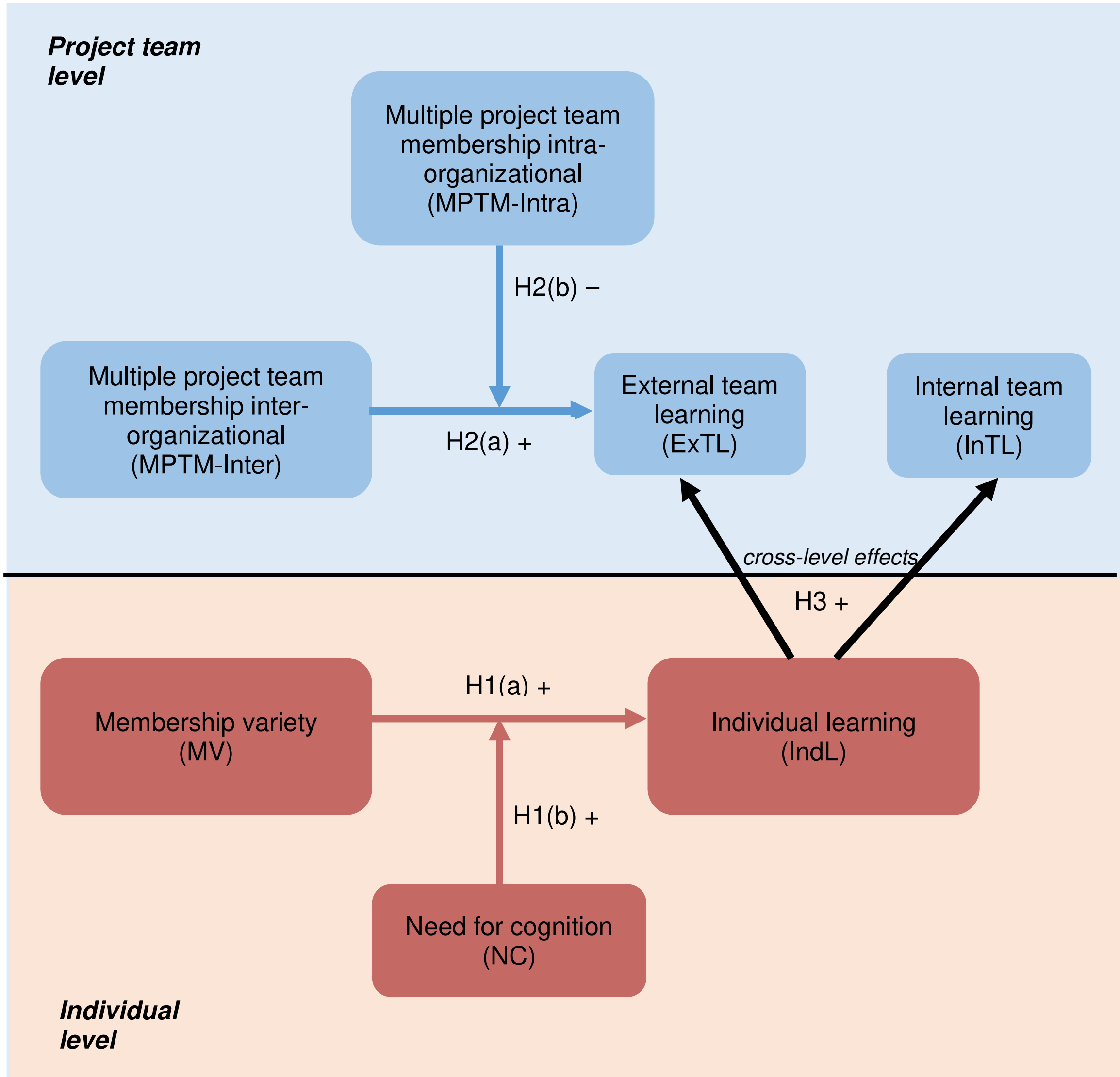

Figure 1. Research model

Our study also follows a multi-level logic, given that the first goal is situated at an individual level of analysis (the effects of MPTM on individual learning). The second goal is situated at the project team level of analysis (the effects of MPTM on external team learning). The third goal spans across different levels (the effects of individual learning in ExTL and InTL). This logic is visualized in Figure 1. The lower part of the model reflects the individual level and aligns with the first goal of this paper. The upper part reflects the team level and aligns with the second goal of this paper. The right middle part of the model reflects the third goal of the study: the cross-level effects.

The remainder of this paper is structured as follows. In the next section, a theoretical multi-level framework is developed and the hypotheses are presented. The third section deals with methodological issues (the sample, data collection, measurement, and the analytical approach). The fourth section presents the results of the empirical analyses, and the last section contains the conclusions and a discussion of the findings.

2. Development of hypotheses

2.1. Individual learning and team learning

Learning is an organizational phenomenon (Ford et al, 2000; Bourne & Walker, 2004) that can be identified at different levels of analysis, such as the individual and project team level. Individual learning has been defined as the behavioral focus organizational actors have on improving and mastering a task. It also involves a preference for challenging work, viewing oneself as being curious and searching for opportunities (Sujan et al., 1994).

Team learning has been conceptualized as having two dimensions: internal team learning and external team learning. The definitions of both concepts can be found in Table 1. The next section focuses on building theoretical arguments for the effects of membership variety, as well as intra-organizational and inter-organizational project team memberships on an individual and a team learning level, respectively. Furthermore, theoretical arguments are proposed that ground a cross-level micro-meso effect from individual learning to team learning.

2.2. The effects of MPTM on an individual level

Membership variety reflects the extent to which project team members work in internal organizational project teams and project teams external to their organizations. Having team memberships within the same organization (giving access to internal knowledge sources) allows project team members to access knowledge that is more readily available through strong ties (Maurer et al., 2011; Khvatova et al., 2016). In this context, knowledge is defined as objective, rational and technical elements, such as data, policies, procedures, software, and documents (Polanyi, 1958; Nonaka & Takeuchi, 1995) that can be utilized for goal accomplishment. Being a member of a project team that comprises members from other organizations (giving access to external knowledge sources) enables an individual to acquire more diverse knowledge, for example in terms of specialization and novelty, than they would have as a member of a team within the organization (Egger, 2005). Access to a variety of knowledge (both internal and external) could create a large shared team knowledge base or skill base. As a result, each project team member can draw on that shared base, which results in fostered learning and performance. In this way, a project member's perspective of the organizational landscape broadens and enables them to engage in behaviors such as improving the task at hand, and searching for challenging work and opportunities, hence actively engaging in learning. Based on the above reasoning, Hypothesis 1(a) is proposed:

Hypothesis 1(a): Membership variety positively relates to individual learning.

As explained above, when a project team member has working relations with both internal sources (project members from the same organization) and external sources (project members from other organizations), they are more likely to be exposed to a diverse set of knowledge, which stimulates learning behaviors. However, exposure to knowledge conceptually needs to be differentiated from the motivation of an individual to make use of it (Cacioppo & Petty, 1982). It is argued further that not all individuals who are exposed to knowledge display equal levels of learning, and that individual differences in cognitive motivation play a role.

More specifically, the paper argues that the need for cognition, defined as the tendency of individuals to engage in and enjoy thinking (Cacioppo & Petty, 1982), will moderate the relation between membership variety and individual learning, so that project team members with a high need for cognition will benefit more from the knowledge to which they are exposed in terms of individual learning than those with a low need for cognition. Meta-analytical findings show that individuals with a high need for cognition are generally able to recall more information than those with a low need for cognition (Cacioppo et al., 1996). At the same time, they are more likely to have a natural tendency to seek, acquire, think, and reflect on the information to which they are exposed (Cacioppo et al., 1996). Being able to contain more information and being more strongly cognitively motivated to engage in effortful reasoning and reflection provide the necessary conditions for fostering the relationship between membership variety and learning (Rudolph et al., 2018).

Hypothesis 1(b): A project team member's need for cognition positively moderates the relationship between membership variety and its learning.

2.3. The effects of MPTM on a team level

O'Leary et al. (2011) proposed that the number of multiple project team members harms team learning as it reduces opportunities to integrate knowledge across team members.

Although these authors did not distinguish team learning as being internal or external, their description of team learning (behaviors such as integrating knowledge and developing shared repertoires, sharing information, processing activities, and generalizing team-encoded roles and routines) implies internal team learning. Moreover, they did not distinguish between types of MPTM, which may have an impact on team learning.

In the model proposed in this study, it is argued that team members that originate from other organizations (MPTM-Inter) have a positive impact on external team learning. In this study, the focus is on team learning behaviors or activities as opposed to team learning outcomes.

On the one hand, specialized units (such as engineering project teams) are often created for specific aims or tasks and can efficiently process information within the unit. On the other hand, the same specialization hinders information processing between the unit and the external environment mainly due to communication issues (Tushman & Scanlan, 1981). To mitigate this problem, members of a team develop linkages across their team or organizational boundary (also known as boundary-spanning ties (Marrone, 2010)) with other individuals or units, which enables them to code or recode the information acquired. It is through these external ties that one can access diverse knowledge, which is embedded in other organizational units, and distribute this information to team-internal users.

From a network perspective, a focal team can have a set of inter-organizational ties when its team members possess multiple memberships in other teams, which also consist of members of other organizations. In the social and organizational network literature, it is often empirically found that the higher a unit's in-degree centrality (the total number of knowledge-receiving ties a focal unit has), the more knowledge sources it can acquire (Tsai, 2001). Being more central ensures that the team is a hub for the information that flows through the field, thereby improving its alertness towards extant opportunities and providing a richer pool of alternatives to choose from. More perceived opportunities and alternatives provide a richer breeding ground for (external) team learning (Ferriani et al., 2009) This is in line with previous studies that show that job rotation in projects or transferring teams from one project to another is a favorable condition for collective learning during projects (Bourgeon, 2007; Aerts et al., 2017). Therefore, the second hypothesis is stated as follows:

Hypothesis 2(a): The total number of inter-organizational multiple team memberships of all members of a team (MPTM-Inter) has a positive relationship with the team's external team learning (ExTL).

To be able to respond to fast-changing environments with complex systems and technologies, an organization requires more, not less, time as a resource dedicated to monitor and process the vast and complex amount of information (Lawson, 2001). The negative moderation effect proposed below is, therefore, theoretically informed by the availability of time and information-processing capabilities held by the project team and its members.

Time, as a resource, is limited as project team members have a finite number of hours available per day to complete their tasks. When a member is involved in concurrent project teams comprising members from the same organization (MPTM-Intra), the member will experience an increase in their workload, especially if they are already a member of an inter-organizational team. In other words, team members will need to complete job-related tasks while they are involved in multiple project schedules that are not necessarily aligned. Thus, the team as a whole will face high schedule constraints (O'Leary et al., 2011). If team members have to distribute their time and attention across multiple concurrent teams, they will have less time dedicated to information processing and learning (Srikanth et al., 2016). This effect is amplified if project team members are participating in a large number of intra- and inter-organizational teams. In such cases, the amount of information that needs to be processed is large and diverse and maybe even more complex, whereas there is less time and attention available for shared information-processing activities. Consequently, team learning is argued to be negatively affected. Therefore, Hypothesis 2(b) is stated as follows.

Hypothesis 2(b): The total number of intra-organizational multiple team memberships of all members of a team (MPTM-Intra) negatively moderates the positive relationship between MPTM-Inter and external team learning (ExTL).

2.4. Cross-level effects

The relationship between individual learning on the one hand, and internal and external learning on the other, is an acknowledgment of the multilevel nature of learning. More specifically, it emphasizes that organizational and team learning starts at the level of the individual, and at that level, it essentially reflects a psychological process. To ground the micro-meso relationship between individual and team learning, the theoretical ideas of Crossan et al. (1999) are valuable. These authors argue that three theoretical mechanisms link individual learning to team learning: intuiting, interpreting, and integrating. Individual learning involves observing similarities and differences, patterns, and possibilities. Intuiting, therefore, pertains to a process of pattern recognition (Sadler-Smith, 2016). Intuiting is of high quality if the individual can use more complex mental maps for pattern recognition, which is typically the case for employees with high levels of expertise. A cross-level effect emerges when intuiting is followed by interpreting, which is explaining, through words and/or actions, insight or idea to oneself and other social actors. This implies that team members are involved in this process, which also helps team understanding. Integrating is typically a group or team-level process in which the results of interpreting are used to develop a shared understanding among project team members and taking coordinated action through mutual coordination. Individual learning is, therefore, positively related to team learning if the processes of intuiting, interpreting, and integrating run smoothly and consist of high-level interactions between actors (Van den Bossche et al., 2006). Given the above line of argument, Hypothesis 3 is proposed:

Hypothesis 3: Individual learning contributes positively to internal team learning, as well as to external team learning.

3. Research methods

3.1 Sample and data collection

A total of 88 individuals, who were part of a postgraduate course in Project Management at a large South African university, acted as field operators, and helped with data collection. The data collection process and the interpretation of an analysis of the data formed one of their learning activities at the university. The 88 individuals were employed by and had direct access to a variety of organizations in South Africa[1]. The field operators were instructed to find project teams in which they were involved at that time and to ask the project team members whether they would be willing to participate in this research. Field operators were instructed to only contact project teams that satisfied the following criteria. First, organizations were eligible if they composed project teams of less than 30 people per team, and if at least 50% of the project had already been completed. Second, the project teams should be situated within the organization or both within and outside the organization. When the abovementioned criteria had been met, the field operators allocated a name to the team and distributed the survey to the team members via e-mail, while using an online questionnaire in Survey Monkey. The field operators provided all the contacts. The survey contained 30 questions and was active for one month. A total of 455 questionnaires were sent out, resulting in a 100% response rate. No

[1] *Examples of such organizations are mining, telecommunications, electricity public utility, transport, water, civil constructions, agriculture engineering, ICT, architecture.*

reminders were sent out during the one month. It is important to note that organizational teams and project teams have to be distinguished from each other. An organizational team is a group of organizational members who are interdependent in terms of information, resources, and skills, and who seek to combine their efforts to achieve a common goal (Thompson, 2008). If the organizational team is only used for a defined period for a separate, specified purpose or task, one can speak of a project team. Furthermore, project teams are often tasked with integrating distributed knowledge, which implies that they are multidisciplinary (Newell et al., 2004).

To ensure that the respondents considered project teams and not regular teams while answering the survey questions, the questionnaire clearly and repeatedly indicated that the study was about project teams. Furthermore, most questions used the term "project team" to avoid confusion. The project teams operated in sectors such as energy production, telecommunications, construction, transportation, and mineral processing. These were the sectors in which the field operators were employed and had direct access to the respondents. The main tasks of these project teams were related to engineering and the teams operated temporarily.

In total, 455 team members from 88 project teams returned their questionnaires. Data from project team members with fewer than three team members were removed in line with the response criterion suggested by Zhang et al. (2007). The final sample included 85 project teams (Team $size_{avg}$ = 9.24) with 435 team members in total (Age_{avg} = 36.73; 76.7% males). Concerning education, 29.6% of the participants had a diploma, 32.2% had a bachelor's degree, 4.7% had a postgraduate degree, 19% had an honors degree, 12.6% had a master's degree and 1% had a doctoral degree.

To exclude the possibility of respondents reporting on the same projects, the extent to which project teams belonged to the same organization or used the same project name was investigated. Findings revealed that the data concerned projects from 70 unique organizations (out of 85). In four cases, only information on the names of the project and not about the related organizations was available. None of the project names overlapped with other names in the data set. In the remaining cases, project teams were part of very large South African organizations with between 300 and about 87,000 employees (information for 2018). In these 11 instances, it was checked whether projects had similar names. This was not the case. Therefore, it was concluded that 85 unique project teams were investigated.

3.2 Measurements

3.2.1 Individual-level variables

To measure MV, the participants were asked to report on how many intra-organizational and inter-organizational project teams, respectively, they have been extensively involved six months before the study. Appendix 1 contains a description of the measurements for all the variables included in this study. The MV was computed using Teachman's index of variety (Teachman, 1980). This index varies from 0 to 1, where 1 indicates the maximum variety and 0 indicates no variety. The index is commonly used as a measure for diversity (Harrison & Klein, 2007).

Individual learning (IndL) was measured with nine items, developed by Sujan et al. (1994). Participants were invited to rate the extent to which they agree with nine statements on a seven-point Likert scale. Examples of items are: "It is important for me to learn from each of my project experiences", "I spend a great deal of time learning new work approaches" and "I am always learning something new in my work". The Cronbach's alpha for this scale was 0.81, indicating good reliability.

The need for cognition (NC) was measured with a selection of five items from a scale developed by Cacioppo et al. (1996). The response scale ranged from 1 to 5 and sample items are: "There are a lot of new things to learn from the tasks I did in this project team" and "An important part of becoming a good project team member is to continually improve work skills". The Cronbach's alpha for this scale was 0.61, indicating acceptable reliability.

3.2.2 Project team-level variables

The MPTM-Inter was measured with the following question: "In the past six months, in how many project teams were you involved simultaneously, which also involved other external organizations?" The MPTM-Intra was measured with the following question: "In the past six months, in how many project teams inside your organization were you involved simultaneously?"

Internal team learning (InTL) was measured with six items developed by Chan et al. (2003b) on a seven-point Likert scale. Examples of items are: "In my project team, people discuss ways to prevent and learn from mistakes" and "We regularly take time to figure out ways to improve our work processes". The Cronbach's alpha for this scale was 0.747 after removing two items.

External team learning (ExTL) was measured with five items developed by Chan et al. (2003a) on a seven-point Likert scale. The scale had good reliability with a Cronbach's alpha of 0.725. Examples of items are: "My team frequently coordinates with other teams to meet organizational objectives" and "Team members go out and get all relevant work information they possibly can from others – such as customers, or other parts of the organization."

All team data was collected from the project team members, but given that they reflect project team variables, they were further aggregated at a project team level, while using the average of individual respondents within the project team. The only exception is the control variable of education separation. Education level was measured with a six-point Likert scale, where 1 indicates a diploma (lowest level of education) and 6 indicates a PhD (highest level of education). Separation was operationalized while using the standard deviation of team members' reports of educational level.

3.3 Level of analysis and measurement equivalence

To justify aggregation from the individual level (first, micro-level) to project team level (second, meso level) for InTL and ExTL, both the Interrater Agreement Index, *rwg(j),* and the Intraclass Correlation Coefficients (ICCs) were computed in line with recommendations from Bliese (2000). *Rwg(j)* is an index that reflects the extent to which raters' assessments of a single target (in this case, team learning variables) are interchangeable (James et al., 1984; Smith-Crowe et al., 2014). The formula of James et al. (1984) was used. The median *rwg(j)* for InTL was 0.787 and for ExTL it was 0.866. Given that both *rwg(j)* scores were higher than 0.70, it can be concluded that project team members were in high agreement concerning the rating of the two variables, thus justifying aggregation at the team level (LeBreton & Senter, 2008; Janz et al., 1997).

ICC(1) and ICC(2) indicate the extent to which team members account for team members' ratings (Bliese, 2000). ICC(1) provides an estimate of the properties of the data at the team level, unbiased by group size or the number of groups in the sample (James, 1982; Bliese & Halverson, 1998).

In the current study, team size differed across teams and a formula recommended by Bliese and Halverson (1998) was used. ICC(1) was 5.66 for InTL and 4.91 for ExTL. Given that both scores were higher than 0.1, aggregation was justified (Bliese, 2000). For ICC(2), the formula proposed by Bliese (2000) was used. The values obtained were 1.010 for InTL and 1.009 for ExTL. This provides an estimation of the reliability of mean differences across teams (Bliese & Halverson, 1998). Given that both scores were higher than 0.70, aggregation was justified (LeBreton & Senter, 2008).

3.4 Adjusted variables for cross-level analysis

To test H3, which is the multi-level micro-meso part of the model, a few methodological adjustments are required. In multi-level modeling, the micro-meso situation occurs when the dependent variable Y is measured at the higher (here: team) level and the explanatory variables are measured at a lower (here: individual) level. In this study, the two dependent variables measured at a team level are InTL and ExTL, whereas the explanatory variable at an individual level is IndL.

In the aggregation approach, the individual-level variable is transformed into a higher team level by assigning the average score of the individual variables to each team. However, this may lead to biased estimates of the true regression coefficients when one performs ordinary least squares (OLS) regression analysis. Croon and Van Veldhoven (2007) proposed using a latent variable multilevel model for analyzing such micro-meso models. A latent group-level variable, ξ, is associated with the explanatory individual level variable, X, on which only the groups have a score, ξ_g. The adjusted group mean, x_g, is the expected value of ξ_g, taking all the observed scores on the individual and group level explanatory variables in group *g* into account. By following the procedure as described by Croon and Van Veldhoven (2007), this study transformed the individual-level explanatory variable into its adjusted group means. This adjusted variable, $IndL_{adj}$, is further used for testing OLS regression analysis.

4. Results

Table 2 presents descriptive statistics and correlations of the variables used in this study. To test H1(a) and H1(b), a hierarchical multivariate OLS regression analysis was performed at the individual level of analysis. We controlled for gender in the analysis to rule out alternative explanations for the results (Becker, 2005). Gender is a relevant control variable given that previous research indicates that gender differences exist concerning learning (see Steegh et al., 2019). It has been shown that biological, psychological, and environmental variables impact on gender-related differences in learning (Zhu, 2007).

The results in Table 3 indicate that there is a positive and statistically significant relationship between individual learning and membership variety ($\beta = 0.101$, $p < 0.05$), as well as between individual learning and the need for cognition ($\beta = 0.373$, $p < 0.01$).

If controlled for gender, these results remain stable. Gender is negatively associated with individual learning ($\beta = -0.127$, $p < 0.05$) so that women are more prone to display learning behaviors[2]. The moderation effect is not statistically significant, with $\beta = -0.001$ and $p > 0.05$.

[2] *A model including age and education as control variables was also tested based on research showing that age has a negative relation with learning preparedness (Ryan & See, 1993; Maurer et al., 2003) while the level of education is positively associated with learning and resilience (Walker et al., 2006). The results of this additional analysis are similar to the ones where only gender was controlled for, indicating the robustness of the findings. Hence, only the model with gender as a control variable is reported.*

Furthermore, the Johnson-Neyman technique (Miller et al., 2013) was applied to estimate – in a more detailed manner – whether the moderating effect is statistically significant at particular values (Miller et al., 2013). Results (in Table 4 and Figure 2) indicate that the moderating effect of NC is significant between M = -0.1353 and M = 0.1792. The effect is also positive, ranging from 0.2816 to 0.2832.

Table 2. Descriptive statistics and correlations

Individual level		N	Min	Max	Mean	SD	1	2	3	4		
1.	IndL	422	3.89	7.00	6.05	0.69	1.00					
2.	Gender	426	1.00	2.00			-0.116*	1.00				
3.	MV	424	0.00	0.69	0.56	0.24	0.019	-0.023	1.00			
4.	NC	421	2.00	5.00	4.12	0.62	0.367**	0.030	-0.075	1.00		
Group level		**N**	**Min**	**Max**	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**
1.	InTL	85	3.30	7.00	5.30	0.64	1.000					
2.	ExTL	85	3.24	6.60	5.33	0.67	0.407**	1.000				
3.	Edu Sep	85	0.00	2.48	1.28	0.42	0.229*	0.188	1.000			
4.	MPTM-Inter	85	0.00	26.00	8.51	5.45	-0.048	0.183	-0.086	1.000		
5.	MPTM-Intra	85	0.00	21.00	8.65	4.67	-0.149	-0.028	-0.159	0.547**	1.000	
6.	$IndL_{adj}$	85	5.13	6.85	6.05	0.30	0.477**	0.439**	0.429**	0.047	-0.008	1.00

Note. * p < 0.05 level (two-tailed); **p < 0.01 (two-tailed)

Abbreviations are used in line with Table 1.

Table 3. Individual-level regression analysis with individual learning as the outcome

	IndL			
	Model 1	Model 2	Model 3	Model 4
Constant	6.360***	6.213***	4.541***	4.541***
Gender	-0.108**	-0.104**	-0.127**	-0.127**
MV		0.088*	0.101**	0.101**
NC			0.373***	0.373***
MV * NC				-0.001
R^2	1.2%	1.9%	15.8%	15.8%
R^2 change	1.2%	0.8%	13.9%	0%
F-value	4.776**	4.004**	25.298***	18.927***
F-value change	4.776**	3.205*	66.590***	.001
VIF	1	1.002	1.003– 1.006	1.006– 1.013

Note. *: p < 0.1; **: p < 0.05; ***: p < 0 .01; for Gender: 1 = female; 2 = male.

Abbreviations are used in line with Table 1.

Table 4. Johnson-Neyman results

Values of NC	Moderating effect	SE	t	p	LLCI	ULCI
-.3281	.2842	.1628	1.7463	.0815	-.0357	.6042
-.1781	.2834	.1472	1.9259	.0548	-.0059	.5728
-.1353	.2832	.1441	1.9659	.0500	.0000	.5664
-.0281	.2826	.1393	2.0292	.0431	.0088	.5565
.1219	.2819	.1404	2.0074	.0454	.0058	.5579
.1792	.2816	.1432	1.9659	.0500	.0000	.5631
.2719	.2811	.1503	1.8697	.0623	-.0145	.5766
.4219	.2803	.1675	1.6733	.0950	-.0490	.6096
-.5719	.2795	.1900	1.4713	.1420	-.0940	.6530
-.7219	.2787	.2161	1.2899	.1978	-.1461	.7035

Note. Abbreviations are used in line with Table 1.

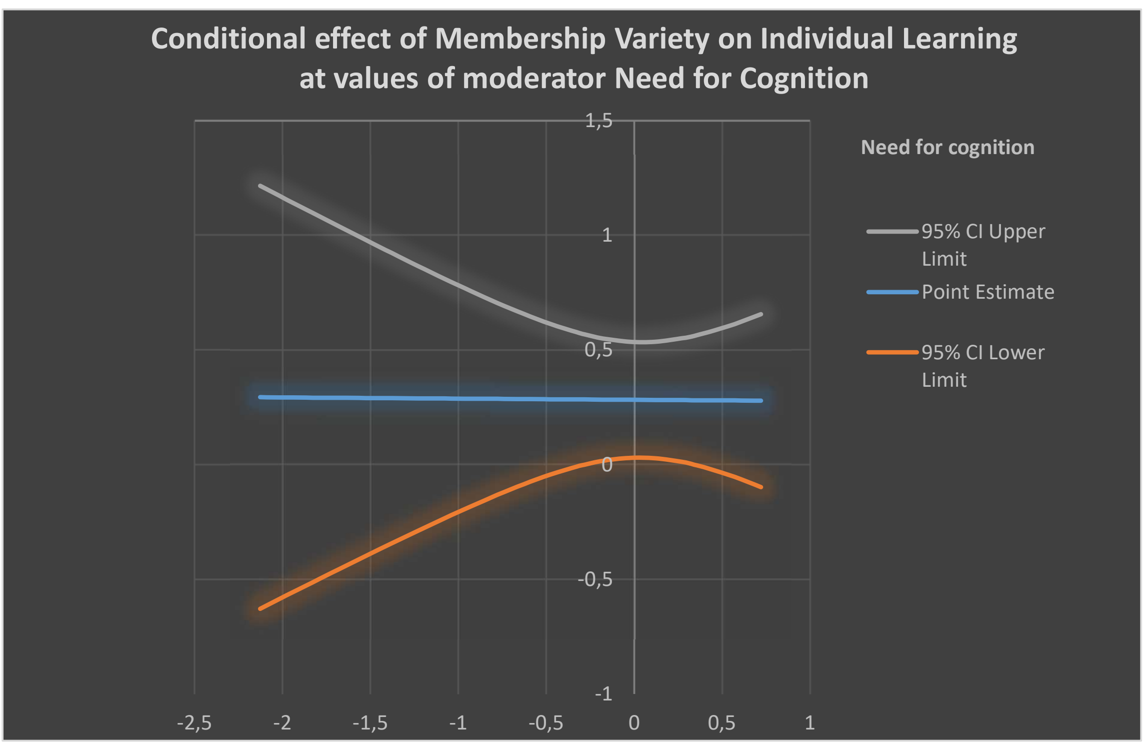

Figure 2. Conditional effect of membership variety on individual learning at values of the moderator NC; X- axis=Membership variety; Y-axis=Individual Learning.

To test H2(a) and H2(b), a hierarchical multivariate OLS regression analysis was performed at the team level of analysis (see Table 5 and Figure 3). The analyses were controlled for education separation. Results indicate that MPTM-Inter is positively related to ExTL ($\beta = 0.282$, $p < 0.05$), while MPTM-Intra is not related to the external learning outcome ($\beta = -0.057$, $p > 0.05$). The interaction effect is negative and statistically significant ($\beta = -0.215$, $p < 0.05$), even when controlling for EduSep ($\beta = 0.176$, $p < 0.1$).

Table 5. Team-level regression analysis with external team learning as the outcome

	External team learning			
	Model 1	Model 2	Model 3	Model 4
Constant	5.007***	4.722***	4.813***	4.813***
EduSep	0.157	0.182*	0.172	0.176*
MPTM-Inter		0.226**	0.272**	0.282**
MPTM-Intra			-0.096	-0.057
MPTM-Inter * MPTM-Intra				-0.215**
R^2	2.5%	7.5%	8.5%	12.5%
R^2 change		5.0%	0.7%	4.4%
F-value	2.104	3.332**	2.409*	2.886**
F-value change	2.104	4.472**	0.596	4.045**
VIF	1	1.012	1.029-1.350	1.029-1.384

Note. *: p < 0.1; **: p < 0.05; ***: p < 0.01.

Abbreviations are used in line with Table 1.

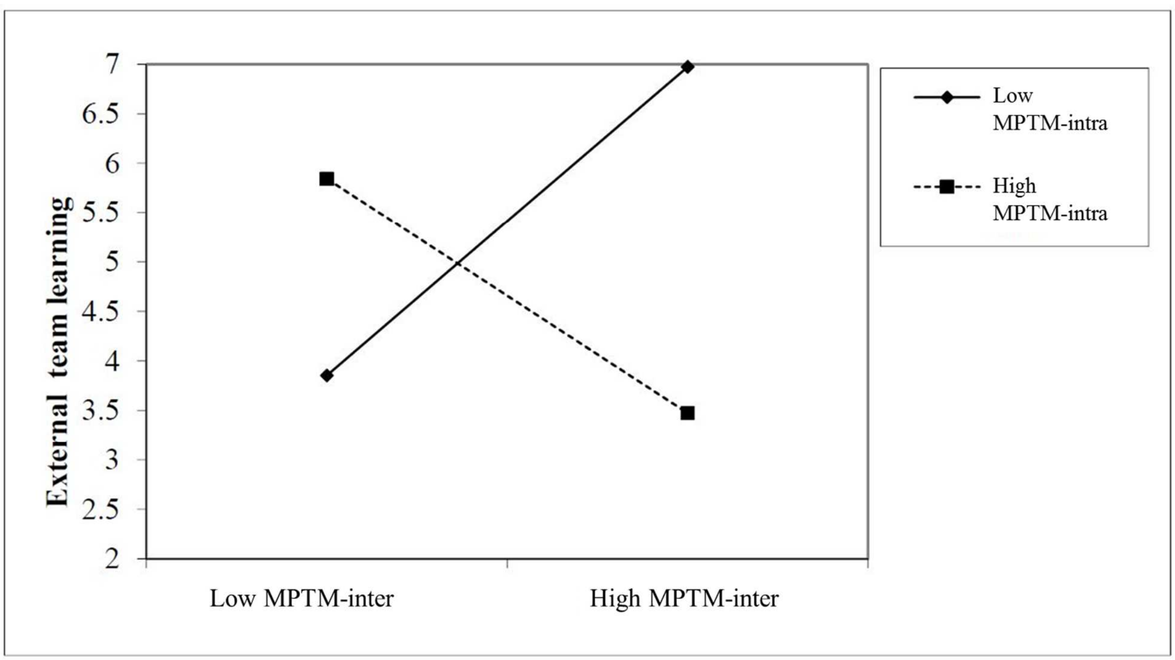

Figure 3. Interaction effects at a team level

An OLS regression analysis was performed to analyze the effects of individual learning on internal and external team learning (H3) (see Table 6). For the cross-level analysis, the individual level variable (IndL) was adjusted to the team level and labeled $IndL_{adj}$. Results indicate that individual learning has a positive effect on both internal team learning ($\beta = 0.439$, $p < 0.01$) and external team learning ($\beta = 0.443$, $p < 0.01$).

Table 6. Cross-level regression analysis with internal and external team learning as outcomes

	InTL		ExTL	
	Model 1	Model 2	Model 1	Model 2
Constant	4.963***	-.466	5.007***	-.650
EduSep	0.174*	.030	0.157	0.011
$IndL_{adj}$		0.439***		0.443***
R^2	3.0%	20.2%	2.5%	19.9%
R^2 change	3.0%	17.2%	2.5%	17.5%
F-value	2.598	10.374***	2.104	10.204***
F-value change	2.598	17.629***	2.104	17.876***
VIF	1	1.122	1	1.122

*Note. *:* p < 0.1; **: p < 0.05; ***: p < 0.01.

Abbreviations are used in line with Table 1.

5. Conclusions and discussion

5.1. Conclusions

In this sub-section, we briefly describe which hypotheses are empirically supported, followed by a section in which these findings are interpreted. The paper ends with sections on the theoretical and managerial implications, whereas the final sub-section identifies limitations and future research directions. Our empirical analyses revealed the following:

- Project team membership variety and individual learning are positively related (Hypothesis 1(a): supported).
- The need for cognition positively moderates the relationship between membership variety and individual learning, but only for a moderate value of the need for cognition (Hypothesis 1(b): partially supported).
- The paper also finds empirical support for Hypothesis 2(a) and Hypothesis 2(b). Teams whose members are more connected to other teams reach higher levels of external learning, whereas this relationship is negatively moderated for project teams whose members participate in a higher number of intra-organizational teams.

- Individual learning positively impacts on internal and external team learning, giving empirical support to Hypotheses 3.

Hence, the findings of this study illustrate that multiple project team membership has the potential to contribute to both individual and team learning.

5.2. Interpretation of the findings

Membership variety positively impacts on individual learning (Table 3). This means that project team members exposed to both internal and external project teams are more likely to focus on improving their abilities and mastering the tasks they perform. Consequently, they enrich their repertoire of knowledge and learn from the multiple project teams of which they are part. Being well-connected to projects inside and outside the organization proves to be beneficial for individual team members. This finding adds to a growing stream of literature that stresses the relevance of the embeddedness of projects in wider organizational structures (also see Hartmann & Dorée, 2015; Lu et al., 2017; Lu et al., 2019).

In general, project team members who are cognitively motivated to engage in and enjoy thinking (need for cognition) are more likely to learn. This was revealed by the analyses, as well as by previous studies (see meta-analysis, Cacioppo et al. (1996)). However, the moderating effect of need for cognition on the relation between membership variety and learning only holds at average levels of the moderator variable (Table 3 and 4). That is, the moderator is statistically significant between the values $M = -0.13$ and $M = 0.17$. This finding can be explained by the fact that high engagement in thinking keeps the focus away from the behavioral aspect of learning, while low engagement in thinking does not motivate reflection and learning (also see Rosenbaum & Johnson, 2016).

It was found that project teams whose members belong to many inter-organizational project teams are more likely to enhance their external learning. While being part of teams outside their own organization, team members are better able to acquire information about their environment and develop a repertoire of knowledge that will support the team to better address the problems and issues with which they are confronted.

While it was found that, at an individual level, exposure to both internal and external project teams is beneficial for learning, the same cannot be concluded for project teams, especially when these project team memberships occur simultaneously. The results indicated that intra-organizational project team membership negatively moderates the relation between inter-organizational project team memberships and external team learning (Table 5). The lowest level of learning takes place when teams are exposed to both a high level of intra-organizational project membership and a high level of inter-organizational project membership. There may be two explanations for the differential effects of project team memberships on individual and team learning. First, at an individual level, membership variety can occur either simultaneously or sequentially. This latter arrangement is not as demanding as simultaneous membership. Second, while teams are equipped with higher information processing capabilities than individuals (Hinsz et al., 1997), they also need additional resources to integrate the diversity of knowledge to which they are exposed (for an example, see: Klessova et al., 2020). When the diversity of membership and knowledge is high, teams might lack the ability and resources to set up a suitable integration system. The results are also in line with findings previously advanced in the MPTM and alliance portfolio literature, also pointing to the idea that too much variety in memberships can be detrimental to learning and performance (O'Leary et al., 2011; Oerlemans et al., 2012).

The results show that individual learning is positively and significantly associated with internal and external learning at the project team level (Table 6). Individual learning is, therefore, a relevant driver of higher-level team learning. These results also provide one of the few empirical pieces of evidence to support micro-meso effects within organizations. While it has often been theorized (Klein & Kozlowski, 2000; Chen & Kanfer, 2006; Kozlowski et al., 2013), little empirical evidence has been gathered in this area so far, especially regarding the bottom-up phenomena.

5.3. Theoretical implications

The findings presented in this paper contribute to the MPTM field of research in three ways. Learning in a project-based environment connects different organizational levels: the individual, project, and organizational level (Wiewiora, Chang & Smidt, 2020) as project learning is a function of project members' cognitive processes, interpretation and integration of learning at the project team level, and the organization's competences to institutionalize learning into routines and practices. Recently, many studies focus on the link between the project and the organizational level in an effort to better understand and deal with the learning paradox (Bakker et al., 2011). Because there is a limited number of studies researching mechanisms influencing project learning on the individual level or exploring individual to project level learning flows, this paper focuses on the link between these levels.

Recent studies, with two exceptions, find a negative association between the number of multiple project team members participate in and outcome indicators at the individual and project team level. Examples of these negative associations at the individual level are presented by Pluut et al. (2014) (increased job demand and strain), Zika-Viktorsson et al. (2006) (perceived project overload), Brennecke and Rank (2016) (advice seeking and providing behavior) and Van De Brake et al. (2017) (short-term job performance), while Crawford et al. (2019) find a negative association at the team level with unit performance as the dependent variable.

This study aligns with previous findings and theoretical models proposed (O'Leary et al., 2011), while at the same time it provides a more nuanced message due to the extensions made. We distinguish between inter-organizational and intra-organizational MPTM and show that the effects of MPTM differ at the individual and the project team level. This brings more precision to the debate on the MPTM concept. Furthermore, the paper adds to the theoretical discussion on the effects of organizational permeability as it shows that crossing the boundaries of organizational project units comes with advantages and disadvantages, depending on the level being studied (Schreyögg & Sydow, 2010; Dibble & Gibson, 2018; Yeo, 2020). The implication is that, from both a managerial and an academic point of view, it is highly relevant to also take inter-organizational project team membership into account.

In the introduction of this paper, the lack of attention to employee characteristics as a trigger for learning was identified as a theoretical knowledge gap. This gap was addressed by investigating an important learning effect of a project member characteristic: the need for cognition. This individual characteristic turned out to have empirical relevance. A theoretical implication is that models that combine organizational structure concepts (such as MPTM) with concepts from organization psychology are beneficial (Rapp & Mathieu, 2019).

An important and growing number of studies take a multi-level perspective on projects and (project) teams. Recent examples of studies on teams are those of Gu et al. (2018) and Prewett et al. (2018), while studies on projects include those of Brunet (2019) and Rezvani et al. (2018). A vast majority of these studies take a meso-micro (project team-team member) perspective. This study, however, investigated a micro-meso link, which was identified as an understudied link. It turned out to be a fruitful perspective for two reasons. First, it showed that a different dimension of MPTM (membership variety) is a relevant determinant of individual learning. Second, it positively influences project team learning. The findings of this study stress the relevance for individual project team members and their teams to be exposed to a variety of intra- and inter-organizational contexts as it stimulates and hinders learning from which the project team can(not) benefit.

5.4. Practical implications

Next to its theoretical contributions, the findings of this study are also highly relevant for project managers and project-based organizations that deal with a MPTM design. MPTM is a complex work arrangement that has the potential for learning (both at an individual and a team level) if carefully managed. In line with the multi-level nature of project learning, recommendations to project managers can relate to different levels (individual and team) and the link between the two. Furthermore, they can pertain to the role of the project manager itself.

If project managers are aiming to improve individual learning, the advice is to incorporate variety into project team memberships, so that individuals are part of both intra-organizational and inter-organizational project teams, as opposed to belonging to just one type of project team (either internal or external). While being part of this work arrangement, employees have the opportunity to improve their abilities and master the tasks they perform, further contributing to their learning. A second suggestion builds on the positive effect of need for cognition on individual learning. Project managers can stimulate this need by assigning to project team members multiple complex tasks (Ojo, Raman & Chong, 2017) or consider job redesign such as empowerment or job enrichment (Wu, Parker & De Jong, 2014).

If the goal is to enhance learning at a project team level, project managers need to carefully balance the extent to which their members are simultaneously involved in both intra- and inter-organizational MPTMs (also see: Margolis, 2020). The highest level of external team learning will occur when employees have a high number of inter-organizational MPTMs and a low number of intra-organizational MPTMs.

To further strengthen the link between individual and team learning, project managers can improve knowledge sharing between project members and across project teams. Knowledge sharing technique that can be implemented are for example, motivating team members, and nurture a trust-based and safe culture in teams (Navimipour & Charband, 2016).

Also the role of the project manager itself is important (Sundqvist, 2019). In their role as brokers, project managers play an important role in connecting project members in efforts to facilitate cross-project learning. Also, project managers can benefit from the information that is provided by the project environment and find ways to apply this information to improve project and organizational performance so that lessons learned can be implemented (Chronéer & Backlund, 2015).

5.5. Limitations and directions for future research

Next to our study's contributions, it also has several limitations that need to be mentioned. First, due to the limited number of questions that can be asked in an online survey, a shortened version of the need for cognition scale was used that includes only five items. Long surveys can be problematic given that they are related to participant fatigue, lack of attention, and dropout (Rammstedt & Beierlein, 2014; Coelho et al., 2018). Our decision was informed by previous research indicating that shorter versions of the scale (NCS-6 with six items) highly correlate with longer versions of the scale (such as NCS-18 with 18 items) and that they also have good psychometric properties (Coelho et al., 2018). However, in our study, we identify that the reliability of the scale is slightly lower than the commonly accepted threshold of 0.7 (Bonett & Wright, 2015). This methodological limitation could be an alternative explanation for why the moderating effect of need for cognition on the relation between membership variety and learning holds only at average levels of the moderator variable and why H1(b) was only partially supported. Further studies could replicate the model we proposed while using a full version of the need for cognition scale as recently posited replications are important for the establishment of any scientific result identified (Antonakis, 2017).

A second limitation is related to the results found for H1(a) and H1(b). Overall, the results are robust, while controlling for gender, age, and education, and the R^2 coefficient indicates that the models explain 15.8% of the variation in the individual learning variable. However, some of the effects identified in the model are weak. MV has a weak association with individual learning. Model 4, in Table 3, where we include the interaction term between MV and NC, does not appear to improve in comparison to Model 3, where MV and NC are included without the interaction term. Hence, the results found for H1(a) and H1(b) need to be interpreted with caution.

Furthermore, two additional limitations are related to the data collection process. The field operators collected data in the organizations to which they had access, making the sample of the study a convenience sample. This has implications for the generalizability of the results and the possibility of sampling error, given that it is uncertain to what extent such samples are representative of the population of interest (Etikan et al., 2016). Second, the field operators knew the members of the project teams that participated in the study. This can lead to socially desirable answers. The researchers tried to minimize this bias, however, by sending the surveys via email and asking for only team identification rather than individual identification. The questions used did not necessarily include sensitive topics for the participants and hence were less likely to lead to socially desirable answers (Tourangeau & Yan, 2007). The researchers invite further studies to replicate and extend their findings while considering representative samples and different cultural contexts given that their study was conducted in a South African project management context.

Finally, due to practical considerations, the researchers were only able to include a limited number of variables in their research. Omitting relevant variables in connection to a particular research model can be a weakness given that it can alter the results of the model studied (Becker, 2005) and can hinder a generalized understanding of a phenomenon due to unobserved heterogeneity. The researchers make suggestions for variables that are useful to be included in future research.

Future research endeavors could, for example, consider leadership. There are indications that certain types of leadership empower team members, which would help them to deal more effectively with the negative effects of context switching and temporal misalignment, which is often found in multiple team contexts (see: Chen et al., 2018). A second possible fruitful avenue for future research regarding project characteristics is the inclusion of task/project complexity as a moderator variable. This concept has not been measured in the current study, although, given the sectors chosen, it can be concluded that the tasks to be performed were relatively complex. Especially from a managerial perspective, it is important to consider the complexity of the task. For example, a task design that is too complex, in combination with high levels of multiple project team membership, might be detrimental for team performance (see: Crawford et al., 2019). Research could look into an adequate level of complexity that does not hamper performance in the context of MPTM.

A third project characteristic that was not included in this research, but that is certainly worth considering, is project size. Although the study looks at unique projects, the possibility cannot be excluded that large projects consist of multiple project teams. This could introduce a bias in which respondents confuse the project and the project team level. Additional research could look into this matter. If a project indeed consists of multiple project teams, this would open up an additional and interesting research line in which the (network) relationships in and between the project teams involved in a project are studied. This work could benefit from studies on multi-team systems (Luciano et al., 2018).

Most studies on the relationship between project membership and individual and team performance are cross-sectional and look at short-term performance. One study with a longitudinal design (Van De Brake et al., 2017), however, shows that there is a positive relationship between multiple team membership and individual job performance. Future research could replicate this finding and try to extend it to the (project) team level.

Mortensen and Haas (2018) argue that the multiple team membership phenomenon is part of a broader trend towards increasing team fluidity, overlap, and dispersion. A similar argument, but at the organizational level, is maintained by Schreyögg and Sydow (2010). A fruitful avenue of future research might be to investigate the intensity of the commitment of team members to multiple projects and how this further relates to performance. In a more fluid world in terms of team composition, managing people in a project is at least different, possibly more complex. It would, therefore, be interesting to investigate the types of management approaches that are needed for such flexible project teams.

The project teams sampled for this study operated in sectors such as energy production, telecommunications, construction, transportation, and mineral processing. Although this already covers a broad range of sectors, one should always raise the question of generalizability. It is safe to state that the findings are especially relevant to project teams that engage in relatively complex tasks. Examples of such teams are new product development projects, creative projects, and projects dealing with grand challenges. These tasks demand non-routine problem-solving capacity and require the input diversity of intra- and inter-organizational project team knowledge.

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Appendix 1 Measures and operationalization

Concept	Questions	Scale used
Intra-organizational multiple project team membership	In the past six months, I have been involved extensively in .... project teams inside my organization (participation in projects in which only my organization was involved; there was no involvement from any external organizations).	NA
Inter-organizational multiple project team membership	In the past six months, I have been involved extensively in .... project teams outside my organization (participation in projects only outside the organization of which I am a member).	NA
Variety of team memberships	Teachman's index of variety (Teachman, 1980).	NA
Individual learning	Nine questions: To what extent do you agree with the following statements about your task in your project team? (1) There are a lot of new things to learn from the tasks I did in this team; (2) An important part of becoming a good team member is to continually improve work skills; (3) Making a tough decision is very satisfying; (4) It is important to me to learn from each of my project experiences; (5) I spend a great deal of time learning new work approaches; (6) I am always learning something new in my work; (7) Making mistakes is just part of the learning process; (8) Learning how to be a better team member is of fundamental importance to me; (9) Sometimes I put a great deal of effort into learning something new (Sujan et al., 1994).	7-point Likert scale 1 = strongly disagree to 7 = strongly agree
Team learning	Six questions: To what extent do you agree with the following statements about your project team? (1) In my team, people discuss ways to prevent and learn from mistakes; (2) We regularly take time to figure out ways to improve our work processes; (3) Problems and errors in our team are never communicated to the appropriate people so that corrective action can be taken*; (4) My team handles differences of opinion privately or offline, rather than publicly*; (5) In my team, someone always makes sure that we stop to reflect on our work processes; (6) People in my team often speak up to test assumptions about issues under discussion (Chan et al., 2003a). Five questions: To what extent do you agree with the following statements about your project team? (1) My team frequently coordinates with other teams to meet organizational objectives; (2) My team keeps others in the organization informed about what we plan and accomplish; (3) Team members go out and get all relevant work information they possibly can from others – such as customers, or other parts of organizations; (4) We invite people from outside the team to present information or have discussions with us; (5) We do not have time to communicate information about our team's work to others who are not in the team (Chan et al., 2003a).	7-point Likert scale 1 = strongly disagree to 7 = strongly agree
Need for cognition	Five questions: To what extent do you agree with the following statements about yourself when performing your tasks in your project team? (1) I like to have the responsibility of handling a situation that requires a lot of thinking; (2) I really enjoy a task that involves coming up with new solutions to problems; (3) I would prefer complex to simple problems; (4) I like tasks that require little thought once I've learned them; (5) Learning new ways to think doesn't excite me very much (Cacioppo et al., 1996).	5-point Likert scale: 1 = strongly disagree to 5 = strongly agree
Gender	What is your gender?	1 = female; 2 = male
Education separation	The standard deviation of team members' education levels	6-point Likert scale where 1 indicates a diploma and 6 is a PhD