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RESEARCH ARTICLE

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How is leadership cultivated between principal investigators and research team members? Evidence from funded research projects in the UK

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Abstract

This paper investigates leadership dynamics in research teams. It studies how principal investigators (PIs) and team members cultivate their relationship through the lens of leader-member exchange theory (LMX). Thirty-one in-depth interviews with both PIs and team members across 15 externally funded teams in the UK are analysed. The findings show that these relationships can be characterised along four influential dimensions: positional layer; informal layer; and the newly identified political layer and life domain. These layers show how PIs balance between formal and informal power structures, and, more broadly, how leadership dynamics go beyond the specific context in which a team is situated and members work. The notion *constructing working relationships* is proposed to stress on the need for both PIs and members to engage in a process of balancing potential tensions. Thus, the paper provides PIs with insights into the nature of leadership within a research team and recommendations regarding team design.

Abstraite

Cet article étudie la dynamique du leadership dans les équipes de recherche. Il étudie comment les IP et les membres de l'équipe cultivent leur relation à travers le prisme de la théorie de l'échange leader-membre (LMX). 31 entretiens

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approfondis avec des chercheurs principaux et des membres de l'équipe de 15 équipes financées de l'extérieur au Royaume-Uni sont analysés. Les résultats montrent que ces relations peuvent être caractérisées selon quatre dimensions influentes: couche positionnelle; couche informelle; et la couche politique et le domaine de la vie nouvellement identifiés. Ces couches montrent comment les IP équilibrent les structures de pouvoir formelles et informelles et, plus largement, comment la dynamique du leadership va au-delà du contexte spécifique dans lequel une équipe est située et les membres travaillent. La notion de construction de relations de travail est proposée pour souligner la nécessité pour les chercheurs principaux et les membres de s'engager dans un processus d'équilibrage des tensions potentielles. Ainsi, le document fournit aux chercheurs principaux un aperçu de la nature du leadership au sein d'une équipe de recherche et des recommandations concernant la conception de l'équipe.

1 | INTRODUCTION

As a knowledge-intensive line-up, a research team refers to a "group of researchers collaborating to produce scientific results, which are primarily communicated in the form of research articles" (Milojević, 2014, p. 3984). Scholars recognised a progressive shift to scientific teamwork in academia (Kyvik & Reymert, 2017; Smith, 2001; Vabø et al., 2016). This shift is justified by the increasing challenges in relation to research performance and access to research funds (Salazar et al., 2012). Effective leadership and communication are crucial factors to overcome these challenges for a successful research delivery (Mailhot et al., 2016; Van Ameijde et al., 2009). However, most of the research on leadership in higher education seems to be focused at the organisational level (Gosling et al., 2009; Santamaría & Santamaría, 2015) and on the experiences of senior HE leaders (Bolden et al., 2008; Lumby, 2019; Smith & Wolverton, 2010). There is limited research investigating the micro-level of leadership dynamics within academic research teams.

Existing studies agree that leadership is crucial when considering groups' research quality, performance, and impact (Goodall & Bäker, 2015; Kyvik & Reymert, 2017; Vabø et al., 2016). However, leadership dynamics characterising the life of these teams are underexplored. Degn et al. (2018) studied some high performing teams investigating these teams as communities-of-practice, with a strong commitment to a shared vision and a continuous engagement in peer learning and support. But how does leadership unfold in research groups; and how do formal leaders enable group members to grow and perform?

This paper investigates the questions above by drawing on leader-member exchange theory (LMX). LMX was first theorised by Dansereau et al. (1975) under the name of vertical dyad linkage and then conceptually revised (Graen & Schiemann, 2013; Graen & Uhl-Bien, 1995). LMX theory is typically applied on small group formations and aims at understanding the quality of the relationship between a designed leader and each one of the followers (defined as "members"). Thus, it can be defined as a customised and personalised leadership approach where it appreciates the importance of communication and the uniqueness of the involved parties. According to Graen

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and Uhl-Bien (1995), effective leaders carefully cultivate the relationship with each one of the team members considering followers' characteristics. Such characteristics are not only limited to personality and inclinations; but go beyond to include the followers' priorities and past experiences. In this case, followers are not passive; they actively shape the relationship and reciprocate the leader's behaviours.

The importance of customised leadership approaches when studying research teams is evident. First, social capital and network ties are increasingly important through an academic career for further collaboration between researchers (Kwon & Adler, 2014). Relationships developed in research teams are usually not limited to a certain research project or period. Second, LMX theory drives our attention to the importance of communication within research teams. Where each member of the research team is likely to be an expert in his or her field of research, the principal investigator (PI) tries to implicitly adopt a personalised approach to enhance his or her performance (Le Blanc & González-Romá, 2012). The PI can recognize the member's research passion through developing a unique relationship with each one of the team members. If these passions are identified by the PI, a transformative collaboration can result between team members as well (Yukl, 2008). The importance of this supportive working environment is important due to increasing tensions to meet deadlines set by the funding party and tensions to attract other research grants.

Empirically, this paper investigates disciplinary teams within externally funded research projects. Through the voices of both PIs and team members of 15 teams located across a wide spectrum of universities in the UK, this paper explores how the individualised relationship between the PI and each team member is conceptualised. This investigation will allow scholars and researchers to appreciate the importance of communication, informality, and politics within a research team. Therefore, this paper builds on Takala and Keskinen's (2014) claim for the need of a "tailor made approach" to build an effective relation between an employer and an employee in a university context. Also, it contributes to HE literature by looking into the "small structure" of universities, as envisaged by Townsend et al. (2015, p. 672). It justifies the usefulness of relational leadership approaches to understand, illuminate and develop leadership practices in HE.

This paper will proceed as follows. First, the literature on research teams and the contribution of leadership theory are reviewed. The method section follows which includes data collection and analysis process. Subsequently, findings are presented and discussed. The conclusion presents recommendations and future research suggestions.

2 | LITERATURE REVIEW

A cultural and structural shift has influenced the rise of studies of leadership in the HE sector in the UK. This shift was manifested through how universities were run since the 1980s (Middlehurst et al., 2009). Highlighted through the policy level within the Jarratt Report, administrative processes were transferred into executive management (Jarratt, 1985). Since then, the term "leader academic" increasingly emerged in the field of research (Gronn, 1999). The majority of research on leadership within the HE sector focused on the individual perspective of senior leaders (Lumby, 2019). In brief, competent HE leaders were found to engage others in research/teaching and enhance the reputation of the department (Jones & Harvey, 2017). Our study goes beyond this scope to explore how micro processes are unpacked in HE's "small structure" (Townsend et al., 2015, p. 672), i.e., leadership dynamics in research teams.

The study of research teams typically draws on shared and distributed leadership approaches. These two concepts are often used interchangeably to indicate that leadership can be shared by different members, based on the fact that the key expertise to accomplish a project is also distributed across more people. Particularly, it is stressed how distributed leadership can strengthen collaboration between academia and other sectors (Mailhot et al., 2016), and how shared authentic leadership can enhance career choices and mutual perception for autonomy (Guenter et al., 2017). Leadership can also be seen as a phenomenon which goes beyond formal roles, and it can even shift

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when working on a specific activity (Meschitti, 2019). Yet, there is limited research exploring leadership practices and challenges within formal research teams (Salazar et al., 2012). The appreciation of the diversity characterising researchers, in terms of both personal background and expertise level, is overlooked as well. We argue that a customised leadership approach, recognising the diversity and unique competencies in research teams, can enhance our understanding of team dynamics and members' motivation in a way other approaches to leadership cannot.

LMX theory, with its focus on the development of the relationship between the leader and follower, recognises that leadership dynamics are continually evolving and shaped by parties involved. This evolution is manifested through a negotiation process, unfolding throughout the daily life of a team. According to LMX theory, the relationships between the leader and members are categorised into a high and low-quality relationships (Graen & Uhl-Bien, 1995; Maslyn & Uhl-Bien, 2005). "High-quality—in groups" relationships are characterised by high respect and trust; trust is recognised as a particularly important factor when developing the relationship (Brower et al., 2000; Kelley & Bisel, 2014; Scandura & Pellegrini, 2008). In addition, high-quality relationships are characterised by the mutual expectation of a fruitful exchange. The leader especially takes care of providing the member with effective feedback and appealing activities. In this case, the member will positively respond to the feedback and show initiative. This feeds a virtual cycle where the relationship is strengthened. In line with previous literature, this cycle will positively impact individual motivation and job satisfaction (Pauli et al., 2018), performance (Gerstner & Day, 1997; Martin et al., 2016), and organisational commitment (Rashid et al., 2018; Settoon et al., 1996). We argue that a dyad does not necessarily need to share the same personality and values; however, complementarity is more important and desired. This approach can potentially unpack certain micro processes within research teams.

Following Rowe and Guerrero (2012), relationships develop along three steps: a stranger, an acquaintance, and a partnership phase; where high- and low-quality relationships consolidate. It is worth noting that this approach assumes that relationships always start from a stranger phase. Also, initially the process underlying the development of these relationships was mainly studied by means of quantitative methodologies; however, it has been noted that context-free studies potentially led to an unclear mechanism regarding the development of working relationships (Sparrowe, 2020). Thus, qualitative research has re-emerged in the 2010 decade, suggesting the increasing importance of narrative storylines and social interactions to reconceptualise relational leadership approaches (Sheer, 2015). Our paper develops the post-2010 line of research to provide an in-depth understanding of the relational underpinnings of working relationships within research relationships. It especially focuses on the role of team members and the associated contextual factors within funded research projects in the HE sector.

What makes LMX theory well-suited at advancing the debate on leadership in research teams, compared to other relational approaches, is the increased diversity at the workplace and the need for customised relational and behavioural approaches (Brown et al., 2019). LMX theory has the advantage to bring a strong focus on the relation between the designated team leader and each member (and how this is cultivated by both). It considers that leaders and members are part of a more complex network where factors such as identity and diversity come into the foreground. This theoretical approach appreciates the role of both formal and informal relationships and recognises the wider context in which such relationships are situated. Thus, we aim to comprehend leadership as a fluid process yet developing across more stable structures as an attempt to recognise the importance of individuals' identities, priorities, and communication styles.

3 | METHODOLOGY

This research addresses its objectives through an interpretive paradigm. This is the best suited to consider contextual factors and their implications on the relationship between the PI and research members. Academic research projects included in this research are those funded in the universities from the UK government, EU, and UK charities. They range from GBP 40,000 to GBP 7,000,000 in value and were launched and completed between 2000 and 2017. To reflect the chosen population, a stratified purposive double snowball method was followed. The stratification of this sample refers to the division of disciplinary research teams in the HE Sector into different fields of research, including:

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- Arts and Humanities
- Medical and Health Sciences
- Business and Social Sciences
- Engineering
- Mathematics and Physical Sciences
- Environmental Sciences

The sample is composed of 31 participants, both PIs (N17) and research team members (N14), across 15 universities in the UK. PIs include professors, readers, and senior lecturers. Team members include research assistants, research fellows, and research associates. The typical team size was 6 people; however, it should be noted there are three teams with more than 20 members (this being teams relying on a considerable funding from EPSRC or from the European Union). Gender differences were noted within the population sample. The vast majority of the PIs were men (82%), whereas the majority of team members were women (64%). This confirms research arguing that leadership, within the HE context, is a gendered phenomenon (Read & Kehm, 2016).

Semi-structured interviews were conducted with all the participants. Interviews lasted between 45 and 75 min. Interview questions were designed to operationalize specific dimensions (such as informal relationships, workplace politics, and power) in terms of the participants' understanding of the nature of the relationships within a research team setting. In particular, questions explored how PIs and team members understand and cultivate informal relationships in the work context; the importance attached to competency; and their evaluation behind the rejection or acceptance of a customised leadership approach.

A thematic analysis, using a template approach, was applied. This is based on a coding system, divided into two parts: participant coding and data coding. Regarding participants' coding, the name of the university, the participant's position within the team, and participant order are used to refer to the research participants. Concerning data coding, codes were used to refer to a certain set of concepts within a framework of a broad theme.

3.1 | Data analysis

The epistemological position of template analysis, as an analytical tool, aligns with the epistemological position of the study. Where a social constructionist approach through a interpretivist epistemology guides this paper, the template analytical tool manages the collected data and draws upon an existing theoretical lens (King & Brooks, 2016). Before an in-depth exploration of the interview transcripts, an initial template (primary coding template) was designed. The primary template included four a priori themes, inspired by the theoretical background. These themes are competency, trust, informal relationships, and fairness. The expected scope of each of these themes, reflecting the conceptual framework, is included in Table 1.

Throughout the first stage of coding, 2 rounds of coding were organised. Through the first round, coding was based on the following question:

- What is the participant talking about at this point in the transcript?

This step, which is also referred to as descriptive approach to data (Watts, 2014) allows to relate the data to the themes on the conceptual framework depicted in Table 1. Through the second round of coding at the first stage, coding was based on the following question;

- How is this issue talked about here?

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TABLE 1 The 4 top-level themes, at this stage of analysis, and the expected scope of each theme (first coding template)

A priori theme (conceptual framework)	Defining the expected scope of the theme
Competency	• A set of differences between soft skills and hard skills and their hierarchical perceptions according to the research team leader and member. This may include the associated link to autonomy within these teams • The understanding of the research participants of behavioural customisation approach. Besides, these subthemes are more likely to include the participants' perceptions of the leader's customised behaviours as positive or a negative influence on the team dynamics within the research setting
Informal relationships	• The understanding of informal relationships in the work context • Positive (as a need or a desire) and negative facets of informal relationships in a research team setting context • An in-depth understanding of good working relationships in a research team setting including the antecedents/outcomes of these good working relationships between team members and leaders
Trust	• The research participants' understanding of trust in research teams ranging from an implicit construct to an explicit construct. These subthemes are more likely to highlight the nature of trust as an earned/built construct • The antecedents of trust within research teams • The outcomes associated with trust in the research team setting. These outcomes are more likely to include an influence on the team dynamics, the member's sense of responsibility, and performance
Fairness	• The antecedents accompanied with the team member's inequality perceptions in research teams including; engagement in the decision-making process, task delegation, resource allocation, and manifestation of power • Solutions for inequality perceptions resulting from the leader's behaviours and members' perceptions. Such solutions may be linked to communication and ethical approach of team leaders

The second step, also referred to as "the use of as structure" (Watts, 2014, p. 6), allows digging into how specific themes are talked about and experienced by research participants. This is an interpretive process, which aims at progressively building codes from the data. Six subsequent rounds of coding allowed merging the codes into broader dimensions. In summary, 5 top-level themes were identified including power, informal relationships, behavioural customisation, political empowerment, and trust. The template was subjected to modifications and revisions to merge the collected data from both perspectives, the PIs and research team members.

Table 2 demonstrates four main areas where leadership dynamics occur in a research team. These are called *influential layers*. They uniquely characterise each relationship by being present to different extents. We suggest that the fourth identified layer, life domain, creates a set of implications for the three generated influential layers. This is justified through the implications of the "life domain" within academic research teams. These include experiences, power, friendships, desires, ethics, perceptions, and expectations.

4 | FINDINGS

4.1 | Positional layer: Unpacking the power structure

The positional layer is related to the power structure in the team, encompassing both formal and informal aspects. PIs possessed the right to delegate tasks throughout the research project. Such authority impacts the dynamics

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TABLE 2 Four emerging influential layers, where leadership dynamics occur in research teams, through the analytical stage

Positional power	Team informality	Political empowerment	Life domain
Hierarchical HE structure	Work-place friendships	Work allocation	Autonomy
Misuse of authority	Motive for communication	Prestigious funding contracts	Work-life balance
Seniority level	Openness to diversity	Link to the external environment	Well-being

with the team setting where team members perceive such actions by the team leader differently. According to PIs, members' inequality perceptions can be a result of a negative manifestation of power. Such manifestation does not only correspond to the leaders' power, but also to the team members' power through the seniority level of these members. In this regard, professor IP9 states:

> IP9: There are people who turn out to be senior, but they do not do anything, and do not contribute. They want to maintain their name in the project, and that affects everybody in the team, that other person is going to take credit for it without putting anything in. That is really frustrating how they are using such power. These issues can demoralise the team.

This is a positional influential layer where the leader-member relationship is not limited to the assigned positions within the research team; however, working relationships go beyond and include the level of seniority and personalities of members and its implications on the dynamics within the research team. Thus, the positional layer is related to power, where power is defined as "the capacity or ability to change the beliefs, attitudes, or behaviours of other" (Levi & Askay, 2017, p. 156). Power was implicitly manifested through a set of incidents such as seniority levels and members' demoralisation. In a research team, there are some underlying power relationships which might go beyond the formal roles covered for a specific project. They are related to the notion of academic seniority. Academic seniority is linked to the individual's own career and other positions on one side; in addition to the new hierarchy formed in the team on the other. A manifestation would represent a PI who is less senior than other team members. Where the positional layer is manifested through the stranger phase, potential conflict associated with team hierarchy and academic seniority mismatch would more likely exist.

The concept of interdependence emerged when power issues were explored in teams or organisational settings. Franz (1998) argued that interdependence enhances team performance by altering the team members' level of power over each other. For instance, the level of power these members have over the team is increased through the interdependency of tasks. In that sense, unequal levels of power among team members negatively influence communication and trust within the team setting. Table 3 represents the final coding template reflecting the positional layer where the "as structure" was adopted.

4.2 | Informal layer: Cultivating trust and friendship

To develop an understanding of informal aspects of working relationships in research teams, this research explores the concept of friendship to highlight some overlooked influential dimensions. Participants' experiences of friendships, throughout their career in research teams, shape their understanding of this construct manifested through mutual respect, affection, genuineness, trust, personalities, and cultural understanding. In this respect, BP6 and BM30 consider;

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TABLE 3 The final coding template reflecting the positional layer where the "as structure" was adopted

Power—As a top-level theme demonstrating the positional layer
1. As a manifestation
1.1. Reciprocal Behaviour
1.1.1. As linked to the leader's input
1.2. As linked to personality traits
1.2.1. Leader's personality
1.2.2. Members' personality
1.3. As linked to effort appreciation
1.4. As linked to seniority level
1.5. As linked to leader's authority
1.6. As linked to decision making
2. As outcomes
2.1. As linked to the hierarchical structure
2.2. As an influence on career development

> BP6: Friendship is something genuine I can easily link it to having same sense of humour for example. I have close colleagues which I may not call them friends, but they are people that I have tremendous respect and affection for.

> BM30: In Portugal, there is a huge pressure as an academic to be friends with your colleagues. Here in the UK, it is different. You can form friendships but there is no pressure to do so. There is some socializing that is kind of expected of you.

We found that friendship in the work setting is a state a member cannot fully control, but still, it might be strategically used to manage difficult conversations. These moments outside a strict task-oriented setting will give a team member a deeper appreciation of other members and the PI. If there are no friendships, a member can feel the tension within the group. Throughout the relationship between the dyad, they will discover more about their personalities and motivating factors. In this case, a working relationship is developed where empathy is present. This friendship is based on professional respect and affection. These members are supposed to spend more time outside work voluntarily in addition to the work done together. However, it is more likely that the person will keep personal problems to oneself rather than sharing them with the other party. Therefore, friendship in the work-context is a construct which is neither supportive of acquaintances in the team nor of friends as understood in everyday life, but somewhere in between that is not controlled strategically. Therefore, the informal layer of relationships creates crucial implications on the dynamics within an academic research team. These implications include avoiding extreme perceptions, facilitating communication channels, and personnel development.

Through our research, we conclude that highlighting and potentially enhancing the informal aspect in research teams would facilitate the communication channels. Once these communication channels are facilitated, the team will benefit from the diverse asset of researchers in terms of personalities, research competencies, cultural background. A PI is supposed to stay in touch with team members to facilitate communication channels between them. According to LM20;

> LM20: We need people who you can trust that they care for how we perceive things but in my case, I did not have access to them.

The team's communication may not be limited to work; however, it might go beyond to include various aspects on the personal and career development levels which are appreciated by team members. In this case, emerging conflicts

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TABLE 4 The final coding template reflecting the informal layer where the "as structure" was adopted

Informal relationships—As a top-level theme demonstrating the informal layer
1. Friendships in the work context
1.1. As a construct between affection and professional respect
1.2. As a genuine process
1.3. As a by-product in the work context
1.4. As a source of trust
1.5. As an enhancement of the psychological well-being
1.6. As a motivational approach
1.7. As a political support
1.8. As an enhancement of team dynamics
1.9. As a motive for communication
2. Good working relationships
2.1. As based on cultural assumptions
2.2. As a motivational approach
2.3. As a source of respect

and extreme perceptions are more likely be resolved. Relevant advice can be immediately given in regard to any negative perceptions related to behaviours and diversity. Table 4 represents the final coding template reflecting the informal layer where the "as structure" was adopted.

4.3 | Political layer: Weaving strategic partnerships

The political layer relates to the empowerment given by different factors, which might ultimately bring to an increased chance of success when pitching for funds: prestigious contracts, networks, and good working relationships. However, this layer might also bring to a perception of unfairness. According to LP7 and SP15;

> LP7: If the presence of some people will get an additional of £50,000 towards the grant, then it will does not matter if they will not do a huge amount of the work. In that respect we will involve people like that. If I get £80,000 more, I will put this member on.

> SP15: There could be some political support for collaborative reasons so their contribution will not be in terms of problem solving. Their support will be about providing a political dimension. Medical people could be there although we are not medically related things but in the long term we need them because we aim to transfer the technology into the medical domain.

The idea of a political aspect of research working relationships has emerged after the frequent use of a set of expressions by participants. These expressions include "to be empowered politically", "to have that political base", "using the prestigious reputation", and "to be linked to the industry". Thus, political empowerment is a concept that can bridge a gap between the team setting and the relevant environment. The relevant environment is more likely based on the field of research. For instance, in the field of Applied Sciences, a team may be willing to advertise or sell a scientific idea to the industrial market. This advertising process may require what PIs referred to as a political base. Often, the presence of a team leader with a good reputation can provide political support for applying for funding. This aspect of political empowerment is more likely applied to various academic fields of research. Willis (2019) highlighted the term PR "Public Relation" leaders and practitioners and the associated importance of their contextual intelligence. In the case of the investigated research teams, the concept of PR leadership better applies to how industry connections and prestigious funding proposals are dealt with. These two aspects were mentioned by the research participants as pragmatic plans to "get things done".

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TABLE 5 The final coding template reflecting the political layer where the "as structure" was adopted

Political empowerment—As a top-level theme demonstrating the political layer
1. As an effect on team dynamics
2. As based on reputation
3. As linked to social pressures
4. As linked to a prestigious contract
5. As linked to additional funding
6. As linked to delegation of tasks

The political layer influences such relationships through implicit power notions, but still linked with the mission of developing a supportive environment. In terms of work allocation in some research teams, NM26 explored existing situations through this angle;

> NM26: I will never argue against a PI allocating tasks where he invests minimal time in the project, he got the money. But when he takes the lion share for success rather than the lion share for challenges, the dynamic is disrupted in a way or another.

Regarding work allocation, previous research highlighted the term "marginality". Shipton and McAuley (1993) defined the term powerful marginality as people operating at the board levels and more likely not concerned with the day-to-day tasks. We could define powerful marginality as a by-product of political empowerment. Our research highlights that team dynamics could be disrupted by powerful marginality. In this case, a team member would be cultivating the relationships with external partners and developing routines to approach problems. However, these members feel constraints and tensions in board meetings for example. Personnel having the authority to make decisions may not have the pragmatic understanding about possible implications of their proposed ideas; however, their opinion is most valuable backed up with their image, reputation, and status. Early career academics may feel this kind of constraint. Table 5 demonstrates the political layer where the "as structure" was adopted.

4.4 | Life-domain layer: Balancing different needs

In this paper, life domain is a concept which includes autonomy, work life balance, and well-being and recognises that people are active in different spheres. This influential layer is linked to individual assumptions and experiences related to work-life balance, desires, and perceptions. In addition, it influences the other 3 identified layers. For instance, this layer allows appreciating the diversity in the perception of the working relationship in research teams. This last point can be referred to as a *perception-quality gap*. This gap addresses potential mismatches in how the quality of the relationship is perceived by the involved parties. This paper proposes a new way of thinking about this gap. In that sense, when the leader appreciates the diverse aspects of the team and the members perceive the PI's appreciation approach, a complementary perception-expectation platform is constructed between the two parties. In return, communication channels are facilitated, and the PI can predict and evaluate the extent of serious gaps between reality and perceptions of working relationships in the team. Regarding professors HP1 and SP15:

> HP1: I make it clear from the beginning where team members have latitude and where they cannot.

> SP15: Communication and transparency should be present. There should be at least one person who has this skill to communicate. Juniors could be mentally stressed and overwhelmed if expectations are not met.

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These statements show that communication is paramount to address the perception-quality gap; however, it is known that effective communications might be consuming in terms of time and energies. Thus, it is probably no surprise that the perception-quality gap was related not only to communication, but also to work-life balance issues. Thus, quality of working relationships and work-life balance of the involved academics recursively influence each other "and reflected by the life-domain layer". LM20 and BM24 stated:

> LM20: You want to manage your stress when you work in a research team for a work-life balance or else you will carry your problems to your place.

> BM24: Tensions will occur when a PI is involved on more than one project, so he just does things to fulfil the requirements without caring about the well-being of others, we have our life.

These two quotes highlight the importance of time and stress management. Taking work problems to the family setting is undesirable. Work-life balance can be considered a core management problem in most sectors, and it is highly important in research teams. Many academics are part of more than one research project. As a result, how leadership is approached in a team will have implications on the work-life balance of the team members and even beyond. For instance, a specific PI leadership practice, such as responsiveness and facilitating communication channels, can manage the levels of stress within the team and have positive implications beyond the research team as well. The quality of relationships is hardly predictable; however, there are some possible ways ahead. It is worth reminding that leadership is relational and quality evaluation is a work-in-progress. Considering that both communications and work-life balance impact the relationship quality, leaders should be aware of the two *influential sub-layers* and constantly work on them. Thus, research relationships quality is a matter of *constructing working relationships*, which is an ongoing communicative process, influenced by and influencing work-life balance; ultimately helping to deal with the tensions characterising project work (tensions related to power, funding, and time).

The life-domain layer enlightens a need for a knowledgeable person with the ability to communicate, thus able to complement between reality and perceptions of interactions and social exchanges (a non-restricted role for the leader). Finally, this layer positions autonomy as a desired approach for researchers. Where the participants' understanding of autonomy is mainly linked to the nature of academia, they believe that research duties contribute to the perceived pressure by academics to be autonomous as well. Thus, well-being and work-life balance are more likely managed through an autonomous approach to research.

4.5 | Relational development of leader-member interactions—An emerging finding

As an emerging finding and based on top-level themes (power, informal relationships, behavioural customisation, political empowerment, and trust), we propose to define the relation between leader and members in a research team along the four non-hierarchical influential layers depicted above (Positional, Informal, Political, and Life domain). This four-layer conceptualisation aligns with the relational development of the LMX process depicted through the literature review section. For instance, some aspects of the positional layer can be more likely manifested during the stranger phase. Positional and informal layers occur more often in the acquaintance phase, where team members are aiming to achieve a high-quality relationship with the team leader. Greater aspects of the informal and political layers are expected to occur in the partnership phase. Regarding the life-domain, this study considers that this layer influences the stranger, acquaintance, and partnership phases of LMX development, based on individual assumptions and experiences related to work-life balance, desires, and perceptions. In relation to the development phases, this research indicates that the phases are part of a cyclic process (as opposed to a linear one) where each phase has not a clear start and an end, but it tends to be blurred. This is also consistent with our idea of *constructing working relationships*.

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5 | DISCUSSION

This paper initially drew on Townsend et al. (2015) to argue that research on HE misses an angle associated with the "small structure" (i.e., leadership dynamics in research teams). Previous research referred to academics and researchers as entrepreneurs and highlighted the beneficial impact of research teams on the regional economy (Takala & Keskinen, 2014). Therefore, this small structure could further develop into research centres and institutes and enhance the surrounding environment, i.e., university. Exploring research working relationships within research teams demonstrates how this missing small structure unfolds.

This study highlighted the importance of communication and implementation of relational leadership approaches within research team as an attempt to unfold hidden dynamics and micro processes. The political layer represents one of the contributions of this study and demonstrates a relationship between the research team and industry. For instance, Swart (2011, p. 320) argues about the importance to enact knowledge highlighting the need of the "inter-relationship between knowledge and its context". Spencer (1983, p. 124) states that "the perceived fact of marginality can be seen as a source of power in the organization". Thus, our research explored powerful marginality as an approach were some team members (PIs or members) are not greatly involved in the nitty-gritty of the research, but establish the bridge between the team and the environment. Therefore, powerful marginality could be referred to as a cycle initiated from applying for funds to the team design and task allocation, decision -making process, and sharing credits for success and failure.

This study proposes that low-positional power individuals in the research team can less likely influence PI's perception. This would be perceived as abusive-like leadership and inequality practices by these members (Dwertmann et al., 2016). In turn, psychological distress and work-life issues will emerge (Tepper, 2000). These aspects were demonstrated through the life-domain layer. Therefore, PIs need to consider their perceptions in order to maintain a supportive working environment for a successful research delivery. As a result, the positional and life-domain layers are a critical contribution to the literature on research team's dynamics.

5.1 | Research and policy implications and recommendations

The findings allow making recommendations to researchers who study teams and work in teams (PIs especially). The paper stresses on the dynamics between formal and informal power structures, which include relationships going beyond a specific team. It also recognises the role of well-being and work-life balance, issues which are often overlooked in literature on research teams. Thus, this paper well highlights the complexities of project work where research teams are always part of broader networks.

This study recommends research team members, and early career academics in particular, to process negative events occurring in the workplace. Processing of negative events was referred to as diluting extreme perceptions throughout this research study. For example, being aware of political empowerment aspects may further justify work allocation and delegation processes. Processing negative events before reacting enables team members to recognise the whole situation and the factors contributing to these situations.

The adopted relational approach, through our study, challenges both members and leaders to create a supportive atmosphere, which enhances the dynamics within the team. It should be noted that a successful team does not only require a group of well-balanced and competent members; it also requires a group of relatively competent members who complement one another in terms of personal uniqueness and job competencies. In that sense, motivating team members is not limited to the fund-loss threat; it goes beyond to consider human and unique competency levels. This line of thought proposes a novel way to think about leadership practices within research teams. HE leaders' empathy and sensitivity could be further developed considering the dramatic change of the work-life balance of academics. For instance, work-life balance is greatly desired in the workplace, with academia making no exception (Sang et al., 2015). Our research finding helps academics in research teams to reflect

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on their leadership experience, and PIs to possibly adjust their practices to minimise the gap between perception and reality of working relationships within this HE's small structure. Thus, we proposed the idea of *constructing working relationships*. Therefore, this paper fills the underexplored gaps in the literature regarding further tensions (such as political empowerment), in the HE Sector and the applicability of the *influential four layers* affecting the research team design.

6 | CONCLUSION

This paper conceptualises leadership dynamics in research teams along four non-hierarchical influential layers; positional, political, informal, and life-domain. The life-domain layer implicitly influences the other three generated layers. This paper goes beyond previous research in order to explore how team members perceive the PI's practices and the role their needs play in forming such perceptions. The use of LMX as a theoretical background fosters the study of leadership dynamics. It makes researchers aware of the importance of simultaneously looking at how the PI and the members cultivate their relationship, both *in a specific team-context* and *in a broader network of relationships*. This study demonstrated that relationships within a team develop beyond a mere high versus low quality categorisation, and that the facilitation of communication channels between leader and members is paramount for successful research delivery. Thus, it highlighted a potential new set of vocabulary to refer to working relationships including the notion of *constructing working relationships*. The word *constructing* foregrounds implicit thoughts about intentions, perceptions, and expectations.

Research limitations were associated with the research design. The cross-sectional approach made more difficult to establish the dynamic factors that may influence developing working relationships between the PI and research team members (these factors include the maturity, experience, and members' expectation fulfilment). Where our study only included disciplinary research teams, future research could explore interdisciplinary research teams due to the increasing importance of interdisciplinarity for the academy's career success and university's reputation (Townsend et al., 2015). These teams could further manifest an emerging impact of research.

CONFLICT OF INTEREST

No conflict of interest to be declared.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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