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The Relationship Between Managers' Emotional Intelligence and Project Management Decisions

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Abstract: Today, effective project management goes beyond technical skills, incorporating an emotional dimension that plays a crucial role in the success and dynamics of teams. Emotional intelligence (EI), which refers to the ability to control emotions—both one's own and those of others—has become essential for good performance in work environments, often surpassing technical skills. This study aims to explore the relationship between managers' emotional intelligence and decision-making in the context of project management. This research was based on an extensive literature review, followed by multiple interviews with project managers. Using semi-structured interviews, it was possible to identify how EI positively influences decision-making and project success. Managers with high levels of EI are more effective in decision-making, communication, conflict resolution, and leadership, resulting in more cohesive and productive teams. EI is a critical factor for success in project management in companies with the same characteristics as this one, providing a collaborative and effective working environment. The results might clearly assess the current state of the relationship between EI in the context of project management and consequent decisions leading to the project's success.

Keywords: emotional intelligence; project management; project management decisions; project success

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1. Introduction

Today, effective project management (PM) is not just about technical skills; it also incorporates an emotional dimension that plays a decisive role in the success and dynamics of teams (Castro et al. 2022). Over the years, the "human side" of PM has gained great importance and is one of the critical factors for success in PM (Clarke 2010c). In this way, dealing with the human side, managing logical thoughts, and guiding one's own actions (as well as those of others) to achieve goals are part of the concept of Emotional Intelligence (EI) formulated by Salovey and Mayer (1990).

The evolving dynamics of contemporary society underscore the importance of integrating EI to enhance individual capabilities. This integration fosters improved understanding and development at both the personal and organizational levels. In this way, EI plays a crucial role in personal development (Goleman 2006).

PM decisions are becoming increasingly important, and organizations that invest in this area can achieve competitive advantages in the current competitive scenario. In this context, PM can play a strategic role in the organizational decision-making process, making it more competitive as it develops differentiating skills and competencies in relation to its competitors (Verzuh 2000).

The impetus for this study stems from the increasing complexity of projects, the acknowledged significance of EI in the success of managers and organizations, the paucity

of research within the field of PM, and the practical relevance of PM practices. Additionally, it is proposed to add empirical evidence to the literature, allowing for an analysis of the effective relationship between EI and the decisions made throughout the project life cycle. The main objective is to explore the relationship between managers' EI and decision-making in PM, aiming to answer the following research question: (i) what influence does EI have on PM results?

To achieve this study's objective, a research model was developed to analyze the effects of EI on project outcomes, examining the interconnections among these variables. Qualitative research was conducted through interviews with professionals in the field of PM. According to the literature, there are several appropriate scales for measuring EI through questionnaires, which can also be adapted for interviews. According to Tapia (2001), there are numerous measurement scales that help assess the influence of EI on people's daily lives, and the context of the study can be decisive in the choice of scale. Throughout the literature, it has become clear that there are several validated scales capable of measuring EI, with some having a more significant influence than others (Petrides 2010).

This study has the potential to make a significant contribution to the field of PM, and to enhance management practices across various organizations, representing an innovative aspect. The primary contribution lies in providing a practical understanding of the application of EI techniques in PM, addressing a gap that has yet to be empirically explored. This absence in the literature emphasizes the innovative nature of this research, which seeks not only to understand the current theoretical state but also to carry out a case-by-case comparative analysis between theory and observed practices. This unique approach positions this research as a milestone in the practical understanding of emotional PM, offering contributions and improved practices for managers and organizations at the same organizational level.

This paper is organized in six different sections: The Section 1 sets the introduction to the main topic under investigation. The Section 2 aims to explore the theoretical framework, namely, regarding emotional intelligence, PM, decisions, and their relationships. The Section 3 explores the materials and methods, assessing the scales to measure EI, defining the sample, and presenting the data processing techniques. Section 4 is focused on the data analysis per se, while the discussion is presented in Section 5. Finally, Section 6 is focused on drawing conclusions.

2. Theoretical Framework

2.1. Emotional Intelligence

The term EI was first used by the psychologists Salovey and Mayer (1990), who defined it as the ability to monitor one's own and others' feelings and emotions to distinguish between them, and to use this information to guide thought and action. It became known worldwide after the publication of Daniel Goleman's book (2012), first published in 1995. EI involves the evaluation and expression of emotions, emotional regulation, and the use of emotional content in conflict resolution (Bueno and Primi 2003). It represents integrated intelligence, uniting emotions and thought, and includes the ability to identify one's own emotions as well as those of others to effectively guide relationships (Mayer et al. 2000; El Khatib et al. 2021).

Emotional intelligence involves the regulation and management of one's own emotions, as well as those of others, to achieve desired outcomes. In a professional setting, project members operate within an organizational context, where they interact daily with various stakeholders, including colleagues, suppliers, clients, and managers. To this end, it is essential to resort to one's EI to succeed in this role (Goleman 2006; Rahul 2024). Zhang and Hao (2022a) revealed a positive relationship between a project manager's EI and team effectiveness, emphasizing the importance of EI in achieving project objectives. The concept of EI is well understood by project managers according to other studies, due to the popularity of Daniel Goleman's work, where EI is widely recognized and appreciated (Zhang and Hao 2022a; Watanabe et al. 2024).

EI plays a crucial role in PM, directly influencing the success and overall performance of projects. Studies (Barry and du Plessis 2007; Goleman 2006; Lindebaum and Cassell 2012; Mazur et al. 2014; Müller and Turner 2010a; Obradovic et al. 2013; Sunindijo et al. 2007; Zhang et al. 2013, 2018; Zhang and Fan 2013) have already presented models associating EI with project success, exploring the mediating effects of job satisfaction and project managers' confidence in this relationship, aiming toward a more conceptual investigation, while a gap remains regarding empirical evidence of the presented relation. From the same perspective as the view presented in these studies, Lima (2015) also argues that the concept of EI is increasingly relevant in the context of PM, giving the behavioral aspects of the manager a key role in the decision-making process when carrying out PM activities, and widely recognizing this role both in organizations and in the scientific community.

2.2. Project Management

Organizations have transitioned from a hierarchical approach to PM to a more collaborative one, especially as knowledge work gains relevance. The need for flexibility in PM is becoming essential for project managers, allowing them to continually adjust to emerging challenges and opportunities (Fernandez and Fernandez 2016). According to Roldão (2010), from the mobilization of technical and human resources, PM is the whole process of planning, executing, and controlling a project, from start to finish, considering the scope, time, cost, and expected quality associated with the result or product. The Project Management Institute (PMI 2013) states that project managers need to balance technical and interpersonal skills to analyze and interact effectively in different situations.

The performance of a project is intrinsically linked to its management and execution. Over the years, extensive experience across various scenarios, contexts, projects, and environments has highlighted the key competencies of a project manager that enhance efficiency and effectiveness: (i) understanding the behavioral characteristics of all those involved in the project, (ii) leading and influencing others, (iii) having authentic and impartial behavior, and (iv) managing conflicts fairly (Zuo et al. 2018; Watanabe et al. 2024). It is necessary to find a balance and ensure that no team member feels excluded when faced with a decision. This relationship emphasizes the importance that a project manager, in addition to management skills and good practices, must possess social and personal skills to correctly carry out their tasks in managing a project (Zuo et al. 2018; Sposito et al. 2023), and this is one example of how EI should be applied as a management tool.

2.3. Emotional Intelligence in Project Management

Following the global dissemination of the term EI, Goleman (2012) presented a new work addressing the role of EI in the workplace. Goleman (1998) also presented EI as one of the critical factors for good performance in a professional environment, noting that the facets of EI represent essential competencies for professionals, often standing out more than technical skills. Parallel to Goleman (1998), other authors have also addressed the role of EI in organizations (Cooper and Sawaf 1997). Since then, several studies have been conducted to explore the relationship between EI and the performance of professionals in the workplace (Barling et al. 2000; Côté and Miners 2006; Mishra and Mohapatra 2010; Rubin et al. 2005; Siegling et al. 2014; Wong and Law 2002; Muhammad et al. 2024).

According to the study by Siegling et al. (2014), people in leadership or management positions tend to have a higher level of EI than normal, thus highlighting the importance of EI in the organizational context. In this vein, Barling et al. (2000) pointed out that individuals with a high level of EI are seen by their team not only as superiors, but also as leaders. As for Côté and Miners (2006), EI is seen as a robust indicator of task performance. This concept is in line with the conclusions of Mishra and Mohapatra (2010), who also suggested that EI should be considered as one of the elements in organizations' recruitment and selection processes (Goleman 1998; Mayer et al. 2000; Wong and Law 2002).

Other authors (Barry and du Plessis 2007; Sunindijo et al. 2007) are among the pioneers in exploring EI in the context of projects. Barry and du Plessis (2007) presented EI as a

crucial element for project managers, and they also pointed out that managers recognize this great importance. On the other hand, Sunindijo et al. (2007) conducted a study with project managers, revealing that EI makes a positive contribution to the competencies that are considered to be fundamental in PM, especially communication and conflict resolution.

According to Zhang et al. (2022), there is a direct positive relationship between a project manager's EI and team effectiveness, consistent with previous research (Khosravi et al. 2020; Maqbool et al. 2017; Zhu et al. 2021). According to the literature, there is a positive correlation between EI and project results (Montenegro et al. 2021; N. Clarke 2010a; Rezvani et al. 2016; Santo et al. 2021; Muhammad et al. 2024). Studies by other authors reviewed in the literature (Clarke 2010a; Rezvani et al. 2016; Santo et al. 2021) suggest that organizations should invest in developing the emotional and social skills of project managers in any area that involves interdisciplinary work and/or contact with stakeholders, as these directly influence the success of projects and team cohesion. They recommend hiring managers with high levels of EI and implementing training programs focused on emotional skills to improve project performance and, consequently, bring significant benefits to organizations.

EI is indeed a critical success factor for projects and a vital skill for PM (El Khatib et al. 2021; Juris Binde et al. 2015).

2.4. Decisions in Project Management

Clarke (2010c) identified the lack of attention to emotions in the PM literature and emphasized the role that emotions play in influencing project outcomes. EI is crucial in PM, as it significantly influences decision-making processes and behaviors within projects. Project managers' EI enables them to perceive and recognize emotions in both themselves and others, thereby enhancing their ability to make informed decisions based on emotional cues and interpersonal dynamics (Clarke 2010c), without this interfering with the qualities of their reasoning (Teixeira et al. 2014). Clarke (2010a) suggested that emotional awareness influences the decisions and behaviors of project managers, highlighting the importance of EI in shaping the quality of interpersonal relationships and project results, and that the results suggest that EI is a critical aspect of decision-making in PM, highlighting its importance in challenging situations and in guiding project success through informed and emotionally aware and intelligent decision-making processes.

EI is one of the main factors for making management decisions that increase organizational effectiveness, profit, and the profitability of investments in its development. This is particularly relevant in situations of risk and uncertainty, to which any organization in today's business environment is inevitably exposed (Nadiia and Sergey 2018; Warrier et al. 2021). EI influences decision-making in PM by enabling managers to perceive and control their emotions and understand the emotions of others, without impairing their reasoning. Skills such as emotional self-regulation and empathy are crucial for a balanced and effective decision-making process. Social awareness, which involves realizing and reacting to the emotions of others, is also essential. These skills are fundamental in PM, where changes and impacts on stakeholders are frequent (Cavaletti and Bizarrias 2023; Teixeira et al. 2014).

EI plays a pivotal role in influencing managerial decision-making. The ability to manage one's own emotions, as well as those of others, significantly impacts the decision-making process. Managers with high EI are able to make more effective and adaptive decisions (El Khatib et al. 2021; Kundi 2021).

3. Materials and Methods

3.1. Emotional Intelligence Assessment Scales

There are several measurement scales that can help assess the influence of EI on people's daily lives, but the context of the study can be a determining factor in the selection of the scale. The literature review revealed that certain scales exert more influence than others, as evidenced by their frequent mention. To pre-select these scales, those that garnered the most interest were identified based on their strong presence in indexed articles

with high quartiles and their association with leading authors in the field of EI. This approach provided initial credibility to the selection process.

Greater emphasis was placed on characteristic-based scales because, according to Teixeira et al. (2014), the most relevant EI competencies in the decision-making process are emotional self-regulation, which allows managers to control their emotions and reactions; empathy, which makes it possible to understand the emotions of others; and social awareness, which involves the ability to perceive and react to the emotions of others. Thus, it is possible to guarantee the relevance to this context, given that we will have greater breadth and depth in the assessment and contextualization of individual managers, by considering their emotional characteristics, and in this way it is possible to assess how these characteristics interfere in the decision-making process. Therefore, it was possible to highlight four scales for measuring EI based on characteristics found in the literature (Tapia 2001):

- Bar-On Emotional Quotient Inventory (EQ-i): This scale, developed by Bar-On (1997), is used to measure trait-based EI. Salovey et al. (1995) emphasized its predictive validity in areas such as mental health, professional life, and marital satisfaction. This scale consists of 133 items and 15 subscales, organized around five main factors: intrapersonal, interpersonal, adaptation, stress management, and general mood (Craparo et al. 2018). These five main factors show that the EQ-i is strongly based on the EI model proposed by Bar-On (1997), although this is a mixed model and not strictly based on traits.
- Trait Emotional Intelligence Questionnaire (TEIQue): The TEIQue focuses mainly on trait-based EI. It consists of 153 items and 15 subscales, like the EQ-i scale, and covers four factors: well-being, self-control, emotionality, and social skills (Petrides and Furnham 2001). These four factors clearly demonstrate that the TEIQue is based on the EI model proposed by the scale's creators. The predictive validity of this scale covers areas such as mental health, adaptation to different styles, stress at work, and professional performance (Petrides and Furnham 2001).
- Workgroup Emotional Intelligence Profile (WEIP): This scale focuses on predicting self-monitoring and empathy, and it is designed to measure the EI of individuals in work groups. This scale consists of 27 items divided into two dimensions: intrapersonal and interpersonal (Petrides and Furnham 2001). The application of this scale aims to corroborate the results of previous research showing that individuals with high EI tend to form better-performing work teams compared to individuals with lower EI.
- Wong and Law Emotional Intelligence Scale (WLEIS): The EI scale of Wong and Law (2002) is effective in providing data on work performance and satisfaction, as these are their predictive values. These authors developed a scale with 16 items distributed in four dimensions: evaluation of own emotions, recognition of others' emotions, regulation of own emotions, and emotional regulation (Petrides and Furnham 2001). According to the authors, these four dimensions rewrite EI as a multidimensional construct that refers to the individual's ability to understand their own emotions and those of others, regulate their own emotions, and direct them to facilitate productive behavioral behaviors.

Among the 4 scales presented, the Portuguese version of the WLEIS (Rodrigues et al. 2011) was selected. The credibility of the scale was already determined at the time of pre-selection, and it is possible to highlight the fact that it is a widely recognized and validated scale in the scientific literature (Acosta-Prado et al. 2022; Carvalho et al. 2016; Iliceto and Fino 2017; Law et al. 2004; Libbrecht et al. 2014; Luong et al. 2021; Rodrigues et al. 2011; Wong and Law 2002).

The WLEIS was developed specifically to capture practical and applicable aspects of EI in the organizational context, which makes it particularly suitable for studies focused on work environments and PM (Rodrigues et al. 2011; Wong and Law 2002). In addition, the simplicity and clarity of the WLEIS's items facilitate their application in semi-structured interviews, taking into consideration the fact that it is relatively short (only 16 items) and

was designed to apply to the active population and free administration, which allows respondents to express themselves in an open and reflective way (Luong et al. 2021).

Given the relevance of the points addressed by the WLEIS to the main objective of the present research—which is to analyze the relationship between the EI of managers and their decisions in PM—this scale provides a robust and reliable instrument for collecting data. The choice of the WLEIS is therefore justified by its relevance, validity, and applicability in the specific context of this investigation. It is worth mentioning that this scale was originally a quantitative tool; however, the scale has been adapted to a semi-structured interview script. This change is justified by the better adequacy to the research context, the depth of the answers obtained, and the relevance of the data for the objectives of this study.

3.2. Methods

The present research is focused on exploring the relationship between the EI of managers and their decisions in PM. The use of semi-structured interviews facilitates a more flexible and personalized approach, better adapting to the specific environment of the organization and its participants. This method captures nuances and contexts that may be overlooked in standardized interviews. Additionally, semi-structured interviews enable a deeper exploration of managers' perceptions and experiences. While the WLEIS questionnaire provides a quantitative measure of the dimensions of EI, the qualitative approach allows respondents to explain and exemplify their answers, providing a richer and more detailed understanding of their emotional abilities and how they influence decision-making.

The research objectives require not only the quantification of EI but also an understanding of the processes and contexts in which decisions are made. Semi-structured interviews enable participants to discuss specific situations, providing contextual data that can be analyzed to identify patterns and insights regarding the application of EI in PM. The semi-structured nature of the interviews allowed for the emergence of new areas of interest during the conversation, which a closed questionnaire does not permit. This flexibility was particularly valuable in this exploratory study, as it allowed for the pursuit of unexpected topics that may lead to significant discoveries. To achieve the proposed objectives and answer the research question, and to achieve a more organized and effective methodology, it is important to define the various stages of the research process. Thus, the research philosophy "Research Onion" (Saunders et al. 2019) was applied.

The present paper adopted interpretative epistemology as a research philosophy, since this emphasizes the subjectivity of human experience and highlights the important mission of the researcher, which aims to give meaning to a situation, analyzing raw data until reaching a general standard, without imposing pre-existing assumptions (Patton 1987). The research approach was applied through the inductive method, through which, using individual data taken from the selected sample, it was possible to list general conclusions. According to Lakatos and Marconi (2003), the inductive method is a technique by which, using particular data with sufficient weight, it is possible to infer universal conclusions. Three fundamental phases of research were identified: observation of facts, correlation of phenomena, and generalization of the information obtained. This is an empirical investigation of a particular contemporary phenomenon within its real context, thus being an exploratory study analyzed within a company as a particular case to be evidenced.

According to Cassell and Symon (2004), the objective of case studies is to make clear the issues under analysis in a specific context. Yin (2013) argued that case studies should have a clear outline developed prior to data collection, in which the research questions, analysis unit, links between data, and interpretation of data should be found. On the other hand, the case study may generate the impossibility of generalizing the conclusions, and it is the responsibility of the reader to decide whether or not they can be applied to a generic context, while it is up to the researcher to explicitly state the context in which the research is developed (Morrow 2005).

In this particular context, a pure case study is not presented, because it is not possible to have a combined analysis of methodologies and data that allow for the analysis of the particular case of the organization, but the use of interviews as a methodology allowed us to assess our research question applied to the particular case of the company where the interviews were conducted, and on which this study focused. It is worth mentioning that other authors (Filho et al. 2014; Porto et al. 2017; Silva et al. 2023), in their investigations with similar characteristics, used the same methodology applied in this study. The "case" typically refers to the unit of analysis, which can be set as an individual, a group, or an organization. In the present case study, the "case" was set as an IT department of an organization that has a highly professional PM team.

Semi-structured interviews were conducted with the project managers of the selected company. An interview is a form of verbal communication that aims to collect data related to research issues (Noro 2013). The use of this method facilitates the understanding of the participants' experience, taking into account that it allows for greater flexibility. It also contributes to greater mutual understanding, as the interviewer is allowed to reformulate or simplify questions that may not have been well understood (Dörnyei 2007).

Interviews were conducted based on scheduled appointments, with the location selected by the participants. Some interviews were facilitated through online platforms, including Microsoft Teams and Zoom. Consequently, after coordination, all interviews took place at the participants' workplaces. The duration of each interview varied between 45 and 90 min, depending on the conditions and the participant's willingness.

To ensure transparency and reliability, Table 1 summarizes the details of the interviews, including the method, location, and duration. Ethical considerations were addressed by obtaining informed consent from each participant. The participants were assured that their participation and the recording of the interview were voluntary. They were also informed that their information would remain confidential and accessible only to the researcher, and they retained the right to withdraw from the study at any stage.

Table 1. Participants' interviews.

Participant	Interview Location	Duration
1	Physical—workplace	45 min
2	Physical—workplace	60 min
3	MS Teams	60 min
4	Physical—workplace	90 min
5	Physical—workplace	50 min
6	MS Teams	60 min
7	Zoom	45 min
8	Physical—workplace	50 min
9	Physical—workplace	60 min
10	Physical—workplace	60 min
11	Physical—workplace	90 min
12	Physical—workplace	75 min

Own elaboration.

The use of interviews, given their nature, allows data to be recorded and revisited several times, enabling the conclusions produced to be more accurate (Berg and Lune 2019). Robson (2002) argues that the execution of interviews can consume a lot of study time. For these reasons, the difficulty in obtaining valid and reliable data becomes more evident with this method (Dörnyei 2007). Thus, Alshenqeeti (2014) stated that researchers should use techniques to help maintain the validity and reliability of interviews. In what corresponds to the choice of method, the investigation will follow a mono-methodic approach, corresponding to the qualitative method. Cohen et al. (2004) argued that one of the advantages of qualitative methodology is that it addresses the participants' points of view. Thus, this methodology was applied.

It should be noted that the time horizon of this research was transversal, since the data collection was carried out at a single point in time. Iramuteq software version 0.7 was applied to consolidate the information from the interviews into two textual corpora.

This study employed a qualitative case study approach to deeply explore the perspectives of participants in a specific organizational setting. Semi-structured interviews were conducted to provide flexibility and allow the participants to share insights in their own words. The interview guide was developed based on the prior literature to ensure coverage of key themes while allowing for emergent insights. To further strengthen the rigor of this study, each interview was transcribed verbatim, and data were carefully coded using a thematic analysis approach, allowing for detailed examination of patterns across responses. To ensure validity, we developed an interview guide that was aligned closely with the research questions and with the established theoretical framework. The questions were aligned with the relevant literature, ensuring relevance and alignment with the study's objectives. To ensure reliability in the conducted analysis, we adopted multiple strategies. First, an inter-rater reliability check was conducted, where two independent researchers coded a sample of the transcripts to ensure consistent interpretation of themes. Discrepancies in coding were discussed and resolved, and a refined coding framework was developed. A reflexive journal was maintained by the primary researcher to document decision-making processes, enhancing transparency and reducing potential researcher bias.

3.3. Sampling

According to Hair et al. (2005), the target population of an investigation refers to the group of objects and elements that are relevant to achieve the research objective(s). In turn, the sample, according to Malhotra (2010), is constituted by the representation of the elements of the target population chosen for analysis. The sample of the present study consisted of 12 participants, employees of the information systems department of Company A. Each respondent is designated by the letter E (interviewee), followed by a number, to maintain anonymity, and due to data protection, the work team or identity of each was not specified. For this selection, we used a sample in which only the employees whose professions predominate in the area of PM and project development, and who fit into the research criteria, were chosen; in other words, the selected sample only included project managers of the "Information Systems Direction" department of the organization, these being from different sectors, hierarchical levels, seniority, and schooling.

According to the literature, when the interview method is applied, the sample value can be defined as 12, since this is the initial number of participants recommended to achieve saturation with a homogeneous population (Guest et al. 2006; Hennink and Kaiser 2022). Thus, the sample was decided considering that saturation in a qualitative study is a point where the emerging themes of the research are sufficiently developed, such that conducting more interviews does not provide new contributions that alter these themes (Guest et al. 2006). In addition, the concept of saturation can be a more in-depth analysis on forms of saturation, specifically "thematic saturation", where new themes do not arise from the collected data (Hennink et al. 2017).

3.4. Data Collection and Processing

It was decided that the data collection would be carried out through semi-structured and individual interviews, using a common script for all respondents, allowing them the freedom to explore the issues presented. Thus, the interviews provide very rich and relevant elements for reflection (Quivy and Campenhoudt 1998). The technique of data collection can be fundamental to ensure the success of the study and should therefore be appropriate and systematic in the collection of evidence. For the creation of the interview script, the scale used to assess the managers' EI (questions 1 to 16) was the scale used in the article by the author (Rodrigues et al. 2011).

According to the scale used by Rodrigues et al. (2011), the data were treated through a five-point Likert scale, where 1 means "Strongly disagree" and 5 "Strongly agree", and

the following metric was defined to analyze the data of the respondents' answers: 1 was applied to answers such as "Never" and 5 to answers such as "yes", "always", or "I can".

Table 2 presents the relationship of each question in the interview script to the analysis carried out to interpret it. We also refer to the authors whose studies support each question.

Table 2. Synthesis of research methodology.

Analysis	Interview Script	Authors
Metric set	1—Can you usually identify the reasons for your feelings?	Rodrigues et al. (2011)
Metric set	2—Can you understand your emotions well?	
Metric set	3—Do you truly understand what you feel?	
Metric set	4—Is it easy for you to recognize when you are happy or not?	
Metric set	5—Do you recognize your friends' emotions through their behavior?	
Metric set	6—Do you consider yourself a good observer of the emotions of others?	
Metric set	7—Do you tend to be sensitive to the feelings and emotions of others?	
Metric set	8—Do you understand the emotions of people around you?	
Metric set	9—Do you usually set goals for yourself and try your best to achieve them?	
Metric set	10—Is it customary for you to recognize your personal competence?	
Metric set	11—Do you consider yourself a person who is easily motivated?	
Metric set	12—Do you always encourage yourself to give your best?	
Metric set	13—Do you think you can control your temper and deal with difficulties in a rational way?	
Metric set	14—Can you control your emotions well?	
Metric set	15—Do you feel able to calm down quickly when you are very angry?	
Metric set	16—Do you have good control of your emotions?	
Descending hierarchical classification	17—How would you describe the decision-making process in project management, considering your professional experience?	(Cavaletti and Bizarrias 2023; Clarke 2010a, 2010b; El Khatib et al. 2021; Kundi 2021; Castro et al. 2022; Maqbool et al. 2017; Nadiia and Sergey 2018; Noro 2013; Obradovic et al. 2013; Rezvani et al. 2016; Teixeira et al. 2014; Zhang and Hao 2022a, 2022b; Zhang et al. 2018, 2023)
Descending hierarchical classification	18—Can you provide examples of decisions that you consider significant and that you have made during the management of a specific project?	
Descending hierarchical classification	19—How do you think the emotional intelligence of project managers can influence the success of project decisions?	
Descending hierarchical classification	20—In your opinion, how does the ability to understand and control emotions affect the quality of decisions made during project management?	
Similarity analysis	21—What are, in your opinion, the most critical aspects throughout the life cycle of a project?	(Alves et al. 2013; PMI 2017, 2022; Vezzoni et al. 2013; Wu et al. 2017)
Similarity analysis	22—Can you share examples of specific challenges you have faced in the different phases of a project's life cycle?	
Similarity analysis	23—How do you think the emotional state of managers can influence decisions related to these critical aspects?	
Descending hierarchical classification	24—Do you believe that emotional intelligence can help you better deal with the challenges you have identified related to the life cycle of a project?	(Clarke 1999; Barling et al. 2000; Barry and du Plessis 2007; Castro et al. 2022; Clarke 2010b, 2010c; Côté and Miners 2006; El Khatib et al. 2021; Kundi 2021; Maqbool et al. 2017; Mishra and Mohapatra 2010; Montenegro et al. 2021; Rubin et al. 2005; Siegling et al. 2014; Turner and Müller 2005; Wong and Law 2002; Zhang and Hao 2022a, 2022b; Zhang et al. 2023)

Adapted from Wu et al. (2017).

Through the analysis presented in Table 2, it is possible to observe a clear and well-founded correlation between the interview script and the existing literature. This methodological structure ensures that the questions formulated are comprehensive and consistent with the objectives of the study, allowing for a well-founded analysis. The table highlights the theoretical basis that supports each research question, reinforcing the validity and relevance of the questions formulated in the context of the research. Thus, this approach ensures that the research is aligned with the main concepts discussed in the literature, providing an in-depth understanding of the topic under study.

3.5. Ethical Issues

Concerning data protection information, data were collected, processed, and analyzed in accordance with the General Data Protection Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with respect to the processing of personal data and the free movement of such data.

4. Data Analysis

Regarding the assessment of the interviewees' levels of EI, the average of each group of questions was taken, that is, "assessment of one's own emotions" (questions 1 to 4), "assessment of the emotions of others" (questions 5 to 8), "use of emotions" (questions 9 to 12), and "regulation of emotions" (questions 13 to 16). Subsequently, the average of the four groups was taken for each interviewee. The average of the 12 interviewees was taken, so the average value of the answers to questions related to EI (1 to 16) was 4.75, resulting in a high level of EI, supported by the findings of (Rodrigues et al. 2011), duly adapted to this qualitative study.

To answer the research question, the interview results were appended into a corpus (corpus 1), namely, questions 17, 18, 19, 20 and 24, and we proceeded to analyze the classes generated using DHC (descending hierarchical classification). This analysis is the best-known procedure used in Iramuteq. The DHC method, proposed by Reinert (1990), aims to analyze and organize textual data to identify underlying patterns and structures, i.e., it classifies text segments according to their respective vocabularies, and the set of them is broken down based on the frequency of reduced forms. This analysis is based on lexical proximity, as well as the idea that words used in a similar context are associated with the same lexical world and are part of specific mental worlds or systems of representation.

In this analysis, text segments are classified according to their respective vocabulary, and the set of terms is divided according to the frequency of word roots. By crossing matrices with text segments and words in repeated chi-squared tests, the DHC method is applied, and a stable classification is obtained (Reinert 1990). For each class, there are data relating to its content, such as the number of text segments in the corpus it contains, or the percentage of occurrence of the word in the text segments of that class, in relation to its occurrence in the corpus, revealing the association of the word with the class, as well as the level of significance of that association.

We followed a content analysis procedure, which is described by Bardin (2010) as a set of communication analysis techniques that aims to obtain, by means of objective and systematic procedures, indicators for describing the content of messages, allowing for knowledge about the conditions of the messages to be inferred. The relevance of using DHC for this study, given the objective, is that it allows for the identification and categorization of the main themes that emerge from the interviews, providing a rigorous approach to categorizing qualitative data, and ensuring that the classes identified are based on robust statistical patterns, which increases the validity and reliability of the results.

Through these analyses, it was possible to support or reject the proposed research model in comparison with the current literature information and answer the research questions. The research question was defined as follows: "What influence does emotional intelligence have on project management results?"

The DHC categorized the content into four classes, as shown in Figure 1. The classification of text segments was based on statistical tests such as the chi-squared test, which allows intermediate categories to be formed in the most stable configuration (Camargo and Justo 2013).

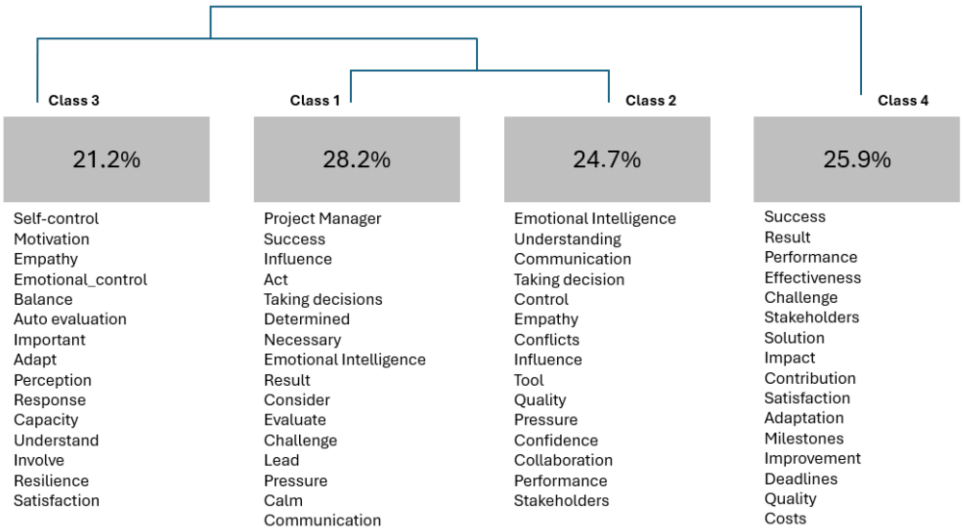

Figure 1. Descending hierarchical classification—dendrogram of corpus 1. Source: Iramuteq.

With the dendrogram, it was possible to see the words that had the highest percentage in terms of average frequency and were different from each other. This set of words provided the analysis with the words that had a p-value < 0.0001 and the class and word with the highest *chi-squared* ($\chi 2$). It grouped the words by class, according to the segment of text, and by color, making it possible to classify and name the classes according to the content of the interview. In the context of this content analysis using DHC and chi-squared values, the presence of high chi-squared values and very small p-values ($p < 0.0001$) indicates very strong evidence of significant associations between the words and the classes identified in the content analysis. This reveals that the associations observed between terms and classes are quite significant.

The overall corpus was separated into 97 text segments (TSs), and the software extracted 87.63% of the information, i.e., 85 TSs. A total of 3583 words were analyzed, of which 763 were distinct words, including 421 active forms and 73 supplementary forms.

From the general corpus, there were two subcorpora categorized into four classes:

- Class 1: "Project Manager Competencies": This comprised 28.2% of the total corpus analyzed (24 TSs out of 97), consisting of words and radicals with a chi-squared interval between $\chi 2 = 55.14$ and $\chi 2 = 4.07$. The chi-squared values in this class indicate a very strong association for some words (with values close to 55.14) and a more moderate association for others (with values close to 4.07). The strongly associated words include essential terms for project manager competencies, such as "Project manager", "Success", "influence", "Decision making", and "emotional intelligence". The presence of high chi-squared values indicates some of the competencies that are crucial and distinctive for successful decisions and projects.
- Class 2: "Emotional intelligence tools": This comprised 24.7% of the total corpus analyzed (21 TSs out of 97), consisting of words and radicals with a chi-squared interval between $\chi 2 = 34.26$ and $\chi 2 = 4.09$. The chi-squared values for this class indicate that the words have a significant association with the category "Emotional Intelligence Tools". Words such as "emotional intelligence", "understanding", "communication", and "empathy" signify specific EI tools that are essential for PM. The variation in chi-squared values shows that some words have a particularly strong link, while others have a more moderate association.

- Class 3: "Components of emotional intelligence": This comprised 21.2% of the total corpus analyzed (18 TSs out of 97), consisting of words and radicals with a chi-squared interval between $\chi 2 = 10.01$ and $\chi 2 = 4.09$. The chi-squared values in this class are lower compared to the other classes, indicating significant but less intense associations. Words such as "self-control", "motivation", "empathy", and "emotional control" are essential components of EI. The presence of lower values suggests that these words are representative, but perhaps less distinctive compared to terms from other classes. However, these words reflect the cross-cutting nature of EI, thus supporting the idea that emotional intelligence is relevant to multiple aspects of PM.
- Class 4: "Impacts of EI on projects": This comprised 25.9% of the total corpus analyzed (22 TSs out of 97), consisting of words and radicals with a chi-squared interval between $\chi 2 = 48.42$ and $\chi 2 = 4.29$. The chi-squared values in this class indicate a very strong association between some words and the category "Impacts of EI on Projects". Words such as "Success", "Result", "performance", "Effectiveness", and "stakeholders" show a significant link with this class, highlighting the importance of EI in project results. The range of chi-squared values indicates that some words are extremely representative of this class, underlining the crucial impact of EI on project success.

5. Discussion

Class 1 presents the highest percentage and focuses on the essential skills that a project manager should have, which include leadership, effective decision-making, communication, and influence. This class also highlights the importance of decision-making and the EI of project managers, including central terms such as "project manager", "success", "influence", "decision-making", and "emotional intelligence". The interviewees described decision-making as being "strongly influenced by emotional intelligence", highlighting the need to "consider emotions and opinions when making significant decisions", as referenced by Castro et al. (2022). Examples provided by the interviewees illustrate how important decisions are made considering not only rational factors, but also emotional factors, as referred to in the literature (Zhang and Hao 2022a, 2022b).

These authors pointed out that the ability to remain calm under pressure and control emotions positively influences the decision-making process, highlighting that EI plays a crucial role in decision-making when managing a project. They pointed out that "managers with high EI are more effective in dealing with pressure situations and unforeseen challenges", being able to "adapt decisions to the circumstances and needs of the team". Efficient communication and the ability to resolve conflicts were key aspects mentioned by the interviewees, as appreciated by several authors (Cavaletti and Bizarrias 2023; Clarke 2010a, 2010b; Kundi 2021; Maqbool et al. 2017; Teixeira et al. 2014).

Class 2 reflects the tools of EI and their importance in various aspects of PM. Tools such as empathy, understanding and controlling emotions to ensure the quality of decisions, and conflict resolution are highlighted, reflecting the importance of these tools in mediating and facilitating communication and collaboration within teams. The interviewees pointed out that EI is like a "tool" and a success factor for PM, which influences communication within the team and with stakeholders, and emotional skills such as empathy and conflict resolution contribute to a collaborative and harmonious working environment. EI influences the development of a climate of trust and collaboration, which is essential for the performance and success of PM, as noted by Clarke (2010a) and Sunindijo et al. (2007). The ability to influence and motivate the team was also highlighted as a benefit of EI, in the same vein as the authors studied in the literature (Khosravi et al. 2020; Rezvani and Khosravi 2019).

Class 3 focuses on the importance of the components of EI that are relevant to decision-making. Words such as "self-control", "empathy", and "motivation" stand out, as these skills are essential for managers to be able to adapt to adverse situations, maintaining resilience and emotional balance, according to El Khatib et al. (2021) and Kundi (2021). The interviewees mentioned the social and emotional competencies that make up EI and

their impact on PM. The "ability to recognize emotions, both one's own and those of others, facilitates more effective management and better team performance", ensuring "greater responsiveness", as Obradovic et al. (2013) pointed out. Motivation, perception, and adaptation are seen as key elements that contribute to team satisfaction and, consequently, to positive results in projects, as mentioned in the literature (El Khatib et al. 2021; Zhang and Hao 2022a).

Class 4 is strongly linked to the impacts that EI can drive. Terms such as "success", "effectiveness", "performance", "adaptation", and "solution" indicate a strong link with the components of EI. EI provides managers with the necessary skills to be resilient, adaptable, and problem-solvers—qualities that are fundamental to achieving success, performance, and effectiveness in PM. Therefore, the influence of EI is implicit in the results that these terms represent (Barry and du Plessis 2007; Goleman 2006; Lindebaum and Cassell 2012; Mazur et al. 2014; Müller and Turner 2010b; Obradovic et al. 2013; Sunindijo et al. 2007; Zhang et al. 2013, 2018; Zhang and Fan 2013). The interviewees agreed that "EI is crucial for dealing with challenges throughout the project lifecycle, promoting resilience and adaptation". The "ability to overcome challenges through emotional intelligence contributes to the success of projects", thus impacting results. They also reported that "EI directly drives results, which contributes to superior performance and continuous improvement during PM, with greater productivity and efficiency". Managers with high EI tend to be better suited to innovative projects, "meeting deadlines and keeping costs under control, resulting in greater stakeholder satisfaction", which corroborates the findings of several authors (Clarke 1999, 2010a, 2010b; Montenegro et al. 2021; Rezvani et al. 2016; Santo et al. 2021).

Analysis of the interviewees' answers to questions 17, 18, 20, and 24 reveals that EI has a significant and multifaceted influence on PM, providing a comprehensive and detailed view of its importance and impact. From decision-making to the impact on team performance and project results, EI is shown to be a key element in successful PM. The emotional and social competencies of managers not only facilitate conflict resolution and effective communication but also promote a collaborative and motivated work environment, which is essential for successfully achieving project goals and objectives, as Miguel et al. (2014) appreciated. These results corroborate what the literature provides.

6. Study Limitations

The reliance on interviews meant that the data were dependent on the participants' willingness to share their experiences and perspectives openly. Additionally, the choice of interview locations, whether in person or online, may have influenced the participants' comfort levels and, consequently, the depth of the information provided. Technical issues during online interviews, such as connectivity problems, also posed challenges that could have affected the quality of the data collected. The qualitative nature of the data analysis introduced certain limitations. The interpretation of interview data is inherently subjective, and despite efforts to maintain objectivity, the researchers' biases and perspectives may have influenced the analysis. Furthermore, the coding process, while systematic, may have missed nuances or overlooked certain themes due to the complexity and volume of the data.

Another limitation is the lack of generalizability inherent in qualitative research. The findings cannot be generalized to the broader population due to the non-random selection of participants and the specific contexts in which the data were collected. The insights gained are valuable for understanding the particular cases studied but should be interpreted with caution when considering their applicability to other settings or populations.

7. Conclusions

From the analysis of the classes, it was possible to infer that EI has a significant and multifaceted influence on the impacts or results of PM. Managers with high EI are better able to make considered decisions, even under pressure, which contributes to effective

problem-solving and meeting project deadlines. EI enables more effective leadership, characterized by clear communication, team motivation, and conflict resolution. This results in a more cohesive and productive team. Empathy and the ability to self-regulate help managers to better understand and manage stakeholder expectations, which is crucial for project success. The positive influence of EI on project performance and stakeholder satisfaction is evident. Emotionally intelligent managers can align project objectives with stakeholder expectations, ensuring value delivery and efficiency.

The interviews conducted allowed us to answer the research question and confirmed the importance of EI in the daily functions of project managers. EI positively influences decision-making and project success, highlighting its relevance to effective communication and conflict resolution, crucial factors for successful PM. These conclusions are in line with the thinking of several authors (Barry and du Plessis 2007; Obradovic et al. 2013; Sunindijo et al. 2007) who have highlighted the importance of EI in effective communication and conflict resolution, crucial factors for successful PM. The interviews revealed that the organization's project managers have high levels of EI on average and are significantly more effective at making decisions, demonstrating a superior ability to assess complex situations and make considered decisions, even under pressure. EI enabled them to consider not only the technical aspects of problems but also emotional and human factors, resulting in more balanced and effective decisions.

Effective communication and conflict resolution were identified as critical areas where EI plays a key role. Managers were more skilled at maintaining clear and assertive communication with their teams, facilitating mutual understanding and reducing errors or misunderstandings. In addition, their ability to understand their own emotions and those of others contributed to faster and more efficient conflict resolution, promoting a harmonious and productive working environment. Managers with high EI were able to inspire and motivate their teams, establishing an environment of trust and collaboration. Empathy, a key component of EI, allowed managers to better understand the needs and concerns of team members, resulting in greater cohesion and job satisfaction.

These points are supported by authors such as Goleman (1998), who identified EI as a key competency for performance in the workplace, and Rezvani et al. (2016), who highlighted the positive relationship between emotional intelligence, job satisfaction, and confidence among project managers.

The data showed that EI has a direct impact on project results. Projects led by emotionally intelligent managers tended to be completed more efficiently, and the managers' capacity for adaptation and resilience, facilitated by EI, enabled them to overcome challenges and obstacles, ensuring project success.

The results of this study are consistent with the existing literature, confirming that EI is a critical factor for success in PM. EI improves decision-making, communication, conflict resolution, and leadership, resulting in more cohesive teams and more successful projects. This research highlights the importance of developing emotional competencies in project managers to improve organizational performance and results (Lindebaum and Cassell 2012; Müller and Turner 2010b; Zhang et al. 2013).

To deepen and expand the knowledge gained in this study, several directions for future research are suggested. Firstly, it would be interesting to explore EI as a construct at the team level, to assess how the balance between managers' and teams' EI impacts project decisions and results. This type of research could reveal group dynamics and identify emotional competencies that are critical to collective performance. Future research could benefit from exploring specific interventions for developing EI in organizations, evaluating the effectiveness of training and development programs in improving managers' emotional competencies and, consequently, project decisions and results. Evaluating the impact of these interventions could provide practical recommendations for implementing emotional development strategies in different organizational contexts.

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