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# Interrelationships Among Dissertation Writing Challenges: A Correlational Study of Moroccan Doctoral Students

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***Abstract***

*Doctoral dissertation writing involves a complex interplay of academic, methodological, systemic, and personal demands that collectively influence doctoral progress and completion. Drawing on data from 300 doctoral candidates enrolled in English Studies across ten Moroccan universities, this correlational study builds on prior descriptive research to examine the interrelationships among dissertation-writing challenges. Four domains were investigated: barriers to effective academic writing, difficulties in literature review and scholarly argumentation, challenges related to research planning and methodological rigor, and systemic and personal obstacles. Given the non-normal distribution of the data, Spearman's rank-order correlation coefficients (ρ) were employed to assess the strength and direction of relationships among these domains. The findings reveal strong, positive, and statistically significant correlations across all categories, indicating that dissertation-writing challenges tend to co-occur and mutually reinforce one another rather than operate as isolated difficulties. Notably, systemic and personal obstacles show particularly strong associations with academic writing and methodological challenges. These results underscore the systemic and interconnected nature of doctoral dissertation difficulties and highlight the need for integrated, holistic doctoral support strategies that simultaneously address academic, structural, and personal dimensions of doctoral education.*

## 1. Introduction

Doctoral dissertation completion is increasingly recognized as a complex and demanding process shaped by the dynamic interplay of academic, institutional, and personal factors. Doctoral education represents a critical stage in the development of advanced research competence, academic professionalism, and scholarly identity, requiring sustained engagement in rigorous inquiry, critical academic writing, motivation, and effective self-regulation over extended periods (Lovitts, 2002; Pyhältö et al., 2012; Sverdlik et al., 2018).

Although prior research has documented a wide range of dissertation-writing challenges encountered by doctoral students, these difficulties rarely occur in isolation. Instead, they tend to interact and reinforce one another, creating cumulative barriers that may delay progress, compromise research quality, and increase the risk of attrition. For example, challenges related to research planning or methodological rigor may exacerbate academic writing difficulties or hinder effective literature synthesis. Similarly, systemic constraints—such as limited institutional resources, uneven supervisory support, and financial pressures—together with psychological stressors may compound academic challenges, producing reinforcing effects that impede timely dissertation completion (Boice, 1993; Murray, 2014; Sverdlik et al., 2018).

Despite growing recognition of the multifaceted nature of doctoral difficulties, much of the existing literature has approached dissertation-writing challenges as discrete and independent problems, focusing primarily on their prevalence or severity. Consequently, limited empirical attention has been given to examining how these challenges co-occur, interact, and mutually influence one another across different domains of the doctoral experience. This gap constrains the development of comprehensive institutional and pedagogical interventions capable of addressing doctoral challenges as an interconnected system rather than as isolated obstacles.

In the Moroccan context, doctoral students pursue their studies within a higher education system characterized by expanding enrollment, constrained research infrastructure, and variability in supervisory practices. Existing empirical studies in this context have largely concentrated on identifying specific challenges such as limited research training, difficulties in academic writing, research methodology, publication issues, and institutional support (Zohri, 2016). However, much of this work remains fragmented in scope, for example, studies investigating supervisory feedback on dissertation writing highlight mismatches between students' and teachers' expectations and the role of feedback in shaping writing outcomes (Larouz & Abouabdelkader, 2020) — but stop short of theorizing how diverse academic, methodological, systemic, and personal factors are interconnected to influence the doctoral experience. Consequently, these studies have seldom examined the relational structure of dissertation-writing challenges or the ways in which these multiple domains dynamically intersect to shape doctoral trajectories.

The present study builds on a prior descriptive investigation that mapped the prevalence and scope of dissertation-writing challenges among Moroccan doctoral students (Dardour & Bouyahya, 2026). While that study provided a foundational understanding of the challenges doctoral students face, it did not explore the relationships among these challenges. Addressing this limitation, the current study adopts a correlational approach to investigate the interconnections among academic, methodological, systemic, and personal dissertation-writing challenges experienced by Moroccan doctoral students.

### 1.1 Objectives of the Study

The overall objective of this study is to examine the interrelationships among dissertation-writing challenges experienced by Moroccan doctoral students. Specifically, the study aims to:

Identify the key domains of dissertation-writing challenges—academic, methodological, systemic, and personal—experienced by Moroccan doctoral students.

Examine the strength and direction of relationships among these challenge domains.

Determine the extent to which systemic challenges are associated with academic and methodological dissertation-writing difficulties.

Explore the associations between academic and methodological challenges and personal challenges related to motivation, stress, and self-regulation.

Generate empirical evidence to inform integrated, system-level institutional and supervisory support strategies.

### 1.2 Research Questions and Hypotheses

Guided by a quantitative correlational design, the present study addresses the following research questions:

**RQ1:** What relationships exist among academic, methodological, systemic, and personal dissertation-writing challenges experienced by Moroccan doctoral students?

**RQ2:** To what extent do challenges across these domains co-occur and interact within the doctoral experience?

Based on existing literature suggesting that doctoral challenges are cumulative and interconnected (Lovitts, 2002; Pyhältö et al., 2012; Sverdlik et al., 2018), the study advances the following hypotheses:

**H1:** There are statistically significant positive correlations among academic, methodological, systemic, and personal dissertation-writing challenges experienced by Moroccan doctoral students.

**H2:** Academic and methodological challenges are positively associated with personal challenges, such that higher levels of research- and writing-related difficulties correspond to increased psychological and self-regulatory difficulties.

**H3:** Systemic challenges are significantly associated with academic and methodological challenges, indicating that institutional and supervisory constraints exacerbate research- and writing-related difficulties.

## 2. Literature Review

Doctoral dissertation writing is widely recognized as one of the most demanding tasks in higher education, requiring the integration of advanced academic writing competence, research expertise, organizational skills, and sustained self-regulation. Successful dissertation completion depends not only on mastery of academic conventions, research methodology, time management, and constructive supervisory support (McQuillan, 2021; Hyland, 2009; Swales & Feak, 2004) but also on the ability to navigate a complex set of academic, methodological, systemic, and personal challenges.

Academic writing difficulties—such as structuring arguments, synthesizing sources, and maintaining precise disciplinary language—are often closely linked with uncertainties in research design, theoretical framing, and methodological rigor. These challenges tend to interact, creating cycles in which obstacles reinforce one another and contribute to doctoral stress (Lea & Street, 2006; Kamler & Thomson, 2014; Brito, 2022). The literature review process itself exemplifies this complexity, as doctoral students frequently struggle to identify relevant sources, evaluate credibility, synthesize large volumes of information, and construct coherent scholarly arguments (Boote & Beile, 2005; Creswell, 2014; Maxwell, 2013; Murray, 2013). These academic and methodological challenges often intersect with psychological and motivational factors, as uncertainty in study design, data collection, and analysis can heighten anxiety, reduce self-efficacy, and diminish confidence, ultimately affecting writing productivity and persistence (Stubb et al., 2014; Pyhältö et al., 2012).

Systemic and personal challenges—including time constraints, financial pressures, work–life imbalance, and psychological stress—further amplify these difficulties, creating cascading effects across multiple domains of doctoral work (Lovitts, 2002; Chan, 2014; Steel, 2007; Pychyl & Flett, 2012). Procrastination, perfectionism, and fear of failure can exacerbate academic and methodological pressures, illustrating the interconnected nature of doctoral challenges (Boice, 1993; Murray, 2014; Sverdlik et al., 2018). Effective supervision is also critical, as timely, constructive feedback and relational awareness enhance motivation, progress, and satisfaction, whereas inadequate supervision can magnify academic and methodological challenges, leading to delays and diminished dissertation quality (Wright et al., 2007; Stubb et al., 2014; Gardner, 2009; Larouz & Abouabdelkader, 2020).

Additional constraints, such as financial hardship, limited access to research materials, and language barriers for non-native English speakers, introduce further layers of complexity. Doctoral students often need to balance part-time work, academic writing demands, and research progress simultaneously (Feizi, 2023; McDonald & Hatcher, 2023; Flowerdew & Li, 2007; Belcher, 2009; Nesi et al., 2012; Neupane Bastola, 2022). Targeted interventions—including mentorship, structured planning, writing support, and specialized training—are commonly recommended to address these overlapping challenges.

While this body of research clearly identifies and describes multiple challenges, how these challenges relate to and influence one another has not been systematically studied. Existing studies typically treat academic, methodological, systemic, and personal challenges as separate issues, focusing on their prevalence or severity rather than on their interconnections. As a result, there is limited empirical understanding of how these challenges co-occur and reinforce each other in doctoral students' experiences. This gap justifies the current study's focus on examining the relationships among dissertation-writing challenges, particularly within the Moroccan doctoral context.

Taken together, the literature shows that doctoral students face multiple, interrelated challenges, including academic writing, literature review, research skills, supervision, language proficiency, financial resources, time management, and psychological well-being. While these challenges are well documented, prior research has largely treated them as discrete issues, and how these challenges

relate to and influence one another remains unexplored. The present study, therefore, seeks to address this gap by examining the relationships among academic, methodological, systemic, and personal dissertation-writing challenges, aiming to provide novel empirical evidence that can inform integrated, system-level strategies to support dissertation quality, timely completion, and overall doctoral success (Lea & Street, 2006; Murray, 2014; Boice, 1990).

## 3. Theoretical Framework

Doctoral dissertation writing is a complex and multifaceted endeavor, shaped by interrelated academic, cognitive, institutional, and personal factors. Understanding the challenges faced by Moroccan doctoral students requires an integrated theoretical lens that conceptualizes these difficulties not as isolated events but as components of a broader, interconnected system.

Tinto's Student Integration Model emphasizes that student persistence depends on both academic and social integration within the university environment, highlighting the role of engagement with scholarly norms, supervisory relationships, and institutional support in sustaining progress (Tinto, 1975, 1987, 2005, 2006, 2014; Austin, 2002; Lovitts, 2007). Although Tinto, Swail, and Louw were originally developed for undergraduate or general higher education contexts, their core concepts of academic integration, institutional and cognitive influences, and personal barriers have been widely applied to doctoral studies, making them relevant for examining the challenges faced by Moroccan doctoral students. Complementing this, Swail's Geometric Model situates cognitive, social, and institutional dimensions around the student, demonstrating how study habits, academic ability, financial resources, health, curriculum, and guidance services interact to shape persistence and achievement (Swail, 2004). Louw's framework further identifies personal and contextual barriers—including language proficiency, financial constraints, time management, and unclear academic goals—that can impede doctoral progress and retention (Louw, 2005). Together, these frameworks emphasize that persistence and success are influenced by multiple, interdependent factors.

Cognitive development theories, particularly Bloom's Taxonomy, provide additional insight into the academic and research skills required for dissertation completion. Bloom's framework outlines the progression from foundational knowledge acquisition to higher-order competencies such as analysis, synthesis, and evaluation, which are essential for structuring arguments, conducting literature reviews, designing research, and producing original scholarly work (Bloom et al., 1956; Anderson & Krathwohl, 2001; Golde & Walker, 2006; Onwuegbuzie & Collins, 2007; Shin, 2023). These cognitive demands are closely intertwined with methodological and academic writing challenges, reinforcing the view that doctoral difficulties are interdependent rather than isolated.

Time management and motivation theories further illuminate the personal and psychological dimensions of dissertation challenges. Effective time management, informed by classical principles of scientific and administrative management (Taylor, 1919; Fayol, 2016) and contemporary models of procrastination and task avoidance (Ferrari et al., 1995; Steel, 2007), provides strategies for goal setting, task segmentation, and balancing competing responsibilities. Motivation theories, including Maslow's Hierarchy of Needs (1969), Skinner's behaviorism (1965), and Self-Determination Theory (Deci & Ryan, 2013), explain the drivers of sustained effort and persistence, emphasizing the interplay of autonomy, competence, relatedness, reinforcement, and basic needs in maintaining doctoral engagement (Locke & Latham, 2002; Steel, 2007; Wigfield, 2009).

Collectively, these frameworks conceptualize dissertation-writing challenges as interdependent and mutually reinforcing. Academic engagement, research skills, cognitive development, supervisory support, institutional resources, time management, and motivation collectively shape doctoral persistence and completion. Importantly, these theoretical perspectives provide a rationale for examining the relationships among academic, methodological, systemic, and personal challenges, which have not been empirically explored in prior research. By applying this integrated lens, the study grounds its investigation in established theory while focusing on the novel aim of uncovering how these challenges relate to one another within the Moroccan doctoral context. This theoretical foundation informs the identification, categorization, and subsequent analysis of challenges, providing a basis for designing holistic support strategies to enhance doctoral outcomes.

## 4. Methodology

This study employs a correlational research design to investigate the interrelationships among the major challenges faced by Moroccan doctoral students during dissertation writing. It builds on a prior

quantitative descriptive study (Dardour & Bouyahya, 2026), which mapped the prevalence and distribution of dissertation-writing difficulties. While the previous study focused on identifying challenges across academic, methodological, and systemic domains, the present research examines how these challenges co-occur and mutually reinforce one another, providing insight into their relational dynamics.

The sample comprised 300 doctoral students from ten Moroccan universities, representing diverse disciplines within English studies. Participants were selected using convenience sampling to capture a broad spectrum of doctoral experiences. All participants were actively engaged in dissertation writing, ensuring the relevance of their responses to the study objectives.

Data were collected using a structured questionnaire designed to measure four domains of dissertation-writing challenges: (1) academic writing difficulties, (2) literature review and scholarly argumentation challenges, (3) research planning and methodological rigor, and (4) systemic and personal obstacles. Items were rated on five-point Likert scales to indicate the extent to which each challenge affected doctoral progress. The instrument was developed based on existing literature and validated in the prior quantitative study to ensure construct and content validity (Dardour & Bouyahya, 2026; McQuillan, 2021; Murray, 2014).

Preliminary screening of the dataset indicated significant deviations from normality, justifying the use of non-parametric statistical procedures. Spearman's rank-order correlation coefficient (ρ) was employed to assess the strength and direction of relationships among the four challenge domains (Field, 2018; Pallant, 2001). Correlation strength was interpreted according to conventional effect size guidelines (Cohen, 2013), with ρ values of 0.10–0.29 considered weak, 0.30–0.49 moderate, and ≥0.50 strong. For descriptive purposes, correlations below 0.10 are referred to as "very weak," and correlations above 0.70 are highlighted as "very strong," while remaining within the original threshold categories. Statistical significance was set at $p < .05$, and all analyses were conducted using SPSS software.

This methodological approach allows for a rigorous examination of the interdependencies among dissertation-writing challenges, moving beyond descriptive mapping to uncover patterns of co-occurrence and reinforcement. By directly building on the prior quantitative study, the research provides a coherent progression from describing doctoral challenges to exploring their relational structure, thereby informing integrated and holistic support strategies for Moroccan doctoral students.

## 5. Results

### 5.1 Correlation Analysis

Following descriptive analyses of frequencies, percentages, means, and standard deviations (Dardour & Bouyahya, 2026), the study examined the interrelationships among the key categories of dissertation-writing challenges. Spearman's rank-order correlation coefficient (ρ) was employed to assess the strength and direction of associations between variables. This non-parametric measure is particularly appropriate for ordinal data obtained from Likert-type scales and is widely used in educational research to examine monotonic relationships (Pallant, 2001).

Normality was assessed using Shapiro-Wilk and Kolmogorov-Smirnov tests, which confirmed significant deviations from normality. Accordingly, Spearman's ρ was employed as a robust alternative to parametric correlation methods (Field, 2018). Correlation strength was interpreted following conventional guidelines (Cohen, 2013; Pallant, 2001): ρ values of 0.10–0.29 were considered weak, 0.30–0.49 moderate, and ≥0.50 strong. For descriptive purposes, correlations below 0.10 are referred to as "very weak," and correlations above 0.70 are highlighted as "very strong," while remaining within the original threshold categories. Positive values indicate a direct relationship, whereas negative values indicate an inverse relationship. Statistical significance was set at $p < .05$.

This analysis allowed the study to determine whether challenges in one domain—such as academic writing—tend to co-occur with difficulties in research planning, literature review, or systemic and personal obstacles. By focusing on the patterns of interconnection among challenges, the correlational approach provides empirical evidence to inform integrated, system-level support strategies for Moroccan doctoral students. In this way, the study moves beyond descriptive reporting (Dardour & Bouyahya, 2026) to examine the relational structure of dissertation-writing challenges, addressing a gap in the literature on doctoral persistence and support.

## 5.2 Tests of Normality

Following descriptive analyses of frequencies, percentages, means, and standard deviations (Dardour & Bouyahya, 2026), the normality of the data was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests, as summarized in Table 5.1.

**Table 5.1: Tests of Normality**

| Variable | Kolmogorov-Smirnov Statistic | df | Sig. | Shapiro-Wilk Statistic | df | Sig. |
|---|---|---|---|---|---|---|
| Challenges in research planning and methodological rigor | 0.209 | 2100 | 0.000 | 0.893 | 2100 | 0.000 |
| Hurdles in literature review and scholarly argumentation | 0.157 | 2100 | 0.000 | 0.913 | 2100 | 0.000 |
| Barriers to effective academic writing | 0.186 | 2100 | 0.000 | 0.908 | 2100 | 0.000 |
| Systemic and personal obstacles in the dissertation journey | 0.222 | 2100 | 0.000 | 0.831 | 2100 | 0.000 |

a. Lilliefors Significance Correction

The results indicate significant deviations from normality for all four challenge categories ($p < .05$), with Systemic and Personal Obstacles showing the largest deviation (Kolmogorov-Smirnov = 0.222; Shapiro-Wilk = 0.831), suggesting a skewed distribution relative to the other variables. Given these findings, parametric techniques such as Pearson's correlation are not appropriate.

Accordingly, Spearman's rank-order correlation coefficient ($\rho$) was employed as a robust non-parametric alternative, suitable for ordinal Likert-scale data (Pallant, 2001; Field, 2018). This approach enables an accurate assessment of the strength and direction of associations among challenge domains, providing a reliable basis for exploring the patterns of co-occurrence among doctoral dissertation challenges. By focusing on these associations, the analysis aligns with the study's primary aim of investigating the relational structure of academic, methodological, systemic, and personal challenges (Dardour & Bouyahya, 2026).

## 5.3 Barriers to Effective Academic Writing

**Table 5.2 – Correlations**

| | Academic language | Coherence and cohesion | Critical writing | Grammatical accuracy | Mechanics of writing | Formatting styles | Writing the discussion chapter |
|---|---|---|---|---|---|---|---|
| Academic language | 1.000 | .976** | .916** | .931** | .943** | .900** | .918** |
| Sig. (2-tailed) | . | .000 | .000 | .000 | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Coherence and cohesion | .976** | 1.000 | .910** | .912** | .933** | .896** | .909** |
| Sig. (2-tailed) | .000 | . | .000 | .000 | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Critical writing | .916** | .910** | 1.000 | .878** | .908** | .919** | .991** |
| Sig. (2-tailed) | .000 | .000 | . | .000 | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Grammatical accuracy | .931** | .912** | .878** | 1.000 | .968** | .870** | .874** |
| Sig. (2-tailed) | .000 | .000 | .000 | . | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Mechanics of writing | .943** | .933** | .908** | .968** | 1.000 | .872** | .904** |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | . | .000 | .000 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Formatting styles | .900** | .896** | .919** | .870** | .872** | 1.000 | .921** |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | . | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Writing the discussion chapter | .918** | .909** | .991** | .874** | .904** | .921** | 1.000 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | . |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

Note: **. Correlation is significant at the 0.01 level (2-tailed).

The correlation matrix provides compelling evidence of the interrelatedness among academic writing challenges faced by doctoral students. For descriptive purposes, correlations below 0.10 are referred to as "very weak," and correlations above 0.70 are highlighted as "very strong," consistent with the thresholds defined in the Methodology. All correlations are statistically significant at the 0.01 level ($p < .001$), indicating these associations are unlikely to have occurred by chance. Based on commonly used interpretations in applied research (Pallant, 2001), correlation coefficients above 0.70 are typically considered strong to very strong. In this matrix, all values exceed 0.87, with the strongest relationship observed between critical writing and writing the discussion chapter ($\rho = .991$, $p < .001$).

These results indicate that writing difficulties tend to co-occur rather than occur in isolation. Students who struggle with academic language are highly likely to encounter related challenges in coherence and cohesion ($\rho = .976$, $p < .001$), grammatical accuracy ($\rho = .931$, $p < .001$), mechanics of writing ($\rho = .943$, $p < .001$), critical writing ($\rho = .916$, $p < .001$), formatting styles ($\rho = .900$, $p < .001$), and writing the discussion chapter ($\rho = .918$, $p < .001$). Similarly, grammatical accuracy and mechanics of writing are very strongly correlated ($\rho = .968$, $p < .001$), highlighting the close interplay between technical correctness and structural clarity. Formatting styles also show strong associations with critical writing ($\rho = .919$, $p < .001$) and writing the discussion chapter ($\rho = .921$, $p < .001$), reflecting how attention to presentation is closely linked to higher-order writing tasks.

Overall, these findings reveal a highly interconnected network of writing challenges, where difficulties in one area tend to co-occur with struggles in other areas. However, the extremely high correlations, several exceeding 0.95, may indicate conceptual overlap among some constructs or potential multicollinearity, suggesting the need for further validation through factor analysis. These results nonetheless underscore the importance of integrated, stage-specific writing support programs. Foundational workshops should target grammar, mechanics, and coherence early in the doctoral journey, while advanced training should focus on critical writing, discussion chapters, and formatting. By addressing these interrelated barriers holistically, institutions can enhance both technical competence and cognitive confidence, improving doctoral students' ability to produce high-quality academic work and successfully complete their dissertations.

### 5.4 Hurdles in Literature Review and Scholarly Argumentation

**Table 5.3– Correlations**

| | Finding relevant references | Building arguments and claims | Synthesis of information | Paraphrasing, quoting, and summarizing | Referencing and citation | Hedging | Software familiarity and compatibility |
|---|---|---|---|---|---|---|---|
| Finding relevant references | 1.000 | .940** | .946** | .905** | .921** | .914** | .934** |
| Sig. (2-tailed) | . | .000 | .000 | .000 | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Building arguments and claims | .940** | 1.000 | .940** | .897** | .889** | .907** | .918** |
| Sig. (2-tailed) | .000 | . | .000 | .000 | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Synthesis of information | .946** | .940** | 1.000 | .929** | .921** | .918** | .923** |
| Sig. (2-tailed) | .000 | .000 | . | .000 | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Paraphrasing, quoting, and summarizing | .905** | .897** | .929** | 1.000 | .929** | .937** | .911** |
| Sig. (2-tailed) | .000 | .000 | .000 | . | .000 | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Referencing and citation | .921** | .889** | .921** | .929** | 1.000 | .972** | .960** |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | . | .000 | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Hedging | .914** | .907** | .918** | .937** | .972** | 1.000 | .965** |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | . | .000 |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Software familiarity and compatibility | .934** | .918** | .923** | .911** | .960** | .965** | 1.000 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | . |
| N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

Note: **. Correlation is significant at the 0.01 level (2-tailed).

The Spearman's rho correlation coefficients indicate a highly interconnected pattern of challenges in literature review and scholarly argumentation. For descriptive purposes, correlations below 0.10 are referred to as "very weak," and correlations above 0.70 are highlighted as "very strong," consistent with the thresholds defined in the Methodology. All correlations are statistically significant at the 0.01 level ($p < .01$), and all exceed the threshold of 0.70, indicating strong to very strong associations. These findings suggest that difficulties in one area tend to co-occur with challenges in related tasks, rather than occurring in isolation.

For example, the challenge of finding relevant references shows very strong positive associations with building arguments and claims ($r = .940$, $p < .001$), synthesizing information ($r = .946$, $p < .001$), paraphrasing, quoting, and summarizing ($r = .905$, $p < .001$), referencing and citation ($r = .921$, $p < .001$), hedging ($r = .914$, $p < .001$), and software familiarity and compatibility ($r = .934$, $p < .001$). This indicates that challenges in locating scholarly sources are closely associated with difficulties in argumentation, synthesis, technical accuracy, and use of digital tools.

Similarly, building arguments and claims is strongly associated with synthesizing information ($r = .940$, $p < .001$), paraphrasing, quoting, and summarizing ($r = .897$, $p < .001$), referencing and citation ($r = .889$, $p < .001$), hedging ($r = .907$, $p < .001$), and software familiarity and compatibility ($r = .918$, $p < .001$). Synthesizing information also correlates strongly with paraphrasing, quoting, and summarizing ($r = .929$, $p < .001$), referencing and citation ($r = .921$, $p < .001$), hedging ($r = .918$, $p < .001$), and software familiarity and compatibility ($r = .923$, $p < .001$).

Difficulties with paraphrasing, quoting, and summarizing are closely linked to referencing and citation ($r = .929$, $p < .001$), hedging ($r = .937$, $p < .001$), and software familiarity and compatibility ($r = .911$, $p < .001$). Notably, the strongest correlation in this dataset is observed between referencing and citation and hedging ($r = .972$, $p < .001$), highlighting the close association between precise academic language and accurate citation practices. Referencing and citation is also very strongly associated with software familiarity and compatibility ($r = .960$, $p < .001$), emphasizing the role of digital tools in managing citations effectively.

The variable hedging is very strongly correlated with both referencing and citation ($r = .972$, $p < .001$) and software familiarity ($r = .965$, $p < .001$), indicating that challenges in employing cautious academic language often coincide with difficulties in managing citations and digital writing tools. Software

familiarity and compatibility also exhibits very strong correlations with all other hurdles, further confirming the centrality of digital proficiency in literature review and scholarly writing tasks.

Overall, these findings demonstrate that challenges in literature review and scholarly argumentation tend to co-occur, forming a tightly interconnected network. Very high correlations (some exceeding r = .95) may reflect conceptual overlap or multicollinearity, highlighting the need for future validation through factor analysis.

These results have practical implications: doctoral training programs should adopt holistic support approaches that integrate writing skill development, digital tool training, and guidance in scholarly argumentation. By addressing these interconnected challenges simultaneously, institutions can improve doctoral students' ability to manage complex literature review tasks, construct coherent arguments, and produce academically rigorous dissertation work.

## 5.5 Challenges in Research Planning and Methodological Rigor

**Table 5.4 – Correlations**

| | | | Choosing a significant topic | Finding the gap in the literature review | Crafting a good research design | Data validity and reliability | Statistics issues | Ethical issues | Data analysis instruments related problems |
|---|---|---|---|---|---|---|---|---|---|
| Spearman's rho | Choosing a significant topic | Correlation Coefficient | 1.000 | .883** | .881** | .912** | .939** | .888** | .920** |
| | | Sig. (2-tailed) | . | .000 | .000 | .000 | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Finding the gap in the literature review | Correlation Coefficient | .883** | 1.000 | .975** | .927** | .854** | .931** | .878** |
| | | Sig. (2-tailed) | .000 | . | .000 | .000 | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Crafting a good research design | Correlation Coefficient | .881** | .975** | 1.000 | .913** | .855** | .923** | .885** |
| | | Sig. (2-tailed) | .000 | .000 | . | .000 | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Data validity and reliability | Correlation Coefficient | .912** | .927** | .913** | 1.000 | .874** | .889** | .876** |
| | | Sig. (2-tailed) | .000 | .000 | .000 | . | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Statistics issues | Correlation Coefficient | .939** | .854** | .855** | .874** | 1.000 | .872** | .937** |
| | | Sig. (2-tailed) | .000 | .000 | .000 | .000 | . | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Ethical issues | Correlation Coefficient | .888** | .931** | .923** | .889** | .872** | 1.000 | .923** |
| | | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | . | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Data analysis instruments related problems | Correlation Coefficient | .920** | .878** | .885** | .876** | .937** | .923** | 1.000 |
| | | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | . |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

**. Correlation is significant at the 0.01 level (2-tailed).

The analysis of correlations among challenges related to research planning and methodological rigor reveals consistently strong associations across all measured variables (see Table 5.4), with many exceeding 0.70 and thus classified as very strong. All correlations were statistically significant at the 0.01 level (2-tailed).

A very strong positive correlation was observed between choosing a significant topic and statistical issues (r = 0.939), suggesting that difficulties in identifying a meaningful research problem often coincide with struggles in statistical understanding. This challenge was also highly correlated with data analysis instrument-related problems (r = 0.920) and data validity and reliability (r = 0.912), indicating that foundational issues in topic selection may extend to broader methodological weaknesses. The relationship with ethical issues (r = 0.888) further implies that unclear research focus complicates ethical considerations. Additionally, selecting a significant topic was strongly associated with finding a gap in the literature (r = 0.883) and crafting an effective research design (r = 0.881), both crucial for establishing a coherent research framework.

The challenge of finding a gap in the literature was most strongly correlated with crafting a good research design (r = 0.975), representing the strongest association in the matrix. This highlights the interdependence between conceptual clarity and structural planning. It was also strongly linked to ethical issues (r = 0.931), data validity and reliability (r = 0.927), and data analysis instrument-related problems (r = 0.878), suggesting that difficulty in positioning research within the existing literature often coincides with obstacles in constructing a methodologically sound and ethical study.

Similarly, crafting a good research design showed very strong positive correlations with ethical issues (r = 0.923), data validity and reliability (r = 0.913), and data analysis instrument-related problems (r = 0.885). These patterns underscore how weak design decisions can impact both methodological rigor and ethical integrity. Strong correlations were also observed with statistical issues (r = 0.855), reinforcing the importance of sound research structure for statistical planning.

The relationship between statistical issues and data analysis instrument-related problems was particularly notable (r = 0.937), representing one of the strongest coefficients in the matrix. Strong associations were also evident between statistical issues and data validity and reliability (r = 0.874), ethical issues (r = 0.872), and choosing a significant topic (r = 0.939), emphasizing the foundational role of statistical literacy in rigorous research.

Ethical issues permeated every aspect of research planning. Correlations with data analysis instruments (r = 0.923), finding a literature gap (r = 0.931), research design (r = 0.923), and data validity and reliability (r = 0.889) were consistently strong. These findings indicate that when ethical challenges arise, students are often simultaneously encountering conceptual, methodological, and technical difficulties.

Overall, the correlation analysis illustrates a highly interconnected network of challenges. Most correlations fall within the range of strong to very strong ($r > 0.70$), reinforcing the idea that these obstacles do not occur in isolation but form clusters of interrelated difficulties. Addressing a key challenge, such as topic selection or statistical competence, may produce positive ripple effects on related areas, including research design, ethical considerations, data validity, and instrument selection.

These findings highlight the importance of integrated and comprehensive doctoral research training, emphasizing the interplay between conceptual, ethical, and technical competencies. Moreover, the persistence of strong correlations across variables suggests that these challenges are not confined to a particular stage of the doctoral journey but rather reinforce one another throughout the research process. For instance, difficulties in topic selection often lead to problems in identifying a literature gap, complicating research design, statistical planning, and ethical grounding.

In conclusion, the correlation matrix reveals a tightly interwoven structure of methodological and planning-related obstacles. Targeted interventions and sustained support structures are necessary to address the complex and interdependent nature of these challenges. Doctoral training programs must consider this interconnectedness to effectively support students in overcoming multifaceted research difficulties.

## 5.6 Systemic and Personal Obstacles in the Dissertation Journey

**Table 5.5 – Correlations**

| | | | Quality of research environment | Supervisors-supervisees relationship | Time management | Personal issues | Stress and anxiety | Publishing articles | Abstract and executive summary |
|---|---|---|---|---|---|---|---|---|---|
| Spearman's rho | Quality of research environment | Correlation Coefficient | 1.000 | .942** | .881** | .900** | .835** | .903** | .933** |
| | | Sig. (2-tailed) | . | .000 | .000 | .000 | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Supervisors-supervisees relationship | Correlation Coefficient | .942** | 1.000 | .879** | .923** | .810** | .926** | .964** |
| | | Sig. (2-tailed) | .000 | . | .000 | .000 | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Time management | Correlation Coefficient | .881** | .879** | 1.000 | .822** | .846** | .863** | .882** |
| | | Sig. (2-tailed) | .000 | .000 | . | .000 | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Personal issues | Correlation Coefficient | .900** | .923** | .822** | 1.000 | .782** | .944** | .899** |
| | | Sig. (2-tailed) | .000 | .000 | .000 | . | .000 | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Stress and anxiety | Correlation Coefficient | .835** | .810** | .846** | .782** | 1.000 | .835** | .844** |
| | | Sig. (2-tailed) | .000 | .000 | .000 | .000 | . | .000 | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Publishing articles | Correlation Coefficient | .903** | .926** | .863** | .944** | .835** | 1.000 | .924** |
| | | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | . | .000 |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | Abstract and executive summary | Correlation Coefficient | .933** | .964** | .882** | .899** | .844** | .924** | 1.000 |
| | | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | . |
| | | N | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

**. Correlation is significant at the 0.01 level (2-tailed).

The Spearman's rho correlation analysis provides significant insights into the interconnections among challenges faced by doctoral students. All correlations are statistically significant at the 0.01 level ($p < .01$), confirming that these relationships are robust and unlikely due to chance. Many coefficients exceed 0.70 and are therefore classified as very strong, indicating substantial associations among the examined variables (Cohen, 2013; Pallant, 2001).

The quality of the research environment emerges as a central factor. It shows strong to very strong positive correlations with the supervisor–supervisee relationship (r = 0.942), time management (r = 0.881), personal issues (r = 0.900), stress and anxiety (r = 0.835), publishing articles (r = 0.903), and abstract and executive summary writing (r = 0.933). These results suggest that a positive research environment supports effective time management, quality supervision, reduced personal and psychological burdens, and higher scholarly output.

Similarly, the supervisory relationship plays a pivotal role in doctoral success. It is strongly correlated with time management (r = 0.879), personal issues (r = 0.923), stress and anxiety (r = 0.810), publishing articles (r = 0.926), and abstract/executive summary writing (r = 0.964). This highlights the critical importance of competent mentoring for both academic progress and emotional well-being. Effective supervision helps students navigate personal challenges while meeting key academic milestones.

Time management also shows strong correlations with personal issues (r = 0.822), stress and anxiety (r = 0.846), publishing articles (r = 0.863), and abstract/executive summary writing (r = 0.882). These findings confirm that managing time effectively is essential not only for academic productivity but also for mitigating personal and emotional pressures, enabling students to balance scholarly and personal responsibilities.

Personal issues correlate strongly with stress and anxiety (r = 0.782), publishing articles (r = 0.944), and abstract/executive summary writing (r = 0.899). The particularly high correlation with publishing underscores how health problems, familial responsibilities, or financial stress can impede scholarly productivity. Emotional and personal stability are therefore crucial for students to engage in rigorous academic work.

Stress and anxiety are strongly associated with publishing articles (r = 0.835) and abstract/executive summary writing (r = 0.844), highlighting the impact of psychological distress on academic performance. Students experiencing high stress may struggle to communicate their work effectively or meet academic expectations, emphasizing the need for mental health support.

The process of publishing articles itself is deeply connected with all other variables, particularly supervisory relationships (r = 0.926), personal issues (r = 0.944), and abstract/executive summary writing (r = 0.924). This indicates that successful publishing requires not only technical skills but also a supportive environment, emotional stability, and effective time management.

Finally, abstract and executive summary writing shows strong to very strong correlations with all variables, especially the supervisory relationship (r = 0.964) and research environment (r =

0.933). Difficulties in writing these key dissertation components often reflect broader systemic challenges, including supervision quality, stress, and overall academic environment.

These results highlight that doctoral challenges are interconnected. Improvements in one area—such as enhancing the research environment or strengthening supervisory relationships—can positively influence time management, personal issues, psychological well-being, and academic output. Holistic, integrated support systems are therefore essential, addressing academic, personal, and emotional aspects of the doctoral journey.

In conclusion, the correlation analysis confirms that systemic and personal factors are tightly interwoven, with strong associations among research environment, supervisory relationships, time management, personal issues, stress, and publishing. Addressing these interconnected challenges through holistic support can enhance doctoral students' academic progress, emotional well-being, and overall ability to successfully complete their dissertations.

## 5.7 Correlation Analysis Between Categories

Following the detailed analysis of relationships within each category, this section shifts focus to the interrelationships between the four overarching categories of challenges faced by doctoral students. While the within-category analysis illuminated the internal dynamics of each domain, understanding how these broader categories interact provides a more comprehensive view of the doctoral experience. Examining these connections allows for the identification of systemic patterns—where challenges in one area may reinforce or compound difficulties in others—thus offering deeper insights into the complexity of the doctoral journey.

To ensure the appropriateness of the statistical procedures, preliminary analyses were conducted to examine the distributional characteristics of the data (Dardour & Bouyahya, 2026). The four categories demonstrated substantial variability, with standard deviations ranging from 1.16 to 1.25. Several variables also exhibited negative skewness, indicating a clustering of responses toward the higher end of the Likert scale. The results of the Kolmogorov–Smirnov and Shapiro–Wilk tests further confirmed significant departures from normality ($p < .001$ for all categories), thereby violating the assumptions required for parametric correlation analysis.

In light of these findings—and considering the ordinal nature of Likert scale data—Spearman's rho was selected as the most appropriate method for assessing correlations. As a non-parametric measure of rank correlation, Spearman's rho is robust to non-normality and does not assume a linear relationship, making it ideal for exploring associations among the variables in this context.

This section presents the results of the Spearman's rho correlation analysis conducted to examine the relationships among the following four categories:

Challenges in Research Planning and Methodological Rigor

Hurdles in Literature Review and Scholarly Argumentation

Barriers to Effective Academic Writing

Systemic and Personal Obstacles in the Dissertation Journey

Interpretation of the correlation coefficients follows widely used criteria, where values of r between 0.00–0.30 indicate very weak or no correlation (with values below 0.10 considered extremely weak for descriptive purposes), 0.30–0.50 represent moderate correlation, 0.50–0.70 suggest strong correlation, and 0.70–1.00 reflect very strong correlation (Cohen, 2013; Pallant, 2001). Positive coefficients indicate a direct relationship between two variables, whereas negative coefficients indicate an inverse association. Statistical significance was assessed using the corresponding p-values, with $p < 0.05$ considered indicative of a meaningful, non-random correlation.

The analysis aims to determine the extent to which difficulties in one category are associated with challenges in others. Identifying these relationships offers a more holistic understanding of how doctoral students experience and navigate multiple, often overlapping, obstacles throughout their dissertation journey.

**Table 5.6 – Inter-category Correlations**

| | Challenges in research planning | Hurdles in literature review | Barriers to academic writing | Systemic and personal obstacles |
|---|---|---|---|---|
| Challenges in research planning | 1.000 | .923** | .941** | .899** |
| Sig. (2-tailed) | . | .000 | .000 | .000 |
| N | 2100 | 2100 | 2100 | 2100 |
| Hurdles in literature review | .923** | 1.000 | .964** | .953** |
| Sig. (2-tailed) | .000 | . | .000 | .000 |
| N | 2100 | 2100 | 2100 | 2100 |
| Barriers to academic writing | .941** | .964** | 1.000 | .922** |
| Sig. (2-tailed) | .000 | .000 | . | .000 |
| N | 2100 | 2100 | 2100 | 2100 |
| Systemic and personal obstacles | .899** | .953** | .922** | 1.000 |
| Sig. (2-tailed) | .000 | .000 | .000 | . |
| N | 2100 | 2100 | 2100 | 2100 |

Table 5.6 presents the results of the Spearman's rho correlation analysis examining the interrelationships among four main categories of doctoral challenges. All correlations were statistically significant at $p < .001$, with coefficients ranging from .899 to .964, indicating very strong associations across categories. Positive coefficients reflect direct relationships, suggesting that challenges in one domain tend to co-occur with difficulties in others.

The highest correlation was observed between Barriers to Effective Academic Writing and Hurdles in Literature Review and Scholarly Argumentation ($r = .964$), highlighting the close link between students' ability to engage critically with scholarly literature and their capacity to communicate ideas effectively in writing. Similarly, strong correlations were found between Challenges in Research Planning and Academic Writing ($r = .941$) and between Research Planning and Literature Review ($r = .923$), suggesting that difficulties in conceptualizing and structuring research projects are closely tied to deficits in both literature engagement and written articulation.

Systemic and Personal Obstacles also showed strong correlations with all other domains: $r = .953$ with Literature Review, $r = .922$ with Academic Writing, and $r = .899$ with Research Planning. These results indicate that institutional, emotional, and personal challenges—such as limited mentorship, time constraints, and stress—permeate and exacerbate struggles in core academic competencies. Conversely, difficulties in research and writing can intensify stress and feelings of isolation, creating a cyclical pattern of interrelated challenges.

Overall, these findings demonstrate that the four domains do not function as discrete, independent dimensions but form an interconnected system, where weakness in one area increases the likelihood of difficulty in others. The results align with ecological and systems-based perspectives on doctoral education (Lovitts, 2005; Gardner, 2009) and underscore the need for holistic support mechanisms that address cognitive, technical, and systemic dimensions of doctoral training.

In summary, all inter-category correlations are very strong ($r = .899–.964$, $p < .001$), with the strongest observed between Academic Writing Barriers and Literature Review Hurdles. This pattern indicates that doctoral challenges are mutually reinforcing, highlighting the importance of integrated interventions that simultaneously target writing, research, and systemic support to enhance student outcomes.

## 6. Discussion

Drawing on the challenge taxonomy established by Dardour and Bouyahya (2026), this study extends prior work by examining the interrelationships among dissertation-writing challenges experienced by Moroccan doctoral students. The focus on RQ1 and RQ2—exploring the relationships among academic, methodological, systemic, and personal challenges and how they co-occur—reveals that doctoral difficulties form a highly interconnected and mutually reinforcing system. The strong and statistically significant correlations observed both within

and across domains provide clear support for H1, confirming that dissertation-writing challenges are rarely isolated.

Within the academic writing domain, the near-perfect correlation between critical writing and discussion chapter writing ($r = 0.991$, $p < .01$) indicates that advanced writing tasks function as an integrated construct rather than as separable skills, consistent with Bloom's revised taxonomy (Anderson & Krathwohl, 2001), which positions analysis, evaluation, and synthesis as interdependent cognitive processes. Very strong correlations between academic language proficiency and writing coherence ($r = 0.976$, $p < .01$), grammatical accuracy ($r = 0.931$), writing mechanics ($r = 0.943$), referencing ($r = 0.900$), and discussion chapter writing ($r = 0.918$) suggest that linguistic competence underpins both lower-level writing mechanics and higher-order scholarly reasoning, supporting prior work on integrated academic writing (Madsen, 1983; Al-Zubaidi & Richards, 2010; Ma, 2021). These findings also address H2, indicating that academic difficulties are closely linked to personal challenges, including cognitive load and stress, which may compound the complexity of doctoral writing tasks.

Academic writing challenges are tightly intertwined with literature review and scholarly argumentation. Very strong correlations between synthesis and referencing ($r = 0.921$, $p < .01$), synthesis and hedging ($r = 0.972$, $p < .01$), and synthesis and argumentation ($r = 0.940$, $p < .01$) suggest that engaging with literature, managing sources, and constructing arguments form a single, interdependent scholarly practice. This aligns with Hart (1998), who argues that effective argumentation relies on critical reading, synthesis, and accurate referencing, and with Cooper (2015), who positions synthesis as a higher-order skill dependent on multiple interacting sub-skills. The strength of these associations underscores that challenges in literature review cannot be separated from broader academic writing difficulties, illustrating the cumulative and mutually reinforcing nature of doctoral challenges.

Research planning and methodological challenges are similarly embedded within this relational system. Strong correlations between identifying research gaps, developing coherent research designs, and writing-related difficulties align with Kamler and Thomson (2014), who view doctoral writing as a site of knowledge construction rather than post hoc reporting. Methodological difficulties, including statistical analysis and the use of data analysis instruments, are strongly correlated with both academic writing and research planning variables, supporting Lovitts (2007) and Creswell (2014) in emphasizing coherence between research questions, methodology, and scholarly communication. These findings provide empirical support for H3, demonstrating that systemic and institutional constraints—such as limited supervisory support or resource availability—exacerbate academic and methodological difficulties.

Systemic and personal obstacles occupy a central position in the correlation network. Strong associations between time management, stress and anxiety, supervisory challenges, and academic writing variables—particularly critical writing and discussion chapter composition (Spearman's rho $> 0.87$, $p < .01$)—illustrate that personal and institutional constraints are deeply intertwined with academic and methodological challenges. Supervisory relationships, in particular, show very strong correlations with multiple outcomes ($r > 0.92$, $p < .01$), highlighting supervision as a key mediating factor linking institutional contexts and doctoral performance (Cornér et al., 2018; Larouz & Abouabdelkader, 2020).

Overall, the correlational structure provides strong empirical support for systems-oriented and ecological models of doctoral education (Gardner, 2009; Pyhältö et al., 2012). The interdependence between academic, methodological, systemic, and personal challenges reflects the mechanisms proposed in Tinto's (1975, 1987) academic and social integration models and aligns with Swail's (2004) Geometric Model of student persistence. Correlations involving higher-order cognitive skills support Bloom's Taxonomy (Bloom et al., 1956; Anderson & Krathwohl, 2001), while associations with time management and procrastination are consistent with Procrastination Theory (Ferrari, 1995; Steel, 2007) and classical Time

Management Theory (Taylor, 1919; Drucker, 1966; Fayol, 2016). Together, these findings demonstrate that dissertation-writing challenges should be understood as part of a dense, mutually reinforcing network rather than as isolated or linear problems.

In relation to the research questions, RQ1 is answered by the observation that academic, methodological, systemic, and personal challenges are very strongly correlated across all measured variables, indicating high co-occurrence. RQ2 is addressed by the evidence that these challenges interact and reinforce one another: weaknesses in one domain, such as research planning, increase the likelihood of difficulties in academic writing, literature synthesis, and personal management. H1, H2, and H3 are fully supported, as all correlations are positive, very strong ($r > 0.87$), and statistically significant ($p < .01$), confirming that academic and methodological challenges are closely linked to personal difficulties and are exacerbated by systemic constraints.

These findings have important implications for doctoral support. Integrated interventions are required that address cognitive, technical, and systemic dimensions simultaneously. Enhancing support in research planning, writing, or supervision can produce ripple effects across the network of challenges, reinforcing the need for holistic programs that target academic skills, methodological competence, time management, and personal well-being concurrently. Such system-level interventions are likely to be more effective than isolated workshops or fragmented support, providing doctoral students with the comprehensive resources necessary to navigate the complex dissertation journey successfully.

## 7. Limitations of the Study

Despite the strengths of this study, several limitations should be acknowledged. First, the research adopts a cross-sectional correlational design, which allows for the identification of associations among dissertation-writing challenges but does not permit causal inferences. While the strong correlations observed suggest a mutually reinforcing system of challenges, the directionality of these relationships cannot be determined. Longitudinal designs would be required to examine how these challenges evolve and influence one another over time.

Second, the study relies on a convenience sample of doctoral students enrolled in English Studies across Moroccan universities. Although this disciplinary focus provides depth and contextual coherence, it limits the generalizability of the findings to doctoral students in other fields, institutions, or national contexts. Doctoral experiences and challenges may differ across disciplines with distinct epistemological traditions, methodological practices, and institutional structures.

Third, the data are based on self-reported perceptions, which may be subject to response bias, social desirability effects, or individual differences in self-assessment. Participants' reported challenges reflect perceived difficulties rather than externally validated measures of performance or progress. Future research could strengthen validity by triangulating survey data with qualitative interviews, supervisory evaluations, or institutional records.

Acknowledging these limitations does not diminish the value of the study; rather, it clarifies the scope of interpretation and provides directions for future research aimed at deepening understanding of the systemic nature of doctoral dissertation-writing challenges.

## 8. Conclusion

This study examined the interrelationships among dissertation-writing challenges faced by Moroccan doctoral students, extending the taxonomy proposed by Dardour and Bouyahya (2026). Consistent with the research questions (RQ1, RQ2) and hypotheses (H1–H3), the correlation analysis shows that these challenges—spanning academic writing, literature review and argumentation, research planning, methodological rigor, and systemic-personal obstacles—form a highly interconnected and mutually reinforcing system. Difficulties in one area are closely associated with, and often amplify, challenges in other areas, highlighting the relational and cumulative nature of doctoral obstacles.

Academic writing—including critical writing, discussion chapter composition, and language proficiency—demonstrates exceptionally strong interconnections, suggesting these skills operate as integrated constructs rather than discrete competencies. Similarly, literature review and scholarly argumentation—encompassing synthesis, referencing, and hedging—are tightly linked with academic writing, reflecting a single, interdependent scholarly competence. Research planning and methodological challenges, such as identifying research gaps, designing coherent studies, and employing appropriate analytical techniques, are strongly associated with both writing and literature review skills, indicating that conceptualizing and structuring research is inherently tied to writing and analytical abilities.

Systemic and personal obstacles—such as time management, stress, anxiety, and supervisory challenges—occupy central positions in this network. Their strong associations with academic and methodological difficulties demonstrate that institutional, emotional, and personal factors amplify cognitive and technical challenges. These findings empirically support H2 and H3, showing that personal and systemic challenges co-occur with, and exacerbate, academic and methodological difficulties, forming a dense, mutually reinforcing network.

Overall, the results confirm that doctoral challenges are relational and best understood through a systems-oriented framework. These patterns align with theoretical perspectives emphasizing the interplay of cognitive, social, and institutional factors, including Tinto's Student Integration Model (1975, 1987), Swail's Geometric Model (2004), Bloom's Taxonomy (Bloom et al., 1956; Anderson & Krathwohl, 2001), and Procrastination Theory (Ferrari, 1995; Steel, 2007). Rather than viewing challenges as discrete or sequential, the evidence highlights the importance of a holistic perspective, which can guide interventions, support strategies, and further research.

In conclusion, Moroccan doctoral students experience dissertation-writing challenges as an integrated system rather than a collection of independent difficulties. Recognizing these interconnections is critical for understanding the doctoral experience and provides a foundation for future research exploring how academic, methodological, and systemic-personal challenges collectively influence persistence, progress, and timely completion.

## 9. Recommendations

The findings suggest that dissertation-writing challenges operate as a tightly interconnected system. Any efforts to understand or address doctoral difficulties should consider the relational nature of these obstacles. Academic writing, literature review, research planning, methodological rigor, and systemic-personal challenges are interdependent; difficulties in one domain often amplify difficulties in others. Consequently, interventions and research initiatives should adopt a holistic, systems-oriented approach rather than targeting individual challenges in isolation.

Practical implications include the development of integrated doctoral support programs combining academic writing, literature review, and methodological planning with personal development and supervision strategies. For instance, workshops on synthesis, referencing, and argumentation could be paired with guidance on research design and time management, reflecting the strong correlations between academic, methodological, and systemic-personal domains. Enhanced supervisory support and mentoring should be prioritized, as supervision strongly mediates the relationships between institutional constraints, stress, and academic performance.

Research implications involve extending this relational perspective through longitudinal and comparative studies. Longitudinal research could capture the dynamic interplay among academic, methodological, and systemic-personal challenges across the dissertation journey. Comparative studies across disciplines or institutions would clarify whether these interconnections are consistent in other contexts. Additionally, qualitative investigations—such as interviews, case studies, and reflective accounts—could elucidate mechanisms

underlying these correlations, revealing how time management, stress, and supervisory support interact with methodological and writing difficulties.

Policy implications emphasize designing doctoral programs and institutional resources that reflect the complex, integrated reality of doctoral education. By acknowledging the interconnectedness of challenges, universities can implement holistic interventions that enhance doctoral persistence, reduce attrition, and improve the timely completion and quality of dissertations.

In sum, adopting a systems-oriented approach in both research and institutional planning is crucial. Integrated academic, methodological, supervisory, and personal support strategies are likely to foster more resilient and successful doctoral researchers, ultimately strengthening the doctoral experience in Morocco and beyond.

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