

EXPLORING THE RELATIONSHIP OF SPIRITUAL INTELLIGENCE (SI) AND LEARNING AND INNOVATION SKILLS (LIS) AMONG UNDERGRADUATE STUDENTS FOR THE 21ST CENTURY EDUCATION

A Thesis

**Submitted to the Master's Study Program of Education at the Faculty
of Education in partial fulfillment of the requirements for the degree of**

Master of Arts (M.A.)



by:

Muhamad Maulana

04212310007

UNIVERSITAS ISLAM INTERNASIONAL INDONESIA

DEPOK

2025

EXPLORING THE RELATIONSHIP OF SPIRITUAL INTELLIGENCE (SI) AND LEARNING AND INNOVATION SKILLS (LIS) AMONG UNDERGRADUATE STUDENTS FOR THE 21ST CENTURY EDUCATION

A Thesis

**Submitted to the Master's Study Program of Education at the Faculty
of Education in partial fulfillment of the requirements for the degree of**

Master of Arts (M.A.)



by:

Muhamad Maulana

04212310007

UNIVERSITAS ISLAM INTERNASIONAL INDONESIA

DEPOK

2025

ABSTRACT

Muhamad Maulana

04212310007

muhamad.maulana@uiii.ac.id

MA in Education

Universitas Islam Internasional Indonesia

This study aims to explore the relationship between spiritual intelligence and learning and innovation skills in the era of 21st education, among undergraduate students in higher education. The background of this research is driven by the necessity to prepare future generations who possess not only technical skills but also the ability to navigate moral and ethical challenges in an increasingly complex society. The methodology employed is a convergent parallel mixed methods design, integrating both quantitative and qualitative approaches in a balanced manner. Quantitative data was collected through a structured survey involving 274 undergraduate Islamic education students coming from different Islamic universities, while qualitative data was obtained through semi-structured interviews with a purposively selected 5 students representing each university. The survey instruments measured the dimensions of spiritual intelligence—critical existential thinking, personal meaning making, transcendental awareness, and conscious state expansion—and learning and innovation skills—critical thinking, creativity, communication, and collaboration—ensuring a comprehensive understanding of the constructs. This methodological structure allows for robust analysis of the interplay between these two variables, and understanding of how spiritual intelligence can impact students' learning and innovation skills. The findings of study revealed a high positive predictive relationship between Spiritual Intelligence and Learning and Innovation Skills among undergraduate students, specifically Personal Meaning Making (PMM) as a key sub-dimensions of Spiritual Intelligence, found to have positively correlated on all Learning and Innovation Skills' sub-dimensions. This fundamental relationship illustrates the importance of a student's spiritual depth in developing their learning capability, critical thinking and problem solving, creativity and innovation, communication, and collaboration, a discovery consistent across studies by different genders and phases of study. Qualitatively, students perceived these concepts to be interconnected for well-rounded development, but identified significant challenges for the development of these in an integrated manner in the university context, particularly in organizational support and observed disjunctions between academics and spiritual development. Together, these findings provide vital understanding for developing holistic educational programs that enhance cognitive and spiritual growth, to manage the gaps and challenges identified and to better prepare students to deal with the complexities of modern life.

Keyword: 21st century education, spiritual intelligence, learning and innovation skills, undergraduate students, and higher education.

ABBREVIATION DIRECTORY

AI	: Artificial Intelligence
CET	: Critical Existential Thinking
CFT	: Cognitive Flexible Theory
CIS	: Creativity and Innovation Skills
CS	: Communication Skills
CSE	: Conscious State Expansion
CT	: Critical Thinking
CTPS	: Critical Thinking and Problem-Solving Skills
CWS	: Collaborative Working Skills/Collaboration Skills
DIF	: Differential Item Functioning
LIS	: Learning and Innovation Skills
PMM	: Personal Meaning Making
SDT	: Self Determinant Theory
SI	: Spiritual Intelligence
SLR	: Systematic Literature Review
SPSS	: Statistical Package for the Social Sciences
TA	: Transcendental Awareness

ACKNOWLEDGEMENT

All praise and gratitude be to Allah SWT, the Lord of the worlds. It is only by His mercy, grace, and strength that I was able to complete this thesis. His guidance made it possible to go through each challenge and find ease in the process. Shalawat and greetings are also upon Prophet Muhammad PBUH, the bearer of truth and a role model for all humanity, whose teachings continue to guide and inspire my life.

The completion of this thesis marks an important milestone in my academic journey. I am deeply thankful to everyone who has supported, guided, and encouraged me throughout this process. First and foremost, I express my sincere gratitude to my two supervisors, Dr. Destina Wahyu Winarti and Andar Nubowo, Ph.D. To Dr. Destina, my main supervisor and academic advisor, thank you for your constant support, insightful guidance, and belief in my potential. Your encouragement—especially the words “Do not underestimate yourself”—has helped me overcome self-doubt and pushed me to reach beyond my comfort zone. Your mentorship, particularly through the research funding project, has been instrumental in shaping my research mindset and critical thinking. To Andar Nubowo, Ph.D., even though I never had a class with you, your feedback during our mentoring sessions was invaluable. You consistently challenged me to think deeper and reminded me that every student has the ability to surpass their own academic boundaries.

I am also grateful to Tati Lathipatud Durriyah, Ph.D., for the opportunity to join her independent study class. Her advice that “writing a thesis is a chance to explore and learn more about what matters to you” played a key role in helping me focus on a research topic I genuinely care about. Likewise, I thank Bambang Sumintono, Ph.D., for his guidance on Rasch analysis; his clear and patient explanations were critical during my data analysis phase. I also sincerely appreciate Soeharto, Ph.D., for his thoughtful comments during the thesis defense and for motivating me to continue growing as a learner and researcher.

My deepest gratitude also goes to Prof. Nina Nurmila, Ph.D., Dean of the Faculty of Education at UIII, and to all the respected lecturers who have supported my academic and administrative journey. Their commitment to academic excellence and their encouragement have helped shape me into a more critical, reflective, and responsible student of education. Outside of the academic circle, I owe my greatest thanks to my beloved parents. Their endless love, prayers, and support have been the foundation of my strength. Even from afar, they have always been with me in spirit, providing unwavering motivation and comfort through every challenge I faced.

I would also like to extend my appreciation to my peers in the MA in Education, Batch 3. Thank you for your support, collaboration, and companionship throughout this journey. The shared challenges, discussions, and laughter we had made the graduate school experience more meaningful and memorable. Lastly, I would like to acknowledge the assistance of my AI writing partner, affectionately known as “Mbah.” In moments of writing fatigue or uncertainty, this digital assistant helped me organize thoughts, clarify arguments, and express ideas more effectively. In today’s world of research and learning, knowing how to work meaningfully with AI is part of being a modern, adaptive learner.

TABLE OF CONTENTS

STATEMENT OF AUTHENTICITY.....	ii
ANTI PLAGIARISM STATEMENT	iii
THESIS ATTESTATION.....	iv
THESIS DEFENSE APPROVAL.....	v
ABSTRACT.....	vi
ABBREVIATION DIRECTORY	vii
ACKNOWLEDGEMENT	viii
TABLE OF CONTENTS.....	ix
LIST OF TABLES.....	xii
LIST OF FIGURES	xiii
LIST OF APPENDIX	xiv
CHAPTER I.....	1
INTRODUCTION	1
1.1. Background.....	1
1.2. Research Questions	12
1.3. Research Objectives	13
1.4. Significance of Study	13
1.5. Scope of the Study	14
CHAPTER II.....	15
THEORETICAL FOUNDATIONS.....	15
2.1. Literature Review.....	15
2.2.1. Understanding Learning and Innovation Skills (LIS).....	15
Defining 21st Century Education and Its Core Skills	16
<i>Components of Learning and Innovation Skills (LIS)</i>	18
2.2.1. Understanding Spiritual Intelligence (SI).....	25
<i>Definition of Spiritual Intelligence</i>	25
<i>The King's Viable Spiritual Intelligence Model</i>	28
2.2.3. Systematic Literature Review on Spiritual Intelligence in Education.....	32
<i>Research Methodology of The Systematic Literature Review</i>	33
<i>Key Themes and Findings from The Systematic Literature Review</i>	34
2.2.4. The Relation of Spiritual Intelligence and Learning and Innovation Skills	43
2.2. Theoretical Framework	46

2.2.1 Self-Determination Theory.....	47
2.2.2. Self-Efficacy Theory	48
2.2.3. Cognitive Flexibility Theory	50
2.3. Conceptual Framework	51
CHAPTER III	54
RESEARCH METHODOLOGY	54
3.1. Research Paradigm and Design	54
3.2. Methodology of Quantitative Study	56
3.2.1. Quantitative Research Design	56
3.2.2. Quantitative Research Participants	57
3.2.3. Quantitative Research Instrument	59
3.2.4. Quantitative Data Collection	65
3.2.5. Quantitative Data Analysis Technique	66
3.3. Methodology of Qualitative Study	70
3.3.1. Qualitative Research Design	70
3.3.2. Qualitative Research Participant	71
3.3.3. Qualitative Research Instrument	71
3.3.4. Qualitative Data Collection	72
3.3.5. Qualitative Data Analysis Technique	73
3.4. Integration of Findings.....	74
3.5. Positionality and Ethical Consideration.....	75
CHAPTER IV	77
FINDING AND DISCUSSION	77
4.1. Research Findings.....	77
4.1.1. Quantitative Findings	77
<i>Data Transformation and Description</i>	<i>78</i>
<i>Analysis Item Level Difficulty.....</i>	<i>87</i>
<i>Analysis of Person Level</i>	<i>102</i>
<i>Differential Item Functioning Analysis</i>	<i>109</i>
<i>Pearson Correlation Analysis between SI and LIS.....</i>	<i>114</i>
<i>Simple Linear Regression Analysis between SI and LIS.....</i>	<i>115</i>
<i>Path Analysis between Dimensions of SI and LIS</i>	<i>117</i>
<i>Moderation Analysis</i>	<i>120</i>
4.1.2. Qualitative Findings	122

<i>Students Understanding of Spiritual Intelligence</i>	123
<i>Students Understanding of Learning and Innovation Skills</i>	129
<i>The Relationship between 21st Century Skill Development and Spiritual Intelligence</i>	138
<i>Relevance and Challenges in Balancing Spiritual Intelligence and Learning and Innovation Skills for the 21st Century Education</i>	143
4.2. Discussions	148
4.2.1. Spiritual Intelligence as a Predictor for 21st Century Learning and Innovation Skills	149
4.2.2. Does Demography Matter? Exploring the Moderating Role of Gender and Study Phase	154
4.2.3. Student Perspectives on Spiritual Intelligence and Learning Skills: Meaning, Practice, and Challenges	159
<i>The Intertwined Meaning and Profound Relevance</i>	159
<i>Perceived Practices in Cultivating SI and LIS</i>	161
<i>The Multifaceted Challenges in Balancing Development</i>	162
CHAPTER V	159
CONCLUSION.....	168
5.1. Conclusion	168
5.2. Implications of the Study	169
5.3. Limitation.....	170
5.4. Recommendations for Future Research.....	171
REFERENCES	173
APPENDIX.....	219

LIST OF TABLES

Table 3. 1. Psychometric Properties of Measurement Scale (Pilot).....	61
Table 3. 2. Item Fit Statistic for SISRI-23 (Pilot).....	63
Table 3. 3. Item Fit Statistic for LIS (Pilot).....	64
Table 4. 1. Students Demographic of Quantitative Respondents.....	79
Table 4. 2. Psychometric Properties of Measurement Scales	80
Table 4. 3. Psychometric Properties of Subscales for SI and LIS.....	83
Table 4. 4. Descriptive Statistics	85
Table 4. 5. Pearson Correlation Test	114
Table 4. 6. Summary of Regression Model	115
Table 4. 7. ANOVA Table for the Regression	116
Table 4. 8. Regression Coefficient	116
Table 4. 9. Moderation Test Summary Table	120
Table 4. 10. Students Demographic of Qualitative Respondents.....	122

LIST OF FIGURES

Figure 2. 1. P21 Framework of 21st Century Learning	16
Figure 2. 2. Prisma Flow Diagram	34
Figure 2. 3. Distribution of Articles Published.....	35
Figure 2. 4. Research Conceptual Framework.....	51
Figure 3. 1. Convergent Parallel Mixed Method Design	55
Figure 3. 2. Rating Scale Analysis for SISRI 23	62
Figure 3. 3. Rating Scale Analysis for LIS-LES	62
Figure 3. 4. Hayes Process Macro Model 2.....	68
Figure 4. 1. Item Map Critical Existential Thinking.....	89
Figure 4. 2. Item Map Personal Meaning Making.....	90
Figure 4. 3. Item Map Transcendental Awareness	92
Figure 4. 4. Item Map Conscious State Expansion.....	94
Figure 4. 5. Item Map Critical Thinking and Problem Solving Skills	96
Figure 4. 6. Item Map Creativity and Innovation Skills	97
Figure 4. 7. Item Map Communication Skills	99
Figure 4. 8. Item Map Collaboration Skills	100
Figure 4. 9. The Person Level Distribution of SI based on Gender	102
Figure 4. 10. The Person Level Distribution of SI based on Phase of Study	103
Figure 4. 11. Dimensional Person Level Analysis of SI.....	104
Figure 4. 12. The Person Level Distribution of LIS based on Gender.....	106
Figure 4. 13 The Person Level Distribution of LIS based on Phase of Study.....	107
Figure 4. 14. Dimensional Person Level Analysis of LIS	108
Figure 4. 15. Differential Item Functioning of SI based on Gender	110
Figure 4. 16. Differential Item Functioning of SI based on Phase of Study	112
Figure 4. 17. Differential Item Functioning of LIS based on Gender.....	112
Figure 4. 18. Differential Item Functioning of SI based on Phase of Study	113
Figure 4. 19. Path Analysis Result.....	118

LIST OF APPENDIX

Appendix 1: Spiritual Intelligence Instrument	219
1.1. The Spiritual Intelligence Self-Report Inventory (SISRI -24).....	219
1.2. Reliability of SI Instrument.....	221
1.3. Item Fit Statistics of SI Instrument (Winstep)	221
1.4. Unidimensionality of SI	222
1.5. Rasch Model Thresholds of SI Instrument	222
1.6. Item Map of SI	223
1.7. Person Map of SI.....	224
1.8. Item Fit Statistics of Subdimensional SI	225
1.9. Wright Map of Subdimensional SI.....	226
1.10. Person Level Analysis of SI	227
1.11. Differential Item Functioning Analysis of SI Instrument	228
1.11.1. <i>Differential Item Functioning Analysis of SI based on Gender</i>	228
1.11.2. <i>Differential Item Functioning Analysis of SI based on Phase of Study</i>	228
1.12. Informed Consent for collecting quantitative data.....	229
Appendix 2: Learning and Innovation Skills Instrument.....	230
2.1. Instrument	230
2.2. Reliability of LIS Instrument.....	232
2.3. Item Fit Statistics of LIS Instrument (Winstep).....	233
2.4. Unidimensionality of LIS	233
2.5. Rasch Model Thresholds of LIS Instrument	233
2.6. Item Map of LIS.....	234
2.7. Person Map of LIS	235
2.8. Item Fit Statistics of Subdimensional LIS	236
2.9. Wright Map of Subdimensional LIS	237
2.10. Person Level Analysis of LIS.....	238
2.11. Differential Item Functioning Analysis of LIS Instrument.....	238
2.11.1. <i>Differential Item Functioning Analysis of LIS based on Gender</i>	238
2.11.2. <i>Differential Item Functioning Analysis of LIS based on Phase of Study</i>	239
Appendix 3: SPSS Analysis Result	240
3.1. Descriptive Statistics Result	240
3.2. Linearity Test	240
3.3. Normality Test	241

3.4. Homoscedasticity Test	241
3.5. Pearson Correlation Test	242
3.6. Linear Regression Result.....	242
3.6.1. Model Summary of Regression	242
3.6.2. Anova Table of Regression	242
3.6.3. Coefficient Table of Regression.....	242
3.7. Process Macro Hayes for Moderation Test.....	243
Appendix 4: SmartPLS Analysis Result.....	245
4.1. Measurement Model Analysis	245
4.2. Path Coefficients Analysis	245
4.3. Construct Cross-Validated Redundancy Result	246
Appendix 5: Interview	247
Appendix 6: Faculty Research Permit	249
Appendix 7: Research Approval Letter	250
Appendix 8: Research Documentations	251

CHAPTER I

INTRODUCTION

Since the early 2000s, issues regarding the relevance of education to developmental challenges have been widely discussed, with 21st century skills as the basis for developing students' ability for facing future challenges. At the same time, there has been debate among academics about the concept of spiritual intelligence as one integral part of human intelligence, emphasizing value, meaning and purpose of life. The future direction of education is expected to consider these two concepts, in preparing the next generation that is professionally and personally capable in the midst of unstoppable technological advances and globalization. This study seeks to bring a multidisciplinary discussion on education, emphasizing the significance of a holistic approach in understanding 21st century education.

This chapter is structured to provide the preface of the study, starting with a research background, explaining the urgency of the research problem. Furthermore, this chapter outlines the research questions and objectives, forming the basis for exploring the relationship between spiritual intelligence and learning and innovation skills in higher education context. This chapter continues with the significance of the study to understand the theoretical implications offered as well as the benefits and practicality. Lastly, this chapter ends with the scope of the study, explaining the research focus to understand the context and application of the findings.

1.1. Background

Malcom X once profoundly stated that "Education is the passport to the future, for tomorrow belongs to those who prepare for it today" (Poth, 2018), a timeless assertion that powerfully underscores education's indispensable role in equipping humanity to navigate an ever-evolving landscape of challenges and opportunities. This powerful metaphor sets the scene for a most vital question of our times: what kind of education is of genuine importance in an ever-changing global reality? The relentless pace of evolution in the international jobs market, increasingly being driven by advances in technology, globalization, and the far-reaching shift from agrarian to industrial, and increasingly to an information economy, ruthlessly demands educational systems to comply. This constant adjustment demands education institutions to take the initiative in working towards what is being more and more called "future education" with the definite aim of creating graduates with not only the required competencies but the competitive edge needed to address the complex global challenges they are faced with (Griffin et al., 2012).

The education model of the 21st century is a radical departure from the past. It leaves behind the traditional parameters of mere class-room-based teaching-learning processes. Instead, it adopts a bold agenda: to completely empower students to address the interconnected challenges of a globalized world. This new education philosophy places specific focus on the cultivation of critical competencies, meaningful integration of technology, and the adoption of more tailored and adaptive learning approaches thoughtfully designed to the evolving needs of the individual learner and subsequently society at large (Chiappe et al., 2020). Education in this twenty-first century more or less redefines learning goals, wisely leverages transformative technologies, respectfully incorporates the different student populations it serves, and actively responds to the ongoing needs of a rapidly changing society (Care et al., 2018). Howard (2018) highlights that this "21st Century Education" represents nothing less than a radical reform, demanding an overhaul of traditional educational practices and emphatically prioritizing the development of competencies and skills that are indispensable in the modern world.

As global societies confront unprecedented challenges—ranging from accelerating globalization and relentless technological advancements to significant migration patterns and pressing environmental crises—the imperative for students to cultivate higher-order thinking skills, achieve deeper learning outcomes, and develop adaptive social competencies becomes even more acutely crucial (Scott, 2015b). These multifaceted factors exert a profound relation on the very nature of work, the accessibility of employment, and the specific skill sets universally required to thrive in the economies projected for 2030 (Dunbar, 2015). Schleicher (2018) further underscores this urgency, emphasizing that contemporary education must inherently prepare students for an unpredictable future, rather than solely relying on the transmission of knowledge gleaned from the past, thereby fostering the emergence of lifelong learners who possess the innate ability to adapt seamlessly to new and often unexpected situations.

In anticipatory reaction to these daunting challenges, numerous institutions and reputable schools of education around the world have worked assiduously to create holistic frameworks that systematically determine the capabilities considered absolutely crucial to be mastered during the 21st century (Aghazadeh, 2019). These frameworks, which form an essential collective reference point for national education policy and practice, are key drivers of curriculum and pedagogical method development globally. These are abilities that have been identified everywhere as "21st-century skills" due to their multidisciplinary character, their broad applicability across a wide variety of areas, and their intertwining with higher-order thinking abilities. These are regarded to be essential abilities that equip

learners not just to survive but to actually thrive in the intricate domains of work, active participation in citizenship, and living in an increasingly globalizing world (Scott, 2015a; Voogt & Roblin, 2012). Unlike previous ways of learning, designing appropriate and authentic assessments for 21st century skills presents significant challenges, as traditional forms struggle to capture and report student proficiency. Existing assessment tasks, even when attempting to mimic real-life scenarios, are often administered in artificial environments and do not truly reflect students' efforts to complete real-life tasks (Care et al., 2018). Furthermore, UNICEF and Oxford Policy Management (UNICEF & Oxford Policy Management, 2019) emphatically bring forward the greatest importance of cultivating transferable skills—those malleable abilities that can be developed early in life with a long-term, lifelong dedication to continuous adjustment and acquisition of new technical skills to build long-term employability, adaptability, and construction of long-term career trajectories.

However, in spite of the saturation of these frameworks and the emergence, the 21st-century paradigm has not been devoid of substantial criticisms, most notably concerning its reputed overly economically oriented and pragmatically biased nature. This is grounded mainly on the fact that the paradigm is largely interpreted as being first and foremost in response to the immediate needs of the current labor market defined by technological innovation, globalization, and exponential growth of the service economy (Mariano & Chiappe, 2021; Whorton et al., 2017). This specific focus on educating students for economic productivity, critics argue, risks obscuring the broader and deeper objectives of education. Reforms forcefully pushing these competencies are frequently underwritten and materially supported by powerful coalitions of governments, not-for-profit institutions, and massive multinational institutions, who, by definition, may be predisposed to value concrete economic performance over the more scattered and expansive objective of generalized educational development (Howard, 2018).

Critics would also contend that this model has a tendency to bypass or completely sidestep the general philosophical question about the ultimate purpose of education in the first place. The general emphasis on competencies and skills aimed towards economic growth, they propose, inadvertently suppresses essential debate about the inherent role of education to enhance personal development, encourage authentic civic participation, and cultivate robust ethical development (Howard, 2018). This. One-track focus on developing an "ideal student" – self-directed, extensively responsible, and fully master of their own learning journey – may ultimately syn undermine uneasily with neoliberal ideologies that generally focus more on privatised economic success than on the imperative of common

good and communal flourishing (Hilt et al., 2019). In addition, the broad-ranging and dynamic nature of these skills renders them historically fuzzy and inherently challenging to apply with regular efficiency in differing learning environments (Kaufman, 2019). Such fuzziness can unfortunately lead to terribly uneven deployment across institutions and a significant lack of discernible clear, quantifiable learning outcomes. Compounding this problem is the continued lack of global consensus on precisely what defines "21st-century skills," and alternative frameworks are offering various interpretations and rival priorities (Chen, 2023). This inconsistency always makes it even harder to have systematic and effective integration of these fundamental skills into learning curricula, leading to ambiguity in classification and comprehension (Joynes et al., 2019).

In response to these criticisms, a fundamental question arises: if the 21st-century skills framework, for all its strengths, threatens to be overly specialized in its economics of usefulness, what are the dimensions missing that are necessary to properly prepare people for the next complexities and ethical challenges of the future? This question calls for a more holistic educational approach – one that transcends the simple technical and intellectual mastery of skills to embrace the full spectrum of human potential. This holistic approach recognizes that a single focus on instrumental skills will be insufficient to equip students to navigate the intricate ethical and social issues with which they will inevitably have to contend in contemporary life (Birru, 2024). Hence, there is a huge realization towards a larger philosophy of education that emphasizes the need to nurture the whole person with extreme care and compassion, adding very carefully emotional, social, and spiritual elements to the traditional academic and professional education (Goleman, 2015). This broader vision of human development suggests that preparation for the 21st century requires market-ready competencies but also individuals deeply grounded in purpose, directed well by ethics, and well-armed to address life's deeper aims.

It is precisely in this most critical context that Spiritual Intelligence (SI) emerges as a profoundly necessary component of holistic growth in higher learning. Spiritual Intelligence has been labeled as human beings' innate capacity to apply spiritual principles – i.e., profound self-knowledge, wide empathy, and conduct guided by a clear sense of purpose – in the fabric of everyday life (Pinto et al., 2024; Sternberg et al., 2023). This form of intelligence consciously transcends conventional cognitive measures, uniquely enabling individuals to access deeper meanings, values, and an overarching sense of purpose that judiciously guides their actions with both wisdom and profound compassion. SI encompasses various intricate dimensions of human experience, including the innate ability to perceive and reflect upon one's own deeply held beliefs and complex feelings,

thereby fostering a powerful sense of connection to others and to the broader world (Zohar & Marshall, 2001). From the nuanced perspective of 21st-century competencies, spiritual intelligence directly supports and enhances critical areas such as emotional balance, ethical moral decision-making, and the pursuit of social meaning. The indispensable capability for genuine empathy towards others and for making decisions rooted in unwavering personal convictions is fundamentally crucial within an increasingly interconnected and complex global landscape (Goleman, 1995, as cited in (Wajahat et al., 2024). This intrinsic intelligence empowers individuals to reflect deeply on their motives and actions, thereby actively promoting a pervasive culture of cooperation and understanding that is absolutely necessary for truly effective collaboration within diverse environments (Ramdani et al., 2022).

The increasing recognition and intentional integration of spiritual intelligence in schools globally unmistakably point to its wide-ranging significance as an inherent and vital aspect of integral, comprehensive student development (Emmons, 2000). By systematically developing this kind of intelligence, schools aim to graduate individuals who are not just academically qualified but particularly equipped to skillfully handle the complex moral and tangled ethical challenges typical of contemporary life (Mehralian et al., 2023). This tangible shift towards a broader, more inclusive definition of intelligence is a direct reaction to a broader social recognition of the indisputable need for emotional and spiritual development to augment and complement in a balanced and enriching manner the more traditional benchmarks of academic success.

Indeed, the relationship between Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) is not coincidental but is strongly backed by both empirical studies as well as sound theory. Spiritual Intelligence plays an important role in shaping and enhancing students' academic engagement, empowering them to utilize mental/spiritual resources in solving problems and achieving well-being in education (Ma & Wang, 2022). For instance, empirical evidence from a research study with a large sample of 1137 respondents in India revealed that individuals who practiced spirituality on a regular basis and who scored high on spiritual intelligence tests also demonstrated significantly higher levels of research performance (Upadhyay, 2017). This finding suggests that SI has the potential to advance intellectual development and promote innovation within Indian academic settings. Moreover, a survey of 88 Malaysian successful entrepreneurs demonstrated that spiritual intelligence plays an important role in influencing innovation, with up to 99.8% of the variation in innovative capacity among the respondents being explained (Chin et al., 2013). Pinto et al. (2024), comprehensively in their metanalysis

study stated, most of the research related to SI was conducted in educational context, with the findings suggested SI as a predictive variable for resilience, mental, spiritual and general health, emotional intelligence and communication as well as other social behaviour. With such a high correlation, it indicates that SI is at the core of developing innovative thinking and improving creative production. In addition, research into the relationship of SI to various stages of business systems development has established positive correlations between SI and learning, critical thinking, and the development of conscious environments (Mušinović, 2020). Collectively, these findings indicate that SI is directly involved in the development of environments particularly conducive to both learning and innovation.

Theoretical underpinnings also solidify this connection. Spiritual intelligence entails critical existential thinking, profound creation of personal meaning, transcendent awareness, and intentional expansion of one's state of being (Mušinović, 2020). Interestingly, these fundamental aspects of SI align perfectly with the very competencies naturally required for deep learning and genuine innovation, such as sharp critical thinking, boundless creativity, and nimble adaptability (Sanchez-Cid et al., 2018). Further, SI is rightfully considered a key part of integral human resource development, which has the potential to enhance not only intellectual and emotional capacities but also build necessary moral and ethical components (Ahmed et al., 2016). This organically integrative approach operates to assist in the development of cutting-edge and highly effective learning environments. The strategic integration of SI into contemporary pedagogical models has been shown to improve higher-order problem-solving, sharpen critical thinking skills, and activate creative thinking (Sanchez-Cid et al., 2018). This synergistic integration assists students in cultivating a deeper, more meaningful understanding of complex subjects and empowering them to adopt truly innovative approaches to their learning journey.

The concept of Spiritual Intelligence (SI) has generated both significant support and criticism within academia. Critics argue that there is a lack of strong empirical evidence to support the existence of SI as a distinct form of intelligence, with doubts rooted in the absence of empirical studies that can conclusively validate SI as a separate construct within a psychological framework (Fedorov, 2011; Wiseman & Watts, 2022). Challenges also arise from theoretical issues, including difficulties in universally defining SI and integrating it into existing psychological theories (Dorobantu & Watts, 2024). Howard Gardner, the originator of the theory of multiple intelligences, even explicitly refused to include the SI in his framework, basing his refusal on the criteria that the SI does not fulfill (Amram, 2022; Dorobantu & Watts, 2023, 2024). In addition, there are significant psychometric issues in the measurement of the SI, with studies showing insufficient factorial validity in

instruments such as the Spiritual Intelligence Self-Report Inventory (SISRI) (Antunes et al., 2018; Atroszko et al., 2021). Nonetheless, SI is also viewed as a form of intelligence that involves the adaptive ability to utilize spiritual qualities and resources to improve daily functioning and well-being (Amram, 2022) and is considered to be a form of intelligence that can be used to improve daily functioning and well-being.

Despite the growing recognition and integration of Spiritual Intelligence into educational frameworks globally, higher education institutions, particularly in countries like Indonesia, face a unique set of challenges related to comprehensive holistic and value-based development. Indonesia's higher education system is as diverse and complex as the country itself, reflecting its rich cultural and religious tapestry. Boasting a vast system with over 4,500 universities, polytechnics, and academies serving an immense and diverse student population, this inherent diversity places a special emphasis on educational practices and curricula (Pannen, 2018). The fact that Islam is the predominant religion profoundly plays a role in the values and ethical frameworks within which students operate (Herlinawati et al., 2024). Many institutions within Indonesia actively integrate religious principles into their educational philosophies, emphasizing moral integrity, community service, and a commitment to lifelong learning (Sholehuddin et al., 2023). This profound cultural and religious backdrop presents an unparalleled environment in which to thoroughly explore the intricate integration of 21st-century skills and spiritual intelligence within the unique context of higher education.

Indonesia's education sector, however, does not come without the grand challenges that it faces. Indonesia's higher education system, as expansive and diverse as it is, faces a number of issues that hinder the all-around and value-oriented growth of its scholars. Generally, these are categorized under governance, quality of education, and socio-cultural issues (Gaus, 2024). Challenges of widespread leadership and governance continue to exist, marked by a visible lack of inclusive knowledge and adequate use of key ideas such as leadership, institutional autonomy, quality assurance, good research designs, and innovation sustainability (Gaus, 2024). These vulnerabilities collectively constrain the sector's intrinsic ability to build institutional capacity and compete favorably at the global level. Moreover, past reforms under New Public Management (NPM) - although Indonesia's higher education sector is not included in the decentralization - paradigms have largely failed to produce substantial payoffs, partly due to the fact that the sector has consistently had to grapple with more prevailing institutional reforms such as core human resource systems and robust legal systems (Harun et al., 2020). Contributing to these challenges is weak regulatory capacity, budget deficits, and persistent corruption issues,

which combine to undermine the sector's effective participation in regional and international educational initiatives (Welch, 2012).

In terms of educational quality, the Indonesian system is continually grappling with dynamic curriculum development and entrenched educational inequalities. These issues are exacerbated by persistent teacher shortages and significant infrastructure limitations, factors which collectively contribute to the country's relatively low international education ranking (Samala et al., 2024). While the Indonesian government has channeled significant support towards research and innovation, the nation's performance in global university rankings and the Global Innovation Index remains consistently below average. This underperformance is partly attributable to the absence of a coherent, long-term strategy designed to effectively enhance research and innovation capabilities within higher education institutions (Gaus, 2024). From a socio-cultural perspective, the rapid currents of globalization pose a formidable challenge to preserving and meticulously managing Indonesia's rich cultural heritage. There is an urgent and delicate need to strike a balance between assimilating universal values and steadfastly applying Pancasila values including belief in God, just and civilized humanity, Indonesian unity, deliberative democracy and social justice, crucial for maintaining national identity and actively promoting tolerance for cultural diversity (Saaida, 2023). Higher education is unequivocally viewed as a pivotal vehicle for developing human resources essential for nation-building. Yet, there remains a pressing need for a more synergistic and integrated approach to vocational education to cultivate superior human resources capable of competing globally and making substantial contributions to the workforce (Akbari et al., 2024; Priadi & Mutia, 2023).

This intricate mesh of issues is acutely reflected in the skills shortage in Indonesia, particularly in the non-technical sectors, which has a profound effect on many of the most important industries like vocational education and industry. UNICEF & Oxford Policy Management (2019, p.6) research correctly claims, *"We have a quality problem in Indonesia, serious in scale. Individuals can have pieces of paper saying they have degrees, but they will not possess the skills to work. Technical knowledge is included, but so are attitudes and values like discipline, being punctual, and being on time. These skill shortages are limiting growth in the country."* This refers to a serious shortage of skills that distinctly impacts readiness in the workforce. Studies on employment and labor market imbalance further emphasize the imperative need for the role and major contribution of vocational education (Gayatri et al., 2022; OECD & Asian Development Bank, 2020; Yoana et al., 2024). There exists a broad gap in employability skills of vocational graduates, such as essential non-technical skills of communication, teamwork, and information literacy, that

are essential to raise competitiveness and productivity within the digital labor market (Kholifah et al., 2025). The stark absence of such skills is among the prime causes of high unemployment and pervasive skill mismatches.

Soft skills such as communication, teamwork, and problem-solving are perceived as important by employers but often absent among Indonesian graduates, particularly in manufacturing (Sjawie & Ardi, 2021). This is indicative of a huge skills mismatch between what graduates possess and what is rigidly required by employers. Furthermore, teacher qualification affects the quality of vocational education directly, with chronic shortages to affect the overall quality of graduates and undermine students' competitive spirit (Nurhadi et al., 2017). This requires sweeping reforms in teaching and curricula to enhance the alignment of learning outcomes with industry demands, such that the learners acquire not just the technical capabilities but also the required soft skills transferable to the workplace (Herlinawati et al., 2024). In fostering a strong connection between education institutions and employers, Indonesia can build an educational system best responsive to emerging needs and complexities of the 21st century. Against this backdrop of issues, the pillar role of Islamic values in Indonesia's higher education system is a fertile field where the significant link between 21st-century skills and Spiritual Intelligence can be appropriately negotiated.

Islamic guidance naturally emphasizes character development, striving for a balanced balance between hard and soft skills, and pushing towards an integrative, holistic learning process (Taufik, 2020). This single-minded focus not only allows the students to adjust themselves to upcoming challenges but also to hold on fast to good moral and ethical values. Islamic values are critical in the existence of a robust societal ethos, which is in itself utterly crucial to national growth, promoting a solid sense of identity, harmony, and stability required to tackle contemporary complexities (Mohamed, et al., 2024). Moreover, the concept of Islamic Spiritual Intelligence in itself clearly indicates to directly relate spiritual intelligence to improved emotional well-being, organizational justice, and better human resource performance (Anwar et al., 2021). This refers to the profound importance of integrating spiritual values in personal and professional development. Islamic values can also positively predicts managerial practices by fostering responsibility, ownership, and innovation, thereby enhancing organizational efficiency and flexibility (Forster, 2014; Mariyana et al., 2024). This holistic approach supports the development of well-rounded individuals who are not only equipped to meet the technical demands of the 21st century but also remain deeply grounded in their cultural and religious identities, contributing to a more compassionate and socially responsible society (Sahin, 2018).

The evolving skill demands of a changing Indonesian society represent an urgent policy priority for the government of Indonesia (UNICEF & Oxford Policy Management, 2019). While the youth cohort holds the key to investing in sustainable development and human capital, adolescents continue to face significant deprivations that tragically hinder their aspirations and leave their fundamental rights unfulfilled. Unless young minds are adequately equipped with the necessary skills to realize their full potential and effectively manage forthcoming challenges, a critical opportunity for youth contributions to national development and a safe transition into adulthood will be irrevocably missed (OECD, 2018). The implementation of a nationally-led strategy for skills development that genuinely responds to adolescents' needs would undoubtedly empower Indonesia's youth to fully realize their potential and become truly contributing members of society (Herlinawati et al., 2024).

The integration of 21st-century skills and spiritual intelligence into higher education curricula, however, faces a number of inherent challenges. These include deep-seated resistance to change within conventional educational frameworks, the pressing need for extensive faculty training to effectively teach and model these complex competencies, and the intrinsic difficulty in consistently assessing spiritual intelligence alongside more quantifiable skills (Aghazadeh, 2019; Care et al., 2018; Foster & Piacentini, 2023). Most teachers have long been accustomed to traditional forms of teaching, in which rote memorization has always been given far more weight than the cultivation of critical thinking and creative expression (Lai & Viering, 2012). Further, teaching personnel may not be suitably trained or sufficiently resourced to pursue the subtle inclusion of spiritual intelligence as an integral element of the pedagogical experience. These challenges to implementation necessitate further research in terms of curriculum design and delivery methodologies.

Existing literature, while recognizing the distinct importance of spiritual intelligence and learning and innovation competencies for 21st-century education, reveals a broad research gap. While research exists that addresses these respective topics individually, there is a significant absence of in-depth research that clearly explores their specific correlation, particularly for undergraduate students in the context of Indonesian Islamic higher education institutions. Literature addresses each of the separate elements individually without firmly establishing their dynamic interactions or potential synergistic impacts on human development within a specific learning context (Sholehuddin et al., 2023). Furthermore, dimension-level research in Learning and Innovation Skills is important as each 21st century skills framework places skill elements in different

categories. As asserted by Aghazadeh (2019), a deeper understanding of these dimensions will enrich the universal validity of the findings, especially given the overlap but also differences in emphasis of each global framework. This apparent lacuna in merged research impedes instructors from developing curricula that effectively balance and cultivate both skill sets, which are indisputably vital for holistic student development (Birru, 2024; White, 2020). It is vitally necessary to fill these significant gaps in order to develop a comprehensive education system that will prepare students not only to surmount academic challenges but also to successfully address the multifaceted demands of modern professional and social environments.

In Indonesian Islamic higher education, for instance, women have previously been underprivileged in academic productivity and career advancement, with gendered implications on academic and professional development (Kholis, 2012). Female students are more likely to suffer from academic stress, but emotional intelligence training can differentially related to stress alleviation by gender (Iskandar et al., 2024). Also, academic stress and students' perceptions of service quality can vary significantly based on their study year, with first-year students more frequently reporting higher levels of stress that diminish over time as they progress (Asnawi & Setyaningsih, 2020). These findings underscore the necessity of investigating whether study phase and gender moderate the SI-LIS relationship, providing a more nuanced understanding of how these essential competencies develop and interact within a heterogeneous student population.

Therefore, the current research seeks to make significant contributions to bridging the above-mentioned gaps in research. It seeks to essentially investigate the very specific relationship between Spiritual Intelligence and Learning and Innovation Skills among Indonesian Islamic higher education undergraduate students, and examine the moderating role of gender and study phase. By establishing emotional well-being and a rich sense of meaning, spiritual intelligence carries its rewards far beyond individual wellness itself; it plays a deeply vital role to play in actively constructing a more empathetic and socially aware society (Fidelis et al., 2024; Reave, 2005; Samul, 2020). Through the development of spiritual intelligence, students gain the inborn ability to recognize and empathetically respond to the needs of others, thus fostering a strong feeling of community and cooperation within their learning environments (Ma & Wang, 2022).

The strategic inclusion of spiritual intelligence in higher education yields a host of advantages for students, significantly enhancing emotional wellness and cultivating a profound sense of direction, both of which are absolutely crucial for success and fulfillment throughout their higher education journey (Anwar & Rana, 2024; Sisk, 2008).

Consequently, the integration of 21st-century skills and spiritual intelligence is not merely timely but an absolutely essential factor to be rigorously inculcated within Indonesia's dynamic system of higher education, specifically for the comprehensive preparation of future-ready graduates. Grappling effectively with current educational practices that urgently demand tackling at institutional levels can therefore better equip graduates to thrive against an increasingly complex and unpredictable world. This research will specifically try to add substantial knowledge on precisely how these crucial competencies can be optimally integrated into the curriculum to cultivate a generation of highly skilled professionals who are concurrently compassionate, ethically grounded, and deeply responsible.

1.2. Research Questions

As described earlier in the background, this study aims to explore the relationship between 21st century skills and spiritual intelligence among students in higher education. In this case, the questions that form the basis of this research are **“How is the relationship between spiritual intelligence and learning and innovation skills in higher education context?”** To comprehensively understand the main research question, three research questions were designed helping organize the study, covering both quantitative and qualitative dimensions include:

1. To what extent do learning and innovation skills, collectively and individually, are associated to undergraduate students' spiritual intelligence significantly and based on their perception?
2. Do gender and phase of study moderate the relationship between spiritual intelligence and learning and innovation skills among undergraduate students?
3. How do undergraduate students explain the concept of spiritual intelligence and learning and innovation skills, and how do they perceive the practice in developing these concepts, as well as challenges in balancing it?

The rationale for choosing the three questions above is also based on the research methodology used, which is a parallel mixed method design that collects qualitative and quantitative data together, then analyzes them separately and compares and correlates the two data to produce comprehensive information. To answer the first research question, quantitative data will provide a numerical basis for the extent to which the relationship between IS and LIS can be predicted, as well as their relationship at the dimension level. On the other hand, the qualitative data in this first research question will provide a

contextual understanding of how the relationship between the two concepts is perceived by the research respondents, in this case undergraduate students. Furthermore, the second research question is also explained by the results of the quantitative analysis on whether or not there is a moderating influence exerted by the selected demographic variables, namely gender and study phase. At the same time, the results of the analysis will be supplemented by the results of the qualitative analysis by considering the differences in gender and phase of study of each respondent for the answers given regarding the relationship between SI and LIS. Finally, unlike the previous two questions, this third question will delve further into the perceived meaning, development practices of IS and LIS, and the challenges respondents face in balancing the two.

1.3. Research Objectives

Based on the research questions mentioned earlier, this study aims **“to analyze the relationship between spiritual intelligence and learning and innovation skills in higher education contexts.”** This question not only sought to describe the relationship between the research variables, but also provide an in-depth understanding of the relation between 21st century skills and spiritual intelligence in higher education context. Specifically, this study has three main objectives which include:

1. To examine the degree to which learning and innovation skills, collectively and individually, are associated by undergraduate students' spiritual intelligence and based on their perception.
2. To investigate the extent to which gender and phase of study moderated the relationship between spiritual intelligence and learning and innovation skills among undergraduate students.
3. To explore undergraduate students' understanding of spiritual intelligence and learning and innovation skills, as well as the practice in developing these concepts and challenges in balancing it.

1.4. Significance of Study

This research is significantly important for both theoretical and practical development. Theoretically, it is expected that this study can contribute to enriching the existing literature on the relationship between spiritual intelligence and 21st skills, particularly in the context of higher education. In addition, this study helps to enhance the understanding of how the dimensions of spiritual intelligence—critical existential thinking, personal meaning making, transcendental awareness and conscious state expansion—are

associated and related undergraduate students' learning and innovation skills, consisting of critical thinking, creativity, communication and collaboration. By using a comprehensive approach, this study can serve as a basis for the development of more holistic learning strategies, which not only focus on cognitive and social-emotional aspects, but also spiritual aspects that are an integral part of human beings.

Furthermore, practically, this research provides direct implications for educators and educational policy makers in designing a curriculum that is more responsive to the needs of students in an era of rapid change. By understanding the relationship between 21st century skills and spiritual intelligence, educational institutions can design relevant and holistic learning strategies to support students' development. Moreover, the results of this study can serve as a reference for students' program development to improve the quality of graduates who not only have high academic competence, but also have good characters and orientation towards noble values. This is useful for students to prepare themselves to face future challenges with relevant skills, needed by the industrial and personal life in modern society. Thus, this research is expected to make a real contribution to the development of the quality of human resources through education.

1.5. Scope of the Study

This study was designed to comprehensively investigate the relationship between Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) among undergraduate students. In its mixed methods approach, the research quantitatively focused on testing the specific association of each of the Spiritual Intelligence dimensions (i.e. Critical Existential Thinking, Personal Meaning Making, Transcendental Awareness, and Conscious State Expansion) on the Learning and Innovation Skills dimensions (i.e. Critical Thinking & Problem Solving, Creativity and Innovation Skills, Communication Skills, and Collaboration Skills). Complementing the quantitative analysis, the study also qualitatively explored undergraduate students' in-depth views and experiences on how the aforementioned 21st century skills affect their spiritual intelligence. Therefore, the use of the research design in this study while providing comprehensive insights, poses potential challenges in effectively integrating both findings within the available time frame. Consequently, researchers should interpret the research findings carefully to obtain valid and relevant information as a reference in the development of future education policies.

CHAPTER II

THEORETICAL FOUNDATIONS

This Chapter 2 serves as the foundational bedrock for this study, comprehensively detailing the theoretical and empirical landscape relevant to the research topic. This chapter is structured into three main sections. First, the Literature Review critically examines existing scholarly works on Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) within the context of 21st Century Education, including insights derived from a Systematic Literature Review on SI in educational settings. This section aims to synthesize current knowledge, identify key concepts, and pinpoint crucial research gaps that this study seeks to address. Second, the Theoretical Framework outlines the theories underpinning the explanation of the hypothesized relationship between SI and LIS, providing a logical rationale for the study's propositions. Finally, the Conceptual Framework represents the hypothesized model both literally and verbally, indicating the specific relationships between the variables to be investigated.

2.1. Literature Review

This chapter presents a systematic review of the relevant literature that is available now and applicable to the relationship between Learning and Innovation Skills (LIS) and Spiritual Intelligence (SI) in 21st Century Education among undergraduate students. It attempts to summarize and critically assess previous literature on both constructs, determining their respective meanings in the context of higher education. Also, this review will include evidence from a Systematic Literature Review (SLR) on Spiritual Intelligence within schools, primarily from the Scopus database, to provide a contemporary and robust empirical basis. By critical examination of the current state of knowledge, the chapter strives to find out current research gaps and offer a sound theoretical and empirical justification for the current study's exploration into the interrelation of these fundamental constructs. The findings that are garnered via this review will give a broader picture of the research topic, hence helping the reader comprehend the importance and relevance of the study's contribution to academic literature and teaching practice.

2.2.1. Understanding Learning and Innovation Skills (LIS)

In the wake of the era of rampant technological advancements, globalization, and dynamic societal changes, the traditional paradigm of education is not sufficient enough to equip individuals for success in the future. 21st-century demands require a new set of skills that transcend repetition and discipline learning. This section discusses the fundamental

concepts of 21st Century Education and takes a closer look at the significant cluster of Learning and Innovation Skills (LIS). It will define these skills, outline their core features—famously referred to as the 4Cs: Critical Thinking and Problem Solving, Creativity and Innovation, Communication, and Collaborative Working—and reflect on their profound importance for undergraduate students. Furthermore, this section will examine various approaches to enhancing these skills in higher education environments, along with the unavoidable challenges in developing and integrating them.

Defining 21st Century Education and Its Core Skills

The rapidly evolving global environment, characterized by rapid technological transformation and dynamic societal changes, has made 21st-century learning an increasingly essential set of competencies for students (Partnership for 21st Century Learning, 2019). The transformation requires education systems to equip students with competencies to navigate a transforming world and to adapt to the evolving demands of the workforce and society (World Economic Forum, 2020). The concept of 21st Century Skills is a framework of competencies and skills necessary for success in today's technology-enhanced world, enabling individuals to keep pace with evolving demands across various industries (Voogt & Roblin, 2012; Whorton et al., 2017). While definitions and categorizations may vary, overall themes and basic competencies are widely agreed upon, emphasizing key skills alongside traditional academic content areas (Kyllonen, 2017).

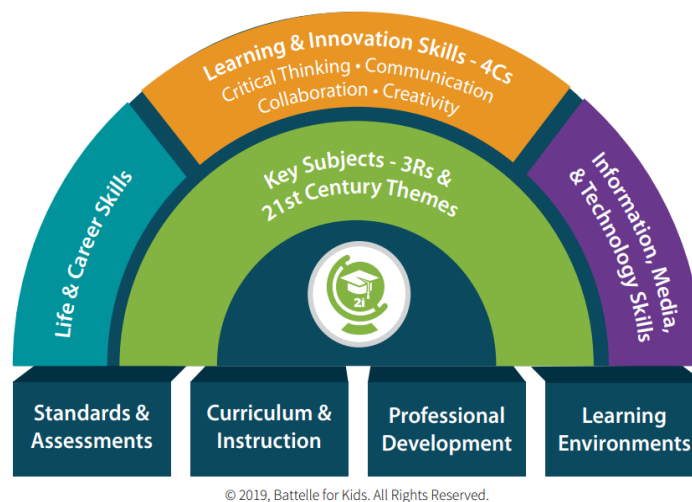


Figure 2. 1. P21 Framework of 21st Century Learning

Source: Partnership for 21st Century Learning (2019)

A prominent framework defining these competencies is the Partnership for 21st Century Learning (P21) Framework, which integrates the skills, knowledge, and expertise required for both employability and daily life (Okros, 2020; Partnership for 21st Century Learning, 2019). The P21 Framework, as illustrated in Figure 2.1 (P21 Framework for 21st Century Learning), prioritizes the interconnected nature of standards, assessments, curriculum, instruction, professional development, and the learning environment in the 21st-century teaching and learning process (Partnership for 21st Century Learning, 2019). Beyond the core Learning and Innovation Skills (LIS)—which include critical thinking, creativity, communication, and collaboration—the P21 framework also highlights other vital categories (Okros, 2020; Tucker, 2014). These encompass Life and Career Skills (such as flexibility, adaptability, initiative, and leadership) and Information, Media, and Technology Skills (emphasizing digital literacy and proficiency in using digital tools and technologies effectively) (Farisi, 2016; Bravo et al., 2021).

This type of change-making ability is needed globally, as industries now appreciate problem-solving and flexibility over memorization (Saavedra & Opfer, 2012; World Economic Forum, 2020). Moreover, the development of the current higher education landscape is not only influenced by the integration of 21st-century competencies, but also by significant changes in the job market, such as the shift from degree-only hiring to skill-based hiring (Bone et al., 2025; Edmondson, 2024). In addition, the emergence of Artificial Intelligence (AI) is drastically changing the dynamics of the workforce and skill requirements in various sectors, requiring educational institutions to adapt quickly so that graduates are ready to face an AI-dominated future, even for those who do not go through traditional formal education pathways (Chandratreya, 2025; Martinez, 2025; Xue et al., 2022). This calls for higher education institutions to change their pedagogy, focusing on flexible and effective learning to be more relevant and adaptive to prepare students for diverse global environments (Binkley et al., 2012). While there is consensus on their importance, challenges remain in fully integrating these competencies into curricula, offering adequate teacher preparation, and assessing these complex skills appropriately (Erstad & Siddiq, 2023; Voogt et al., 2013). It is necessary to address these implementation issues through targeted professional development for educators and new pedagogical approaches in order to unleash the full promise of 21st-century education (Chen et al., 2024; Yoo & Kang, 2021).

Components of Learning and Innovation Skills (LIS)

Learning and Innovation Skills (LIS) are a group of key competencies that enable individuals to adapt, innovate, and thrive in a continuously changing world. They are simply crucial for personal and professional development in every discipline, including education and business (Atalay & Boyacı, 2019; Hufri et al., 2023). As they are components of 21st-century learning, LIS are simply summarized as Critical Thinking, Creativity, Communication, and Collaboration. This model is informed by the understanding that the complexities of the modern era demand an array of skills, not only basic academic subjects but also social and interpersonal skills necessary to cope with global economic and political power (Joynes et al., 2019). What follows will describe each of the basic LIS components, their definition, their importance, as well as pedagogical implications in higher education.

Critical Thinking and Problem Solving Skills

Critical thinking (CT) is a core ability of Learning and Innovation Skills, recognized as a Higher Education priority skill that enables students to make informed choices, resolve issues, and arrive at well-supported conclusions in global contexts (Prakong, 2024). Critical thinking is described as a metacognitive process that involves purposeful, reflective judgment to produce logical conclusions or solutions (Dwyer et al., 2014; Dwyer & Walsh, 2020). CT requires higher-level thinking processes such as interpretation, analysis, evaluation, inference, explanation, and self-regulation (Ennis, 2015; Gibson, 2017; Shida et al., 2023). The skill requires individuals to rise above basic comprehension, enabling them to critically evaluate circumstances, make inferences based on experiences, and develop well-supported conclusions (Bailin et al., 1999; Joynes et al., 2019). In the more interconnected world of today, the ability to judiciously handle information from diverse sources all over the globe is essential for citizenship (Rieckmann, 2018). The increasing complexity of worldwide issues underscores the necessity of CT competencies for achievement not only in school but in life and in the workplace as well (UNICEF & Oxford Policy Management, 2019).

Closely related to critical thinking, problem-solving involves solution-finding to specific problems in most instances requiring the ability to take more than one point of view and to generate a variety of responses (Gowri & Sreeya, 2019). It is a measure of a person's critical thinking capacity and is essential to dealing with complex and inevitable issues in daily life and at work (Matthee & Turpin, 2019). The relationship between problem-solving and critical thinking is obvious: CT enhances problem-solving through enabling one to critically evaluate and select the best possible solutions (Amanda et al.,

2022; Azizi et al., 2018; Sáenz-Rodríguez et al., 2021), while problem-solving tasks have the potential to improve critical thinking abilities (Choi, 2004; Tursynkulova et al., 2023).

Despite its widely acknowledged importance, developing comprehensive CT and problem-solving skills remains a significant challenge for higher education institutions. Barriers include the complex, multifaceted nature of CT development itself (Gómez et al., 2025), a prevalent lack of systematic teaching methods, especially as students delve into specific disciplines (Lee & Chou, 2018), and prior educational experiences often emphasizing rote learning, which can hinder the cultivation of deeper critical thinking (Golden, 2023). Even the integration of AI tools like ChatGPT in education highlights the ongoing importance of these fundamental human skills.

To effectively foster these skills, several pedagogical strategies have proven effective. Engaging students in debates and discussions helps develop their argumentation and reasoning abilities (Campo et al., 2023; Guo et al., 2023). Problem-Based Learning (PBL) in authentic scenarios or in interdisciplinary learning encourages students to venture and solve complex problems, something that enhances their decision-making and analytical capabilities significantly (Amanda et al., 2022; Klegeris, 2021). Some other valuable methods are: Socratic questioning to support critical thinking (Chew et al., 2019), case studies and contextual practice for experiential learning (Campo et al., 2023), guided reading groups and writing activities to refine critical text analysis and articulation of ideas (Vartiainen & Säily, 2025). Moreover, self-regulated approaches have been shown to enhance CT improvement considerably (Nizaruddin & Kusmaryono, 2023; Rivas et al., 2022).

Effective implementation of these strategies in schools has revealed significant improvements in students' CT and problem-solving capacity. Recommendations for post-secondary schooling are the integration of these abilities into curriculum design across the disciplines, the creation of focused CT courses by implementing models like the Problem Solving Life Cycle (Lee & Chou, 2018), instructor training in the integration of CT sub-skills (Cáceres et al., 2020), and building sound assessment methods like performance tasks and reflective exercises to assess student advancement (Huertas-Lopez et al., 2025; Kleemola et al., 2022). Ultimately, developing solid critical thinking and problem-solving skills is critical to preparing students to tackle the advanced professional and personal nuances.

Creativity and Innovation Skills

Creativity and innovation are emerging as integral aspects of Learning and Innovation Skills (LIS) for student success in business, research, and the arts. Creativity is generally defined as the ability to produce novel and useful ideas that serve as the beginning step in the innovation process (Hundeling & Rosing, 2020; Plucker, 2022). Innovation, thus, is the productive implementation or realization of such creative ideas into meaningful applications, products, or processes that yield significant benefits (Hundeling & Rosing, 2020). Such correlated abilities are significant to resolving complex 21st-century problems and designing eternal growth in several disciplines (Šimunović & Vekić-Kljaić, 2024).

The need to develop creativity and innovation in tertiary education cannot be overemphasized. These abilities are critical in the future workforce, where one is expected to provide innovative solutions to intricate issues (Plucker, 2022; Zazzerini, 2021). In addition to employability, they make an organization more competitive because they contribute to constant refinement and adjustment (Hundeling & Rosing, 2020). At the individual level, creativity and development of innovation enable the individual to develop from critical thinking, problem-solving ability, and adaptability (Šimunović & Vekić-Kljaić, 2024). Some of the core competencies that facilitate innovation are leadership, self-efficacy (belief in one's ability), empathy, curiosity, willingness to make knowledgeable risks (risk propensity), and superior team working and communication skills (Adepoju & Nwulu, 2020; Zazzerini, 2021).

Higher education institutions apply many strategies and interventions to build these required skills. Curriculum and instruction design is pivotal, with innovative curricula often involving creativity and problem-solving through multidisciplinary learning and implementation (Kao et al., 2023; Miyata et al., 2017). Specialized programs like "Innovation Design" or the integration of innovation across several fields, rather than individual courses, even enhance overall student competence (Ouden et al., 2025). Interdisciplinary and project-based assignments, especially those involving industry collaborations, enable students to apply theoretical knowledge in real-world environments, thereby developing their innovation skills (Hero et al., 2021; L. Li, 2014).

Moreover, specific pedagogical practices and training courses have also been found to be effective. Cooperative learning and certain traditional practices have been found to improve creative and divergent thinking ability significantly (Catarino et al., 2019). Structured creativity training programs can improve the ideation abilities and cognitive flexibility of students (Ritter et al., 2020), and online creative thinking courses have been found to raise students' creative self-efficacy (Robbins & Kegley, 2010).

Instructional strategies that integrate creativity into discipline subjects, emphasizing playfulness, freedom, guided activities, groupwork, and problem-solving activities are highly effective (Tam, 2023). Even techniques such as drama within the teaching of foreign languages have been employed to boost cooperation and creativity (Mardiani & Hanifah, 2023). Technology integration also has an important role to play in creating innovative learning environments and preparing students for facing modern-day workplace problems (Paños-Castro et al., 2024). Incorporation of instruction with scientific research can also promote greater content and improve practical teaching, enhancing talented creativity (Gao et al., 2021).

Despite these attempts, there are also difficulties in establishing creativity in higher education to an effective extent. University teachers can be hampered by performance indicators and the absence of freedom to experiment with new pedagogies (Putri et al., 2024). In addition, there must be sufficient human and fiscal resources to facilitate innovation and entrepreneurship practices in institutions of learning (Rosienkiewicz et al., 2024). Resistance to change in educational systems can be addressed through instilling lifelong learning and continuous curriculum innovation (Šimunović & Vekić-Kljaić, 2024). In handling these issues, best practices include the establishment of communities of practice that learn about pedagogical practices in promoting creativity, leading to transformations in the learning institution as well as time organization (Livingston, 2010). Sound measures and evaluation tools, such as the Torrance Test of Creative Thinking, self-report surveys, and innovation competence barometers, play a fundamental role in measuring intervention effects and in shaping the development of students in creative problem-solving, systems thinking, goal orientation, teamwork, and networking (Keinänen et al., 2018; Plucker et al., 2023). Serial feedback loops through formative assessments allow students to identify areas of improvement (Nhan, 2024). Besides, the motivation and training of university teachers are also critical for guaranteeing effective implementation of innovation education, calling for guidelines to assess and improve teachers' innovation capability (Fernández-Cruz & Rodríguez-Legendre, 2022). Through these points, universities can establish environments to cultivate positive forms of creativity and provide students with the capacity to be innovative leaders in their careers.

Communication Skills

In an ever more globalized world dominated by technological revolution, good communication is seen as the key element of Learning and Innovation Skills (LIS), essential in tackling sophisticated tasks within the work environment and personal life

(Braga & Abreu, 2023; Partnership for 21st Century Learning, 2019). Communication skills are not merely about conveying information but encompass a vast array of skills, including verbal communication, non-verbal communication, written communication, and electronic communication (Joynes et al., 2019; Motallebzadeh et al., 2018). The employer again and again mentions good communication skills as a fundamental job prerequisite, observing that they are at the forefront of creating teamwork, mitigating workplace conflicts, and enhancing professional performance (Braga & Abreu, 2023; World Economic Forum, 2020). Students need to employ these skills in order to explain things well, engage in effective discussions, and communicate well in learning settings (AlAhmad, 2021).

The root of competence in interpersonal communication is based on significant skills such as active listening, empathy, expressiveness, and relaxation in social situations (Huang & Lin, 2018). Active listening, being at the core, communicates to the listener that they are valued and seriously being listened to. Empathy provides the perception of knowing and identifying with another individual's emotions, encouraging stronger speaker-listener relationships (Bagherian & Mahmoudi Rad, 2020). Besides that, expressiveness defines the ability to express feelings and thoughts clearly, while social relaxation defines managing stress levels when engaging socially in a way to ensure comfortable interactions (Huang & Lin, 2018). Collectively, these competencies enhance college students' social relationships as well as sophisticate their overall communication skills, enhancing effective academic success and expansive social networks (Al-Madani, 2015; Huang & Lin, 2018).

It requires an integrative approach to promote comprehensive communication skills in higher education. Effective training in communication should be embedded throughout the curriculum, including both verbal and written communication aimed at different kinds of audiences (Evans, 2011; Mercer-Mapstone & Matthews, 2017; Pelger & Nilsson, 2018). Pragmatic and work-related pedagogic approaches are highly recommended, i.e., role-plays, presentations, virtual reality (IVR) simulations, and project-based learning (Boel, 2025; Dixon & Beverly, 2015; Goosse et al., 2023; Shaw & Ihle, 2006). Such active pedagogic approaches, including those that occur in makerspaces, significantly improve communication through engagement and experiential participation (Adler-Beléndez et al., 2020; Karmas, 2012).

Technology integration plays a vital part in acquiring communication skills in modern times. Academic technology like learning management systems, mobile applications to enable interactive participation, and AI programs can provide personalized learning experiences and real-time collaboration and feedback among students (Al-Adwan

et al., 2024; Shadiev & Wang, 2022; Stamer et al., 2023). Software like 3D Page-Flipped Worksheets has also been found to improve both written and spoken communication skills (Oktasari et al., 2019).

Despite the recognized importance, obstacles in the progress of communication skills remain. For the most part, no regular provision is made for students to work on developing these skills in an integrated fashion over year levels and programs of study (Mercer-Mapstone & Matthews, 2017). Moreover, a significant imbalance continues to prevail between the communication skills that students are taught in college and those that employers want (Kleckner & Butz, 2021). Teachers sometimes find it challenging to effectively teach these skills due to undertraining and limited resources (AlAhmad, 2021; Spychała et al., 2022). Ways to address these challenges include large-scale faculty development to train instructors as communication coaches (Shaw & Ihle, 2006), the implementation of informed policies to improve instruction in academic literacy (Botha, 2025), and the integration of communicative detailed courses into general education curricula (S. Johnson et al., 2015). By utilizing these tactics, colleges and universities can better prepare students to cope with the diverse communications of the 21st-century workplace.

Collaboration Skills

Collaboration skills are the core of the 21st-century Learning and Innovation Skills (LIS), recognized as a core competency needed for both academic success and effective work performance in contemporary workplaces (Neumann et al., 2021; Partnership for 21st Century Learning, 2019). The ability to work and collaborate with others fosters shared understanding, enhances problem-solving abilities, and fosters innovation, all of which are essential to succeeding in an increasingly interconnected world (Partnership for 21st Century Learning, 2019; Yadav et al., 2024). Employers consistently highlight teamwork and collaborative abilities as key requirements, due to the growing demand for graduates capable of working towards shared goals (Kocsis & Pusztai, 2025; Vasodavan et al., 2022; World Economic Forum, 2020). Within school contexts, collaborative processes enable learners to develop necessary social interactions, including the sharing of diverse views, negotiation, and developing empathy (Zabolotna et al., 2025).

Interprofessional working subtleties are best articulated through the use of words such as partnership, cooperation, and coordination. Partnership in many instances involves interprofessional students jointly setting up, implementing, and evaluating care plans considering various viewpoints (Orchard et al., 2021). Cooperation best describes instances

where members of the team recognize and value one another's distinctive skills and knowledge during the process of a learning activity (Orchard et al., 2021). Concurrently, coordination focuses on the smooth operation of interprofessional groups for collective goals, such as planning and monitoring progress (Orchard et al., 2021). In the 21st century, the need for students who excel in effective teamwork is a requirement for employers, as it greatly supports the acquisition of interpersonal skills and general employability (Vasodavan et al., 2022). Moreover, students are also expected not just to mediate and explain but to critically think and become knowledge producers who can apply them in real social and work settings.

Universities are proactively embracing practices to promote these abilities. Collaborative pedagogies such as project-based learning and cooperative learning paradigms such as STAD have been reported to improve students' leadership, communication, and teamwork skills to a high degree (Kurniati et al., 2021; Porkodi et al., 2023). Prolonged use of interdisciplinary projects is particularly effective in this regard since it compels the students to work with students from other academic backgrounds, leading them to become prepared for addressing complex, real-life problems (Gosselin et al., 2020). Besides, experiential learning through collaborative project-based learning compels learners to practice their technical skills while acquiring peripheral skills like planning, managing risk, and good communication (Lingard & Barkataki, 2011). Cooperative learning methodologies specifically enhance social skills vital for teamwork through structured group activities (Mendo-Lázaro et al., 2018).

Technology integration has fundamentally transformed collaborative learning practices. Digital platforms and online tools facilitate real-time communication and enable students to interact and collaborate irrespective of physical distances (Joynes et al., 2019; Lin & Wang, 2024; Scott, 2015b). These platforms provide immediate communication tools, allowing students to investigate problems, discuss issues, and offer suggestions collaboratively, thereby enriching the cooperative experience and preparing them for future jobs. Despite the significance of teamwork, problems still exist in its formation. A notable mismatch often exists between the collaborative skills taught in higher education and those required by employers (Kocsis & Pusztai, 2025; Yadav et al., 2024). Some of the student-surveyed problems are time clashes for team meetings and differences in team members' input (Wilson et al., 2018). Socio-academic factors such as gender differences (with female students being more illustrative of teamwork skill aside from leadership) and socio-cultural origin could also be responsible for team dynamics (Prada et al., 2022; Nudelman et al., 2022).

For such challenges to be addressed, several recommendations are essential. Curriculum enhancement in tertiary education should entail incorporation of teamwork teaching in the curriculum and creation of an educational atmosphere that significantly values teamwork (H. Karimi & Farivarsadri, 2024). Educator training is essential to provide educators with training in collaborative learning facilitation and proper utilization of digital tools. Establishment of sound assessment methods outside traditional assessment, such as digital trace analysis and multimodal learning analytics, is important for fair and accurate evaluation of student collaboration (Kutuzov & Bogdanova, 2025). In addition, participation in extra-curricular activities like sports, music, and volunteering is significantly connected with attaining core teamwork skills, particularly leadership (Prada et al., 2022). By developing a culture of risk-taking and open communication, teachers can empower students to engage in substantial group work and develop the competences needed for future networked and team-based workplaces (Gill, 2017; Rieckmann, 2018).

2.2.1. Understanding Spiritual Intelligence (SI)

Spiritual Intelligence (SI) is emerging as a significant and evolving field of study, particularly at the university level. It is a multifaceted construct that captures elements of both spirituality and intelligence and is thus differentiated from religiousness in general or traditional notions of intelligence. SI is also being more and more thought of as an adaptive intelligence that fortifies daily functioning, problem-solving, and well-being through the use of spiritual resources and orientations to guide them through difficult life dilemmas (Pinto et al., 2024; Zohar & Marshall, 2001). This acknowledgment is a response to the necessity of integrating spiritual and moral methods into curricula in order to foster holistic student development (Ma & Wang, 2022).

Definition of Spiritual Intelligence

The notion of Spiritual Intelligence has developed from several different viewpoints, each helping to better understand it as a unique kind of intelligence. According to some researchers, SI is a natural human ability to experience reality with a holistic-intuitive perspective, being more of an immediate engagement than purely conceptual thinking. This involves a more participatory and less objectifying way of interacting with information, and accordingly, SI processes information in another way but not different information (Dorobantu & Watts, 2023, 2024). SI is also characterized as a unifying and integrative intelligence that could be developed to enhance quotidian interactions and problem-solving. It involves the incorporation of spiritual resources and principles into

practice, thus transcending physical, psychological, and social dimensions to offer an integrated, multidimensional phenomenon (Jucevičienė & Škėrienė, 2016; Pinto et al., 2024).

Moreover, rather than being a distinct mental module, SI is supposed to be an adaptive intelligence which employs extant cognitive structure in a novel way. It helps people develop their values, vision, and meaning potential, applying inner wisdom and intellectual balance in pursuit of meaning in life (Ahmadian et al., 2013; Amram, 2022; Wiseman & Watts, 2022). A key factor in SI's growth is the definitive distinction from religiousness; it stresses the intelligence applied within the spiritual domain, such as features like critical existential thinking, personal meaning production, transcendental consciousness, and conscious state expansion (Jucevičienė & Škėrienė, 2016). Research even confirms its presence through correlations with neurological organization and genetic markers, further establishing it as a legitimate form of intelligence (Amram, 2022). This evolution brings SI ahead as an intelligence that allows one to answer questions of last things (ultimate meaning, values, purpose), and subsequently apply this learning to inform their life and relationships, going beyond traditional IQ (focusing on cognitive ability) and EQ (managing emotional management and social competence) by providing a platform for managing life challenges with wisdom, empathy, and a greater sense of oneness.

Spiritual Intelligence (SI) is increasingly recognized as a critical component of human intelligence supplementing intellectual (IQ) and emotional (EQ) intelligence encompassing adaptive use of spiritual awareness to facilitate problem-solving and goal accomplishment in daily life (Aghamohammadi & Asgari, 2016). In contrast to emotional intelligence that focuses on the management of emotions, SI involves a broader set of intellectual and affective abilities such as inner wisdom, intellectual balance, and searching for meaning in life (Ahmadian et al., 2013). Despite criticism and controversy over its characterization as an independent form of intelligence and psychometric validation issues, there is evidence to suggest that SI is neurologically and genetically connected (Amram, 2022) and involves re-balancing human thinking towards more profound holistic-intuitive thinking (Dorobantu & Watts, 2023; Dorobantu & Watts, 2024). This confirms the position of SI as a unique vehicle by which people may be in contact with reality and mean, beyond generic cognitive and affective abilities.

In spite of the theoretical argument, pragmatic use and utility of Spiritual Intelligence (SI) in various domains put it in an important position. SI is strongly linked with emotional intelligence (EI) in a way that both are happiness and stress tolerance predictors, and hence play an important role in mental health and psychological well-being

(Aghamohammadi & Asgari, 2016; Gorji et al., 2017; Remaycuna-Vasquez et al., 2024). Professionally, SI significantly enriches work life quality and work motivation, ensuring personal values alignment with specified goals (Z. Karimi & Karimi, 2016; Pinto et al., 2024). SI is also similarly crucial in the educational environment, having a positive effect on school performance by students as well as their overall psychological well-being (Gera et al., 2021). Its use is also applied to modern leadership in responding to spiritual and ethical crises (Thakadipuram, 2023), and in health care in providing a quality of spiritual care (Yang, 2006). Therefore, this evidence of usage and positive impact highly substantiates the relevance of SI in achieving a balanced and worthwhile life despite the issues of conception that persist.

The incorporation of SI into the curricula of higher education has far-reaching implications. Studies have shown that developing SI can make students more resilient, emotionally sound, and better decision-makers with ethical standards, skills that are needed in today's complex world (Ma & Wang, 2022; Sisk, 2008). It is identified as a successful way to counteract issues such as depression and irrational thinking, leading to improved psychological well-being and academic performance (Pandya, 2024; Pant & Srivastava, 2019; Zhang et al., 2023). SI is positively correlated with psychological well-being, leading to increased life satisfaction and emotional stability for students (Al-Shoubaki, 2024; Anwar & Rana, 2024; Kasler et al., 2024; Senmar et al., 2023). Aside from personal well-being, SI is also significant in leadership development.

Empirical evidence validates that SI characteristics can powerfully aid the leadership competencies of learners as improved and well-rounded leaders (Prabhu & Mehta, 2023). For women academic leaders, the application of SI practices can ignite vision, enhance institutional image, and foster a coexisting workplace (Orozco, 2023; Reisdorf & Murray, 2024). Besides, SI has a positive impact on university organizational performance by increasing job satisfaction, motivation, and overall performance among university teachers (Pandya, 2024; Prabhu & Mehta, 2023). Spiritual competence training has also been promising to boost emotional intelligence and overall well-being, especially for students (Razak et al., 2024). The integration of SI into health definitions and training is even suggested as a preventative health measure, given its positive correlation with reduced burnout, stress, depression, and anxiety (Pinto et al., 2024).

Despite these promising benefits, challenges persist. A significant barrier is the perception that spirituality is a purely personal or religious matter, hindering its integration into academic settings (Ma & Wang, 2022). Faculty members may also require training and support to effectively incorporate SI into their teaching (Wajahat et al., 2024). Overcoming

these challenges necessitates a shift in institutional culture towards an inclusive environment that values diverse perspectives on spirituality and ethics, along with more comprehensive empirical research on SI's impact across various educational contexts (Gunnlaugson & Vokey, 2014; Ma & Wang, 2022). Cultivating a shared public language of spirituality within academia can foster dialogues that address the spiritual needs of the entire academic community (Briciu, 2024).

The King's Viable Spiritual Intelligence Model

Spiritual intelligence has developed into one of the main studies in various fields, including in education and self-development. Many experts and researchers have developed models and measurement tools to systematically explain spiritual intelligence, as an integral part of human intelligence. Referring to Pinto et al., (2024), one of the most widely used spiritual intelligence models in various research contexts is a viable spiritual intelligence model developed by King (2008), as a comprehensive framework with four main components that include critical existential thinking, personal meaning production, transcendental awareness, and expanded states of consciousness. Based on these four key components, King (2008) defines spiritual intelligence as "*a set of mental capacities that contribute to the awareness, integration, and adaptive application of the nonmaterial and transcendent aspects of one's existence*" (p. 56). This model provides a complete picture of how spiritual intelligence can be used in dealing with various life problems and challenges. The following is a further explanation of King's spiritual intelligence components.

Critical Existential Thinking

The word existentialist comes from Latin, which is a combination of the words *ex* which means out and *sistere* which means taking a stand and becoming *existere* which means to emerge. Moreover, the word existential can be defined as "relating to human existence" (Oxford University Press, 2024). Meanwhile, critical thinking is a meta-cognitive process that involves reflective and purposeful evaluation in increasing the likelihood of producing logical conclusions to an argument and solutions to a problem (Dwyer et al., 2014). In a broader context, the discussion of existential tendencies involves aspects of cognition that contribute to a better understanding of an individual's mental capacities (King & DeCicco, 2009). Furthermore, King (2008) defines Critical existential thinking as "*the capacity to critically contemplate the nature of existence, reality, the universe, space, time, death, and other existential or metaphysical issues.*" The importance of critical thinking skills in understanding existential issues, in contrast to individuals who

only think simply, can help them in finding the answer and reaching the conclusions of their existential (King, 2008). Therefore, as the first component of spiritual intelligence, critical existential thinking combines these two important concepts, emphasizing the use of critical thinking in understanding an individual's existence.

Critical existential thinking has an important role in one's life, especially in dealing with life problems that are closely related to one's existence. (King & DeCicco, 2009). In the theory of multiple intelligences, the concept critical existential thinking is in line with the existential intelligence by Gardner (2000), used to understand one's ability to contemplate existential questions such as Who are we? Where do we come from? What are we made of? and, Why do we die?, requires the ability to go beyond sensory experience to find the meaning of life and our place in the universe. Referring to Kiesling et al. (2006) existential issues are called the "ultimate question" in life, which cannot be answered only by contemplating the question, but requires finding answers according to the behavior and abilities of each individual itself. Therefore, critical existential thinking emphasizes an analytical reflective approach to answering questions about individuals' existence through critically examining fundamental aspects of their lives, considering an individual's experience and the meaning of life (King, 2008).

Personal Meaning Production

The second component of spiritual intelligence is personal meaning production, which refers to a person's ability to create meaning from their experiences, closely related to mental health and well-being. According to Nasel (2004) in King (2008), spiritual intelligence is shaped by the ability to contemplate the symbolic meaning of personal experiences, by delving deeply into the hidden meaning and purpose behind each event. Personal meaning production is described as *"the ability to construct personal meaning and purpose in all physical and mental experiences, including the capacity to create and master a life purpose"* (King, 2008). In line with that, Fave et al. (2013) defined personal meaning as the individual meaning of their life experiences that reflect personal values, beliefs and goals. The difference in capacity between individuals in creating meaning in life, shows the existence of different mental abilities that make it the basis for the formation of spiritual intelligence (King, 2008). Hence, this concept guides a person to understand and give meaning to life, becoming the basis for their personal growth, harmony and transcendental value.

Meaning creation is a deep and gradual developmental process in interpreting and giving meaning to life, with implications for an individual's identity and well-being (Fivush

et al., 2017). Meddin (1998) in King and DeCicco (2009), added that this process is closely related to a person's cognitive aspects through the integration of principles with the understanding of personal and social life. In this case, personal meaning has an attachment to existential thinking, but knowing the "reason for being" which is more than just thinking about existence itself, indicates a separate and unique mental ability (Reker, 1997, in King, 2008). This meaning-making also helps a person to gain purpose in life by being more creative and integral to the physical and mental experiences that have been passed (King & DeCicco, 2009). Therefore, meaning-making is considered one of the most advanced abilities, with no limitation of sources in constructing meaning and its relevance to finding solutions to individual problems (King, 2010). Thus, the creation of meaning is very important for individuals to master in developing the ability to seek better meaning from all things that happen in living life.

Transcendental Awareness

Transcendental consciousness or transcendental awareness is understood as full awareness in understanding reality as a whole, both concrete and abstract, using a metaphysical point of view as part of a greater unity (Mazijk, 2020). This concept emphasizes the importance of understanding life more consciously and holistically that shapes one's experience. According to King (2008), transcendental awareness is defined as *"the capacity to identify transcendent dimensions of the self (e.g., transpersonal or transcendent self), of other, and of the physical world (e.g., non-materialism, holism) during the normal, waking state of consciousness, accompanied by the capacity to identify their relation to one's self and to the physical.* This definition explains that transcendental consciousness is consciousness that transcends the physical or material dimension, where the word "transcendental" here is the main key in understanding this concept, not meaning that the consciousness is transcendent, but the ability to understand something that is transcendent (King, 2008). Thus, transcendental consciousness uses consciousness as a tool or ability to understand the deeper dimensions of reality, including concepts that cannot be explained materially but are meaningful in one's life.

The concept of transcendental awareness is closely related to transcendental actualization which is self-realization based on experience and awareness of spirituality (Hamel et al., 2003 in King, 2008). This concept is also useful as an intervention for psychological disorders and stress by emphasizing mindfulness through three main frameworks called S-ART (self awareness, self regulation, and self transcendence) with its neurobiological mechanisms (Vago & Silbersweig, 2012). In understanding transcendental

phenomenology, there needs to be a separation between meaning and existence, as Husserl's statement that the world does not exist outside of consciousness: the world only exists in consciousness, emphasizes that existence is recognized by consciousness (Mazijk, 2020). Csikszentmihalyi (1993) in King (2008) provides a fundamental difference between self-transcendence and self-actualization, where self-actualization becomes a prerequisite for achieving self-transcendence, making a person step beyond self-limitations through the integration of life goals with greater goals. This perception and awareness entails the cognitive ability to understand one's own nature holistically, thus becoming an integral part of spiritual intelligence (Zohar & Marshall, 2001). Unlike the previous components of spiritual intelligence, the production of personal meaning goes beyond transcendental consciousness to involve the creation of meaning from everyday experiences, while transcendental consciousness is limited to normal, waking consciousness (King, 2008). Nonetheless, transcendental awareness plays an important role in understanding the reality of life and is key in the development of spiritual intelligence.

Conscious State Expansion

Consciousness can be understood as "being aware of something; paying attention to something" and or "being able to use the senses and mental powers to understand what is happening" (Oxford University Press, 2024). Consciousness is a complex concept, referring to the state or nature of living beings that have consciousness, which can be understood with four fold taxonomy (epistemic, semantic, physiological, and pragmatic) in understanding the same phenomenon (Jonkisz, 2012). In King's spiritual intelligence, conscious state expansion defined as "*the ability to enter and exit higher/spiritual states of consciousness (e.g., pure consciousness, cosmic consciousness, unity, oneness) at one's own discretion (as in deep contemplation, meditation, prayer, etc.)*" (King, 2008).

Research shows that there is a difference between ordinary consciousness and transcendental consciousness, although they are interconnected. Experiences in higher states of consciousness can enhance transcendental awareness, providing deeper insights into reality and the meaning of life (King, 2008). Furthermore, the ability to control entering and exiting higher states of consciousness is considered a significant mental capacity (King & DeCicco, 2009). Here, spiritual intelligence has a flexible role, especially for individuals to foster mental health, with a positive relationship between spirituality and adaptability (Makanui et al., 2019). This can be seen from evidence that spirituality has been shown to minimize stress, improve quality of life, and well-being especially among those afflicted with illnesses (Dunn & Robinson-Lane, 2020). Spiritual intelligence can thus work as a

moderator for how spirituality relates to adaptability where it is spiritual intelligence at high levels that can enhance one's ability to adapt to challenges in life.

2.2.3. Systematic Literature Review on Spiritual Intelligence in Education

Systematic Literature Review (SLR) is a systematic and rigorous methodological process applied to systematically identify, evaluate, and synthesize all of the evidence available on a specific question or topic. The rigorous method is directed towards minimizing bias, maximizing transparency, and maximizing reproducibility of the review process so that its findings can be extremely credible and suitable for evidence-based decision-making (Knoll et al., 2018; Shrivastava & Mishra, 2025). The process typically begins with the clear formulation of a research query, followed by the development of a detailed protocol that outlines search strategies, explicit inclusion and exclusion criteria, and data extraction processes (Barrington et al., 2024; Ramey & Rao, 2011). After that, an exhaustive and systematic search is conducted across relevant databases, and identified studies are rigorously screened and selected against the pre-developed criteria to determine their direct relevance to the research question (Sargeant & O'Connor, 2014). The built-in quality of an SLR provides a critical overview of the current state of knowledge, which is critical in the identification of existing research gaps and guiding future research (García-Peñalvo, 2022).

This is then followed by the rigorous assessment of the quality of included studies using standardized tools to ascertain risks of bias and the overall reliability of their findings (Milner, 2015; Soni, 2025). The data of the studies are extracted systematically onto standardized forms for consistency and accuracy, and this is followed by the overall synthesis of results. This synthesis can involve statistical meta-analysis of quantitative data or meta-synthesis of qualitative data, which ultimately provides a thorough overview of the current state of knowledge on the chosen theme (O'Connor et al., 2014; Turk, 2021). The results are provided in a reproducible and transparent manner, typically adhering to established guidelines such as PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), thereby contributing to the credibility as well as testability of the conclusions derived (Shrivastava & Mishra, 2025).

While the procedure of conducting an SLR is lengthy and involves a lot of effort, it yields a comprehensive picture that identifies existing knowledge gaps and guides future research agendas (Garcia et al., 2023). Although originally designed in the medical field, SLR methodology has been successfully applied in fields as varied as engineering and social sciences, each of which has required carefully calibrated adjustments to meet their

research needs (Phillips et al., 2024; Visic, 2022). Despite the rigorous methods, restrictions could arise from the variability in quality of incorporated studies and potential biases in the original studies that can have implication for overall results (Soni, 2025). The SLR, however, is a powerful tool, providing a solid foundation for evidence-based practice and contributing significantly to knowledge construction and informed decision-making across disciplines (Manchikanti et al., 2009). This current study borrows the rigor of an SLR to synthesize the literature on Spiritual Intelligence in education in a systematic way, with the aim of uncovering main trends, enduring gaps, and emerging insights in this important area.

Research Methodology of The Systematic Literature Review

In order to provide a thorough examination of the existing literature in relation to Spiritual Intelligence (SI) in educational contexts, a rigorous approach based on established systematic literature review procedures was employed. Scopus was the primary database employed in this review, based on its wide coverage of peer-reviewed scholarly literature in all fields, and its ability to offer broad yet focused searching. The specific search query executed in Scopus was: TITLE-ABS-KEY ("Spiritual Intelligence" AND "education") AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final")). This search also included articles in the title, abstract, or keywords where both the terms "Spiritual Intelligence" and "education" occurred, restricting the returned articles to journal articles (DOCTYPE "ar", SRCTYPE "j", PUBSTAGE "final") in English. This search returned 93 articles.

The selection process employed a systematic screening method. The publication years of these articles ranged from 1999 to April 2025 and represent an inclusive coverage of the evolving education dialogue on Spiritual Intelligence over more than two decades. After the initial retrieval, a thorough title and abstract screening was conducted to assess the relevance of each article to the study's context. Articles were excluded if they were beyond the defined educational context (n=26) or if the full text could not be accessed (n=4). This meticulous screening process resulted in a final set of 63 articles that were deemed suitable for in-depth analysis. The detailed flow of the article selection process, from initial identification to final inclusion, is visually represented in the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram presented in Figure 2.2 below.

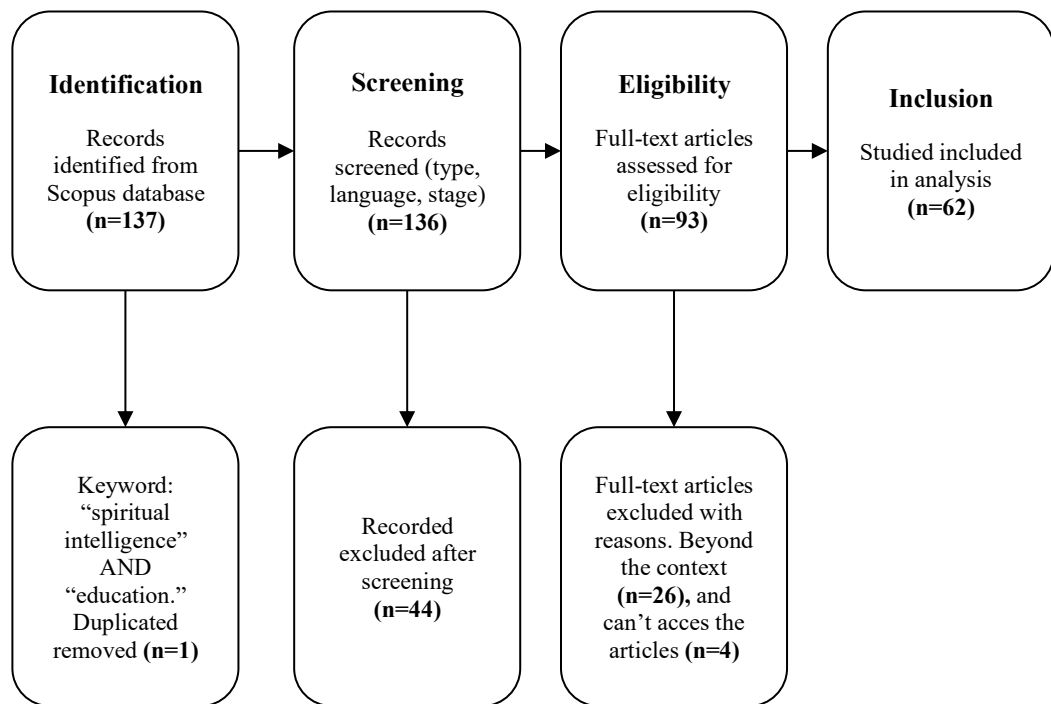


Figure 2. 2. Prisma Flow Diagram

Key Themes and Findings from The Systematic Literature Review

Analysis of the 62 articles identified in this Systematic Literature Review revealed some key trends and themes regarding Spiritual Intelligence in the context of education. Figure 2.3. shows the trend in publication volume per year of the relevant articles. It can be seen that research interest in this topic has seen a significant increase in the last two decades. Specifically, the period from 1999 to 2012 saw a relatively low and sporadic volume of publications, with only one to two articles per year. Then, between 2013 and 2018, there was a gradual increase in the number of publications, indicating a growing interest in the field. The most drastic and significant increase occurred in the period 2019 to 2023, where publications peaked at 9 documents in 2023, indicating a strong surge in research interest. Although there was a slight dip in 2024 and early 2025 (it should be noted that 2025 data is not yet complete), the overall trend from 2019 shows a substantial increase in attention to Spiritual Intelligence in academic circles. This development indicates a growing recognition of the importance of Spiritual Intelligence and its potential contribution to various aspects of education.

Documents by year

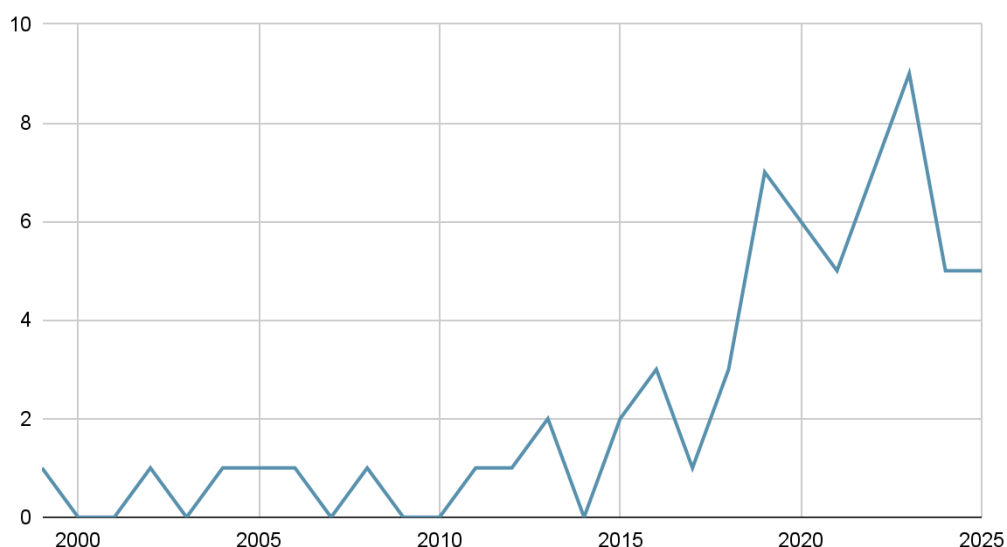


Figure 2. 3. Distribution of Articles Published

Research into Spiritual Intelligence (SI) in the education sector has, in the past few years, progressed significantly in a very wide range of countries, respondent groups, and different modes of research. In Iran, some research has been conducted; Karimi-Moonaghi et al. (2015) explained the relationship of spiritual intelligence with clinical expertise among 250 nurses in Mashhad, and Mousavimoghadam et al. (2015) investigated its relationship with mental health of children aged between 6-12 years from Ilam, among 100 worker mothers who are teachers. Riahi et al. (2018) had studied the effect of spiritual intelligence training on 82 intensive care unit nurses in Lorestan, and Nejad et al. (2019) had studied its effect on the responsibility and resilience of 60 high school students in Baghmalek. The relation between spiritual intelligence and mental health of 203 primary school teachers of Darreshahr was the topic of research for Shateri et al. (2019), whereas Najmi et al. (2019) studied the relation between demographic and family factors and psychological traits of 279 secondary school adolescents. In a specific scenario, Yaghoubi et al. (2020) investigated the relationship between spiritual intelligence and burnout in 57 dental residents in Shiraz, Ahmadi et al. (2021) established the relationship between spiritual intelligence and spiritual care competence among 510 nursing students, and Khosravi (2023) studied the moderation role of spiritual intelligence on euthanasia attitudes among 219 medical students. Finally, Zamani et al. (2023) developed the levels of work stress and effects of spiritual intelligence among 209 medical internists under the COVID-19 pandemic.

Research is also very extensive in Malaysia; Santoso & Hasan (2018) established a graduate competency model on spiritual intelligence for engineering students in Batam (albeit the study was conducted in Indonesia, it is applicable across the Malaysian industrial environment). Anas & Hamzah (2022) investigated the contribution of spiritual intelligence to career adaptability among 423 new graduates from four Malaysian public universities. Bali-Mahomed et al. (2022) developed a psychological well-being model of 330 secondary school counselors of Selangor. Kori et al. (2022) established the factors affecting work-life balance of 435 Malaysian lecturers during the pandemic. Alamanda (2021) examined the organizational civic behavior function of spiritual intelligence of 5000 Muslim workers from various sectors in Malaysia, including education. Idawati & Mahadun (2021) compared the effect of emotional and spiritual intelligence on performance among 100 Islamic University lecturers in East Java, Indonesia (though the setting is comparable for Malaysia too). Lastly, Hamzah et al. (2024) applied spiritual intelligence among 209 Universiti Malaysia Pahang Al-Sultan Abdullah non-Muslim students.

Other Indonesian research includes the study by Absah et al. (2020) that investigated the function of spiritual intelligence on the performance of the education institution with 500 teaching and administrative personnel. Masaong & Mas (2019) developed a management model of character education by employing multiple intelligence in Gorontalo Province. Karmini et al. (2021) offer the humanism education model utilizing local wisdom in elementary schools in Bali. Sholehuddin et al. (2023) implemented family education strategies to develop children's Islamic spiritual intelligence in the era of digitalization among 160 parents. Ansyori et al. (2025) investigated the influence of anxiety and education level on mental health among 390 post-COVID-19 patients with spiritual intelligence as an intervening variable. Meanwhile, Kotten et al. (2025) investigated spiritually founded supervision at an elementary school based on religion in Ende City.

Upadhyay (2017) analyzed the relationship of spiritual intelligence and research performance with 1137 tertiary-level education respondents from India. Menon & Sadasivan (2019) assessed the belief in the qualities of spiritual intelligence and transformational leadership by followers in Amrita Institutions. Prabhu et al. (2020) suggest a conceptual framework on spiritual intelligence and sustainability and leadership in the higher education system. Prabhu & Mehta (2023) developed a leadership development model by verifying 810 university students' spiritual intelligence qualities. Rajan et al. (2024) investigated spiritual intelligence and employment status impacts on depressive symptoms in 381 rural Puducherry adults. Labib & Mathur (2025) tested the role of spiritual intelligence as a predictor of psychological capital in 200 Gujarat university

international students. Raheja et al. (2024) examined the relationship between spiritual intelligence, happiness, and academic performance in 240 Delhi University undergraduate students. Walter et al. (2024) carried out a comparative investigation among young adults seeking higher education in Israel and India, examining the relationship between emotional and spiritual intelligence, depression, anxiety, and life satisfaction. Finally, Varghese et al. (2024) estimated the impact of Learnability Quotient on Employability with the intervening role of spiritual intelligence in South India.

Other studies from other countries also add to this information. Ferreira & Schulze (2016) utilized a qualitative case study of ten 11th-graders in South Africa to investigate the implementation of spiritual intelligence programs in religious education classrooms. Guenther & Németh-Torres (2016) from Brazil conducted an exploratory study on spirituality in education, involving students and young adults aged 9 to 28 years. In Chile, Severino-González et al. (2022) explored the spiritual intelligence attitudes of 362 university students from the social responsibility point of view during the COVID-19 pandemic era. Latvia possesses studies by Grasmann et al. (2022) that developed and verified a children's spiritual intelligence scale among 200 children in elementary schools, and Grasmann et al. (2025) that assessed the effectiveness of psycho-pedagogical interventions among 83 primary schoolchildren. Nurochim et al. (2022) in Russia measured the relationship of spiritual intelligence, emotion regulation, and coping mechanisms for stress among 322 teachers in Kazan. Disassa et al. (2023) in Ethiopia conducted the role of multiple intelligences in marriage selection among 230 students of Jimma College of Teachers Education. Hernández-Huaripaucar et al. (2023) in Peru calculated the spiritual intelligence profile of 418 health science students. In addition, there have been numerous conceptual articles or reviews of literature without specific respondents, such as Zweiback et al. (2016), Hensey (2018), Mohammed (2019), Busyairi (2020), Mostafavi (2022), Echarri-Iribarren & Echarri-Iribarren (2021), Nguyen (2023), Amdrei (2023), and Tirri (2023), that promote the theory of spiritual intelligence in various aspects of education.

As far as the research approach used is concerned, previous studies have been very diverse. They use quantitative designs such as descriptive-correlational, comparative, predictive, or regression analysis, and most of them use Structural Equation Modeling (SEM) to examine sophisticated correlation between variables (e.g. Absah et al., 2020; Ismail et al., 2020; Idawati & Mahadun, 2021; Ansyori et al., 2025). There have been experimental or quasi-experimental studies, such as Riahi et al. (2018), Nejad et al. (2019), Dami et al. (2019), and Grasmann et al. (2025), which examined the effectiveness of interventions designed to enhance spiritual intelligence. Either qualitative or mixed designs

are used in order to gather insight, e.g., case studies (Kotten et al., 2025; Ferreira & Schulze, 2016), exploratory studies (Guenther & Németh-Torres, 2016), or product development methodologies (Masaong & Mas, 2019). There are also many studies that are conceptual or literature reviews, with a focus on the development of theoretical frameworks without primary data gathering. In conclusion, the research highlights that spiritual intelligence is increasingly a contemporary theme of learning in schools around the world, and that it can be developed by training and courses, albeit with ongoing opportunities for longitudinal research and exploration. Methodologically, too, some of these SLR findings can be grouped under various superordinate themes, which are elaborated in greater detail below.

Conceptualization and Role of Spiritual Intelligence in Education

Many studies begin by trying to define Spiritual Intelligence (SI) and place it in an educational context, often as a response to modern challenges. Neiman (1999) discusses how SI can be reconciled with education after the Enlightenment era that separated the spiritual realm from the public. Sisk (2002) suggests SI as the "Tenth Intelligence" that integrates other intelligences, emphasizing inner authority and the search for life purpose. Vettical (2004) and White (2006) highlighted SI as a crucial component in holistic education to address global social challenges and fulfill students' spiritual needs. Guenther and Németh-Torres (2016) explored the concept of spirituality in education from a humanistic psychology perspective in a Latin cultural setting. Busyairi (2020) discussed the relationship of SI with intuitive knowledge ("Laduni science") and modern learning theories.

In addition, Mostafavi (2022) conducted a comparison between "Wisdom Intelligence" and Spiritual Intelligence from a philosophical point of view. Grasmane et al., (2022) contributed with the development and validation of the Children Spiritual Intelligence Scale (CSIS) that measures components of SI in elementary school-aged children (e.g., creation and awareness of personal meaning, self-understanding, mastery of self-control, awareness of authenticity, and social mastery). Furthermore, Najmi et al. (2019) examined the effects of demographic and family characteristics on psychological attributes of adolescents, specifically spiritual intelligence (SI), and concluded that age, gender, and father's education play important roles in developing SI as well as identity style, parenting perception, and mental health, suggesting SI as a core component of adolescents' psychological wellness. Tirri (2023) specifically addressed the role of spirituality and "spiritual sensitivity" in the holistic education of gifted students, emphasizing SI as a means to find purpose and meaning in life. Lastly, Hamzah et al.

(2024) showed that non-Muslim students in higher education institutions understood key concepts of SI such as God consciousness, self-transcendence, and self-determination, highlighting the universality of the concept of SI beyond the boundaries of a particular religion. These articles fundamentally argue that SI is not just a supplement, but an essential foundation for the development of a complete individual.

Spiritual Intelligence and Individual and Professional Well-being

This is a very dominant theme, showing consistent associations between SI and various aspects of psychological and mental well-being across different populations in the education ecosystem. Shabani et al. (2011) found that SI and Emotional Intelligence predict the mental health of secondary school students. Mousavimoghadam et al. (2015) showed that SI in mothers (who are also teachers) was positively correlated with their children's mental health. Azadmarzabadi et al. (2013) showed a significant negative correlation between job stress and SI in military university personnel. also indicated that SI development can contribute to improved physical and psychological health. Dami et al. (2019) demonstrated the effectiveness of spiritually-based group counseling in reducing depression, anxiety, and stress, and increasing SI in university students. Hensey (2018) highlighted SI in actor training to address mental health issues. Shateri et al. (2018) reinforced these findings by showing a significant negative correlation between SI and mental health problems among elementary school teachers. Yaghoubi et al. (2020) found that SI was associated with lower levels of burnout in dental residents. Javadi Nejad et al., (2019) found that SI training was effective in improving resilience and responsibility of secondary school students.

Furthermore, Ismail et al. (2020) emphasized SI as an internal factor contributing to burnout in secondary school teachers. Bali-Mahomed et al. (2022) developed a model of psychological well-being for school counselors, with SI as a significant positive predictor. Nurochim et al. (2022) found a positive relationship between SI, emotion regulation, and stress coping strategies in teachers. Kori and Omar (2022) identified SI as one of the factors that correlates with lecturers' work-life balance. Zamani et al. (2023) showed that SI has a negative effect on occupational stress in medical internists during the COVID-19 pandemic. Zamani et al. (2023) found that SI partially mediated the relationship between education and depressive symptoms among rural adults. Walter et al. (2024) in their comparative study in Israel and India, showed that SI was positively correlated with life satisfaction and associated with lower levels of depression/anxiety, with cross-cultural and gender differences.

Additionally, Labib and Mathur (2025) showed that SI significantly predicts psychological capital (optimism, resilience, hope, self-efficacy) in international students, emphasizing the importance of SI in psychological support programs for adaptation and well-being. Ansyori et al. (2025) found that SI acted as a mediating variable between anxiety, education level, and mental health in post-COVID-19 patients, underscoring the importance of spiritual development practices in mental health interventions and educational programs to improve resilience. Grasmann et al. (2025) showed that a specially designed psycho-pedagogical intervention can significantly improve SI, happiness, and spiritual well-being in elementary school children, regardless of gender or frequency of church attendance.

Spiritual Intelligence in the Context of Educational Leadership, Management & Institutional Performance

This theme shows the crucial role of SI in developing leadership, management, and improving organizational performance, especially in the education sector. Cowan (2005) translated Emmons' SI components into leadership competencies. White (2006) discusses how educational leadership can respond to students' spiritual needs through SQ development. Narayanswamy (2008) argued for integrating spirituality into management education to enable managers to handle ambiguity and encourage corporate social responsibility. Azevedo and Jugdev (2013) linked SI with ethical leadership and sustainable behavior in business education. Menon and Sadasivan (2019) explored the relationship between IS and Transformational Leadership, linking it to the achievement of the UN Sustainable Development Goals. Prabhu et al. (2020) proposed a practical SI model for leadership development and sustainability in Indian universities. Samul (2020) found a relationship between EI, SI, and management students' self-leadership skills. Absah et al. (2020) examined the role of IS in institutional performance in the Indonesian education sector, finding positive effects on organizational performance and employee engagement. Idawati and Mahadun (2021) found that SI has a direct effect on lecturer performance in Islamic Higher Education, with work motivation as a mediator. Prabhu and Mehta (2023) validated a new model of leadership development in higher education using universal attributes of SI, confirming the significant impact of SI on student leadership development. Kotten et al. (2025) explored spiritually oriented supervision in faith-based primary schools, finding that principals' SI can motivate teachers and improve their performance, which contributes to the quality of education and holistic character development.

Integration of Spiritual Intelligence in Curriculum and Pedagogy

This theme addresses strategies and models for integrating SI into educational practices and curricula at various levels. Vettical (2004) proposed holistic/spiritual education as a strategy to foster social harmony and "learning to be". Rahman et al. (2012) developed a spiritual-science model for preschool education. Azevedo & Jugdev (2013) proposed a holistic model for undergraduate business education that incorporates SI and values. White (2006) discusses challenges and prescriptive models for fostering student spirituality in higher education. Ferreira and Schulze (2016) show how SI programs can foster tolerance and understanding in pluralistic religious education classes. Riahi et al. (2018) recommended the integration of IS training in the nursing curriculum. Hensey (2018) discussed the application of SI principles in actor training. Mohammed (2019) recommended curriculum development to improve students' SI and academic self-efficacy. Masaong and Mas (2019) developed a multiple intelligence-based character education management model (including SI) to face the Industrial 4.0 era.

Furthermore, Karmini et al. (2021) present a model of humanism education based on local wisdom in elementary schools, honing various intelligences including SI. Ahmadi et al. (2021) recommended improving nursing students' SI through promoting critical thinking and spiritual self-awareness in the curriculum. Andrei (2023) offered a conceptual framework for improving religious education (Orthodox Christianity) through EI and SI, emphasizing SI for students' self-development and social skills. Sholehuddin et al. (2023) highlighted the role of family education (through verbal discourse, behavioral modeling, and wise use of technology) in developing children's Islamic SI in the digital era. Nguyen (2023) introduced SI as a vital way for religious education to foster practical knowledge and wisdom, encouraging interconnection and belonging. Hernández Huaripaucar et al. (2023) highlighted the urgent need to develop SI in the academic domain of health science students for humanistic education. Hamzah et al. (2024) highlighted the need to introduce SI to non-Muslim students in higher education institutions to foster well-being and understanding, regardless of religious background.

Spiritual Intelligence and Specific Skill Development & Adaptability

This theme is directly relevant to Mbah's research, highlighting the relationship of Spiritual Intelligence with the development of more focused abilities and skills that are crucial for academic, professional, and personal success. Zweiback et al. (2016) explicitly discussed the relationship between critical and creative thinking skills and Spiritual Intelligence characteristics, providing examples of its integration in classroom learning

experiences. Upadhyay (2017) found that Spiritual Intelligence has a direct and strong impact on research performance in higher education, demonstrating the importance of SI for purpose, open-mindedness, vision, coordination, and patience in research. Karimi-Moonaghi et al. (2015) proved that SI was directly correlated with the clinical competence of nurses. Santoso and Hassan (2018) defined "Spiritual Competence" as a new competency in future employees ("K-workers") training program for undergraduate students, pertaining to ethics and prevention of bad behaviors, and mentioning "learning and methodology competencies."

Additionally, Anas and Hamzah (2022) found that Spiritual Intelligence significantly predicts career adaptability of new graduates, indicating the importance of SI for adaptability in the world of work. Disassa et al. (2023) found that multiple intelligences, including SI, significantly contributed to marital decision-making in teacher education students, which can be considered an important life skill. Varghese et al. (2024) present complex findings regarding the mediating role of SI in the relationship between Learnability Quotient (LQ) and Employability. Although SI was moderately correlated with LQ and Employability, its mediating role unexpectedly reduced the positive impact of LQ on Employability, suggesting a dynamic that is nuanced and needs further exploration. Andrei (2023) mentioned that SI helps students develop self-efficacy, self-awareness, self-regulation, motivation, empathy, and social skills, all of which are important for management tasks in future jobs. Raheja et al. (2024) showed a positive relationship between SI and happiness, and that both were positively associated with academic achievement (although the SI-academic achievement relationship varied by gender), implying a contribution of SI to academic success.

Spiritual Intelligence and Pro-Social Behavior, Ethics, and Environmental/Social Responsibility

This theme covers the impact of Spiritual Intelligence on broader dimensions of individual behavior, including social interactions, ethics, and environmental awareness. Vettical (2004) emphasizes the role of spiritual education in creating a culture of harmony and compassionate relationships. Azevedo & Jugdev (2013) linked the development of SI with increased individual engagement towards sustainable communities, harmony, and racial tolerance. Alamanda et al. (2021) found a positive and significant relationship between Spiritual Intelligence and organizational citizenship behaviors (OCB) among staff, emphasizing that SI can encourage actions that benefit colleagues and the organization. Echarri-Iribarren and Echarri-Iribarren (2021) discuss "Ecological Spiritual Intelligence"

in environmental education, which aims to restore the right relationship between humans and nature, promote pro-environmental behavior, and find the intrinsic unity between the environment and humans. Severino-González et al. (2022) explored university students' attitudes towards social responsibility and Spiritual Intelligence, highlighting SI as an important educational "meta-skill" for forming socially responsible and ethically sustainable citizens. Khosravi (2023) showed that Spiritual Intelligence has an important moderating role in medical students' attitudes towards euthanasia, highlighting the role of SI in complex ethical decision-making. Nguyen (2023) emphasized how SI in religious education can promote human interconnection, a sense of belonging, and create a just learning environment.

Overall, this systematic review shows that Spiritual Intelligence (SI) is increasingly recognized as an important aspect of education across levels and cultures. It supports the holistic development of individuals through the search for meaning and core values, promotes well-being and mental health with positive correlations to happiness and resilience and negative to stress and depression, and contributes to academic and professional performance, including the strengthening of skills such as critical thinking and decision-making. Apart from being a foundation of ethics, pro-sociality, and care towards nature, SI has also exhibited universal practicability in various cultural and religious contexts, religious and non-religious education. Increasingly, research calls for the integration of SI in curricula and psycho-pedagogical interventions throughout preschool and tertiary education. More research is still warranted to better know specifically and essentially the implementation and impact of SI across various education settings.

2.2.4. The Relation of Spiritual Intelligence and Learning and Innovation Skills

The discipline of research that monitors interactions between spiritual intelligence (SI) and the acquisition of 21st-century skills is a recent and new field that reflects the importance of combining ethical and intellectual capacities in educational and professional settings. 21st-century skills are like critical thinking, collaboration, communication, and creativity; these skills are most essential for effective living in the current era, not just for learning (Partnership for 21st Century Skills, 2019). Spiritual intelligence can be characterized by Zohar & Marshall (2001) as the ability to invoke spiritual means to resolve problems and manage ethical dilemmas. The shared area of these two terms gives birth to the idea of collaborating in some way, especially in ethical reasoning and empathy, which

are crucial in terms of the accurate and skillful making of decisions both in our personal and professional lives.

Critical thinking, the building block of 21st-century skills, is strongly connected to spiritual intelligence. Spiritual intelligence is the capacity to bring spiritual knowledge and insights into our life in such a way as to make us grow personally and solve problems (Halama, 2004; Kadkhoda et al., 2013). In its turn, critical thinking consists in the analysis and evaluation of information that are aimed at making reasoned judgments (Facione, 2015). Studies have demonstrated that people with higher spiritual intelligence scores may be more skilled in using reason to stay engaged in the ethos of decision-making and might as well be more inclined towards the question 'whether my actions are in line with my values and what they mean for me' (Halama, 2004; King, 2008). Thus, this leads to the conclusion that the promotion of critical thinking skills in academia enables students to unlock their spiritual intelligence potential and encourages implementing the deeper ethical reflections, which are necessary for the moral complexities of contemporary society.

Besides this, the importance of emotional intelligence (EI) is clear in solving the dilemma of spiritual intelligence and critical thinking (Reisdorf & Murray, 2024; Sapiee et al., 2024). Research works have presented absolutely quite evident proof of the fact that spiritual intelligence subsumes the complete range of learning outcomes to be achieved in cognitive and personal growth including such existential concepts as critical thinking, which involve the process of questioning and thinking about our individual values and beliefs (Dorobantu & Watts, 2023; Kasler et al., 2024). By combining the two, emotional and spiritual intelligence, educational methods should be designed in such a way that cognitive and spiritual development both get addressed in a simultaneous and dual process (King et al., 2012; Selvamani et al., 2024). Moreover, it is true especially in settings like nursing, where the ability to communicate and think ethically effectively is important. For example, the research conducted on the nurses in Hamdan Hospitals showed an undeviating connection between spiritual intelligence and the physical part of the nursing care delivered by the nurse; thus, the very good application of the said core competence can be an incentive for professional practice (Sabzianpur & Nuri, 2019). Additionally, critical thinking is enriched by spiritual intelligence, as it encourages individuals to reflect on their beliefs and consider ethical implications when making decisions (Amram, 2022). This connection is particularly valuable in education, where students frequently encounter moral dilemmas and must navigate their academic journey with a sense of ethical responsibility.

The bond between spiritual intelligence and creativity in organizational environments is the subject of research done along the way showing that spiritual

intelligence can give superlative creative thinking and innovation to employees (Reave, 2005; Selvamani et al., 2024). When students engage in creative tasks, spiritual intelligence allows them to explore ideas that align with their values, leading to more meaningful innovation (Amram & Dryer, 2008). Empirical evidence has confirmed the allegation that spiritual intelligence not only leads to increased creativity but also acts as a mediator for other forms of the intelligence of this kind such as emotional intelligence in getting the creative outcomes (Khalilzadeh et al., 2023; Walt et al., 2006). Even though it is obvious that organizations can reach the objectives of innovation and resilience through training spiritual intelligence, this can only be a possibility if organizations include spiritual intelligence in their systems (Gera et al., 2021; Pinto et al., 2024). The positive relationships found between spiritual intelligence and the organizational commitment and employee creativity draw attention to the need for organizations to invest in this area of intelligence as well for the workplace outcomes to be better (Oyewunmi et al., 2021).

Effective communication and collaboration are also strengthened by spiritual intelligence, as it fosters empathy, emotional awareness, and a sense of shared purpose. Communication that is rooted in spiritual intelligence allows for more open and respectful dialogue, promoting inclusivity within educational environments (Fry, 2003). Similarly, teamwork is also promoted through establishing trust and respect among people, yielding better teamwork and more efficient learning processes (Fry, 2003). Spiritual intelligence also leads to resilience and flexibility, enabling learners to be more inclined towards challenges and respond with a growth mindset and optimism (Amram & Dryer, 2008). With adaptability being the demand of the time, learners who couple spiritual intelligence with their 21st-century skills are in a better position to cope with uncertainty and complexities in educational as well as professional settings.

Though there are hopeful connections between 21st-century skills and spiritual intelligence, only when more empirical research is carried out in more depth would we be able to understand this relationship. While direct gender differences in spiritual intelligence are generally ambiguous (Hassan, 2023; Labib & Mathur, 2025; Pant & Srivastava, 2019), there are researches indicating some patterns by which female students might answer with greater SI scores (Azizi et al., 2018; Raheja et al., 2024) or endorse some spiritual principles more frequently (Galek et al., 2008), and males might respond with greater psychological well-being in specific circumstances (Anwar & Rana, 2024). Moreover, gender has moderated a number of learning outcomes including mathematics performance through conscious learning (Anglin et al., 2008), group performance based on gender roles and task content (Michinov et al., 2009), information literacy skills and academic performance

(Abad & López, 2017), and perceptions in e-learning environments (Aditya & Permadi, 2019) and interest in STEM through role models (Olsson & Martiny, 2018; Solanki & Xu, 2018). These results collectively suggest that gender may be used as a moderator to determine how spiritual intelligence is translated into learning and innovation skills.

Likewise, phase of study or academic maturity can greatly predict skill development and engagement. Skills in learning develop through academic stages, with different requirements for professional skills (Chinoy et al., 2022), digital literacy (Long et al., 2023), and self-regulatory strategies (Evans et al., 2024) as learners move through their higher education journey. Academic maturity is characterized by realistic self-assessment (Yani et al., 2019) and develops in tandem with career maturity (Bae, 2022), as does emotional maturity with adult learning capacity (Bhagat et al., 2016) and is critical to academic well-being and engagement (Carreño-Flores et al., 2024; Elmi, 2020; Han, 2023).

The special challenges and growth stages which are embedded in different levels of learning (Marenco-Escuderos et al., 2021; Simelane & Engelbrecht, 2024; Zoccolotti et al., 2021) can thus have a contribution on the development of Spiritual Intelligence (Amram, 2022; Giannone & Kaplin, 2020) and even the manifestation of Learning and Innovation Skills, thus, in turn, influencing their relationship. As such, it is essential to note how these demographic factors can alter the relationship between spiritual intelligence and 21st-century skills in order to enhance knowledge about their interaction. The literary works emphasize the fact that the development of spiritual intelligence through educational practices and organizational cultures would lead to the development of critical thinking, ethical thinking, and being creative skills which, in turn, would lead individuals to meet the challenges of modern life (Partnership for 21st Century Skills, 2019; Zohar & Marshall, 2000). By recognizing and enabling these dual frameworks, schools and organizations can provide individuals with the skills and moral frameworks necessary to thrive in a rapid interconnecting cosmos.

2.2. Theoretical Framework

This part explains the theoretical framework for this study that is useful in establishing the concepts and putting the position of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) among university students into perspective. In agreement, Luft et al., (2022) argue that a theoretical framework helps the researcher reflect on the research issue from a given perspective as well as guide the research trajectory. Against this backdrop, this research will utilize an already established framework as presented by the Partnership for 21st Century Learning (P21) (2019), taking into account the "Learning and

Innovation Skills" cluster, and King's (2008) Spiritual Intelligence theory. To complement this, this research utilizes a pragmatic view that has a lot of value attached to the complementary and synergistic relationship between Spiritual Intelligence and 21st century skills in an educational context. Therefore, here the theories which can explain how Spiritual Intelligence may associate the acquisition and demonstration of Learning and Innovation Skills among university students will be introduced, i.e., through Self-Determination Theory by Deci and Ryan (2017), Self-Efficacy Theory by Albert Bandura (1977), and Cognitive Flexibility Theory by Spiro et al. (1994).

2.2.1 Self-Determination Theory

Self-Determination Theory (SDT) developed by Edward L. Deci and Richard M. Ryan. SDT is an all-encompassing theory of human motivation, personality growth, and well-being (Deci & Ryan, 2008, 2015; Ryan, 2023). The theory stresses the significance of three general psychological needs that are universal and inherent: autonomy (the need to feel in control of one's behavior and aims), competence (the need to feel able and efficient in activities), and relatedness (the need to feel connected and have a sense of belonging to others) (Deci & Ryan, 2008, 2015; Ryan, 2023). It is essential to meet these needs for optimal functioning and psychological health to gain intrinsic motivation, development, and flourishing (Deci & Ryan, 2008, 2015; Ryan, 2023). SDT differentiates between autonomous motivation (e.g. intrinsic motivation and integrated extrinsic motivation, i.e. external activities fully internalized into the self) (Deci, 2017) and controlled motivation with external pressures (Deci & Ryan, 2008). SDT also includes six mini-theories that address different aspects of motivation, such as Cognitive Evaluation Theory that focuses on how the social environment affects intrinsic motivation, and Basic Psychological Needs Theory that highlights the importance of the three basic needs (Martela, 2020).

Spiritual Intelligence can facilitate the fulfillment of the basic psychological needs identified by SDT. For example, the Personal Meaning Production dimension of the Spiritual Intelligence model (King, 2008) can significantly enhance the need for autonomy, as individuals find intrinsic meaning and higher purpose in their actions and choices, rather than simply responding to external pressures. This feeling of having control over the meaning of life and core values strengthens self-will, so that students feel they have agency and control over their learning path. Similarly, Transcendental Awareness or Conscious State Expansion (another SI dimension from King, 2008) can expand an individual's view of themselves and their place in the universe, enhancing feelings of connectedness not only to others or the community, but also to a larger nature or divine existence. This spiritual

connectedness fosters a sense of belonging and caring that can enhance collaborative motivation and active participation in the learning environment. When students are intrinsically motivated—because their basic needs (autonomy, competence, connectedness) are met, which are likely to be contributed and strengthened by Spiritual Intelligence—they tend to exhibit more proactive, exploratory, and independent learning behaviors (Alamri et al., 2020; Namaziandost et al., 2024). This intrinsic motivation is what makes students bolder in trying out fresh ideas (creativity), more determined to solve complex issues (critical thinking), and more self-motivated in seeking out knowledge and solutions, all qualities which come directly in handy in developing Learning and Innovation Skills.

As per Self-Determination Theory, Spiritual Intelligence (SI) plays a role in Learning and Innovation Skills (LIS) by providing a meaningful, internally structured richness of purpose, which indirectly facilitates fulfilling basic psychological needs for autonomy, competence, and relatedness. When the student cultivates SI, he or she gains autonomy over spiritual values and objectives, promotes competence through self-knowledge and resolution of existential issues, and increases connectedness to the larger self, others, and nature. The fulfillment of these basic needs in turn promotes strong intrinsic motivation. Intrinsically motivated students do not learn or innovate because of external coercion, but because of an internal drive for curiosity, mastery, and personal satisfaction. It is this intrinsic motivation that is the main driver for the development and manifestation of Learning and Innovation Skills (LIS), such as creativity, critical thinking, initiative and adaptability, as students are actively and voluntarily engaged in the learning process and the search for innovative solutions.

2.2.2. Self-Efficacy Theory

Self-Efficacy Theory, developed by Albert Bandura, is a central concept in Social Cognitive Theory. Self-efficacy refers to an individual's belief in his or her ability to execute the behaviors required to achieve specific performance outcomes (Maddux & Kleiman, 2016; Vaughan-Johnston & Jacobson, 2020). It is not simply a belief in the skills possessed, but a belief in the capacity to effectively deploy those skills in different situations (Vaughan-Johnston & Jacobson, 2020). Self-efficacy beliefs strongly correlates with one's behavioral choices, the level of effort one will exert in the face of adversity, and perseverance in the face of obstacles (Maddux & Kleiman, 2016; Maddux, 2009). The theory distinguishes between outcome expectations (beliefs about the likelihood of a behavior producing a particular outcome) and efficacy expectations (beliefs about one's ability to perform the behavior required to achieve the outcome) (Vaughan-Johnston &

Jacobson, 2020; Resnick, 2018). The main sources of self-efficacy include mastery experience (success builds confidence), vicarious experience (observing the success of others), social persuasion (encouragement from others), and emotional and physiological states (Li, 2020). Individuals with high self-efficacy tend to be more proactive, persistent, and resilient, with broad applications in psychological adjustment, health, and behavior change (Maddux & Kleiman, 2016; Resnick, 2018).

Spiritual Intelligence can significantly improve students' self-efficacy, particularly in relation to learning and innovation skills. The Personal Meaning Production aspect of Spiritual Intelligence (King, 2008) can help students find a higher purpose behind every challenge or failure. By viewing challenges as an integral part of the spiritual growth journey or as opportunities for self-development, they develop the belief that they have the intrinsic capacity to overcome such obstacles, thus increasing their self-efficacy. Additionally, Critical Existential Thinking (King, 2008) encourages one to consider experience, such as failure, and draw deeper lessons from it that cumulatively increase confidence and resilience in their ability to thrive. Inner awareness and peace fostered by SI can also lessen the fear of failure so that the learner becomes more confident in trying new things in learning and innovation. High self-efficacy students are more likely to pursue behaviors conducive to Learning and Innovation Skills (LIS) (Olivier et al., 2019; Schunk & DiBenedetto, 2015; Venugopal et al., 2020). They feel confident about trying out new things or calculated risks, which are the opposite of what they fear. Self-confidence encourages them to express their views during debates and make active contributions in group activities even if disagreements in opinion can be possible. They are also more diligent at solving hard problems because they see challenges as a means of gaining skill mastery, rather than as impossible hurdles, and these are essential skill sets for problem solving and critical thinking.

From the theory of Self-Efficacy, Spiritual Intelligence (SI) can contribute to Learning and Innovation Skills (LIS) in that it creates self-efficacy among students in learning to succeed in innovation. SI provides the learner with a clear and transcendent objective, an enabling state of mind in case of failure, and means to learn profoundly from existential experience. This religious guidance provides them with a strong belief that they can meet and surmount academic and innovative challenges. This higher self-efficacy further encourages students to take control of learning, persist in solving difficult problems, try new ideas, and not give up easily in the face of difficulties. Therefore, SI is a psychological foundation that develops self-efficacy, hence stimulating the development and emergence of Learning and Innovation skills.

2.2.3. Cognitive Flexibility Theory

Cognitive Flexibility Theory (CFT), developed by Rand J. Spiro, Paul J. Feltovich, Michael J. Jacobson, and Richard L. Coulson. Cognitive Flexibility Theory is a theoretical framework explaining how individuals adapt their cognitive processing approach to deal with novel and unexpected situations (Ionescu, 2012). Basically, cognitive flexibility is the ability to shift between thinking about separate ideas and thinking about multiple ideas concurrently (Clément, 2022; Ionescu, 2012; Portoghese et al., 2020; Yu et al., 2019). This hypothesis emphasizes the importance of the ability to adaptively and flexibly restructure knowledge when facing new, complex, and multidimensional situations. This is crucial for problem-solving, multitasking, and new situation adaptation (Clément, 2022; Ionescu, 2012). CFT presumes that complex knowledge must be represented in a few different ways (a few vantage points) and in non-linear relationships (criss-crossing the ground) to be able to use it adaptively (Ionescu, 2012). Cognitive flexibility involves multiple cognitive mechanisms and interactions between sensorimotor mechanisms, cognition and context, and develops through the interaction of cognitive and developmental processes (Clément, 2022; Ionescu, 2012). It is also contributed by factors such as metacognition, critical thinking, and context (Carroll et al., 2016; Clément, 2022), and is related to executive functions such as working memory and response inhibition (Tong et al., 2023).

Spiritual Intelligence can significantly support and enhance cognitive flexibility. The Critical Existential Thinking dimension of the SI model (King, 2008) inherently trains individuals to critically consider different perspectives, realities, and fundamental assumptions about life. This process of deep reflection breaks down rigid mindsets and encourages the exploration of multiple possibilities of understanding, which directly enhances cognitive flexibility (Clément, 2022). In addition, Transcendental Awareness (King, 2008) enables individuals to see the bigger picture and relationships between concepts that may not be obvious at first glance, helping them to connect seemingly unrelated ideas in creative and innovative ways (Granato & Baldassarre, 2021). The ability to identify patterns beyond conventional boundaries and adapt to different viewpoints is at the core of SI and cognitive flexibility. Individuals with high cognitive flexibility are inherently better at demonstrating Learning and Innovation Skills (LIS). The ability to consider a problem from multiple angles and consider unorthodox solutions is the meat of complex problem solving and critical thinking. Cognitive flexibility also enables one to generate novel and novel new ideas, which is the meat of creativity. Efficient restructuring

of existing knowledge in a dynamic learning environment, combined with the use of new approaches, is the secret to innovation and acclimatization (Clément, 2022).

2.3. Conceptual Framework

This section illustrates the conceptual framework upon which this study was done, placing Spiritual Intelligence (SI) as a factor that supports and encourages the development of Learning and Innovation Skills (LIS) among university students. This conceptual framework does emphasize the intense interaction between the personal, academic and social variables in the learning process. As highlighted by Luft et al. (2022), a conceptual framework is employed to define the research factors or variables and the relationships that exist among them that guide the researcher in constructing the concepts being studied as well as defining the assumed relationships in the framework. This theoretical basis will be represented in Figure 2.4 to guide the analysis of the interaction between Spiritual Intelligence and Learning and Innovation Skills among university students.

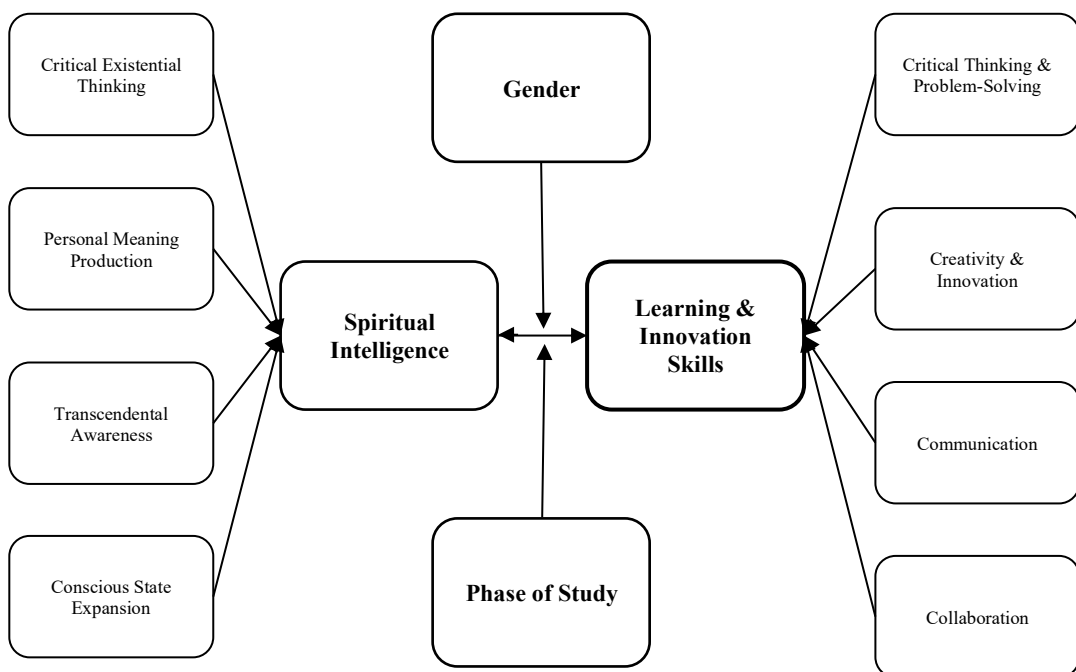


Figure 2. 4. Research Conceptual Framework

21st century learning is a revolutionary approach that is designed to equip students with the skills and knowledge necessary to survive in a rapidly changing, technologically driven world (Astuti et al., 2019; Shafie et al., 2019). This model of learning centers on several key aspects, including the priority placed on soft skills and lifelong learning, i.e.,

critical thinking, creativity, communication, and cooperation (or referred to as the 4Cs) (Astuti et al., 2019; Kaufman, 2019; Thornhill-Miller et al., 2023). These are important skills for learners to address complex real-world problems and be able to cope with continuous change in the labor market (Astuti et al., 2019; Kaufman, 2019; Thornhill-Miller et al., 2023). In addition, learning in the 21st century also focuses on personalized learning pathways (Chiappe et al., 2019, 2020) and employing information and communication technologies (ICT) to facilitate flexible, open, and digitally supported curricula (Shafie et al., 2019; Šimunović & Vekić-Kljaić, 2024). The teaching approach centers on developing High Order Thinking Skills (HOTS) from problem-solving and critical thinking (Astuti et al., 2019; Marshel & Ratnawulan, 2020) and project-based and research-based learning (Chiappe et al., 2019; Songkram, 2017; Tiandem-Adamou, 2024) to enhance deeper learning.

On the other hand, Spiritual Intelligence (SI), based on four main dimensions—critical existential thinking, personal meaning creation, transcendental awareness, and conscious state expansion (King, 2008)—actually enhances and complements Learning and Innovation Skills. SI provides a fundamental ethical and purposeful foundation, enabling students not just to acquire technical skills, but to use them thoughtfully and purposefully. For instance, existential critical thinking in SI can reinforce critical thinking by prompting intense examination of the value and purpose of each decision. Personal meaning generation from SI can reinforce creativity through enabling individuals to discover inspiration and intrinsic motivation from a higher purpose. SI dimensions such as transcendental awareness and expansion of conscious state also enable empathy and cross-cultural understanding, which are central to effective communication and collaboration in a global environment (Severino-González et al., 2022). Spiritual Intelligence is thus a framework that allows students to use LIS in a more integrated, responsible and effective manner.

By investigating the integration of Spiritual Intelligence and Learning and Innovation Skills, and how they connect to holistic personal development in education, this conceptual framework is within the objectives of the research. It also guides the research questions, providing a theoretical context for examining how the integration of Spiritual Intelligence and Learning and Innovation Skills—i.e., critical thinking, creativity, communication, and collaboration—can generate transformative learning experiences, particularly to enhance students' academic, social, and emotional growth. Furthermore, this model explicitly acknowledges that the dynamic interaction between Spiritual Intelligence and Learning and Innovation Skills is not uniform across all students, but is rather

associated by a variety of demographic factors. Specifically, this research contends that both gender and study stage are significant moderating factors, influencing the nature and degree of the correlation between students' spiritual intelligence and their learning and innovation skills acquisition and application.

Furthermore, it should be underlined that the influence of the moderation variable in this study is only at the level of variables as individual construct and not collective variables, which means that, in the level of relationships among the dimensions, the influence of these two moderator variables is not taken into account. In another words, analyzing the interdimensional relationships of Spiritual Intelligence (SI) and Learning & Innovation Skills (LIS) separately from the effects of Gender moderation and Phase of Study is done to maintain a focus on different hypotheses—i.e., the exploration of the internal structure of interdimensional relationships regardless of demographic characteristics—while avoiding excessive model complexity, and ensuring clarity of theoretical and managerial interpretations. Through this approach, the study considers these demographic factors because they can introduce variability in spiritual development, learning styles, academic needs, and overall student experiences across groups. This model theorizes these skills' application in education and personal life, to form individuals who are stronger and persons of integrity.

CHAPTER III

RESEARCH METHODOLOGY

This chapter explains the plan or design laid out to provide strong information regarding how researchers react to the research questions and test hypotheses (R. B. Johnson & Christensen, 2020). It introduces the research methodology chosen to investigate the correlation of 21st century skills and spiritual intelligence among higher education students in an organized fashion. By employing qualitative and quantitative approaches, a convergent parallel mixed methods design helps the researchers provide a comprehensive description of the variables. The chapter begins with the research principles underlying, which includes a description of research paradigm and design, quantitative and qualitative strategy used, the participants, and sampling technique. Additionally, the tools used for research, how data is collected, appropriate data analysis process, and the ethical concerns were covered in this chapter, offering authenticity and dependability for the research.

3.1. Research Paradigm and Design

This study employed a mixed methods research design, in which, together, it collected and examined qualitative and quantitative information to conclusively address the research problem (Creswell & Plano Clark, 2018; Gay et al., 2012). Such a design allowed for the combination of diverse methodological strengths and philosophical underpinnings within a single study, with enhanced intrinsic knowledge of complex phenomena (Johnson & Christensen, 2020). By adopting such a methodology, the researchers were able to explore the intricate relationship between 21st-century skills such as critical thinking, creativity, communication, and collaboration, and spiritual intelligence. This relationship had to be derived through context-bound knowledge and nuanced explanations beyond simple statistical facts. Through this dual method, quantitative data were employed as a means of providing statistics on the patterns, relationships, and trends of the variables, whereas qualitative data provided stories and information on the positions of the subjects in their relationships, resulting in the thorough examination of the research issue.

The design used in this study that mixed the methods was informed by the paradigm of pragmatism, which privileged not methods or philosophies, but research issues or creating practical approaches to research as a main concern (Cara, 2023). As noted by Johnson and Christensen (2020), pragmatism highlighted the practicality of research to problems of the real world, i.e., mixed methods research fostered methodological flexibility in order to address research problems effectively without the rigid boundaries of rules. In

addition, Johnson et al. (quoted in Wyse et al., 2017) also championed pragmatism as being dialectical pluralism, which allowed researchers to take different stances and use a combination of methods to try and understand the research context in full. This paradigm harmonized with research aims to generate effective and relevant information for pedagogical practice, whereby students not only benefited and scored well academically, but were also sufficiently enabled to achieve holistic development. With the pragmatic paradigm, the researcher sought to fill a lacuna in literature with regard to the comprehensive analysis of 21st-century skills and their relation to spiritual intelligence and thus contributing to scholarship discourse by providing quantitative as well as narrative results.

The rationale for using mixed methods in this research was to develop a comprehensive understanding of the research issue by combining the strengths of qualitative and quantitative research methodology as the research issue could not be answered completely if only one research methodology was used (Gay et al., 2012). This research used a convergent parallel mixed method design that allowed the process of collecting quantitative and qualitative data to be carried out simultaneously, followed by the process of analyzing the data sets separately, and then interpreting the results of the analysis to understand the research problem holistically and to ascertain whether the two data supported or contradicted each other (Creswell, 2012). The visualization of design used in this study can be seen in Figure 3.1 presenting the convergent parallel mixed method design, integrating quantitative and qualitative data collected independently in an integrated comprehensive interpretation of the research findings. This design ensured that both types of data were equally treated and enabled the researcher to dive deeply into how 21st-century skills—critical thinking, creativity, communication, and collaboration—related to students' spiritual intelligence in the higher education context.

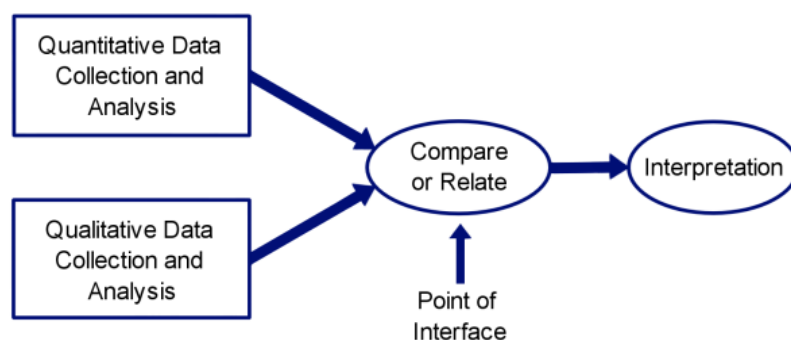


Figure 3. 1. Convergent Parallel Mixed Method Design
Source: Creswell (2012)

The prescribed usage of the convergent parallel research methodology was justified because of its practical framework and its ability to bring out insights on the research topic over the same time period (Cara, 2023). This aligned with the fundamental principles of mixed methods research, which required the careful and strategic integration of distinct methods and approaches into a solid and complementary plan of analysis, ensuring neither technique diminished the contribution of the other (Johnson & Christensen, 2020). In this study, quantitative data, with its capacity, summarized a comprehensive database to unveil the trends and linkages between 21st-century skills and spiritual intelligence in a measurable manner. Meanwhile, qualitative data, characterized by its richness and detail, revealed the subjective perspectives and experiences of research participants regarding the relation between variables contextually. This research design was relevant to the research framework, which did not use either data as supplementary data, but both data were interrelated and enriched the overall research analysis of the research process.

By integrating different types of data collection methods as mentioned above within the framework of convergent parallel mixed research, researchers were able to synthesize the data during the interpretation process. This merging process showed how the two data related to each other, which could be contradictory or complementary. Moreover, this research design was used to combine the comparison and relation of the two data sources. Overall, this research design assisted the researcher in making combined research conclusions based on symmetrical and holistic evidence in order to enhance the applicability of research findings to educational practice.

3.2. Methodology of Quantitative Study

This section outlines the quantitative aspect of the study's mixed methods design. It outlines the quantitative research design employed, the population and sampling methods, research instrument development and validation, the data collection process, and statistical methods employed to analyze the data. The primary aim of this quantitative phase was to measure relationships between Spiritual Intelligence and 21st-century skills in undergraduate students, providing a general overview of patterns and trends in the sample.

3.2.1. Quantitative Research Design

The quantitative approach in the study in question was a non-experimental research design whose purpose was to investigate the relationship between variables as opposed to establishing cause and effect directly. Kerlinger (as quoted in Johnson and Christensen, 2020) outlined that non-experimental research was a systematic empirical investigation in

which the researcher was not in direct control of variables and only observed phenomena as they occurred naturally. In such a design, there was neither manipulation nor intervention of independent variables nor random assignment of the study participants. In education, non-experimental research was particularly important as not every educational variable could be tested experimentally within ethical or practical constraints, and thus it became a crucial method of study and understanding complex educational phenomena (Johnson & Christensen, 2020).

Specifically, the present study employed a cross-sectional survey design, a type of observational study that estimates the prevalence of a set of outcomes and exposures among a population at a single precise point in time (Sanchez et al., 2023; Setia, 2016). This type of design provided a snapshot of the population profile regarding 21st-century skills and spiritual intelligence (Ziauddin et al., 2023). The selection of using a cross-sectional design in this research was driven by the practical advantages of cost savings and efficiency of administration, where one could perform prompt assessments of the target group of undergraduate students (Kopechek et al., 2025; Ziauddin et al., 2023). This was a particularly fitting design for gathering detailed information from a diverse range of participants in a cost-effective way, which was necessary to be able to note patterns and associations between Spiritual Intelligence and 21st-century skills when gathering data.

However, there was a need to note the inherent limitation of cross-sectional studies; namely, the inability to establish direct cause-and-effect relationships since exposure and outcome were measured at the same time (Setia, 2016; Ziauddin et al., 2023). Such a limitation was offset by the overall mixed methods study design, with qualitative data being intended to give richer contextual information augmenting the quantitative results. Through this approach, researchers sought to ascertain the correlation of 21st-century skills, whose dimensions are a significant component, with spiritual intelligence of undergraduate students and thereby providing a statistical foundation for the subsequent qualitative study.

3.2.2. Quantitative Research Participants

The participants of the study were those who were engaged in the research process (Johnson & Christensen, 2020). In the quantitative section of this study, data collection was done at five universities in Indonesia that had officially provided clearance for collecting data. This multi-institutional approach was made in an attempt to ensure a greater and more diverse population of undergraduate students within the Indonesian higher education context, which was extremely crucial for exploring the complex relationship between 21st-century skills and spiritual intelligence (Patton, 2015). The selection of these universities

was also prompted by their willingness to support research in academia and participant enrollment facilitation, which helped to ensure good data collection with fewer logistically challenging issues. In addition, the multicultural learning and cultural settings of the institutions, several of which had integrated Islamic values into their curriculum, presented a fascinating aspect to study the ways in which spiritual intelligence existed alongside contemporary educational skills, a major goal of this study. By choosing these institutions, research enjoyed a clear-cut academic and cultural setting that supported the research goals, providing an opportunity to gather rich, pertinent data with the required methodological rigor and practicability.

The sample of participants for the quantitative approach of this study employed a non-probability sampling technique. Non-probability sampling employed samples from a population where the probability of selection was not determined, and some units in the population might have zero selection probabilities, unlike probability sampling where all units had a non-zero chance of being selected (Nandram & Rao, 2023). This approach was chosen primarily due to practical constraints such as accessibility and the need to efficiently reach a large number of students across multiple approved universities within the study's timeframe and resources (Bethlehem, 2015). While non-probability sampling inherently carried a risk of selection bias and limited the generalizability of findings to the entire population (Boonstra et al., 2021), it was deemed suitable for this study's exploratory nature within a mixed methods design, where the quantitative phase aimed to identify associations and patterns within the accessible student body.

Specifically, the researcher utilized convenience sampling, a type of non-probability sampling where participants were drawn from a segment of the population that was conveniently accessible to the researcher (Andrade, 2021). This method was frequently employed in both qualitative and quantitative studies, particularly when the goal was to gather data quickly and inexpensively (Bujang et al., 2012). In this study, convenience sampling facilitated the recruitment of active undergraduate students from the five participating universities who were readily available and willing to participate. Despite its practicality, it was recognized that convenience sampling could introduce bias and limit the representativeness of the findings to the broader student population, making direct generalization challenging (Møller et al., 2024).

Concerning the sample size for the present study, despite criticisms raised against traditional guidelines for the use of PLS-SEM as statistical tools employed in this study such as the "10-times rule" (referring to a minimum number of samples that must be ten times higher than the maximum number of arrowheads directed to a latent variable) because

they may be prone to bias and unsystematic validation (Kock & Hadaya, 2018; Wagner & Grimm, 2023). Although the study used convenience sampling, which inherently limits the ability to generalize findings to a wider population, the sample size reached in this study of 274 was found appropriate for this study's analytical approach. PLS-SEM does offer solutions with smaller sample sizes, especially for complex models with many constructs and items, due to its ability to calculate the relationship of measurement and structural models separately (Hair et al., 2019).

Although the instrument used comprised 53 items, the data were transformed using the Rasch model. This change of change converts the individual item scores into complete "ability scores" or measures for each underlying eight dimension of the variables. Hence, the PLS-SEM analysis was conducted on these dimension-level scores, lowering the effective number of parameters and the model complexity by a significant margin compared to the raw item-level data. Moreover, 274 was within the general guidelines for SEM, which have the tendency to provide a sample of 100 to 400 participants as suitable for making estimates (Molwus et al., 2013). Therefore, regardless of the non-representative nature of the convenience sample, the five universities' 274 students majoring at the undergraduate level were representatives of various student populations within each of the universities considered sufficient to achieve model stability and estimation in PLS-SEM analysis, in line with the objectives of the study for theoretical framework testing from a prediction perspective or exploration of theoretical extensions (Sarstedt et al., 2016). Thus this approach suitable for analyzing the relationship between 21st-century skills and spiritual intelligence in Islamic tertiary education.

3.2.3. Quantitative Research Instrument

The quantitative phase of this study employed two properly validated self-report instruments to collect data regarding students' 21st-century skills and spiritual intelligence. To evaluate 21st-century skills specifically, i.e., learning and innovation competencies, the present research employed the Learning and Innovation Skills Self-Efficacy Scale (LIS-SES) of (Kayhan & Korkmaz, 2024). The LIS-SES consists of 30 statements which are grouped into four dimensions: Creativity and Innovation, Critical Thinking and Problem Solving, Communication, and Collaborative Working. Kayhan and Korkmaz (2024) using confirmatory factor analysis in their study to analyze the scale, providing strong internal reliability (Cronbach's alpha = 0.936) and explains 50.65% of the variance, thus being a robust instrument measuring according to the P21 framework to assess learners' belief in applying essential 21st-century skills.

On the other hand, to measure students' spiritual intelligence, this study used the Spiritual Intelligence Self-Report Inventory (SISRI-24) of (King & DeCicco, 2009). The SISRI-24 has 24 items that assess four interrelated dimensions: Critical Existential Thinking (CET), Personal Meaning Production (PMP), Transcendent Awareness (TA), and Conscious State Expansion (CSE). The inventory has been used widely and proved extensively in various cultural environments (e.g., Greek, Brazil, Chinese and French), demonstrating proper psychometric characteristics and great utility in psychological and educational research. SISRI-24 also reflected strong correlations with variables such as resilience, mental health, and academic achievement, making it possible to use it as a valid measure of spiritual intelligence in university students.

Because the instruments were originally built in English, a formal process of translation and adaptation was used to make them linguistically equivalent and culturally appropriate in the Indonesian context. The English LIS-SES and SISRI-24 were translated into Indonesian. The instruments were then validated by three expert validators, who are coming from english and literature backgorund, giving justification based on their expertise. Moreover, the back and forth translation was conducted in addapting the instrument into Indonesian context, ensuring the instrument has equal meaning and concept in measuring both variables. This expert review was done to ensure that the translated items actually maintained the original meaning of the constructs and were accepted and acceptable in a cultural context by the target population of Indonesian undergraduate students. Only after this rigorous expert review were the instruments then ready to be pilot tested.

To further validate the adaptability, validity, and credibility of these adapted instruments for the target population, there was a lengthy pilot testing activity from March 6 to April 8, 2025. Pilot testing was conducted among 71 undergraduate students at an Islamic private university in Ciamis, West Java, Indonesia. Prior to analysis, pilot data were cleansed to identify and remove participant responses exhibiting misfit to the model or with extreme values. Psychometric performance of both scales was explored by using Rasch analysis, a statistical method suitably applied for instrument development and validation purposes by ensuring unidimensional measurement and providing detailed diagnostic information (Hobart & Cano, 2011; McAllister, 2008; Tennant et al., 2004). Rasch analysis was used to measure item fit, item and person reliability, and scale overall functioning, thereby enhancing the scientific merit and precision of the measurements ((W. Boone & Rogan, 2005; Nicholson et al., 2013).

The results of Rasch analysis of the LIS-SES were robust psychometric properties. The 30-item scale had high separation and reliability indices, and variance accounted for by measures was satisfactory, demonstrating good overall fit to the Rasch model. In the case of SISRI-24, the initial scale was 24 items. But on Rasch analysis, there was one item that was identified as a serious misfit to the model, item 6 *"It is difficult for me to sense anything other than the physical and material"* whose translation is *"Saya merasa kesulitan untuk merasakan hal-hal yang bersifat non-fisik atau spiritual,"* indicating that it could not be measuring the intended construct reliably with the rest of the items. The item misfit in this case can be caused by respondents' confusion in identifying the one and only negative item, which can cause lack of awareness of it faced by the many respondents.

Consequently, this problematic item was removed, resulting in a revised SISRI-23 scale. This removal led to an improvement in the psychometric properties of the instrument, as evidenced by enhanced reliability and separation indices for both persons and items, and an increase in the variance explained by measures. Furthermore, detailed item fit tables from the Rasch analysis were examined to confirm the appropriateness of each remaining item. The psychometric properties of both scales after the pilot testing and refinement are summarized in Table 3.1.

Table 3. 1.
Psychometric Properties of Measurement Scale (Pilot)

Scale	No. of items	Rasch person item reliability	Variance explained by measures	Step threshold			
				1	2	3	4
SI24	24	0.88 0.93	38.2%	-2.27	-1.13	0.94	2.47
SI23	23	0.90 0.93	42.0%	-2.44	-1.22	0.97	2.68
LIS	30	0.94 0.91	47.0%	-3.45	-1.36	1.23	3.58

Note: *Person/item reliability indicates consistency of person/item measures. Person/item separation indices indicate the number of statistically distinct levels of performance that the instrument can distinguish. Variance explained by measures indicates how much variance in the observed data is explained by the Rasch model.*

After ensuring the reliability of the instruments used in this study (SISRI 23 for Spiritual Intelligence and LIS-LES for Learning and Innovation Skills), the quality of the category functions on the rating scale of each instrument also was evaluated through Rasch model analysis. Based on the step thresholds in Table 3.1 above, for the Spiritual Intelligence instrument (SISRI 23), which uses a 5-point rating scale, the category structure analysis showed excellent scale functions. The Andrich Thresholds values show a logical

and regular sequence (-2.44, -1.22, 0.97, and 2.68), indicating that each response category (from 1 to 5) consistently represents a higher level of Spiritual Intelligence than the previous category without any disorder. Similarly, for the Learning and Innovation Skills (LIS-LES) instrument which also uses a 5-point scale, the Andrich Thresholds values (-3.45, -1.36, 1.23, and 3.58) show excellent category functioning, with the sequential arrangement confirming the categories are appropriately calibrated and able to distinguish LIS levels. The corresponding category probability curves for SISRI 23 and LIS-LES display clearly in the Figure 3.2. below separated peaks for each response option. The consistency observed in these two instruments in the functioning of the rating scale provides strong evidence to the psychometric quality of the data collected, guaranteeing reliable and valid measurement of Spiritual Intelligence and Learning and Innovation Skills in this study.

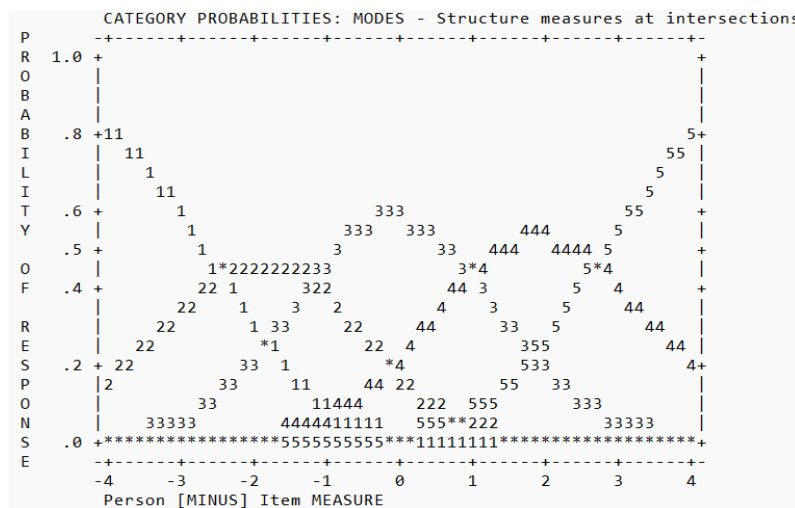


Figure 3. 2. Rating Scale Analysis for SISRI 23

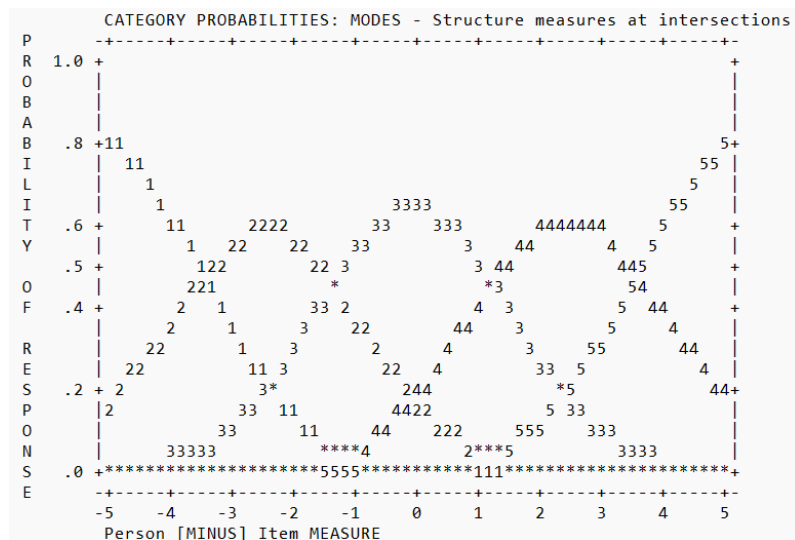


Figure 3. 3. Rating Scale Analysis for LIS-LES

Beyond the overall scale properties, the item fit of each individual item for both the refined SISRI-23 and the LIS-SES was meticulously evaluated using Rasch analysis. While some items exhibited minor misfit, this was considered non-significant and did not negatively impact the overall psychometric integrity of the scales, particularly given their robust reliability scores. The final item fit statistics, which further confirmed the appropriateness of each retained item for measuring its respective construct, are presented in Table 3.2. and Table 3.3.. Based on these robust findings from the pilot testing, including both the overall psychometric properties (Table 3.1) and individual item fit (Tables 3.2. and 3.3), both the refined SISRI-23 and the LIS-SES were deemed suitable and adequately reliable and valid for use in the main quantitative data collection phase of this study.

Table 3. 2.
Item Fit Statistic for SISRI-23 (Pilot)

Item	Measure	Infit MNSQ	Infit ZSTD	Outfit MNSQ	Outfit ZSTD	PT-Measure CORR.
SI1	0.58	1.02	0.2	1.02	0.2	0.42
SI2	0.16	0.87	-0.8	0.86	-0.8	0.67
SI3	-0.09	1.38	2.1	1.35	2.0	0.42
SI4	-0.15	0.83	-1.0	0.88	-0.7	0.52
SI5	-0.49	1.24	1.4	1.21	1.2	0.57
SI6	-0.41	1.05	0.4	1.03	0.3	0.45
SI7	0.19	0.86	-0.8	0.85	-0.9	0.57
SI8	0.90	0.87	-0.7	0.87	-0.7	0.69
SI9	0.08	0.57	-3.0	0.57	-3.0	0.71
SI10	-0.55	1.01	0.1	0.99	0.0	0.64
SI11	0.52	0.77	-1.4	0.79	-1.2	0.62
SI12	-0.91	0.90	-0.6	0.89	-0.6	0.61
SI13	0.52	0.86	-0.8	0.87	-0.8	0.64
SI14	-1.41	0.94	-0.3	0.94	-0.3	0.58
SI15	-0.82	0.96	-0.2	0.93	-0.4	0.62
SI16	-0.49	0.77	-1.5	0.76	-1.5	0.71
SI17	0.27	0.91	-0.5	0.92	-0.4	0.52
SI18	-0.52	0.90	-0.6	0.99	0.0	0.61
SI19	0.22	0.82	-1.1	0.82	-1.1	0.52
SI20	1.76	1.90	4.5	1.90	4.5	0.40
SI21	0.63	1.65	3.3	1.67	3.3	0.36
SI22	-0.46	0.73	-1.8	0.72	-1.8	0.70
SI23	0.47	1.06	0.4	1.06	0.4	0.63

Note: Item fit is evaluated using Infit and Outfit Mean Square (MNSQ) and Z-Standardized (ZSTD) values. Generally, MNSQ values between 0.5 and 1.5 are considered acceptable, with 0.8 to 1.2 being ideal. ZSTD values between -2.0 and +2.0 indicate good fit. PT-Measure Correlation (Point-Measure Correlation) indicates the item's consistency with the overall measure, with positive values typically desired

Table 3. 3.
Item Fit Statistic for LIS-SES (Pilot)

Item	Measure	Infit MNSQ	Infit ZSTD	Outfit MNSQ	Outfit ZSTD	PT-Measure CORR.
LIS1	0.06	0.81	-1.2	0.80	-1.1	0.68
LIS2	0.23	0.67	-2.2	0.67	-2.0	0.76
LIS3	0.73	0.58	-2.9	0.58	-2.8	0.77
LIS4	0.31	0.92	-0.4	0.90	-0.5	0.70
LIS5	0.59	0.86	-0.9	0.85	-0.9	0.70
LIS6	0.31	0.68	-2.2	1.00	0.0	0.59
LIS7	0.27	0.75	-1.6	0.75	-1.5	0.72
LIS8	0.66	1.14	0.9	1.13	0.8	0.53
LIS9	-0.49	0.85	-0.9	0.87	-0.6	0.59
LIS10	0.34	0.69	-2.1	0.69	-1.9	0.61
LIS11	0.34	0.80	-1.2	0.80	-1.2	0.62
LIS12	-2.02	0.97	-0.1	0.89	-0.3	0.63
LIS13	0.09	0.87	-0.7	0.86	-0.7	0.65
LIS14	0.34	1.23	1.4	1.24	1.4	0.52
LIS15	1.25	1.15	0.9	1.12	0.8	0.59
LIS16	0.31	0.92	-0.4	0.90	-0.5	0.67
LIS17	0.27	1.02	0.2	1.01	0.1	0.66
LIS18	0.27	1.52	2.8	1.50	2.5	0.55
LIS19	0.41	1.35	2.0	1.33	1.8	0.60
LIS20	0.66	1.23	1.4	1.22	1.2	0.60
LIS21	-0.20	0.95	-0.2	0.94	-0.3	0.70
LIS22	-0.31	1.35	2.0	1.33	1.7	0.55
LIS23	0.23	0.94	-0.3	0.93	-0.3	0.66
LIS24	-0.02	0.81	-1.2	0.81	-1.1	0.66
LIS25	-0.53	1.08	0.5	1.11	0.6	0.64
LIS26	-1.25	0.92	-0.4	0.88	-0.5	0.68
LIS27	-0.20	1.20	1.2	1.18	1.0	0.65
LIS28	-0.67	1.22	1.3	1.18	0.9	0.64
LIS29	-0.94	1.06	0.5	1.09	0.5	0.61
LIS30	-1.06	1.38	2.2	1.30	1.3	0.64

Note: Item fit is evaluated using Infit and Outfit Mean Square (MNSQ) and Z-Standardized (ZSTD) values. Generally, MNSQ values between 0.5 and 1.5 are considered acceptable, with 0.8 to 1.2 being ideal. ZSTD

values between -2.0 and +2.0 indicate good fit. PT-Measure Correlation (Point-Measure Correlation) indicates the item's consistency with the overall measure, with positive values typically desired.

3.2.4. Quantitative Data Collection

In the quantitative approach, the data collection process extends beyond mere data acquisition, encompassing considerations such as identifying appropriate measurement methods, selecting suitable research instruments, engaging relevant participants, and obtaining their informed consent (Creswell, 2012). For this study, quantitative data was primarily collected through a structured online survey facilitated by Google Forms. This questionnaire measured students' 21st-century skills (as the independent variable, comprising critical thinking, creativity, communication, and collaboration) and spiritual intelligence (as the dependent variable, consisting critical existential thinking, personal meaning making, transcendental awareness, and conscious state expansion). The use of online questionnaires in this study facilitated the efficient collection of numerical data, which could then be statistically processed and analyzed in an organized manner (Cohen et al., 2009). The survey was distributed electronically to these students through various channels, including direct assistance from campus staff and proactive socialization by the researcher in classes, thereby maximizing accessibility and participation.

The study specifically focused on undergraduate students enrolled in the Islamic Religious Education program across five different Islamic universities located in West Java, DKI Jakarta, and Lampung, which encompassed a variety of institutional types (e.g., public, private, pesantren-based, and those under religious organizations). This particular focus was chosen not only for practical reasons related to data collection efficiency and participant accessibility but also for its strong theoretical relevance to the research objectives. Given the established positive correlation between religious education and spiritual intelligence (Albursan et al., 2016), and the role of religious educational contexts in fostering spiritual development (Nguyen, 2023), this specific student population provided a highly pertinent context for investigating the interplay between 21st-century skills and spiritual intelligence.

Based on experience gathered from the pilot, some modifications were subsequently made to the questionnaire; most notably, the framing of items SI20 and SI21, which had exhibited less than ideal fit statistics, was altered so that it became clearer and possessed optimum measurement properties before the main data collection. The initial quantitative data collection phase proceeded with these improved tools in April to May 2025. The questionnaire was self-completed, and informed consent was given by all

respondents on the first page of the online questionnaire, stating the aim of the study, confidentiality measures, and their respondent rights. The phase initially yielded a bigger dataset that subsequently underwent intensive data cleaning. This process of cleaning involved identification and removal of outliers, assessment of meaningful misfit responses, and outlier removal to ensure data quality and integrity. Following thorough cleaning, the final clean sample size consisted of 274 undergraduate student participants.

3.2.5. Quantitative Data Analysis Technique

This chapter offers an explanation of the rigorous analytic techniques employed for handling the quantitative data, which were significant for answering the first two research questions of this study within its convergent parallel mixed methods design overall. Analysis had initial data transformation, calculation of descriptive statistics, and employment of inferential modeling techniques to investigate spiritual intelligence and 21st-century skills relationships.

Data Transformation using Rasch Analysis

Prior to inferential analysis, raw survey responses were translated into logit scores through Rasch analysis, which is a psychometric scaling method that places both individuals and items on one interval scale with measurement error as consideration (Bond & Fox, 2015). This translation provided us with two contrasting perspectives of the data. First, unidimensional analysis used to investigate overall scale measures of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS). Person measures were derived by using Winsteps software, each latent variable represented as a single composite construct. These unidimensional person scores were then used as composite variables for big picture and moderation analysis using PROCESS Macro Hayes.

To further investigate it, dimensional-level analysis was done by reducing SI and LIS to their four constituent dimensions each. Each dimension was analyzed independently using separate Rasch calibrations in Winsteps, resulting in dimension-specific person measures. This method allowed a more detailed understanding of how the specific aspects of spiritual intelligence (e.g., Critical Existential Thinking, Personal Meaning Production) align with 21st-century skill components (e.g., Critical Thinking, Creativity). These Rasch-transformed person scores at the dimension level were then used as observed variables for path analysis using PLS-SEM in SmartPLS.

In addition to data transformation, the Rasch analysis of the model also allows for in-depth measurement and interpretation at the individual level, both for items and

respondents. This model places a person's ability and item difficulty level on the same interval scale, allowing researchers to evaluate specifically how each individual responds to each item and identify areas of strength or weakness (Bond & Fox, 2015). Therefore, the Rasch model offers rich diagnostic insights into individual performance and item characteristics, going beyond just total scores.

Descriptive Statistics

Descriptive statistics (means, standard deviations, and frequencies) were computed first using SPSS statistical software for both the unidimensional and dimension-level Rasch-transformation person measures through Winsteps. Scores for unidimension represent composite measures of Learning and Innovation Skills (LIS) and Spiritual Intelligence (SI), while scores at the dimension level were obtained through single Rasch analysis for each of the eight corresponding subdimensions. These descriptive statistics serve as an initial conceptualization of the sample description and distributional features of the major study variables and transmit initial indications of central tendency and variability in the data (Pallant, 2020). Such an initial review was instrumental to setting the stage for following inferential analyses via both PROCESS Macro for moderation analysis and PLS-SEM for path analysis.

Inferential Data Analysis

To answer the research questions comprehensively, two inferential statistical procedures complementary to each other were used in this study: Hayes' PROCESS Macro for moderation analysis and Path analysis in Partial Least Squares Structural Equation Modeling (PLS-SEM). To determine how Spiritual Intelligence as a construct affects Learning and Innovation Skills, and whether this is moderated by demographic variables (gender and study phase), Hayes' PROCESS Macro (Model 2) (Hayes, 2018) was used in SPSS. In this case, Model 2 of the Hayes PROCESS Macro is the right choice because it is specifically designed to analyze the effect of moderation of two moderator variables (W and Z), as can be seen in the Figure 3.4. Hayes Process Macro Model 2 below, including the interaction between the two moderators ($W*Z$), on the relationship between independent variables (X) and dependent variables (Y). Thus, Model 2 allows you to comprehensively test not only the effects of Gender moderation and Phase of Study individually on the relationship between Spiritual Intelligence (SI) and Learning & Innovation Skills (LIS), but also the effects of interactions between the two moderator variables. This analysis used Rasch unidimensional person scores as composite variables

of SI and LIS. PROCESS Macro facilitates the estimation and testing of moderation models using Ordinary Least Squares (OLS) regression, providing an overview of the relationships at the aggregate level. A critical consideration for this analysis is adherence to classical regression assumptions (e.g., linearity, homoscedasticity, residual normality, multicollinearity).

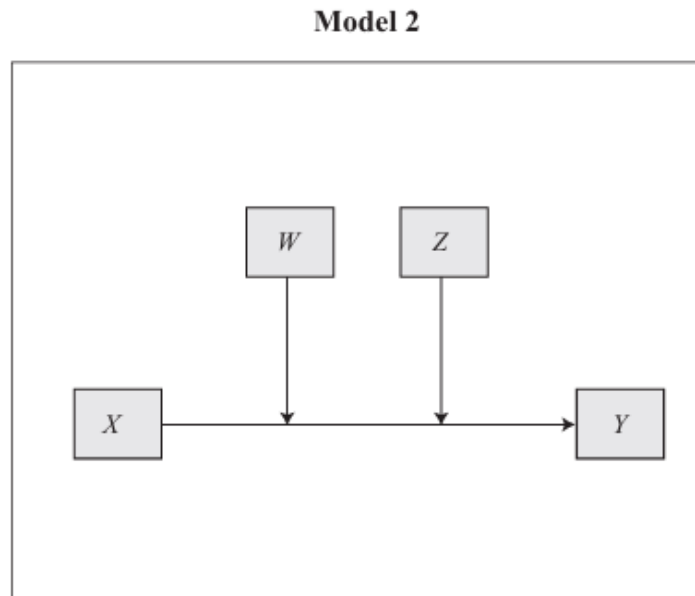


Figure 3. 4. Hayes Process Macro Model 2
Source: Hayes (2022)

As a further step to gain a deeper understanding of the relationship between Spiritual Intelligence and Learning and Innovation Skills at the dimension level ('individually' associated), Path analysis in SEM PLS was implemented using SmartPLS software. This approach is well suited to investigate the complexity of relationships between dimensions, which may not be fully revealed through composite level analysis, and is relevant given the exploratory nature of this study, as previous literature specifically analyzing the direct relationship between spiritual intelligence and study skills and innovation at the dimensional level is limited. This approach has been used by Ishar (2024) in her research which aims to verify the validity of constructs and investigate the relationships between variables by combining two data analysis methods and called "A Hybrid of Rasch Measurement and PLS-SEM Analysis." Using this approach, PLS-SEM is also discovered to be resilient for predictive modeling and is capable of handling complex models with latent variables, with less stringent sample size requirements compared to

covariance-based SEM (CB-SEM), especially when applying bootstrapping procedures for hypothesis testing (Hair et al., 2019; Kono & Sato, 2023).

Furthermore, by involving the relationship between the 4 dimensions of Spiritual Intelligence (SI) which includes critical existential thinking, personal meaning making, transcendental vision, and consioustate expansion, as well as the 4 dimensions of Learning & Innovation Skills (LIS) which include critical thinking and problem solving skills, creativity and innovation, communication and collaboration, Path Analysis in PLS-SEM is a much superior choice compared to performing multiple regression repeatedly, although such an approach is possible. This is because PLS-SEM is specifically designed to model latent variables and implicitly takes into account the measurement errors present in their indicators, resulting in more accurate and unbiased relationship estimates (Hair et al., 2021). In addition, PLS-SEM allows for the comprehensive testing of the entire theoretical model simultaneously in a single analysis, providing a complete picture of the relationships between dimensions, as opposed to multiple regression which would result in fragmented estimates and ignore the latent characteristics of those dimensions.

In this path analysis in PLS-SEM model, the person measures used as observed indicators for each latent construct were derived from unidimensional Rasch analyses conducted separately for each dimension of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS). Instead of multidimensional plausible values, each subdimension was calibrated independently using Rasch modeling to ensure unidimensionality and to generate valid person estimates. These Rasch-derived scores then served as direct manifest (observed) indicators representing their respective higher-order latent constructs—namely, Spiritual Intelligence (as reflected by its four core dimensions) and Learning and Innovation Skills (also comprising four dimensions).

The PLS-SEM procedure was initiated after careful Rasch analysis, where the transformed and validated person measures of each dimension of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) were directly used as manifest indicators for their respective latent constructs. Given that these dimensions have been established as robust unidimensional measures through the Rasch model, conventional measurement model assessments—including the examination of outer loadings, Composite Reliability (CR), Average Variance Extracted (AVE), as well as discriminant validity using the Fornell-Larcker and Heterotrait-Monotrait Ratio (HTMT) criteria—have been implicitly addressed by the Rasch transformation itself, or by treating these indicators as single-item indicators with a fixed outer loading of 1.000 in PLS-SEM. Therefore, the focus of the main analysis shifts directly to the assessment of the structural model. This stage involved analyzing path

coefficients to determine the strength and direction of the hypothesized relationships between each SI and LIS dimension.

3.3. Methodology of Qualitative Study

Following the quantitative strand, this section delineates the methodology for the qualitative component of the study. This qualitative inquiry serves to provide in-depth understanding and rich contextual detail, complementing the quantitative findings and specifically addressing the third research question. This phase indicated undergraduate students' knowledge regarding spiritual intelligence and learning and innovation skills, and their belief about the relationship among them, and problems in its development in a balanced manner.

3.3.1. Qualitative Research Design

The qualitative part of this present study employed narrative research design to bring to life how individual students coming from diverse backgrounds of universities individually perceive and conceptualize the construct of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) and how they perceive the relationship between them. Through this approach, problems faced by students in reconciling the development of SI and LIS also are located, thus providing a basis for designing education approaches that are integrated in these two ideas. This design was particularly chosen for delivering rich, in-depth information that would be used to augment the quantitative findings and address the third research question head-on.

Narrative inquiry is a robust qualitative research methodology that is fundamentally interested in understanding human experience through the systematic collection and interpretation of lived stories (Sztukowski-Crowley & Funk, 2020). It is an emergent manner of thinking about and doing experience-narratively that highlights the profound importance of personal stories in making meaning from lived experience (Bruce et al., 2016). This is an experiential approach rooted in the everyday life of ordinary people, normally through a bidirectional process between participants and researchers to build dense stories (Clandinin et al., 2009). The essential characteristic of narrative research that is generative and significant for effective and meaningful data gathering is the interwoven relational affiliation between participants and researchers, enlightening the exploration of experiences within the historical, communal, and spatial contexts (Pinnegar & Lynn Hamilton, 2012). Through examining these kinds of personal life stories, the researcher sought to come to a profound understanding of participants' perceptions regarding the

interconnectedness of 21st-century skills and spiritual intelligence, hence grasping the unique features of their personal life stories and meaning.

3.3.2. Qualitative Research Participant

Participants in qualitative design were selected according to a purposive sampling approach. This non-probability sampling is widely applied in qualitative studies to select information-rich cases that are directly relevant to the research aims and questions (Ahmad & Wilkins, 2025; Tongco, 2007). The rationale behind using purposive sampling is to ensure participants possess exact knowledge, significant experiences, or particular traits that could significantly correspond with understanding the phenomenon of interest in depth (Campbell et al., 2020).

Specifically, the qualitative participants were a subset of the students who had initially participated in the quantitative phase of the study. Of this larger group, individuals were selected on the basis of their apparent willingness to participate in follow-up interviews, as indicated by their consent provided with the initial online questionnaire. To get a diverse set of responses and to gain a diverse understanding from different education environments and local contexts, five participants were purposively recruited in total, with one participant per each of the five different Islamic universities participating in the quantitative data. This careful selection aimed to gather relevant information presenting different understandings from different locations (Memon et al., 2024). This sampling strategy was designed to provide a setting where the qualitative findings would be used to complement the quantitative results in a meaningful way. By presenting more in-depth, contextualized descriptions of the research question, these rich narratives give a comprehensive picture of how 21st-century skills are applicable to students' spiritual intelligence at the tertiary level, thereby maintaining the integrity and consistency of the overall mixed-methods research process.

3.3.3. Qualitative Research Instrument

The primary instrument for qualitative data collection was a semi-structured interview guide, developed in detail to probe more in-depth into participants' holistic perspectives. The guide construction went in a logical sequence by starting with a detailed examination of appropriate literature to establish preliminary questions and synchronize with the overall third research question (Kallio et al., 2016; Leong & Said, 2024). The research supervisor further gave feedback and acquiescence on the draft interview protocol, which was strengthened further to ensure it was sufficient enough and suitable for the

requirements of the study. A pilot interviewing all the questions on the interview guide was also conducted to establish any ambiguity and portions that required adjustment before actual data collection (Kallio et al., 2016).

The semi-structured format was especially chosen because it offers a strategic balance between offering a structured structure to enquiry and allowing the necessary freedom for open-ended and inquisitive conversation (Elhami et al., 2022). The approach facilitated a thorough exploration of the research question because participants were in a position to elaborate their experience and perceptions in depth with some degree of comparability among interviews. The guide interview was well crafted into several key thematic areas to systematically gain participants' insights, with a key aim of understanding how 21st-century skills has a relation with their spiritual intelligence. The complete interview guide, detailing all questions in both English and Bahasa Indonesia, is provided in Appendix 3.1. These thematic areas included:

- Exploring undergraduate students' comprehension regarding the concept of spiritual Intelligence. This theme delved into participants' definitions of spiritual intelligence, their engagement in practices for its development, and their views on its contribution to personal and professional growth.
- Undergraduate students' understanding the concept of 21st century skills. This theme explored participants' general comprehension of 21st-century skills, especially LIS, and their perceived integration into academic programs.
- Interrelationship between spiritual intelligence and 21st-Century skills, which serve as a crucial section, focused on participants' direct perceived connections between the development of 21st-century skills and their spiritual intelligence, as well as how spiritual intelligence might affect their approach to learning and collaboration.
- Relevance and challenges faced by students in balancing the development of their 21st-century skills with their spiritual intelligence simultaneously, serving as foundation to create educational curriculum and policy for supporting students' holistic development.

3.3.4. Qualitative Data Collection

Qualitative data in this study were primarily collected through semi-structured interviews with the five purposively selected participants. Given the geographical distance between the researcher and the participants, and to accommodate individual preferences, the interviews were conducted using online modalities, recognized for their ability to

overcome geographical and time constraints (Janghorban et al., 2014; Neville et al., 2016). To ensure flexibility and comfort for the participants, two distinct online methods were employed to gather data. The first is synchronous WA call interviews. Real-time interviewing was conducted for three of the participants through WhatsApp Call based on their preference. This method facilitated an interactive process, allowing the researcher to personally engage in questioning the participants' perceptions, understanding, and experiences in depth (Cohen et al., 2009). All synchronous interviews were recorded using direct informed consent of the participants prior to commencement. Moreover, asynchronous written reflective feedback was used in real-time interviews with substitutes. For the remaining two participants, who opted to respond through text due to personal reasons, interview questions were provided, and they responded with lengthy written reflective feedback. This text-based, asynchronous method gave these participants ample time to deliberate and to provide detailed articulation of their histories, while still sufficiently capturing each participant's personal experience and perceptions.

Throughout both modes of data gathering, strict adherence to the pre-determined interview protocol was maintained so that there was consistency in the main questions posed while at the same time allowing emergent themes and necessary follow-up probes inherent in a semi-structured approach. WA Call interviews' audio recordings were transcribed verbatim carefully and written responses were compiled, all set for exact and systematic data analysis. The multi-modal data collection approach allowed for the acquisition of detailed and wide-ranging qualitative data from the students, which was intended to complement and enrich the findings gained through the quantitative research procedure.

3.3.5. Qualitative Data Analysis Technique

Data analysis in this research was qualitative and was a thorough and systematic process, recording the details and context of the research in close observation to directly address the third research question. The research applied a deductive thematic analysis approach in which interpretation and pattern identification (themes) in the data were overshadowed by earlier theoretical hypotheses and specific study questions derived from the literature (Allie et al., 2024; Pearse, 2019). This deductive method was especially applied to project the qualitative findings on the conceptual framework that has already been established to conceptualize 21st-century skills and spiritual intelligence, in order to facilitate systematic and orderly investigation of the phenomena. Deductive thematic analysis was a structured process comprising several steps.

For starters, the researcher undertook a rigorous getting-to-know of the data by repeatedly reading the transcribed interviews and written reflective answers collected, hoping to get a general feel of the content. Following that, initial codes were developed from the theoretical conceptual framework of the study and the themes built (e.g., Understanding 21st Century Skills, Spiritual Intelligence, Interrelationship, Relevance and Challenges), which were utilised to annotate relevant pieces of the data. These initial codes were then systematically coded and categorized in order to search for potential themes that directly related to the theoretical propositions being used to inform the study. The potential themes were then subjected once identified to a rigorous reviewing process against the entire dataset to check their validity and coherence with the theoretical framework, strictly looking at both internal homogeneity as well as external heterogeneity. The second imperative step involved systematically and succinctly defining and naming these themes, so that they reflected the coded data accurately and corresponded to the theoretical concepts of the study. Finally, a detailed narrative report was prepared, revealing how the theme derivation contributed towards answering the research question and illuminating the theoretical framework (Naeem et al., 2023; Pearse, 2019).

The deductive systematic approach allowed the researcher to probe deeply into the experiences and understanding of the undergraduate students regarding how 21st-century skills like critical thinking, creativity, collaboration, and communication affect their spiritual intelligence. The thematic analysis not only facilitated the spanning of the translation of diverse interview data into textual knowledge but also facilitated deeper interpretation of the underlying themes in the responses, hence enabling whole and accountable interpretations of the qualitative data.

3.4. Integration of Findings

The integration of quantitative and qualitative findings is an inherent strength of the convergent parallel mixed methods study in the sense that it aims to depict a rich, holistic picture of the research problem (Fielding, 2012). The process facilitates the attainment of an overall representation beyond the knowledge realized through either approach alone, so analytic density and overall richness of findings are enhanced (Fielding, 2012). Quantitative as well as qualitative data were collected and analyzed in their respective phases independently and concurrently, as discussed in the previous sections. Critical integration of findings occurred at the interpretation and discussion stage. This involved a sequential process of integration of qualitative findings with quantitative data (Vogl, 2023), where findings across the two strands were comparatively assessed and

merged into a brief tale. Notably, integration involved side-by-side comparison and discussion of the quantitative statistical findings with the detailed rich narratives and themes that resulted from qualitative interviews. This allowed for areas of convergence to be developed, where findings reinforced each other between the two methods, therefore providing convergent validation or triangulation (Fielding, 2012).

In addition, the qualitative information assisted in explaining and describing the quantitative results further, giving more contextual richness and illustrating the underlying processes for statistical trends. This was particularly critical to fully grasp the 'how' and 'why' of the established relationships, imbuing the numerical results with human intuition and insight. Through this overall integration, the research aimed to answer the research questions more completely and strongly. The integration of quantitative trends (numbers) and personal narratives created a rich picture, enhancing the general validity and reliability of the results (Amadi, 2023; Plano Clark et al., 2010). Lastly, such integration of data made possible greater and more meaningful insight into how 21st-century skills align with students' spiritual intelligence, documenting the extent and depth of the phenomenon.

3.5. Positionality and Ethical Consideration

Positionality of the researcher must also be recognized here to offer methodological reflexivity as well as transparency, as noted in education research (Duran et al., 2025; Zha & Tu, 2016). As male researchers belonging to other tribes and areas than some of the respondents, despite belonging to the same generation Z and Bachelor of Islamic Religious Education study program background, there are differences regarding the study level (the researcher has completed his bachelor's degree, the respondent is an undergraduate student) and curriculum and study environment. These dynamics, coupled with limited opportunity for a close personal tie to respondents outside of research, mandate attention to potential bias and differences in perspective that can shape interaction, data collection, and interpretation of findings. By actively considering this position, this study aims to improve the analysis, suppress potential biases, and build more sincere relationships with participants, in a bid to improve the quality and validity of results of the study.

In order to ensure the privacy and health of participants were strictly protected throughout the research, this research was conducted strictly according to applicable research practice and ethics guidelines. Recognizing the necessity of ethical guidelines as a collective moral responsibility in educational research, particularly in Indonesia's dynamic higher education sector (Fourianalistyawati et al., 2018), rigorous ethical protocols were sincerely followed. The research upheld the principle of informed consent.

Prior to involvement, all individuals involved had a complete understanding of the purpose, research procedure, potential benefits, and risks of the data collection process. Their input was strictly voluntary and devoid of coercion or exorbitant motivations, which otherwise could pose data bias. The participants were aware of their right to withdraw from the participation process at any time without sanction.

In addition, participants' individual information remained anonymous. All the identifying data were anonymized during data analysis and processing to ensure their privacy. Furthermore, all the research processes were critically submitted to and approved by the researcher's institution ethics committee. This careful process of submission and approval ensured that the research was conducted with the highest standards of integrity, adhering to all the relevant legal and ethical norms applicable to human subjects research. Based on set ethical standards, researchers maintained flexibility while complying with all applicable ethical procedure guidelines to make it possible to meet the research objectives without causing any party any harm (Cohen et al., 2009). After all the research processes had been done, the collected data was stored securely to make sure that it was not accessed and used wrongfully by unauthorized parties. These meticulous steps all underlined the researcher's unwavering commitment to the ethical guidelines that governed the entire research work, from data acquisition and analysis all the way through to final reporting.

CHAPTER IV

FINDING AND DISCUSSION

This chapter describes the key findings of the study and discusses them in the context of the research objectives. For the purpose of clarity and analytical uniformity, the chapter is divided into two sections that are findings and discussion respectively. The Findings section is also split into two: Quantitative Findings, which report statistical analysis results from survey data using Rasch modeling and regression approaches; and Qualitative Findings, which capture student interview perspectives on their personal experiences and understandings of spiritual intelligence and learning and innovation competency. The two-pronged effort provides more depth and a better appreciation of the phenomena under study. Furthermore, the discussion section follows the findings and provides a critical interpretation of the outcomes. It connects evidence from data to the theoretical model and literature and gives reasons for patterns identified, settles conflicts, and draws implications for education practice. This structure not only allows for a clearer presentation of outcomes but also enables a more integrated integration of how spiritual intelligence converges with the development of learning and innovation skills among undergraduate students in Islamic higher education settings.

4.1. Research Findings

This chapter offers a detailed discussion of the research findings, which are meant to achieve the main objective of this research, namely examining the relationship between spiritual intelligence and learning and innovation competencies among undergraduate students, as well as the moderating variables and students' perception of the relationship between both constructs. The findings are given in an organized format, starting with the quantitative phase, a descriptive overview of data gathered, followed by the statistical analysis conducted to analyze the hypothesized relationships, and the qualitative phase, adding personal and reflective insight to support the quantitative findings.

4.1.1. Quantitative Findings

This chapter presents the findings of the quantitative data analysis to answer two main research questions: *"To what extent learning and innovation skills, both collectively and individually, are associated by undergraduate students' spiritual intelligence?"* and *"To what extent does gender and study phase moderate the spiritual intelligence and learning and innovation skills relationship among undergraduate students?"* These questions were examined by employing a sequential analytical approach, with the initial

application of the unidimensional Rasch analysis, to examine the overall fit and quality of the constructs. Furthermore, Rasch analysis is also used to provide an in-depth understanding of individual capabilities, both at the item level and at the person level. The use of Rasch analysis also provides transformed scores as a logit, which allows for a more accurate relationship of spiritual intelligence and learning and innovation skills.

To examine both the direct and moderated effects, the PROCESS Macro by Hayes was employed, selected for its compatibility with the study's design and sample size. The analytical process included descriptive statistics, linear regression to test the predictive role of spiritual intelligence on learning and innovation skills, and moderation analysis involving gender and phase of study. Together, these analyses offer a comprehensive understanding of the relationships among the key variables in line with the research objectives.

Data Transformation and Description

This section provides a comprehensive overview of the quantitative data and the transformation process that was undertaken before conducting the regression and moderation analysis. The data were collected using a structured self-report questionnaire aimed at measuring two main constructs: Spiritual Intelligence and Learning and Innovation Skills from March to May 2025. Each of these constructs is composed of four theoretical dimensions, with the initial instrument after piloting consisting of 23 items (removed 1 item because of misfit) for spiritual intelligence and 30 items for learning and innovation skills, developed based on previous validated frameworks and translated to Bahasa Indonesia.

The total number of respondents after the cleaning process (extreme, misfit, and outlier) included in the analysis was $N = 274$, all of whom were undergraduate students enrolled in Islamic Education study programs from different Islamic Universities. The sample was selected using a convenience sampling strategy, primarily based on accessibility and willingness to participate. While not purposively designed, the sample nonetheless captured a diverse range of student backgrounds across key demographic factors by involving respondents from three provinces: DKI Jakarta, Lampung, and West Java. These sites were selected to reflect a mix of urban and semi-urban educational settings and thus enhance the instrument's generalizability. Table 4.1. below provides the demographic distribution of participants, offering important context for interpreting the subsequent analysis, particularly in testing moderation effects by gender and phase of study.

Table 4. 1.

Students Demographic of Quantitative Respondents

Characteristic	Description	Frequency (N=274)	Percentage (%)
Gender	Male	84	30.65
	Female	190	69.35
Religion	Islam	274	100
Major of Study	Islamic education	274	100
Year of Study	1st year	70	25.55
	2nd year	59	21.53
	3rd year	136	49.64
	4th year	9	3.28
Phase of Study	Early-phase (1st-2nd year)	129	47.08
	Final-phase (3rd-4th year)	145	52.92
University	University A (Lampung)	125	45.62
	University B (West Java)	90	32.85
	University C (West Java)	15	5.48
	University D (DKI Jakarta)	23	8.39
	University E (DKI Jakarta)	21	7.66

Table 4.1 above presents a detailed overview of the demographic characteristics of the 274 undergraduate students participating in this study. The sample exhibited a notable gender distribution, with a significant majority of female respondents (69.35%, n=190) compared to male respondents (30.65%, n=84). This proportion is consistent with the generally larger enrollment of female students in Islamic Education programs at the participating universities. As expected, given the study's specific focus, all participants identified as Muslim and were majoring in Islamic Education (100%, n=274), ensuring homogeneity in terms of religious and academic background.

In terms of academic progression, the sample offered a broad perspective across various stages of the undergraduate program. The largest group of respondents was in their third year (49.64%, n=136), followed by first-year (25.55%, n=70) and second-year students (21.53%, n=59). A smaller group of fourth-year students (3.28%, n=9) was also represented. This distribution resulted in a fairly balanced representation between early-phase (1st-2nd year, 47.08%, n=129) and final-phase (3rd-4th year, 52.92%, n=145) students, which is beneficial for comprehensively understanding how students at different academic stages perceive and develop their skills, particularly for exploring potential moderation effects of the phase of study.

On the basis of University representation, the respondents were recruited from five different universities across three provinces. The largest proportion came from University A in Lampung (45.62%, n=125) as Islamic state university, followed by University B in West Java (32.85%, n=90) which is considered as Islamic Pesantren- Based University. Smaller groups were represented by University D (8.39%, n=23) and University E (7.66%, n=21), both located in DKI Jakarta, and considered as Islamic Organization- Led University, while University C in West Java constituted the smallest group (5.48%, n=15). These demographic factors offer a broad spectrum of perspectives on spiritual intelligence and learning and innovation skills. This diversity further strengthens the generalizability of the study's findings within the broader Islamic Education student population.

To improve the precision and validity of the data for relationship analysis, Rasch modeling techniques were applied to transform raw ordinal scores into interval-level measures. Specifically, a Unidimensional Rasch Analysis using Winsteps software was performed to assess the overall measurement quality of each construct—Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS)—when treated as unified latent variables. This step was crucial for verifying the assumption of unidimensionality, ensuring that all items within each construct contributed to measuring a single latent trait. The key indicators examined in this study are psychometric properties including item and person reliability, item and person separation indices, variance explained and the category functioning explained by the instrument, as presented below.

Table 4. 2.
Psychometric Properties of Measurement Scales

Scale	No. of items	Rasch person Item reliability	Rasch person item separation indices	Variance explained by measures	Step threshold			
					1	2	3	4
SI	23	0.88 0.96	2.74 4.97	36.0%	-1.63	-1.09	0.74	1.98
LIS	30	0.94 0.96	3.90 5.11	45.1%	-2.75	-0.90	0.73	2.92

As shown in Table 4.2. above, both constructs demonstrate high person and item reliability, indicating their robustness in measuring the respective constructs. For the Spiritual Intelligence (SI) scale, which comprises 23 items, the Rasch person reliability was 0.88, signifying excellent consistency in person ordering across the items. The item reliability was also very high at 0.96, suggesting that the item difficulty estimates are very precise and reproducible. The person separation index of 2.74 indicates that the scale can

distinguish approximately three distinct levels of Spiritual Intelligence among the respondents, while the item separation index of 4.97 confirms that the 23 items define over five statistically distinct difficulty levels. The measures explained 36.0% of the total variance, which is a moderate proportion for a single-factor solution. While a variance explained above 40% is generally preferred to confirm unidimensionality, a value near 40%—as observed in the SI construct—is still acceptable, particularly when supported by strong reliability and separation indices, because many researchers consider 20% or more as sufficient evidence of “close-enough” unidimensionality for practical use of Rasch model results (Sumintono & Widhiarso, 2015; Wind & Hua, 2022). The ordered step thresholds for the rating scale were -1.63, -1.09, 0.74, and 1.98 logits, indicating that the response categories are functioning as intended and are progressively ordered.

Similarly, the Learning and Innovation Skills (LIS) scale, with its 30 items, also exhibited excellent psychometric qualities. The Rasch person reliability was 0.94, demonstrating a very high level of consistency in measuring individual LIS abilities. The item reliability was equally strong at 0.96, ensuring high precision in item difficulty estimates. The person separation index of 3.90 suggests the LIS scale can differentiate more than four distinct levels of LIS ability among respondents, while the item separation index of 5.11 confirms over five distinct difficulty levels among the 30 items. A higher proportion of variance (45.1%) was explained by the measures for the LIS scale compared to the SI scale. The step thresholds for the LIS rating scale were -2.75, -0.90, 0.73, and 2.92 logits, also indicating well-ordered and functional response of 5 categories. Overall, these psychometric properties affirm that both the SI and LIS instruments are reliable and effective tools for measuring their respective constructs within the study's population, providing a solid foundation for subsequent analyses.

To further assess the psychometric quality of the final instrument, a Rasch-based item fit analysis was conducted using the Winsteps software. The results showed that all retained items exhibited acceptable fit statistics, with both infit and outfit MNSQ values falling within the 0.5–1.5 range, outfit ZSTD values falling within -2.0–2.0 range and point measure correlation falling within 0.4–0.85 range, confirming the unidimensionality of the constructs. Although one item in each construct displayed a slightly elevated or reduced MNSQ value beyond the ideal threshold, these deviations were marginal and did not compromise the overall measurement quality. Thus, the fit statistics overall lend support to the internal consistency and measurement validity of the unidimensional model. Item-level fit statistics are presented in detail in Appendix 1.3. Item Fit Statistics for SI Instrument and Appendix 2.3. Item Fit Statistics for LIS Instrument. Furthermore, analysis included

the scrutiny of point-measure correlations, which also bore testimony to the strength of the instrument. Collectively, these results display the strong psychometric properties of both measurement scales, verifying their retention for use in subsequent stages of analysis. Together, these results provide strong evidence of both measurement scales' psychometric validity and confirm their retention for use in subsequent stages of analysis.

Following the initial assessment of unidimensionality for the overall scale measures, a more focused unidimensional Rasch analysis was subsequently conducted for each individual dimension within the constructs of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS). Rather than a multidimensional Rasch model, independently to each of the eight subdimensions (four of SI and four of LIS), the unidimensional Partial Credit Model (PCM) was applied, with the assistance of the Winsteps software. This kind of tactic implies that each subscale may be treated as a separate one-dimensional construct, as would be implied by Rasch modeling assumptions and previous educational psychometric custom (Bond & Fox, 2015).

With this approach, person measures were calculated for each respondent on each dimension and produce interval-level scores that correct for measurement error and position both persons and items on the same latent trait continuum. Person measures are more precise indicators of people's standing on each individual dimension, which enables one to conduct more precise interdimensional analyses between SI and LIS. This unidimensional approach was selected not only for its methodological simplicity and interpretability, but also to avoid the risk of inflated intercorrelations and construct overlap often observed in multidimensional Rasch modeling. In several instances, multidimensional models may yield overly high correlations between latent dimensions—particularly when the underlying constructs are conceptually close or when item discriminations are not well separated—thus threatening discriminant validity and interpretability of results (Adams et al., 1997; Engelhard Jr., 2013). By analyzing each dimension separately, the current study ensured a clearer distinction between constructs and improved the precision of subsequent path analyses.

To ensure the psychometric soundness of the measures derived from this repeated unidimensional Rasch approach, a detailed analysis of the item-level and scale-level properties was conducted for each of the eight subdimensions. The psychometric results for all eight dimensions—four from Spiritual Intelligence (Critical Existential Thinking, Personal Meaning Production, Transcendental Awareness, and Conscious State Expansion) and four from Learning and Innovation Skills (Critical Thinking, Creativity,

Communication, and Collaboration)—are reported in the following section. Below is the summary of psychometric properties from all the dimensions used in this study.

Table 4.3.
Psychometric Properties of Subscales for SI and LIS

Scale	No. of items	Rasch person item reliability	Rasch person item separation indices	Variance explained by measures	Step threshold			
					1	2	3	4
CET	7	0.69 0.97	1.48 5.74	41.2%	-1.45	-1.08	0.62	1.91
PMM	5	0.70 0.87	1.53 2.62	47.9%	-3.12	-1.21	1.23	3.10
TA	6	0.71 0.82	1.58 2.13	45.2%	-2.52	-1.15	0.98	7.70
CSE	5	0.71 0.95	1.57 4.32	50.9%	-2.69	-1.51	1.13	3.07
CTPS	9	0.88 0.91	2.73 3.18	55.9%	-4.05	-1.29	1.11	4.23
CIS	7	0.81 0.98	2.07 7.35	55.5%	-3.51	-1.09	1.03	3.57
CS	8	0.85 0.90	2.33 2.97	53.0%	-3.07	-1.22	0.70	3.59
CWS	6	0.82 0.91	2.10 3.15	58.3%	-3.91	-1.14	1.12	3.93

Psychometric property testing on each subscale of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) through Unidimensional Rasch Analysis showed strong and consistent results, supporting the overall quality of the instruments (Table 4.3). For all eight dimensions (CET, PMM, TA, CSE, CTPS, CIS, CS, CWS), the Person Reliability values were mostly above 0.70, with many exceeding 0.80, indicating good to excellent ability to distinguish individuals based on their latent attribute levels. Similarly, item reliabilities for all subscales showed very high values (most above 0.90), confirming the consistency of item placement on the difficulty continuum. Individual and item separation indices also consistently showed that the scales were able to distinguish between groups of individuals and item difficulty levels in a statistically meaningful way. Furthermore, the percentage of variance explained by measures was consistently high across all subscales (above 40%), confirming the fit of the Rasch model to the data.

In addition, analysis of the response category thresholds (Step Thresholds) also showed sequential and appropriate functioning, with the exception of the TA dimension which showed a very high final threshold, but did not compromise the overall quality of the measure. On the other hand, the item fit analysis conducted for each sub-dimension of Spiritual Intelligence (SI), including CET, PMM, TA, and CSE, generally showed that the items functioned well within the expectations of the Rasch model. Using the Infit and Outfit

Mean Square (MNSQ) criteria of between 0.5 to 1.5 as an acceptable range, all items across the sub-dimensions showed a good fit. Although some items such as CET1 (ZSTD -2.8), TA1 (ZSTD ~2.3), and TA3 (ZSTD ~-2.3) showed Z-standardized (ZSTD) values that were slightly outside the ideal range of -2.0 to +2.0, their MNSQ values remained within the set tolerance limits, indicating that these deviations were more statistical than practical and did not significantly affect the overall measurement quality. In addition, all items consistently exhibited strong and positive Point-Measure Correlations, confirming that each item is aligned with the latent construct it measures. These findings collectively indicate that the items in the SI sub-dimension are consistent and valid in measuring the intended latent attribute, thus supporting the internal validity of the instrument for further analysis. Full details of the estimation results and fit statistics can be found in Appendix 1.7.

Item fit analysis was also conducted for the Learning and Innovation Skills (LIS) sub-dimensions, namely CTPS, CIS, CS, and CWS, with Infit and Outfit Mean Square (MNSQ) criteria between 0.7 to 1.5 as the acceptable range. In general, most of the items in these sub-dimensions showed a good fit with the Rasch model. All items in the CTPS, CS, and CWS sub-dimensions consistently fell within the specified MNSQ range. Nonetheless, some items showed Z-standardized (ZSTD) values that were slightly outside the ideal ± 2.0 limit, such as CTPS9 (ZSTD 2.2/2.7), CTPS4 (ZSTD 2.2/2.0), CTPS1 (ZSTD -2.5/-2.6), CTPS2 (ZSTD -4.2/-4.2), CS6 (ZSTD -2.6/-2.9), CWS6 (ZSTD -1.6/-2.1), and CWS3 (ZSTD 1.6/2.0). This indicates minor statistical deviations that are not practically significant as their MNSQ values remain within the tolerance range. However, it should be noted that item CIS3 with an Infit MNSQ of 1.77 and Outfit MNSQ of 1.64, showed values that exceeded the established MNSQ threshold of 1.50, indicating a misfit that needs further scrutiny. In addition to CIS3, items CIS2 (ZSTD -2.0/-2.1) and CIS5 (ZSTD -3.8/-4.0) also showed ZSTD deviations. Nonetheless, it is worth emphasizing that all items in the LIS, including CIS3, maintain strong and positive Point-Measure Correlations (above 0.58), confirming that they contribute relevantly to the measured construct. These findings collectively indicate that most items in the LIS sub-dimensions function consistently and validly (Appendix 2.7.), supporting the use of the instrument for further analysis.

Furthermore, descriptive statistics analysis was conducted to explore the central tendency and variability of the transformed Rasch scores across both unidimensional and multidimensional levels. Utilizing SPSS, the mean, and standard deviation were computed for (a) the unidimensional person measures of the overall Learning and Innovation Skills (LIS) and Spiritual Intelligence (SI) constructs, which were derived from the initial Rasch analysis, and (b) the unidimensional person measures of each of the eight individual

dimensions (four from SI and four from LIS) derived from the Winstep software. The results of this comprehensive descriptive analysis, providing a concise summary of the collected data for all key variables, are presented in the table below.

Table 4. 4.
Descriptive Statistics

Construc	Dimensions	Mean	Std. Deviation	Swekness	Kurtosis
Spiritual Intelligence	Critical Existential Thinking (CET)	0.6343	0.9992	0.715	1.283
	Personal Meaning Making (PMM)	1.8059	1.5740	0.330	0.130
	Transcendental Awareness (TA)	0.6244	1.2560	0.064	-0.239
	Conscious State Expansion (CSE)	0.9153	1.4901	0.168	-0.154
	Total SI	0.7062	0.8757	0.461	0.060
Learning and Innovation Skills	Critical Thinking & Problem Solving (CTPS)	1.4146	2.0438	0.396	0.852
	Creativity and Innovation (CIS)	1.2761	1.6115	-0.002	0.219
	Communication (CS)	1.1377	1.7180	0.395	0.498
	Collaboration (CWS)	2.3258	2.044	-0.059	0.013
	Total LIS	1.1147	1.2049	-0.68	-0.187

Based on the descriptive analysis of the person measure data from 274 respondents, the mean Spiritual Intelligence (SI) construct score was 0.7062 with a standard deviation of 0.8757, indicating a moderate level of spiritual intelligence with moderate variation among respondents. When viewed per dimension, Personal Meaning Making (PMM) has the highest mean value (1.8059), indicating that the aspect of finding and forming personal meaning in life is the most prominent component of respondents' spiritual intelligence. In contrast, the Transcendental Awareness (TA) dimension has the lowest mean score (0.6244), indicating that awareness of transcendental reality or higher spirituality is still relatively poorly developed.

Meanwhile, the Learning and Innovation Skills (LIS) construct shows a mean score of 1.1147 with a standard deviation of 1.2049, indicating that respondents' learning and

innovation skills are quite high, with considerable variation. Among the LIS dimensions, Collaboration Skills (CWS) occupies the highest position (2.3258), indicating that respondents tend to have quite strong collaborative working abilities. In contrast, the Communication Skills (CS) dimension has the lowest average (1.1377), indicating that communication skills are still a relatively weaker area compared to the other dimensions. The findings provide preliminary insights into the dominant aspects in the two main constructs under study, and can serve as a basis for consideration in designing educational or training interventions to strengthen the less developed dimensions.

Furthermore, descriptive statistical analysis of respondent ability/attitude measurement data by the Rasch model indicated the character of the distribution varying between dimensions and key variables. The focus of this follow-up analysis is on values of Skewness and Kurtosis to infer the shape and distribution of data. A distribution curve is said to be normal if the score is in the range of -2.5 to +2.5 which indicates that the distribution of the data is evenly distributed at varying degrees. For the main variable of Spiritual Intelligence (SI), that includes the CET, PMM, TA, and CSE dimensions, the distribution of the person measure indicates a positive skewness value of 0.461. This indicates that the distribution of respondents' spiritual abilities manifests a light tendency towards the right direction such that most of the respondents have below-average levels of Spiritual Intelligence. But its kurtosis value of 0.060, which is nearly zero, signifies that it is of the mesokurtic or normal peak form, not flat or sharp. Specifically in size, the CET is positively skewed by 0.715 and positively kurtotic at 1.283, indicating a very heavy right slant and a peaked distribution with a high relative concentration of respondents in the mean value and the high tail direction of the extreme value. PMM also has a positive skew of 0.330, albeit with closely normal kurtosis of 0.130. Meanwhile, TA and CSE dimensions are distributions that lean to be strongly symmetrical (skewness 0.064 and 0.168) and mesokurtic (kurtosis -0.239 and -0.154), nearest to normal distribution of all SI dimensions. The implication of this trend is that the Spiritual Intelligence test measures, namely on the CET and PMM scales, are maybe a little easier for most of the respondents in this sample, or alternatively that the population tested is one that naturally scores lower on these dimensions. On the contrary, with the LIS, which was constructed through the dimensions of CTPS, CIS, CS, and CWS, the distribution of persons' measures shows very good characteristics bordering on a normal distribution.

LIS skewness is -0.068, and its kurtosis is -0.187, which are almost zero. This indicates the presence of high symmetry and mesokurtic distribution, as the respondents are evenly distributed along the innovation and learning skills continuum. In the analysis

of its size, CTPS has a positive skewness of 0.396 and a positive kurtosis of 0.852, i.e., right skew and sharper peak similar to CET. CIS, CS, and CWS, on the other hand, had comparatively symmetrical (skewness -0.002, 0.395, -0.059) and mesokurtic (kurtosis 0.219, 0.498, 0.013) distributions, although skewness in CS was found to be statistically significant. One of the consequences of the near-normal distribution of LIS is that this measure discriminates well and scatters respondents' ability well across the range of learning and innovation skills and provides a robust and valid measure for the construct. Moderate deviations on the CTPS factor indicate that there is a group of respondents around the mean but biased to the lower side, which could require further emphasis in instrument construction or the particular interpretation of that factor.

Analysis Item Level Difficulty

Under the Rasch model measurement framework, it is highly crucial to fully understand the interaction of item-person in preserving the validity and precision of the measurements (Bond & Fox, 2015). This sub-section presents a detailed examination of the item difficulty and person ability on the same logit scale with the assistance of the visualization of the Wright Map or also called the Person-Item Map. The Wright map graphically presents respondents' ability distribution and item difficulty distribution, allowing the researcher to establish the effectiveness of the instrument in targeting the range of ability of the population being measured (Boone & Staver, 2020). From this map, it will be possible to ascertain whether the available items are sufficiently varied in terms of difficulty so as to appropriately distinguish different ability levels or respondent attitudes, and find potential item gaps that limit the validity of measurement in certain ability segments.

The Item-Person Maps (Wright Maps) of the Learning and Innovation Skills (LIS) and Spiritual Intelligence (SI) constructs provided informative data about how well the item difficulties were aligned with the abilities of the respondents. The maps indicated that the distributions of item difficulties were generally well-matched to the person ability distribution, with good targeting for the two constructs. For spiritual intelligence, the map is shown on Appendix 1.6. that the items were reasonably well spread along the continuum of respondent abilities. Although some of the items were a bit more difficult or easy than the average, the overall range was well covered with minimal gaps in measurement. In the example given also, the learning and innovation skills as given in Appendix 2.6 showed an adequate match between item difficulty and respondent ability. While some participants demonstrated higher ability levels than the most difficult items on the map, the majority

fell within a reasonable range, substantiating the construct's ability to differentiate among varying levels of spiritual intelligence. The absence of significant gaps or item clustering in both maps further supported the unidimensional structure of each scale. These findings confirm that the data fit the Rasch model well and justify the transformation of raw scores into person measures (logit scores).

To further analyse the item level difficulty, dimensional test was conducted for both variables, spiritual intelligence (SI) and learning and innovation skills (LIS), consisting of 4 dimensions each. Firstly, in the case of spiritual intelligence dimensions, Critical Existential Thinking (CET) could be seen as the capacity to think critically about the nature of existence, reality, the universe, space, time, death, and other metaphysical or existential issues (King, 2008). This involves intense reflection, questioning, and reasoning on an existential level, so far as developing personal theories or philosophies for existence. This facet acknowledges the differences among individuals in their ability to reflect on these issues, varying from individuals with fleeting thoughts to others who are able to achieve reflective thought and achieve long-term insight (King, 2008). To this extent, CET is an important cognitive component of spiritual intelligence, which requires more abstract thinking and mental computation in a bid to appropriately distinguish individuals.

Following the evaluation of the Wright Map together with the approximation of the grain difficulty, the Critical Existential Thinking (CET) dimension provides a distribution of grains from rather easy to highly difficult on the logit scale as can be seen in the Figure 4. 1. Item Map Critical Existential Thinking below. Such items like “*Saya pernah berpikir secara mendalam tentang apa tujuan hidup saya.*” which was translated from “I have spent time thinking about the purpose or reason for my existence” (CET2) and “*Saya sering merenungkan makna dari berbagai peristiwa dalam hidup saya*” which was coming from statement “I often think about the meaning of things that happen in my life” (CET5) are of a lower level of difficulty (approximately 0 and -1.0 logits), as they indicate a more personal and existential reflection. Instead, sentences such as “*Saya telah mengembangkan teori-teori saya sendiri tentang hal-hal seperti kehidupan, kematian, realitas, dan keberadaan*” which is coming from statement “I have developed my own theories about such things as life, death, reality, and existence” (CET4, near 0 and +1.0 logit) and the peak “*Saya telah merenungkan secara mendalam kemungkinan adanya kekuatan yang lebih besar, seperti entitas ilahi atau energi spiritual yang melampaui diri saya*” which was adapted from “I have seriously thought about whether or not there is some kind of higher power or force (e.g., god, goddess, divine being, higher energy, etc.)” (CET7, near +1 logit) is the most difficult, most clearly showing the need for greater

abstraction and depth of thought. But above this Wright map, this Wright map additionally displays a severe targeting problem whereby there is a visible grain gap at +1 logit. This means that current CET instruments are severely lacking in items that are sufficiently challenging to actually measure and discriminate individuals with very high Critical Existential Thinking ability. This is attested to by the low Person Separation Index of 1.48, which indicates that the scale lacks the capacity to separate respondents into statistically different levels of CET ability. Although the Item Separation Index (5.74) indicates that the current items possess an excellent range of difficulty among themselves, the incompatibility of the range of item difficulty with respondents' ability distribution (more so at the upper end of the scale) limits the instrument to provide precise measurements for the entire population range.

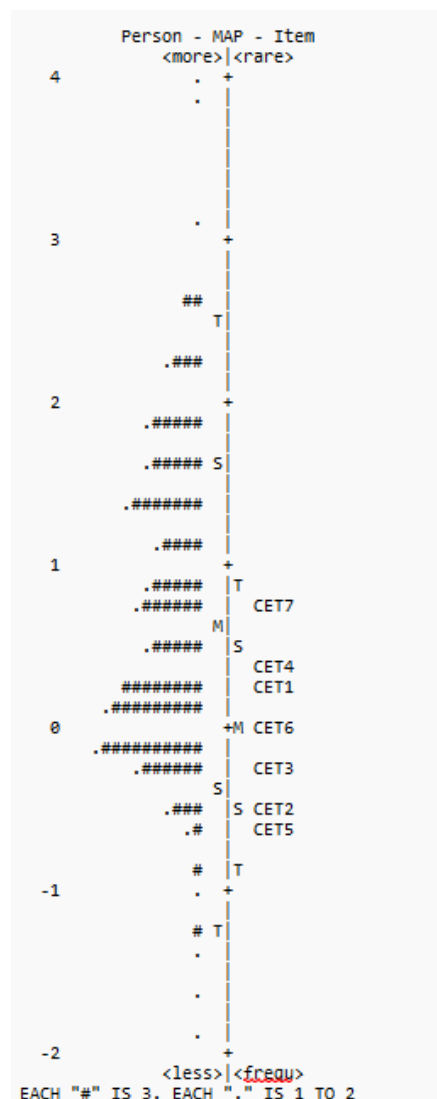


Figure 4. 1. Item Map Critical Existential Thinking

The second axis, Personal Meaning Production (PMP), is the ability of an individual to generate personal meaning and purpose in various experiences, including the ability to set and achieve goals in life (King, 2008). It is not philosophical thinking about life, it is the mental process of learning, creating, and to offer meaning to experiences in life. Similar to other mental capacities, PMM assumes enormous inter-individual variation in these capacities, which include such elements as goal-setting for one's life to meaning-making in everyday occurrences (King, 2008). Therefore, the instruments of measurement for PMM should be capable of grasping the hierarchy of difficulties in such a meaning construction process, from simple to intricate, in order to rightly discriminate the level of ability of the respondents. Below, Figure 4. 2. Item Map Personal Meaning Making is the outcome of difficulty item analysis for the dimension of PMM.

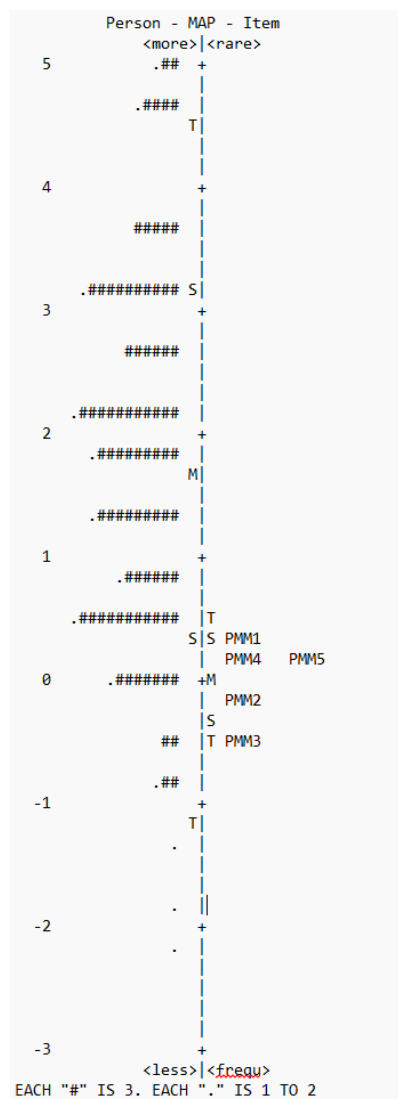


Figure 4. 2. Item Map Personal Meaning Making

The Wright Map analysis of the Personal Meaning Production (PMP) dimension revealed a close grouping distribution of items in a narrow band of difficulty from approximately -0.5 logits to +0.8 logits, reflecting the proximity of item difficulty. Within this hierarchy, the assertion "*Kemampuan saya untuk menemukan makna dan tujuan hidup membantu saya beradaptasi dengan situasi yang penuh tekanan*" which is coming from "My ability to find meaning and purpose in life helps me adapt to stressful situations" (PMM1) is found to be the most difficult since it implies that ability to apply meaning under stress is more advanced PMM abilities. Concurrently, however, the item "*Ketika saya mengalami kegagalan, saya masih dapat menemukan makna di dalamnya*" which was translated from "When I experience a failure, I am still able to find meaning in it" (PMM3) was discovered to be most accessible, and that the ability to find meaning in negative experiences is perhaps an easier or more common characteristic amongst respondents. However, the Wright Map graph also unclearly indicates a critical concern regarding targeting: despite the items in the middle range, the instrument gravely lacks items able to measure the extremities of PMM ability. There are serious gaps in range, both below -0.5 logits for respondents with very low PMM ability, and more critically, above +0.8 logits for respondents with very high ability. The absence of proper grains in these extreme ranges limits the instrument's capacity to test the whole range of PMM capacities within the population tested. Therefore, to improve the validity and precision of PMM measures, new, less challenging and more importantly, much tougher items must be created and included to bridge the gap in the scale and achieve maximal measurement throughout the entire range of respondents' ability.

Transcendental Awareness (TA) is the third component of spiritual intelligence, which is the capacity to recognize transcendent dimensions of the self (e.g., the transpersonal or transcendent self), others, and the material world (e.g., non-materialism and holism) in ordinary conscious states. This capacity also includes the capacity to recognize the connection between those transcendent dimensions with oneself and the material world. TA is the sense of something going beyond material or bodily experience, such as the experience of multidimensional reality or presence with a spiritual center. They must be distinguished from altered states of consciousness since TA operates within normal state consciousness and operates toward the identification and sense of transcendent attributes in everyday objects, activities, experiences, and events.

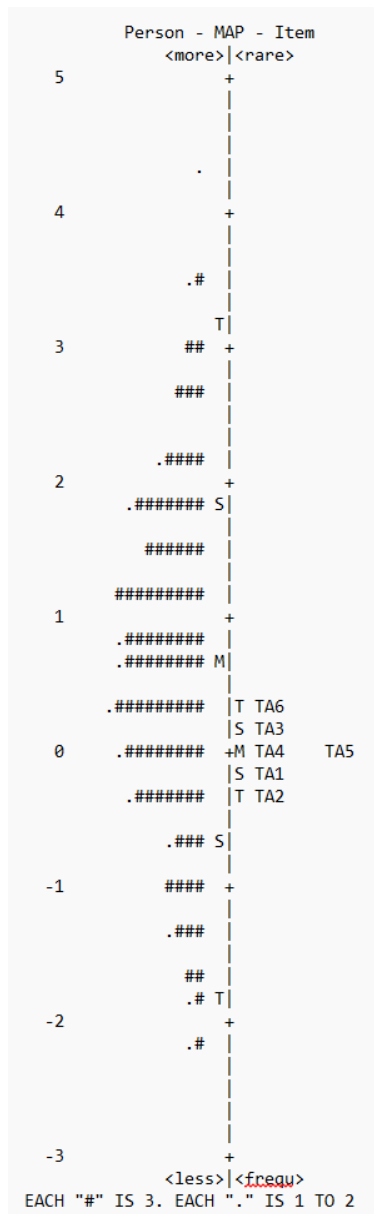


Figure 4. 3. Item Map Transcendental Awareness

Wright's map plot of the TA dimension shows relatively similar grain distribution pattern to that of the previous dimension, and that is dense in a narrow interval of logits, i.e. roughly between -0.5 logit and +0.8 logit. The stimulus item “*Menyadari adanya aspek non-materi dalam kehidupan memberikan ketenangan batin bagi saya*” which is coming from “Recognizing the nonmaterial aspects of life helps me feel centered” (TA6) proved to be the most difficult, indicating that integrating nonmaterial consciousness to feel centered within requires the highest level of TA. Meanwhile, the most attainable item was “*Saya menyadari adanya hubungan yang lebih dalam antara diri saya dan orang lain*” which was translated from “I am aware of a deeper connection between myself and other people”

(TA2), suggesting that recognition of a deeper connection with others was most likely to be the most recognizable or accessible state of TA for participants. The complete information about the item difficulty for this dimension can be seen in the Figure 4. 3. Item Map Transcendental Awareness below. However, it is very clear from the map that there is a serious targeting problem, where there is a horrendous grain gap beyond the range of difficulty covered by the available items. The majority of the subjects exhibited TA capacity above the most challenging item (+0.8 logit) or below the easiest item (-0.5 logit). That is, the current instrument lacks a relatively easy grain and, especially, a relatively hard grain to validly differentiate individuals at both ends of the spectrum of Transcendental Consciousness competence. This restriction prevents measurement accuracy in individuals having very low and very high TA, and hence changes are required in item development to provide improved scale coverage.

Conscious State Expansion (CSE) is the final aspect of spiritual intelligence, defined as the ability to enter and exit higher/spiritual states of consciousness (e.g., pure consciousness, cosmic consciousness, oneness) voluntarily, through techniques such as deep contemplation, meditation, or prayer (King, 2008). This aspect centers on aspects of personal agency and voluntariness over the expanded experience of consciousness, differentiating it from spontaneous or caused spiritual experiences. These abilities involve different configurations of mind and changed brain processes from typical states of consciousness, and reflect the level of cognitive abilities in managing and navigating through different levels of consciousness (King, 2008). CSE testing is important with regards to understanding the whole range of spiritual intelligence, particularly for people who are adept at managing higher levels of consciousness. Figure 4. 4. Conscious State Expansion Map item above, is a good representation of this dimension's level of difficulty.

Wright Map for Conscious State Expansion (CSE) analysis has reported that items on the instrument range within a fairly limited range of difficulty, between around -0.5 logits and +0.5 logits. The responses "*Saya telah mengembangkan teknik saya sendiri untuk memasuki tingkat kesadaran yang lebih tinggi*" which was adapted from "I have worked out my own ways of entering into higher states of consciousness or awareness" (CSE5) and "*Saya mampu berubah-ubah di antara tingkat kesadaran*" which was translated from "I am free to switch between levels of consciousness or awareness" (CSE3) are also the most difficult at the highest level of difficulty (+about 0.5 logit), indicating mastery in technique and facility in shifting levels of consciousness as signs of advanced CSE abilities. At the same time, the item "*Saya sering melihat permasalahan dan pilihan dengan lebih jelas saat berada dalam tingkat kesadaran yang lebih tinggi*" which is

coming from “I often see things and decisions more clearly in higher states of consciousness/ awareness” (CSE4) was identified as being the most facile (about -0.5 logit), which would indicate that becoming clearer from higher states could perhaps be a more general or possible occurrence. As with the previous dimension, this map indicates a significant targeting problem: although the range of the respondents is greater for this distribution (from -3.0 to +5.0 logits), there are not items available that cover this extreme range. This leaves an enormous grain difference at either end of the scale, especially in very difficult grain areas, and the instrument cannot thus safely discriminate between individuals with very bad or very good CSE ability.

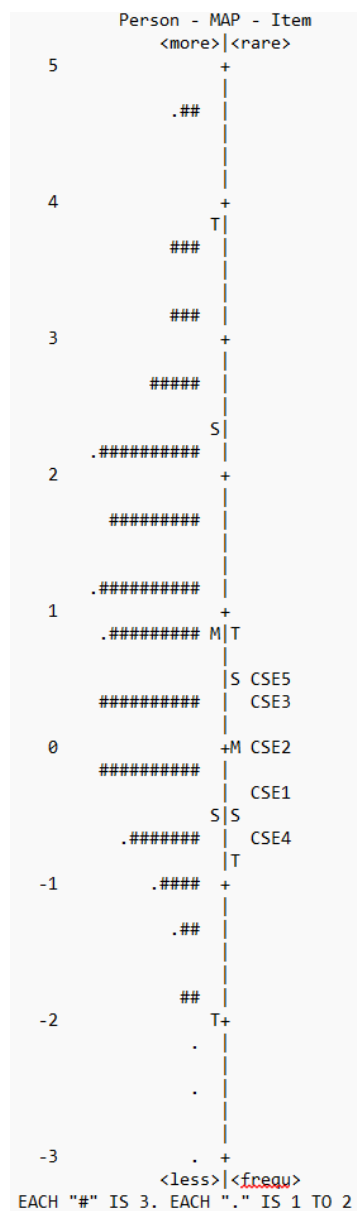


Figure 4. 4. Item Map Conscious State Expansion

Aside from that, continuing on to learning and innovation abilities with also 4 dimensions, Critical Thinking and Problem Solving Skills (CTPS) is the underlying dimension of Learning and Innovation Skills, and it is a metacognitive process with purposeful and thinking-through judgments for creating logical conclusions or solutions (Dwyer et al., 2014; Dwyer & Walsh, 2020). It involves high-level thinking processes such as interpretation, analysis, evaluation, inferences, explanation, and self-regulation (Ennis, 2015; Gibson, 2017; Shida et al., 2023). CTPS allows one to critically evaluate situations, draw inferences from experience, and construct properly supported conclusions, and find solutions for specific problems that require more than a single point of view. In the era of an increasingly complex world, this ability is crucial to ensure effective decision-making, conflict resolution, and managing information from diverse sources in scholarly, professional, or personal life. Therefore, being aware of this level of ability well among learners, is vital with the assistance of appropriate and proper measuring instruments.

Wright Map analysis for Critical Thinking and Problem Solving Skills (CTPS) dimension as shown in the Figure 4. 5. Item Map Critical Thinking and Problem Solving Skills above, suggests a relatively centralized distribution of grain over a low range of difficulty from about -0.8 logits to +1.0 logits. The most difficult one was *“Saya dapat menganalisis hubungan antara keseluruhan dan bagian-bagiannya secara rinci”* which was translated from “I can analyze the relationship between a whole and its parts in detail” (CTPS3), which indicates it is most difficult to analyze the relationship between a whole and its parts in detail. On the other hand, the most convenient item is *“Saya dapat memecahkan masalah dengan menggunakan apa yang telah saya pelajari”* which was adapted from “I can solve a problem using what I have learnt” (CTPS9), implying that the use of knowledge one has to deal with problems is the core of CTPS capabilities. However, this Wright map also reveals a serious targeting flaw, where the distribution of the grains is close to average (0.0 logits) and four of them (CTPS1, CTPS4, CTPS5, CTPS6) are of very similar difficulty level. This leaves a coarse grain gap, especially at the upper (+more than +1.0 logit) and lower (less than -0.8 logit) ability levels. Although the respondent range covers more abilities (up to +7.0 logits), the instrument does not have a coarse enough grain to be able to properly measure and discern very skilled CTPS individuals. These limitations keep the instrument from accurately measuring throughout the entire range of respondents' abilities.

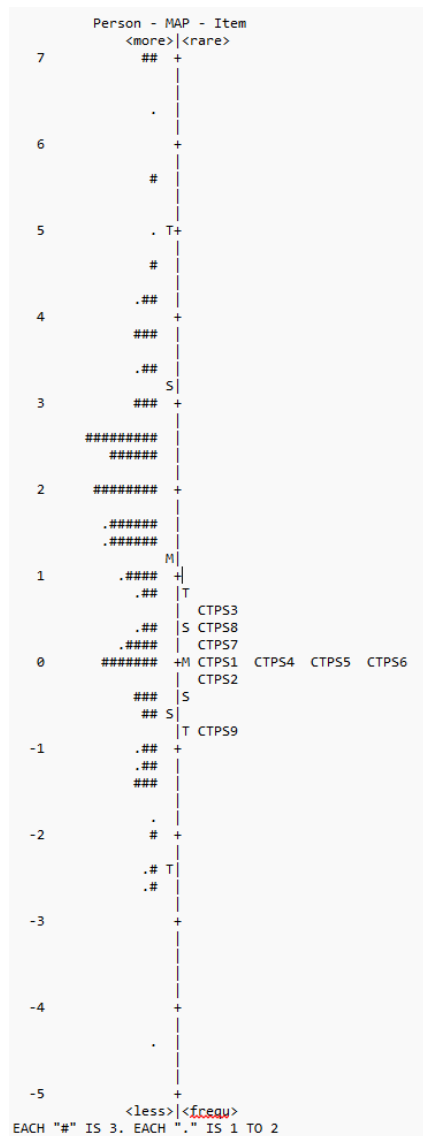


Figure 4. 5. Item Map Critical Thinking and Problem Solving Skills

Moreover, Creativity and Innovation Skills (CIS) were the component of the second Learning and Innovation Skills (LIS) required for students' success in every domain. Creativity has been generally defined as the ability to create new and beneficial ideas that are the starting point of the process of innovation (Hundeling & Rosing, 2020; Plucker, 2022). Innovation is, thus, the effective application or implementation of such creative concepts into beneficial applications, products, or processes that provide significant values (Hundeling & Rosing, 2020). Such interconnected capabilities are essential in solving the 21st century's complex problems and achieving sustainable development across domains (Šimunović & Vekić-Kljaić, 2024).

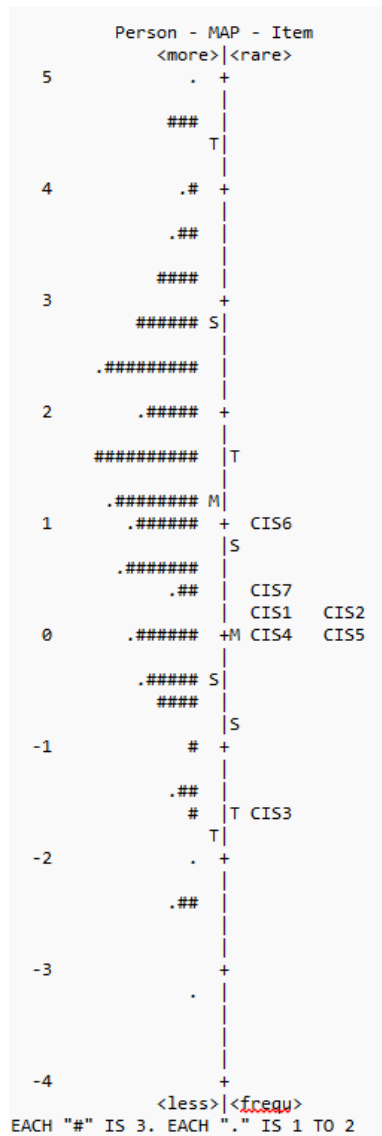


Figure 4. 6. Item Map Creativity and Innovation Skills

The Wright Map of the Creativity and Innovation Skills (CIS) factor is presented in Figure 4.6. The Creativity and Innovation Skills item reflects an uneven allocation of items, where most of the items are concentrated around the mean point (0.0 logit). The most difficult items are “*Setiap ide yang saya kembangkan dalam subjek apa pun diakui*” which was coming from “Any ideas I come up with on any subject are recognized” (CIS6) and “*Saya dapat berkontribusi pada pengembangan produk baru*” which was translated from “I can contribute to the design of a new product” (CIS7), which are respectively scored at about +1.2 logit and +0.8 logit. This indicates that the recognition of ideas and capacity to contribute to new product development are advanced statements of CIS. Conversely, the “*Saya menghargai sudut pandang yang berbeda*” or in english stated “I value different

points of view” (CIS3) statement is the easiest item (-1.5 logits), implying that valuing different points of view is what matters most in creativity and innovation. But this Wright map does reveal a significant problem of targeting, as despite the very large range of respondent ability (from around -3.0 to +5.0 logits), the majority of current items (CIS1, CIS2, CIS4, CIS5) cluster around the mean, with enormous grain gaps especially at the top end of the ability scale. The inability of sufficiently hard grains over +1.2 logits limits the accuracy of the instrument to distinguish among persons with very high CIS capacities.

Futhermore, in a globalized world dominated by the technological revolution, Communication Skills (CS) is seen as one of the key elements of Learning and Innovation Skills (LIS) required to handle sophisticated tasks in working and daily life settings (Braga & Abreu, 2023; Partnership for 21st Century Learning, 2019). Communication skills do not merely imply the exchange of information but are a complex set of skills, including verbal, non-verbal, written, and electronic communication (Joynes et al., 2019; Motallebzadeh et al., 2018). Good communication skills are repeatedly cited by employers as a key requirement for employment, which is at the heart of creating teamwork, solving workplace conflict, and improving professional performance (Braga & Abreu, 2023; World Economic Forum, 2020). Interpersonal communication competencies are rooted in important skills such as active listening, empathy, expressiveness, and ease in social interactions (Huang & Lin, 2018), which collectively improve students' social relationships and their overall communication ability (Al-Madani, 2015; Huang & Lin, 2018).

Wright's map analysis of the Communication Skills (CS) dimension as showed in Figure 4.7. Item Map Communication Skills explained that the instrument items were bunched in a relatively narrow range of difficulty, from around -0.5 logits to +1.0 logits. The statement *“Saya dapat mengekspresikan perasaan dan pikiran saya secara efektif dengan menggunakan keterampilan komunikasi non-verbal”* or in english stated *“I can express my thoughts and feelings well with the use of non-verbal communication skills”* (CS1) was at the highest level of difficulty (approximately +1.0 logit), indicating effective non-verbal communication was the most challenging aspect of the communication skills measured. Technology and media assessment items (CS5, CS6) and the use of communication for various purposes (CS8) were the easiest (around -0.5 logits), indicating that baseline competencies in the use and assessment of communication technologies and understanding communication purposes, respectively, were relatively easier for the respondents to acquire. However, as with the other dimensions, this map again discloses a serious targeting problem: although the range of ability among respondents is wider (approximately -3.0 to +6.0 logits), the available items do not cover either very low or very

high ranges of ability. The consequence is large grain gaps at both ends of the scale that limit the instrument's ability to validly distinguish between persons with extreme communication skills.

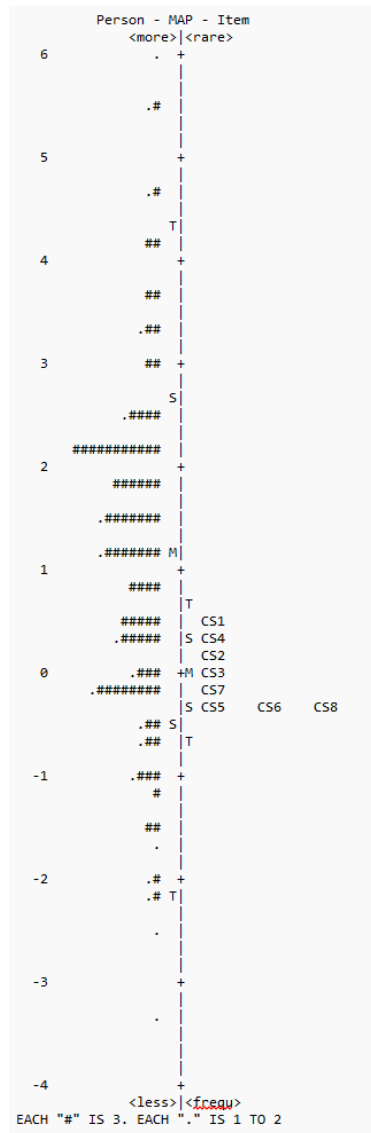


Figure 4. 7. Item Map Communication Skills

Finally, Collaboration Skills (CWS) are at the heart of 21st-century Learning and Innovation Skills (LIS), which are designated as the fourth set of core competencies needed for academic success and quality work performance in the modern workplace (Neumann et al., 2021; Partnership for 21st Century Learning, 2019). The ability to work and coexist with individuals, establishes shared understanding, enhances problem-solving, and builds innovation, all of which are required to succeed in a fast-globalizing world (Partnership for

21st Century Learning, 2019; Yadav et al., 2024). Most employers highlight teamwork and co-working skills as key demands due to the growing demand for graduates that can work towards a shared goal (Kocsis & Pusztai, 2025; Vasodavan et al., 2022; World Economic Forum, 2020). Partnership, cooperation, and coordination are also involved in collaboration since people who form a team know their strengths and work together coordinately towards a shared goal (Orchard et al., 2021).

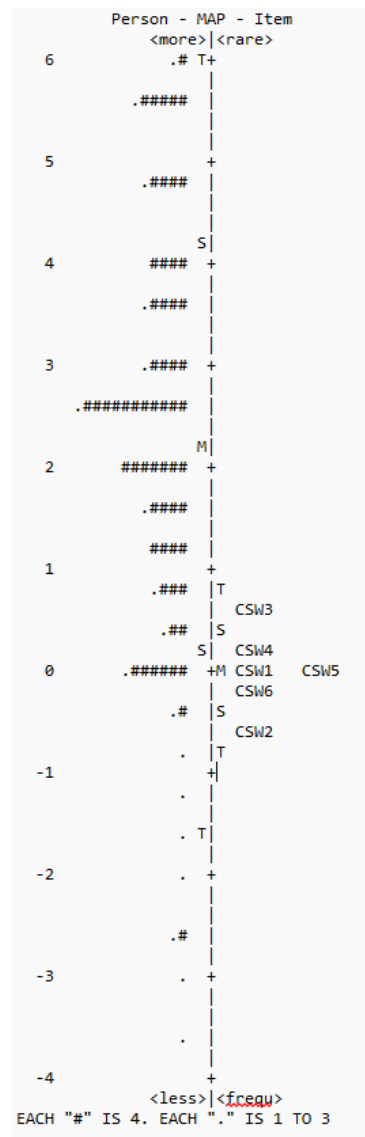


Figure 4. 8. Item Map Collaboration Skills

The Wright Map for the Collaboration Skills (CWS) aspect is shown in Figure 4. 8. Item Map Collaboration Skills is showing that test items are concentrated within an incredibly small range of difficulty, i.e. between about -0.2 logit and +0.8 logit. The most

difficult item was “*Saya dapat menggunakan alat bantu digital secara efektif untuk berkolaborasi*” which was coming from “I can use digital tools effectively to collaborate” (CWS3), with a difficulty of approximately +0.8 logits, indicating that it is most difficult to use digital tools to collaborate in the context of collaboration skills. The second most difficult item was “*Kerja kolaboratif meningkatkan kesuksesan saya*” which was translated from “Collaborative work increases my success” (CWS4), which was difficult to a level of approximately +0.5 logit. On the other hand, the most available object (approximately -0.2 logit) is “*Saya dapat menghargai berbagai kelompok di lingkungan pekerjaan*” which was adapted from “I am able to work respectfully with different groups” (CWS2), implying that respectful work capability with different groups is the root of ability to collaborate. But this Wright map identifies a very important problem of targeting: while respondents' abilities are widely spread (from approximately -4.0 to +6.0 logits), there is not much coverage of the respondents' range of abilities by the available items. Most of the grains (CWS1, CWS5, CWS6) are clumped about the mean (0.0 logit), with an extremely extreme grain gap at both ends of the scale, especially at far higher and lower capabilities. These are restrictions in that the instrument cannot be employed to measure and distinguish people at very low or very high collaboration capacities.

From the general comparison of the Wright Map for the dimensions which have been dealt here – from Spiritual Intelligence (i.e. Critical Existential Thinking (CET), Personal Meaning Making (PMM), Transcendental Awareness (TA), and Conscious State Expansion (CSE)) to Learning and Innovation Skills (i.e. Critical Thinking and Problem Solving Skills (CTPS), Creativity and Innovation Skills (CIS), Communication Skills (CS), and Collaboration Skills (CWS)) – a general pattern can be observed which is consistent. In general, the measuring instruments for all of these dimensions show grain concentrations over a restricted range of difficulty, specifically around the value of the mean (0.0 logit). This has the systematic effect of producing broad grain gaps at both ends of the difficulty scale, both at very low and very high levels of skill. Thus, although the range of the respondents' ability is typically wider, the items cannot distinguish or measure those with very extreme abilities in all dimensions. Such a targeting problem of poor targeting is a typical result for almost all dimensions, which indicates that currently used instruments are second-best at measuring the full ability range of the respondents. To further improve the validity and discriminatory power of this measure in the future, the general recommendation is the need to develop and add new items that are specifically designed to measure far lower and far higher levels of difficulty, in an attempt to close the current scale gap and allow more precise and improved-fitting measurements.

Analysis of Person Level

Spiritual Intelligence (SI) ability measurement is done based on the Rasch model, providing a distribution of person measures displaying differentiation between skills across respondents. The person separation index on the SI factor was found to be 2.74, as indicated in Table 4.2 (Psychometric Properties of Measurement Scales), that this measure would be able to differentiate respondents into at least three statistically different skill groups. From the assignment of items and persons in the Person Map of SI (Appendix 1.7), the Spiritual Intelligence capacity at each measurement level is divided into three levels with logit cut-points as below: Low level for person measure (PM) < -0.5 logit, Medium Level for PM between -0.5 logit to +1.0 logit (inclusive both ends), and High Level for PM > +1.0 logit. Here is Figure 4. 9. The Person Level Distribution by Gender gives a summary of the outcome of the analysis of the level distribution.

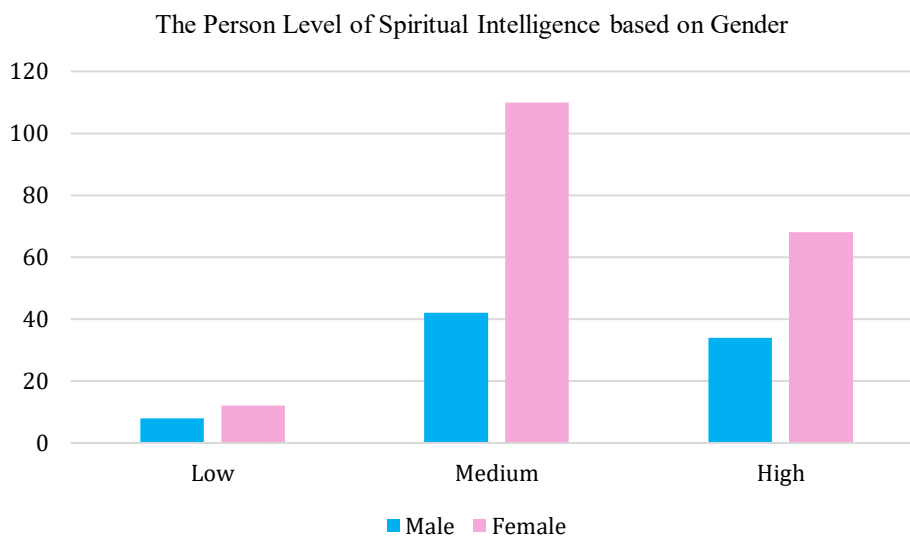


Figure 4. 9. The Person Level Distribution of SI based on Gender

In general, the majority of the participants in this study for the above test showed a Spiritual Intelligence at the Intermediate Level consisting of 152 of the participants out of the total given at 274. In terms of gender, female and male, the majority of the participants are at the Institute level. For men, of the 84 total responses, 42 respondents were at the Intermediate Level, 34 respondents at the High Level, and 8 respondents at the Low Level. Likewise, of the 190 female respondents, the vast majority of 110 respondents were at the Intermediate Level, with 68 respondents at the High Level, and 12 respondents at the Low Level. From this information, it can be reasoned that while female respondents

predominated the figure at the Intermediate and High Levels in raw numbers (because of the greater number of female samples), comparatively, the male respondents in this sample had a slightly greater inclination to be at the High Level of Spiritual Intelligence (40.5% of the entire male) compared to women (35.8% of the entire female). This indicates that the female respondents were more focused at the Intermediate Level (57.9% of the total female) compared to males (50% of the total male), while the percentage at the Lower Level was lower in females (6.3%) compared to males (9.5%) in the group under study. This suggests difference in the distribution of Spiritual Intelligence abilities among genders in the group under study.

The following analysis was made in order to observe the distribution of the level of Spiritual Intelligence (SI) capacity in relation to the study phases of the respondents. In this study, the “Early Phase” includes first- and second-year students, while the “Final Phase” includes third-year students and students who carry out their final projects in the fourth semester and beyond, considering that the focus of this study is Strata 1 (S1) students. The distribution of the respondents based on the phase of study and the level of Spiritual Intelligence ability is as follows:

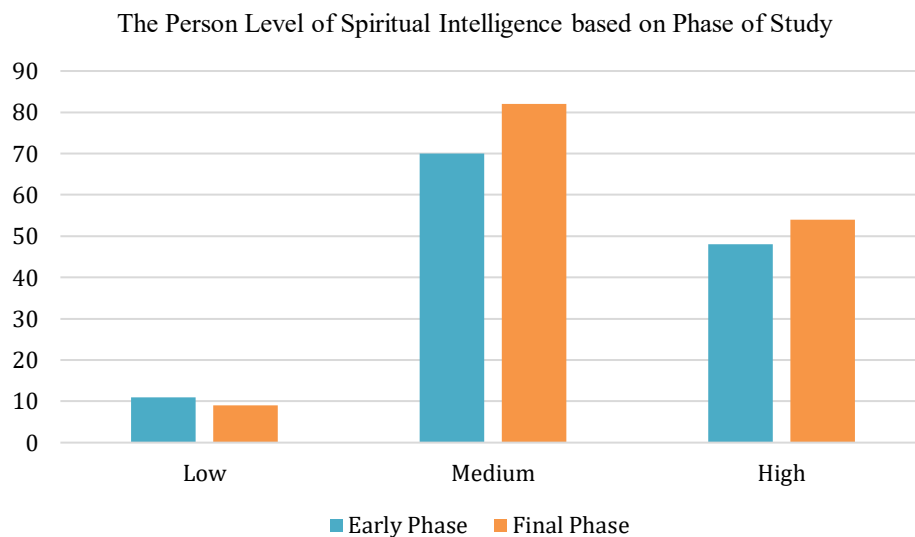


Figure 4. 10. The Person Level Distribution of SI based on Phase of Study

From the above data, it is observable that the highest percentage of respondents in both study phases were at the Medium Level. For Early Phase students, among a total of 129 respondents, 70 participants (approximately 54.3%) were at the Intermediate Level, 48 participants (approximately 37.2%) at the High Level, and 11 participants (approximately 8.5%) at the Low Level. Meanwhile, in the Final Phase, out of 145 respondents, 82

individuals (around 56.6%) were at the Intermediate Level, 54 individuals (around 37.2%) at the High Level, and 9 individuals (around 6.2%) at the Low Level. This shows that Spiritual Intelligence capabilities at the High Level are spread fairly equally in both research phases, with around the same proportion (around 37.2%). This can be interpreted to show that higher-level SI aptitude has not changed significantly or changed drastically based on the earlier versus later years of study within this SI range. With that said, there is a slight difference at the Low Level, where the proportion of Early Phase students at the Low Level (8.5%) is slightly higher than Final Phase students (6.2%). This can be either a slight gain in mean SI ability over the course of the study, or a reflection of the reality that individuals with very low SI abilities are less likely to survive to complete their studies, or that they get better over the course of their studies. Overall, this information reveals that most of the students at both phases of the research have attained a capable or proficient level of Spiritual Intelligence capacity.

In order to better see how the respondents' Spiritual Intelligence capacity profile presented, the analysis went on to compare the distribution of the person level in each one of the major dimensions of SI. Applying predefined cut-points for logit (Low Level: $PM < -0.5$ logit; Intermediate Level: $-0.5 \text{ logit} \leq PM \leq +1.0$ logit; High Level: $PM > +1.0$ logit), distribution of respondents was obtained as presented in the Figure 4. 11. Dimensional Person Level Analysis of SI below.

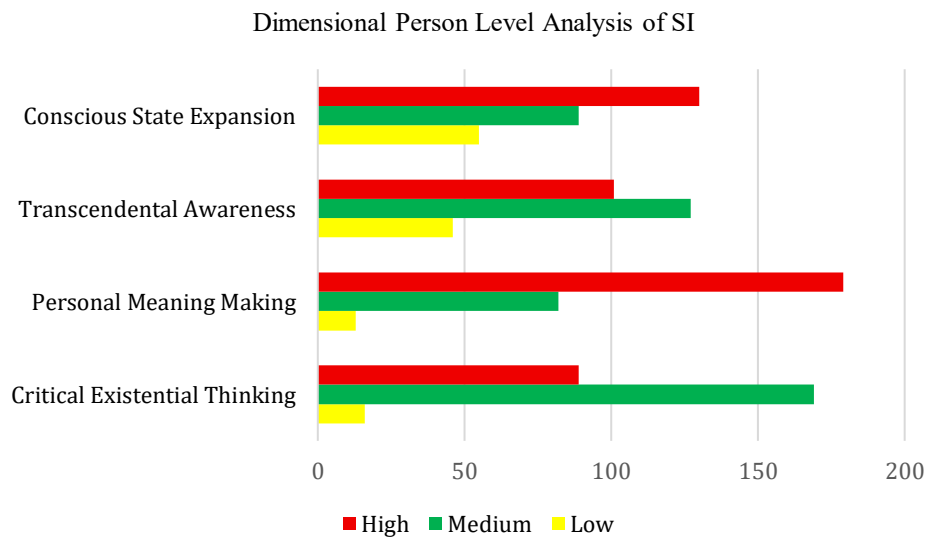


Figure 4. 11. Dimensional Person Level Analysis of SI

When one examines figure 4.11 above, it is found that respondents' ability distribution varies by dimension of Spiritual Intelligence. In the Critical Existential

Thinking (CET) domain, most of the respondents were in the Intermediate Level (169, ca. 61.7%), followed by the High Level (89, ca. 32.5%), and comparatively few at the Low Level (16, ca. 5.8%). This means that there are sufficient of the respondents who can be capable of being proficient in thinking about the nature of existence and meaning of life. Contrarily, the Personal Meaning Making (PMM) Dimension shows the highest frequency at the High Level with 179 respondents (about 65.3%) achieving this level. There were 82 respondents (about 29.9%) at the Intermediate Level and 13 respondents (about 4.7%) at the Low Level. This implies that most of the respondents are greatly skilled at finding meaning and purpose in life.

Besides, for the Transcendental Awareness (TA) scale, the distribution of respondents was also rather evenly between Intermediate Level (127 respondents, around 46.4%) and High Level (101 respondents, around 36.9%). However, the respondents for the Low Level were somewhat larger than the CET and PMM scales at 46 respondents (around 16.8%). It indicates a variation in the ability to perceive non-bodily or spiritual objects. Finally, the Conscious State Expansion (CSE) dimension has a more polarized distribution pattern. Although the number is considerable in the High Level (130 participants, roughly 47.4%), there is also the largest percentage of respondents in the Low Level of all the dimensions examined at 55 participants (roughly 20.1%). The remaining 89 participants (roughly 32.5%) were at the Intermediate Level. This can imply that the ability to achieve a state of consciousness or higher consciousness is uneven, as some of the interviewees are highly proficient and others are on the primitive level. Overall, this examination indicates that the interviewees in this sample have excellent abilities in Personal Meaning Making, followed by Critical Existential Thinking. In contrast, Transcendental Awareness and especially Conscious State Expansion showed a wider range of ability among respondents.

Furthermore, based on the person separation index of 3.90 which can be seen in Table 4. 2. Psychometric Properties of Measurement Scales and the Appendix 2. 7. Person Map of LIS, the respondents' Learning and Innovation Skills (LIS) abilities can be categorized into four levels. This shows that the LIS-LES instrument can measure the range of 21st century ability of respondents to be more religious than SISRI-23 which is used to measure SI in 3 categories. The division of LIS levels uses the following logit cut-points: Basic (Person Measure (PM) < -0.5 logits), Intermediate (-0.5 logit ≤ PM < +1.0 logits), Advanced (+1.0 logit ≤ PM < +2.5 logits), and Highly Advanced (PM ≥ +2.5 logits). The following is the distribution of respondents' ability levels based on gender categories, namely male and female.

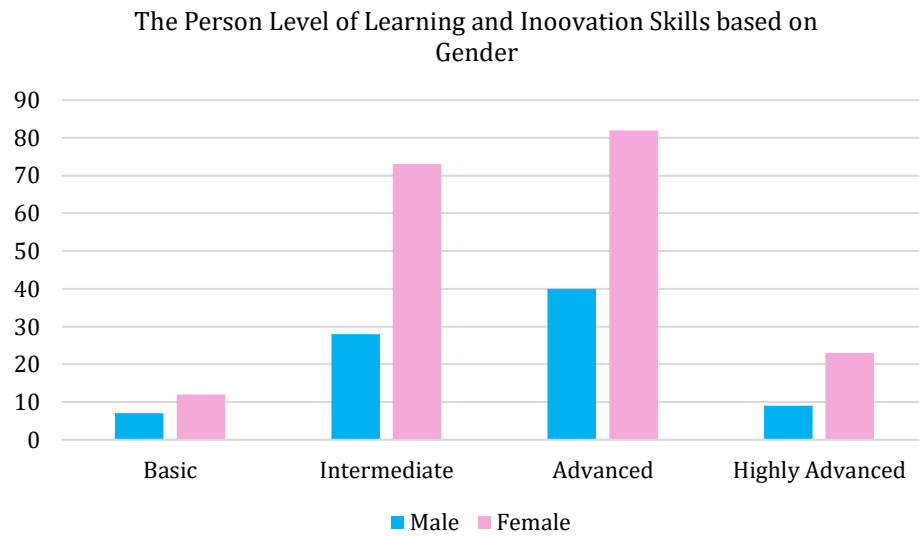


Figure 4. 12. The Person Level Distribution of LIS based on Gender

According to the above information, it is clear that male and female respondents are most at the Advanced level in LIS competence. For male respondents, 84 individuals of whom up to 40 individuals (around 47.6%) were in the Advanced Level. Then, 28 individuals (about 33.3%), 9 individuals (about 10.7%), and 7 individuals (about 8.3%) at the Intermediate, Highly Advanced, and Basic Levels, respectively. But among female respondents, out of a sample of 190 individuals, the majority of 82 individuals (about 43.2%) were at the Advanced Level. Furthermore, 73 individuals (approximately 38.4%) were at the Intermediate Level, 23 individuals (approximately 12.1%) at the Highly Advanced Level, and 12 individuals (approximately 6.3%) at the Basic Level. As a comparison, the proportion of male respondents is marginally higher at the Advanced level (47.6% against 43.2%) compared to women. But the proportion of Highly Advanced Level is marginally higher for females (12.1%) than males (10.7%). Similarly, the proportion of female respondents at the Basic level (6.3%) was slightly lower than men (8.3%), while at the Intermediate level it was slightly higher (38.4% compared to 33.3%). Overall, the prevalence of LIS ability among both sexes displayed common performance in the Intermediate and Advanced grades. Proportionate sex differences were small, but indicated that female respondents here all had a somewhat higher proportion of the highest LIS ability (Highly Advanced) and a somewhat lower proportion of the lowest LIS ability (Basic), though male respondents were somewhat bunched at the Advanced level.

On the other hand, the distribution of the ability level of the respondents if categorized based on the study phase, namely the early phase of study and the final phase of study can be seen in figure 4. 13. The following. This division is important considering that phase of study as a categorical variable in this study is used in the moderation analysis of the relationship between SI and LIS. Therefore, understanding further the ability level of respondents can provide a comprehensive picture of how the distribution of respondents' abilities in the study is especially if it is associated with their educational phase.

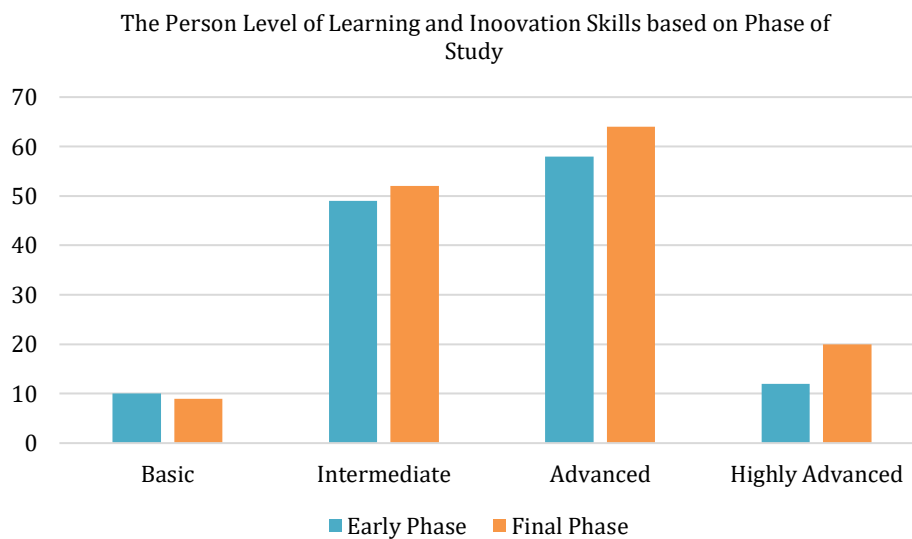


Figure 4. 13 The Person Level Distribution of LIS based on Phase of Study

We can see from the Figure 4. 13. above that there is a fascinating trend concerning the progression of LIS ability in tandem with the respondents' phase of study . Based on the phase of study, for the Early Phase, out of 129 respondents, most were at the Advanced Level (58 people or around 45.0%), then came the Intermediate Level (49 people or around 38.0%). 12 individuals (approximately 9.3%) were located at the Highly Advanced Level, and 10 individuals (approximately 7.8%) were at the Basic Level. Then for students in the Final Phase, among the 145 respondents, again showed predominance at the Advanced Level (64 individuals or nearly 44.1%), followed by the Intermediate Level (52 individuals or nearly 35.9%). But what is interesting is the number of students of Highly Advanced Level respondents to 20 individuals (approximately 13.8%), which is comparatively higher than the Early Phase (9.3%). Contrariwise, the respondents at the Basic Level decreased by a slight margin to 9 individuals (approximately 6.2%). This is a development that indicates an enhancement in LIS capability with the passage of study time. Participators in the Final

Phase possess a higher proportion of ability, especially in the Highly Advanced level, and a lower proportion in the Basic level. This shows that the learning experience and knowledge gain in the study facilitate improving the Learning and Innovation Skills of the students.

To better understand the Learning and Innovation Skills (LIS) ability profile of the respondents, the analysis further scrutinized the ability level pattern for every LIS dimension: Critical Thinking & Problem Solving (CTPS), Creativity & Innovation (CIS), Communication (CS), and Collaboration (CWS). The levels of skills used are Basic, Intermediate, Advanced, and highly Advanced, based on the calculation of LIS index separation. Figure 4. 14. Dimensional Person Level Analysis of LIS below is the respondents' pattern per dimension.

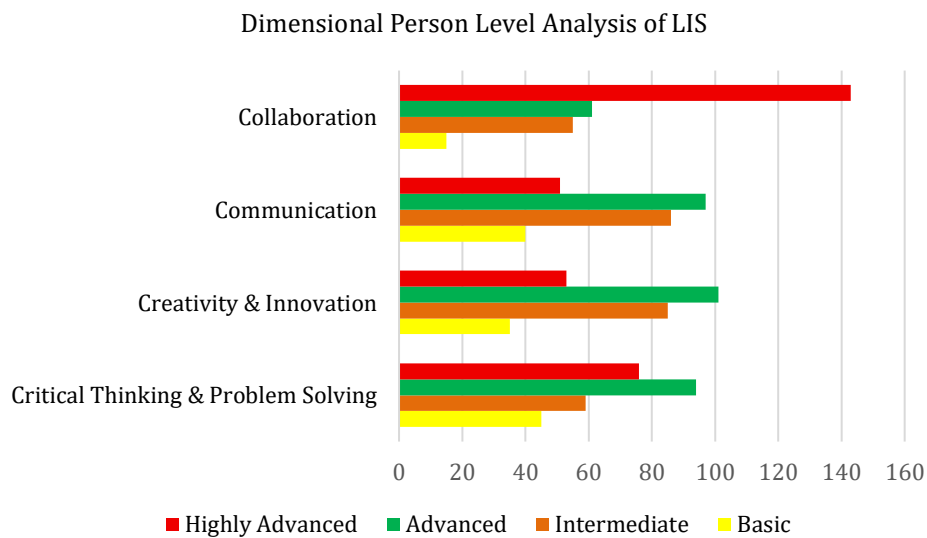


Figure 4. 14. Dimensional Person Level Analysis of LIS

From the above graph, there is a sharp divergence in the distribution of respondent capabilities across LIS dimensions. Collaboration dimension is the best capability profile among all the LIS dimensions. The majority of the respondents, i.e., 143 individuals (about 52.2%), came under the highly Advanced Level. The ratio here is much higher than for other dimensions, and very few individuals (15 or about 5.5%) are at the Basic Level. This shows that respondents' teamwork capacity is generally excellent and a strength. For the Critical Thinking & Problem Solving dimension, respondents' distribution was roughly evenly split between Advanced Level (94 individuals or around 34.3%) and highly Advanced Level (76 individuals or around 27.7%). This dimension also, however, has a

higher percentage of Basic Level (45 individuals or around 16.4%) than the Collaboration dimension. This indicates that while most of them are capable, there are still some respondents who need to grow in critical thinking and problem solving.

In addition, the Creativity & Innovation and Communication dimensions demonstrate very comparable distribution patterns. Both dimensions had the largest number of respondents in the Advanced Level (101 participants or approximately 36.9% for Creativity & Innovation; 97 participants or approximately 35.4% for Communication) and the Intermediate Level (85 participants or approximately 31.0% for Creativity & Innovation; 86 participants or approximately 31.4% for Communication). The rate of Highly Advanced Level for these two domains is relatively lower (approximately 19%) than that of Critical Thinking & Problem Solving and much lower than that of Collaboration. Additionally, the rate of Basic Level is also higher than that of Collaboration. Overall, this analysis shows that Collaboration is the most prominent LIS competence for the respondents, with most people achieving highly advanced levels. At the same time, Critical Thinking & Problem Solving also performed well at an advanced level. The Creativity & Innovation and Communication dimensions show strong attention at the intermediate to advanced level, but with less individuals achieving a highly proficient level than the Collaboration dimension.

Differential Item Functioning Analysis

Differential Item Functioning (DIF) analysis will also be carried out to analyze whether there is an item bias in the measurement tool against certain groups of respondents, after accounting for the respondents' overall ability. This DIF analysis will be carried out at the primary variable level, i.e., Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) as a composite, and will not drill down to each dimension individually. Furthermore, for both of the main variables (SI and LIS), the items will be tested for DIF with respect to two different grouping variables, namely, gender where it will be tested if the items function differently for male (M) and female (F) respondents, and the phase of study where it will be tested if the items function differently among the respondents at the early phase of the study (E) and the final phase of the study (F). The reporting of the DIF analysis results will be presented by examining the results for the Spiritual Intelligence (SI) variable followed by the results for the Learning and Innovation Skills (LIS) variable.

Differential Item Functioning (DIF) analysis has been carried out on the Spiritual Intelligence Self-Report Inventory (SISRI-23) that used to measure SI to identify which items are functioning differently (bias) for male (M) and female (F) respondents after

controlling for their overall Spiritual Intelligence capabilities. Out of 23 SI items analyzed, three items showed statistically significant DIF ($p < 0.05$) by gender. The results of this analysis can be illustrated in the following figure.

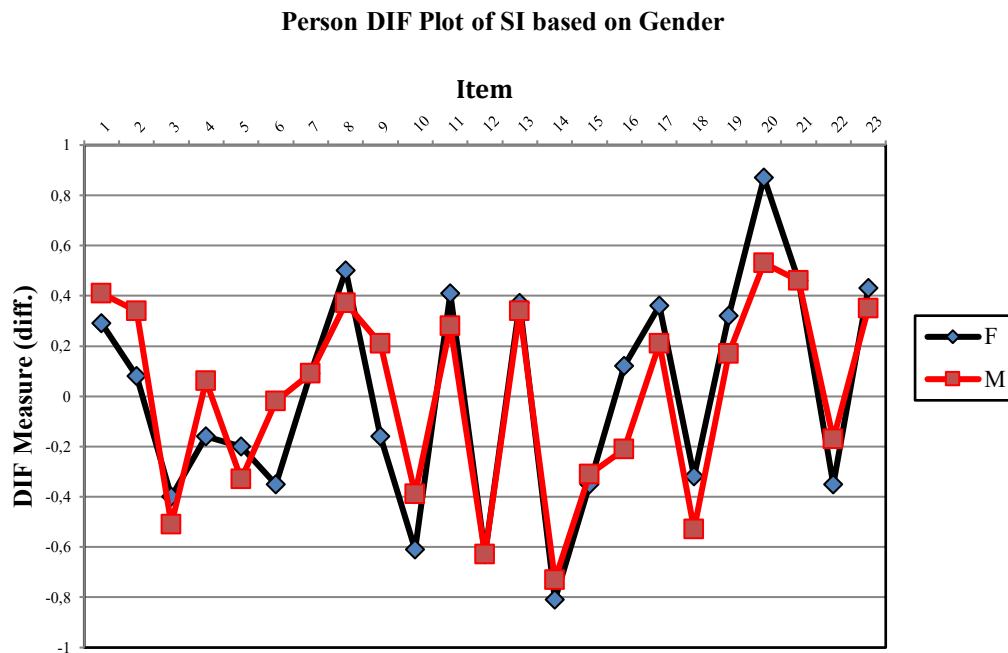


Figure 4. 15. Differential Item Functioning of SI based on Gender

Based on Figure 4. 15. Differential Item Functioning of SI based on Gender above, there are at least 3 items that show the existence of significant DIF, namely the 6th, 9th and 20th items. First for item SI6 (PROB. = 0.0471), the item reads “Kemampuan saya untuk menemukan makna dan tujuan hidup membantu saya beradaptasi dengan situasi yang penuh tekanan” which adapted from “My ability to find meaning and purpose in life helps me adapt to stressful situations” (Dimensions: Personal Meaning Making - PMM). With a positive $t=ZSTD$ value (0.8890), this item reveals that female respondents are more "easy" or more agreeable to this statement than male respondents, despite having an equal level of Spiritual Intelligence. The second item is SI9 (PROB. = 0.0266). This item stated “saya menyadari adanya hubungan yang lebih dalam antara diri saya dan orang lain” or in english sound “I am aware of a deeper connection between myself and other people,” (Dimension: Transcendental Awareness - TA), also manifests significant DIF. A positive $t=ZSTD$ value (1.0844) means that this item was discovered to be more "easy" for female participants. This suggests that women are inclined to have more intense relationships with others than men with the same general SI abilities. Finally, item SI20 (PROB. = 0.0368), with the statement “Saya telah merenungkan secara mendalam kemungkinan adanya

kekuatan yang lebih besar, seperti entitas ilahi atau energi spiritual yang melampaui diri saya,” which is coming from “I have profoundly considered whether or not there is some higher power or force (e.g., god, goddess, divine being, higher energy, etc.),” (Dimension: Critical Existential Thinking - CET), also shows significant DIF. A positive $t=ZSTD$ value (0.9705) indicates this item is more "easy" for female respondents.

The three items show patterns of male-female differences in responses that cannot be explained by differences in the capacity for spiritual intelligence. One possible reason is the difference in women's and men's affective and contemplative styles in responding to and making sense of spiritual and existential experiences. For example, women are expressive and open in responding to questions regarding the meaning of life, social-spiritual relationships, and the character of divinity or transcendent power. Men are likely, instead, to be rational or closed to introspective spiritual responses. The distinction, thus, can lead to bias in measurement if the items are not calibrated. In general, these results indicate that SI6 (PMM), SI9 (TA), and SI20 (CET) items will be gender-biased. These items were tolerated or less challenging for women compared to men, suggesting that they perform differently for each gender.

Additionally, the DIF analysis of Spiritual Intelligence (SI) items was carried out to establish whether or not the items functioned differently among the respondents who were on different levels of the study. Out of the 23 SI items being examined, employing a general level of statistical significance ($p < 0.05$), no items had statistically significant DIF according to the phase of study. This can be seen from figure 4. 16. Differential Item Functioning of SI by Phase of Study below. Even so, there is one item though that has a chance of getting close to the significance level, which is item SI11 (PROB. = 0.0533). This item sound “*Saya mampu berubah-ubah di antara tingkat kesadaran*” which adapted from "I am able to move freely between levels of consciousness or awareness." (Dimension: Conscious State Expansion - CSE). Being just short of the 0.05 significance level at 0.0533 probability, this item is very close to 0.05. Having a $t=ZSTD$ value that is positive (0.9688), it indicates a trend, although not statistically significant at $p < 0.05$, and points towards the fact that this item is somewhat "easier" for respondents who are in the final stage. In sum, these findings verify that the Spiritual Intelligence (SI) measures used were to yield satisfactory measurement invariance between study phase groups of respondents. This means that the items of this measure act similarly and fairly for students in differing study stages such that, as a result, group comparison of study phases' Spiritual Intelligence scores may be carried out with greater assurance.

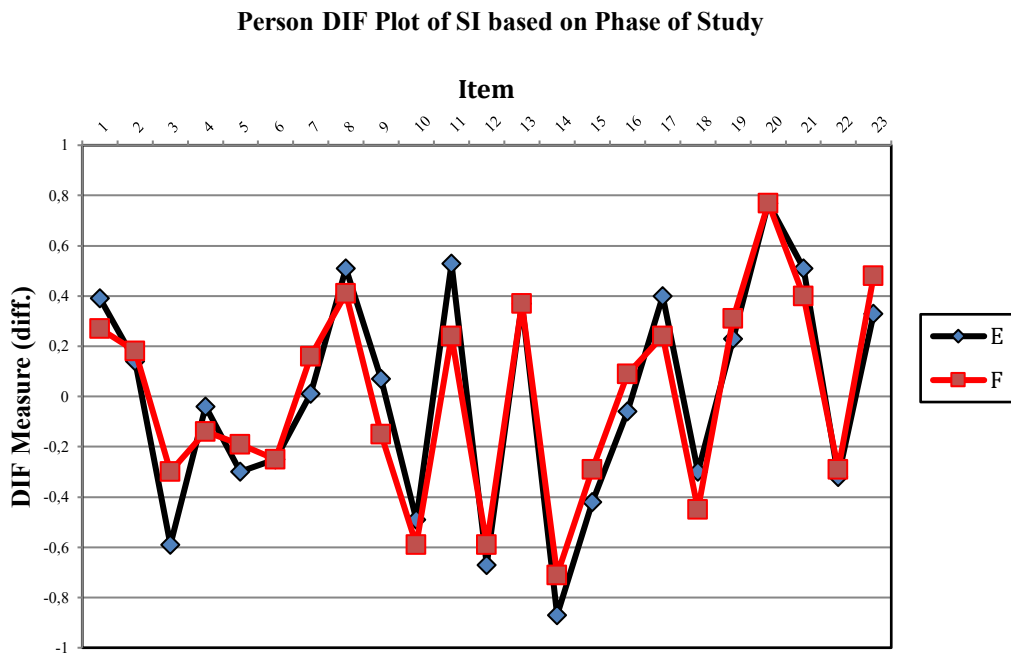


Figure 4. 16. Differential Item Functioning of SI based on Phase of Study

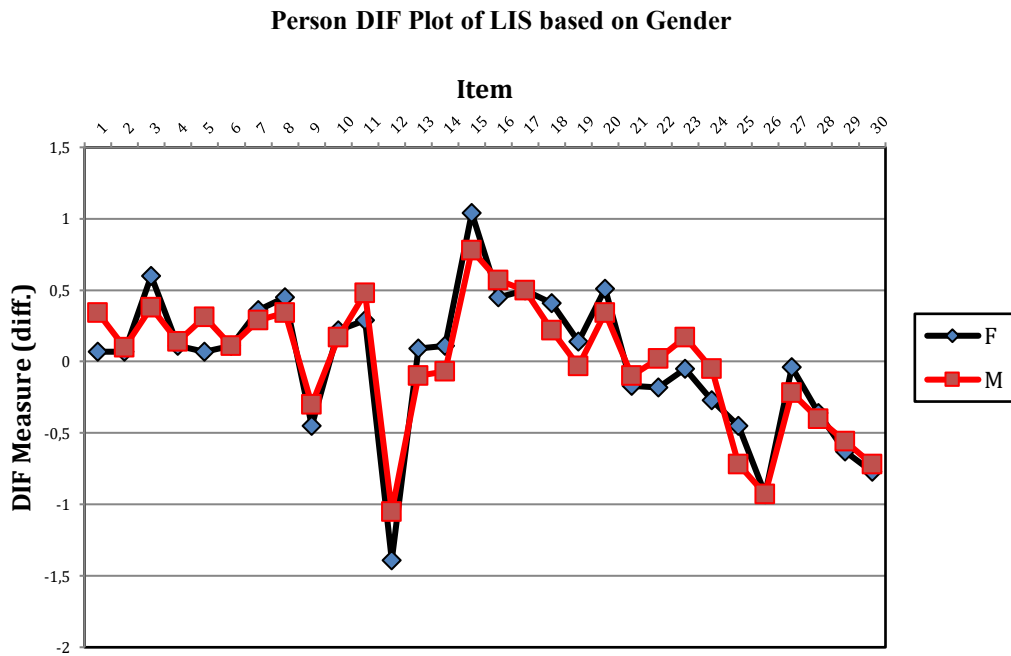


Figure 4. 17. Differential Item Functioning of LIS based on Gender

The Differential Item Functioning analysis was also conducted for the 30-item Learning and Innovation Skills instrument designed to determine items that might function differently (biased) for male as opposed to female respondents, given consideration of their

total LIS ability. Figure 4. 17. The Differential Item Functioning of LIS by Gender above is the output of the analysis. According to the findings of the analysis, none of the items from the Learning and Innovation Skills (LIS) questionnaire had a statistically significant DIF ($p < 0.05$) based on gender. This means that all the measures employed to assess Critical Thinking and Problem-Solving Skill Self-efficacy (CTPS), Creativity and Innovation Skill Self-efficacy (CIS), Communication Skill Self-efficacy (CS), and Collaborative Working Skill Self-efficacy (CWS) all function consistently and fairly for both the male and female respondents. The evidence indicates that there is strong cross-gender measurement invariance in the LIS instrument. As there is no significant gender bias, scores from this scale can be compared directly across the male and female groups without fear that the score difference is due to the fact that the items work differently for each gender.

Finally, Differential Item Functioning (DIF) testing has also been done for the Learning and Innovation Skills Self Efficacy Scales (LIS-SES) instrument made up of 30 items. The purpose of this test was to identify items that could be functioning differently (bias) across respondents in various study phases. The following is one output of the DIF test by respondent study phase for LIS.

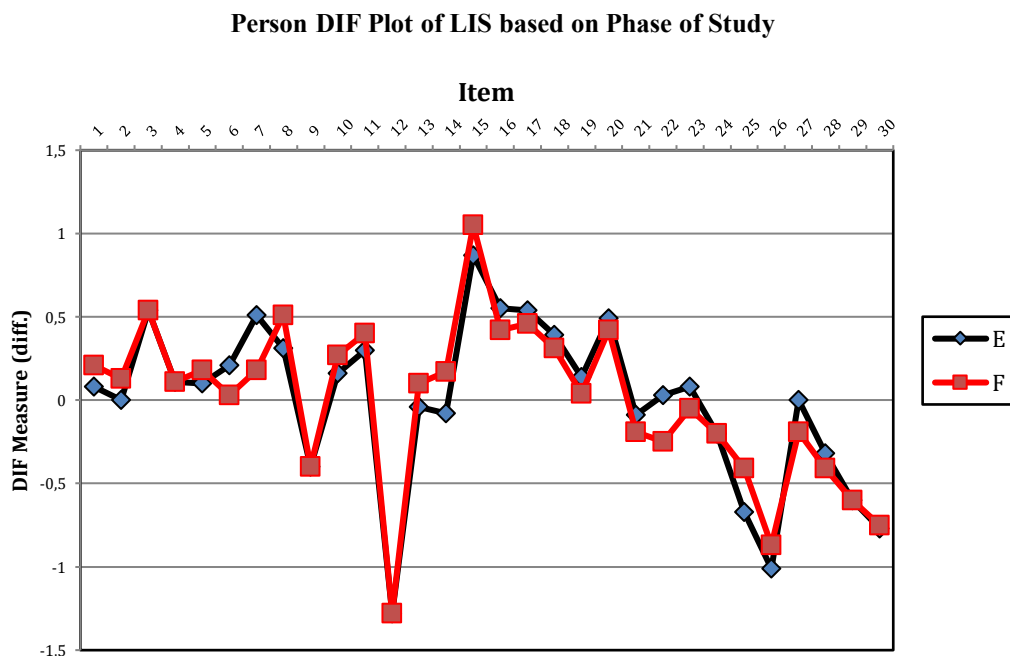


Figure 4. 18. Differential Item Functioning of SI based on Phase of Study

Based on the results of the analysis, it was concluded that none of the items in the Learning and Innovation Skills (LIS) instrument had statistically significant DIF ($p < 0.05$)

by study phase. This suggests that the items in the four dimensions of LIS (Critical Thinking and Problem-Solving Skill Self-efficacy, Creativity and Innovation Skill Self-efficacy, Communication Skill Self-efficacy, and Collaborative Working Skill Self-efficacy) function in a similar and equitable manner for respondents at different points of the study. There is, nevertheless, one item that shows a probability close to the significance level, and this is LIS7 (PROB. = 0.0587). This item reads “*Saya dapat membuat keputusan yang tepat dengan mengevaluasi informasi secara kritis*” which was translated from "I am able to make correct decisions by analyzing information critically" (Dimensions: Critical Thinking and Problem-Solving - CTPS). With a probability value of 0.0587, this item is very near the significance value of 0.05. A positive $t=ZSTD$ value (0.9321) indicates a trend, albeit not statistically significant at $p < 0.05$, that this item can be relatively “easier” for respondents in the later study phase. This implies that students in the later study phase are more likely to feel capable of making decisions through critical evaluation of information than students in the early study phase. Overall, these findings attest that the Learning and Innovation Skills (LIS) instrument has good measurement invariance across study phases of students. This LIS-LES instrument may be utilized to compare LIS skill levels among students regardless of gender differences as well as between students’ study phases because the items do not show substantial bias towards either in the respondents in this study.

Pearson Correlation Analysis between SI and LIS

To examine the relationship between students’ Spiritual Intelligence and their Learning and Innovation Skills, a Pearson product-moment correlation analysis was conducted. This test was chosen as both variables met the assumptions for parametric analysis, including scale-level data and normally distributed residuals, ensuring the robustness of the results. The analysis aimed to determine whether students with higher levels of spiritual intelligence tend to report greater capabilities in learning and innovation, which include critical thinking, creativity, communication, and collaboration. The output of the correlation analysis is presented below:

Table 4. 5.
Pearson Correlation Test

	Spiritual Intelligence	Learning and Innovation Skills
Spiritual Intelligence	1	0.489**
Sig. (2 Tailed)	-	<0.001

The correlation test results between Spiritual Intelligence and Learning and Innovation Skills above show a significant positive relationship. The Pearson correlation coefficient value of 0.489 with a significance level (p -value) of 0.000 indicates that the higher a person's Spiritual Intelligence level, the higher their ability in Learning and Innovation Skills. With a sample size of 274, this result shows that the relationship between the two variables is quite strong and significant at the 0.01 level. This indicates that the development of Spiritual Intelligence can contribute to improved ability in learning and innovation skills. This finding is important to consider in the context of education and personal development, where increased spiritual intelligence can be one of the factors that support the development of innovative skills and more effective learning.

Simple Linear Regression Analysis between SI and LIS

To further explore the predictive power of Spiritual Intelligence on students' Learning and Innovation Skills (LIS) as variables constructed collectively by each 4 dimension, a simple linear regression analysis was conducted using SPSS. This aim is specifically in line with Research Question 1: ***“To what extent do learning and innovation skills, collectively, are associated by undergraduate students' spiritual intelligence?”*** This analysis aimed to examine whether students' level of spiritual intelligence could significantly predict their competency in learning and innovation—encompassing dimensions such as critical thinking, creativity, collaboration, and communication. The decision to use regression was grounded in prior correlational findings that indicated a meaningful association between the two variables. Before conducting the regression, assumptions such as linearity, normal distribution of residuals, and homoscedasticity were tested and found to be sufficiently met, allowing for valid interpretation of the relations.

Table 4. 6.
Summary of Regression Model

Model Summary	<i>R</i>	<i>R</i>²	Adjusted <i>R</i>²	Std. Error
Model 1	0.489	0.239	0.236	1.05321

The results of the linear regression analysis provided strong empirical support for the predictive relationship between Spiritual Intelligence and Learning and Innovation Skills among undergraduate students. As shown in Table 4.7. summary of model regression above, the regression yielded a correlation coefficient (R) of 0.489, indicating a moderate

positive relationship between the two variables. The coefficient of determination (*R* Square) was 0.239, suggesting that approximately 23.9% of the variance in Learning and Innovation Skills can be explained by variations in Spiritual Intelligence. This level of explanatory power, while leaving room for other influencing factors, underscores the substantive role of spiritual intelligence in shaping key 21st-century skills. The Adjusted *R* Square of 0.236 confirmed the model’s robustness even after adjusting for potential bias due to sample size, while the standard error of the estimate (1.05321) reflected acceptable predictive precision.

Table 4. 7.
ANOVA Table for the Regression

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Regression	94.591	1	94.591	85.274	.000
Residual	301.717	272	1.109	-	-
Total	396.308	273	-	-	-

Further confirmation of the model’s significance was evident in the ANOVA results (Table 4.7.), which showed a substantial F-statistic of 85.274 and a *p*-value of .000. This indicates that the overall regression model is statistically significant and that the predictor variable—Spiritual Intelligence—makes a meaningful contribution to explaining the variance in Learning and Innovation Skills. The breakdown of variance revealed that 94.591 units of the total variation were explained by the model (regression sum of squares), while 301.717 units remained unexplained (residual), providing a clear quantitative partitioning of explained and unexplained variance.

Table 4. 8.
Regression Coefficient

Coefficients	β (Unstd.)	Std. Error	Beta (Std.)	t	Sig.
Constant	0.640	0.082	-	7.823	.000
SI	0.672	0.073	0.489	9.234	.000

The coefficient analysis (Appendix 3.6.3) provided additional insights into the nature of this predictive relationship. The unstandardized coefficient (β) for Spiritual Intelligence was 0.672, indicating that for every one-unit increase in Spiritual Intelligence, students’ Learning and Innovation Skills increase by 0.672 units, holding other factors

constant. The standardized beta coefficient ($\beta = 0.489$) reinforces the moderate strength of the relationship. Both the predictor and the constant term were statistically significant, as reflected by their t-values (7.823 for the constant and 9.234 for Spiritual Intelligence) and *p*-values (both $< .001$), confirming that the association of Spiritual Intelligence is not only practical but also statistically robust.

In conclusion, the regression analysis reveals that Spiritual Intelligence serves as a significant and positive predictor of undergraduate students' learning and innovation competencies. These findings provide strong justification for integrating spiritual development in educational interventions aimed at enhancing critical thinking, creativity, communication, and collaboration among students. Future studies may benefit from incorporating additional predictors to account for the remaining unexplained variance and to build more comprehensive models of educational success.

Path Analysis between Dimensions of SI and LIS

To explore the nuanced interrelationships between components of Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS), a path analysis was conducted at the dimensional level using person measure scores derived from Rasch analysis. Each major construct—SI and LIS—was broken down into its four core dimensions: Critical Existential Thinking (CET), Personal Meaning Making (PMM), Transcendental Awareness (TA), and Conscious State Expansion (CSE) for SI; and Critical Thinking and Problem Solving (CTPS), Creativity and Innovation Skills (CIS), Communication Skills (CS), and Collaboration and Working Skills (CWS) for LIS.

After validation through this Rasch analysis, the resulting person measures of each dimension were then used as direct manifest indicators for the respective latent constructs in Partial Least Squares (PLS)-based Structural Equation Modeling (SEM) using SmartPLS. Since the scores were not reflective indicators but rather directly represent the construct itself, each dimension was specified as a single-indicator construct with an outer loading of 1.000, confirming a perfect and direct representation in the structural model. This specification aligns with the logic of Rasch-derived measures, where each dimension stands as a theoretically validated and psychometrically sound construct. The results of this measurement specification confirm the robust internal consistency and construct validity of the instrument, establishing a solid foundation for further testing the interdimensional relationships between SI and LIS. The detailed visual representation of the resulting structural model and path relationships is shown in the below figure.

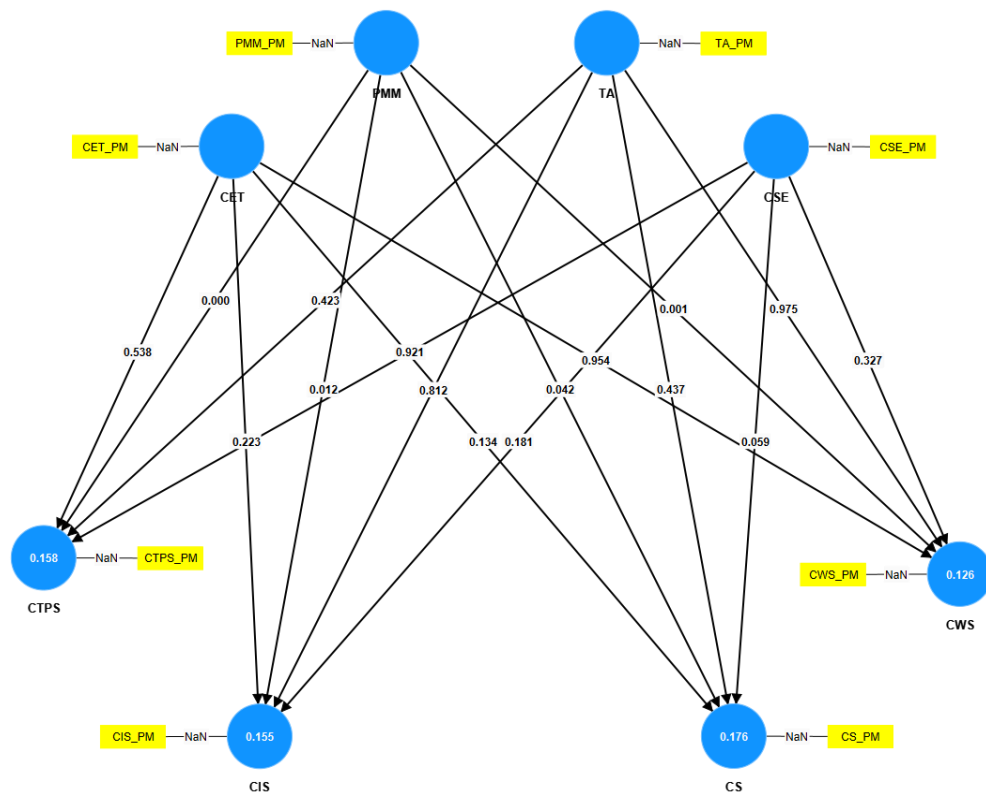


Figure 4. 19. Path Analysis Result

The path analysis through PLS-SEM shows how the dimensions of Spiritual Intelligence (SI) associate Learning and Innovation Skills (LIS). The path coefficient results revealed that of the four SI dimensions, only Personal Meaning Making (PMM) showed a positive and statistically significant relation on all LIS dimensions. Specifically, PMM has a positive and significant relation on Critical Thinking & Problem Solving (CTPS) (path coefficient = 0.304, $p=0.000$), Collaboration Skills (CWS) (path coefficient = 0.292, $p=0.001$), Creativity and Innovation Skills (CIS) (path coefficient = 0.221, $p=0.012$), and Communication Skills (CS) (path coefficient = 0.150, $p=0.042$). This indicates that the higher an individual's ability in Personal Meaning Making, the better their learning and innovation skills. Meanwhile, Critical Existential Thinking (CET), Conscious State Expansion (CSE), and Transcendental Awareness (TA) did not show a statistically significant relation on any dimension of LIS.

The explanatory power of the model was evaluated through the R^2 value for the LIS dependent construct. The R^2 value for CTPS was 0.158, for CIS was 0.155, for CS was 0.176, and for CWS was 0.126. These R^2 figures, although in the "weak" category (between 12.6% and 17.6%), indicate that the SI dimensions that are predictors have an explanatory contribution to the variance in learning and innovation skills. Furthermore, the model

showed good predictive relevance, as indicated by positive Q^2 (Stone-Geisser Q^2) values for all LIS dependent constructs: CIS (0.131), CS (0.142), CTPS (0.139), and CWS (0.105). These Q^2 values greater than zero confirm that the model is not only able to explain the existing data but also has the ability to predict new observations with relevance. Taken together, these results highlight the central role of Personal Meaning Making in influencing various aspects of learning and innovation skills, while demonstrating that the model has explanatory and predictive capabilities albeit with relatively weak explanatory power.

In the deeper path analysis of the relationship between the dimensions of Learning and Innovation Skills (LIS) and Spiritual Intelligence (SI), outcomes from person level analysis and Differential Item Functioning (DIF) are significant in rendering meaning to the outcomes. Personal Meaning Making (PMM) emerged as one, overall significant predictor for all four dimensions of LIS. This can be more fully appreciated when considering that in the individual analysis, PMM has the highest percentage of respondents on the High Level (about 65.3%), i.e., most of the respondents have a very strong ability to find meaning and purpose in life. The overall strength prevalent on such dimensions of PMM in a sample can have a direct influence on its high ability to predict LIS on various dimensions.

On the other hand, none of the other SI dimensions of Critical Existential Thinking (CET), Conscious State Expansion (CSE), and Transcendental Awareness (TA) had a statistically significant relationship with the LIS dimension. Individual-level analysis provides some potential explanations of this: Transcendental Awareness (TA) and Conscious State Expansion (CSE) have higher percentages of respondents at Low Level (16.8% and 20.1% respectively) than PMM, showing more variation in ability and the presence of some respondents with lower ability in these aspects. In addition, DIF results also show the occurrence of gender item bias on SI9 (TA) and SI20 (CET) items and study phase-based trends for DIF in SI11 (CSE) items. Whereas LIS instruments generally enjoy strong measurement invariants with little significant DIF by sex or phase of study, differential bias or even more skewed ability distribution on these specific SI dimensions can affect their ability to forecast LIS consistently. These findings suggest that while PMM is a robust and stable religious foundation in regard to influencing learning innovation capacity, other SI facets might have weaker effects, be more diverse across samples, or are influenced by measurement factors too weak to promote significant direct predictive effects within these pathway models.

Moderation Analysis

The current study investigated the relation of Spiritual Intelligence (SI) on Learning and Innovation Skills (LIS), and whether this relationship was moderated by Gender and Phase of Study (PoS), using a moderated multiple regression analysis (PROCESS Macro Model 2). This analysis directly addressed Research Question 2: “***Do gender and phase of study moderate the relationship between spiritual intelligence and learning and innovation skills among undergraduate students?***” Descriptive statistics for all variables and their intercorrelations are presented in Table 1. As shown, Spiritual Intelligence exhibited a moderate positive correlation with Learning and Innovation Skills ($r=.489, p<.001$). The regression model predicting LIS from SI, Gender, PoS, and their interaction terms was statistically significant, accounting for 26.0% of the variance in LIS ($R=.510, R^2=.260, F(5,268)=18.812, p<.001$). The detailed regression coefficients are summarized in Table 4.9 below.

Table 4. 9.
Moderation Test Summary Table

Predictor	β (Unstd.)	SE	t	p-value	95% CI (LLCI, ULCI)
Constant	1.116	0.063	17.646	.000	[0.991, 1.240]
Spiritual Intelligence (SI)	0.674	0.073	9.209	.000	[0.530, 0.819]
Gender	-0.024	0.137	-0.177	.860	[-0.295, 0.246]
SI \times Gender	-0.199	0.151	-1.318	.188	[-0.497, 0.098]
Phase of Study (PoS)	0.284	0.127	2.238	.026	[0.034, 0.534]
SI \times PoS	0.156	0.145	1.072	.285	[-0.130, 0.441]

As shown in Table 4.10, the direct effect of spiritual intelligence on LIS was found to be positive and statistically significant ($\beta = 0.674, p < .001$), affirming prior findings that higher levels of spiritual intelligence are associated with greater learning and innovation competencies. Interestingly, the phase of study also exhibited a significant positive main relation ($\beta = 0.284, p = .026$), suggesting that students in more advanced semesters tend to demonstrate higher LIS, potentially due to accumulated academic exposure and maturity. However, the interaction effects—SI \times Gender and SI \times Phase of Study—were both found to be statistically non-significant ($p = .188$ and $p = .285$, respectively). This implies that the strength of the relationship between SI and LIS does not differ meaningfully based on students' gender or their current phase of study. In practical terms, the relation of spiritual

intelligence on students' capacity to learn and innovate appears to be consistent across male and female students, as well as between students in early and later semesters.

The overall findings of the moderation regression analysis show that although Spiritual Intelligence (SI) and Study Phase (PoS) have positive direct impact on Learning and Innovation Skills (LIS), the interaction impact of SI with Gender and of SI with Study Phase is not significant. This means that the strength of the correlation between SI and LIS is not significantly different by gender of students or level of study. These results were reaffirmed by an examination of the psychometric characteristics of the instruments used. Specifically for gender, DIF analysis of the LIS instrument revealed no items with significant DIF by gender (Figure 4.17), which emphatically guaranteed that LIS measurements perform equally well for female and male students. Although three SI items (SI6-PMM, SI9-TA, SI20-CET) had significant DIF by gender (Figure 4.15), this indicates they were only slightly less difficult for female respondents. But that fact that the net SI x Gender interaction is not significant indicates that, despite individual item bias, the net effect of SI on LIS does not differ in any essential way between the two genders. The LIS and SI distribution by gender by level of person is also found to follow a similar trend with proportions at levels of ability not radically different by gender (Figures 4.9 and 4.12), providing further evidence for this non-moderation contention.

Similarly, for Study Phase moderation, DIF analysis both across instruments—both SI and LIS—found that there were no items with significant DIF by study phase (Figures 4.16 and 4.18). This is extremely strong evidence for measurement invariability, meaning that items function quite well and as well as they should for both early and late-stage students. This measurement equivalence directly confirms the conclusion that the study phase doesn't moderate the SI-LIS relationship. Although there is a major effect of large size of the Study Phase on LIS (indicating that LIS increases with academic maturity, which is also seen from the increase in percentage of LIS at the 'Highly Advanced' level towards the culmination of the study in Figure 4.13), when individual level of SI is considered, it is evident that the percentage of students at high level of SI is fairly stable in both periods of the study (Figure 4.10). The combination of the increasing LIS over time and of the stability of the SI distribution (and of the invariance of the item measurements), explains the stability of the predictive contribution of SI to LIS, but the overall ability of LIS increased as academic progress has evolved.

These findings suggest a degree of universality in the impact of spiritual intelligence on learning outcomes, supporting the argument that spiritual intelligence can serve as a foundational competency for fostering 21st-century skills across diverse student

profiles. While the presence of a significant direct effect reinforces the relevance of SI as a psychological resource in educational contexts, the lack of moderating relation invites further inquiry into what other variables—such as learning environment, motivation, or socio-cultural contribution—might shape or enhance the SI–LIS link.

4.1.2. Qualitative Findings

This section aims to summarize the perspectives of the five respondents who were interviewed, addressing the first research question related to *the students perception regarding the relation between spiritual intelligence and learning and innovation skills*, and the third research question—*“How do undergraduate students explain the concept of spiritual intelligence and learning and innovation skills, and how do they perceive the practicing in developing these concepts as well as challenges in balancing it?”*—ensuring that their individual views are effectively integrated and interpreted. These students coming from different universities were selected purposively as respondents to provide diverse insights, with interviews being conducted online in different formats: three interviews were conducted orally, while two respondents chose to provide written responses. This dual-format data collection enriches the findings, allowing the analysis to benefit from both spontaneous verbal expressions and thoughtful, reflective written responses.

In analyzing the qualitative data, it is crucial to first understand the demographic background of each respondent, as their experiences and perspectives might be shaped by factors such as gender, major of study, year of study, university and personal experiences. This demographic information is included in the table below, which helps contextualize their responses.

Table 4. 10.

Students Demographic of Qualitative Respondents; All Names are Pseudonyms

Name	Gender	Year of Study	University	Personal Experiences
Azka Rafi	Male	1st year/ Early-Phase	A (Public Islamic University)	Previously as a pesantren student
Bianca Puspa	Female	1st year/ Early-Phase	B (Islamic Pesantren-Based University)	Currently as a pesantren student
Candra Rizqi	Male	3rd year/Final Study Phase	C (General Private Islamic University)	Currently as a pesantren teacher
Dinda Permatasari	Female	1st year/ Early-Phase	D (Islamic Organization- Led University)	Previously as a pesantren student, currently as a teacher in formal institutions and active in a student organization
Evan Ramadhan	Male	3rd year/Final Study Phase	E (Islamic Organization- Led	Currently active in a student organization

By considering the students' backgrounds above, their explanations regarding spiritual intelligence as well as learning and innovation skills can be optimally understood. This can be considered because respondent's interpretation of the interview questions may vary slightly, reflecting their personal learning journeys and how they relate these skills to their academic and personal growth. Furthermore, the analysis reveals interesting patterns in how the respondents perceive the relationship between spiritual intelligence and learning and innovation skills, and how they perceive the relevance and challenges facing them in developing these simultaneously. The following part will provide an in-depth analysis of the qualitative data based on the theme, offering a deeper interpretation of the responses provided by the five selected respondents.

Students Understanding of Spiritual Intelligence

In addressing the third research question, one important theme that should be highlighted is the respondents' understanding of spiritual intelligence, which is one of the key concepts in this study. There were 3 main questions asked during the interviews to the respondents to explore their understanding of spiritual intelligence which included: 1) *How do you define spiritual intelligence?* ; 2) *How would you describe the practices or activities that help develop your spiritual intelligence?*; and 3) *How do you interpret the contribution of spiritual intelligence to your personal and professional growth?* Below are the findings based on these three questions.

Based on interviews with five selected students, specifically for **the first question**, it was found that their understanding of spiritual intelligence is diverse yet complementary, indicating that this concept is understood in a multidimensional manner, covering aspects of intuition, meaning of life, moral values, and deep self-awareness. They also emphasize that spiritual intelligence is not only related to religion, but also how one connects oneself to the social and natural environment. In addition, their understanding of spiritual intelligence also plays a role in shaping personal integrity that can support academic and professional development in the modern era.

Azka Rafi, a pesantren graduate, emphasized that spiritual intelligence is more of an intuitive inner experience. He described spiritual intelligence as the ability to respond to "*whispers of the heart or intuition*" that can direct a person in making important decisions in life. In his narrative, he attributed the moment leading up to an exam to a strong "*feeling*"

to learn certain material, which then proved to be true when the exam took place. He further stated that the feeling came from the true power, this can be seen in the following statement.

“I believe it is a form of guidance or direction from Allah that comes through my inner feelings or 'feelings'. So, for me, spiritual intelligence is the ability to respond to and understand the whispers of the heart or intuition that often lead us to the right and meaningful decisions” (Interview, Azka Rafi, May 26, 2025).

This shows a belief in the connection between inner feelings and divine guidance, a spiritual understanding that is very personal and contextual. Meanwhile, Bianca Puspa through her reflection provided a more reflective and philosophical definition. She underlined that spiritual intelligence is the ability to find the meaning and purpose of life, as well as “*finding the value of Maqashid Sharia (objective of Islamic law, namely realizing human welfare) in every aspect of life.*” This broader aspect she further underlined in the following statement.

“SI is not solely about religion, but how we find the core values, ethics and morals that guide our actions. It also hones self-awareness, empathy, and connectedness to something bigger than ourselves - be it nature, fellow humans, or in the context of my faith, Allah SWT” (Written interview, Bianca Puspa, May 27, 2025).

This understanding indicates a conceptual approach to spirituality that goes beyond being formally religious, but also includes ethical awareness, empathy, and universal values that guide actions. Spiritual intelligence is thus understood as the ability to connect with broader human values. This shows that for her, spiritual intelligence is closely related to a life lived consciously, meaningfully and with moral consideration.

A quite different definition is provided by Candra Rizqi, who is an educator in a pesantren, emphasizing the importance of religious understanding in the context of pluralism in Indonesian society. He mentions that spiritual intelligence includes the ability to understand one's own beliefs deeply and also “*to be wise and tolerant of existing religious differences.*” This shows the existence of social awareness in spirituality, namely how a person can be spiritually intelligent not only in vertical connection (relation with God), but also in horizontal ones (relations among humans), especially in a pluralistic society. His perspective emphasizes tolerance, openness, and respect for diversity as a concrete form of spiritual intelligence.

In line with the previous view, Dinda Permatasari provides a psychological approach in defining spiritual intelligence, namely as “*a person's ability to control inner experiences and spirituality such as controlling emotions, fostering empathy, and respecting others.*” According to her, a person who loses their spirituality can lose their direction in life. Her statement underlined that spiritual intelligence includes not only

religious understanding, but also self-awareness and emotional management, which are important in building healthy interpersonal relationships. This definition brings the concept of spiritual intelligence closer to aspects of psychological well-being and emotional balance.

Last but not least, Evan Ramadhan describes spiritual intelligence as *“the ability to develop oneself holistically, encompassing spiritual, emotional, and intellectual aspects.”* For him, spiritual intelligence helps one live a more meaningful life, improve emotional well-being, and strengthen relationships with oneself and others. This perspective emphasizes that spirituality is not something separate from the other dimensions of life, but something that is integrated in the process of self-development and a complete life. Thus, spiritual intelligence becomes the foundation for individuals to achieve balance in all aspects of their lives, both personally and socially.

Overall, all the above perspectives show that spiritual intelligence is broadly understood by students as an internal ability that helps them find meaning, shape life values, and establish healthy relationships-with God, self, and fellow human beings. Although each respondent emphasized different aspects-from intuition to plurality, from self-awareness to religious value-all of them indicated that spiritual intelligence is an important foundation in their lives including academic and personal.

Furthermore, with regard to the second question posed to the respondents, ***“How would you describe the practices or activities that help develop your spiritual intelligence?”*** The research findings show that the practice of developing spiritual intelligence is done through various activities that are religious, reflective, social and contemplative in nature. Each respondent shows that spiritual intelligence is not something that appears instantly, but is formed continuously through daily life habits, exercise and experiences.

As an alumnus of a pesantren, Azka Rafi said that he developed spiritual intelligence through congregational worship activities and the routine of dhikr after prayers, which are part of his pesantren tradition. This emphasize that The development of spiritual intelligence (SI) is often integrated with religious practices and daily customs. Azka Rafi, associated the concept of "tahaduts bin ni'mah" as a motive for sharing without arrogance, even in the context of his personal worship. He explained that congregational prayer is a habitus in Islamic boarding schools, where its absence in his life in lectures creates a "sense of emptiness." This feeling, according to him, has an impact on *“spiritual intelligence [which] decreases slightly, although not drastically”* (Azka Rafi, Interview, May 26, 2025). Furthermore, Azka Rafi interprets dhikr not only as a form of devotion to Allah,

but also as a 'reflection on oneself'. He likened it to meditation or contemplation, stating that 'when we dhikr solemnly, we not only give to Allah, but also reflect on ourselves' (Azka Rafi, Interview, May 26, 2025). In addition, her spiritual practice extends to physical routines, such as doing push-ups and short breathing exercises every waking up, which she believes 'helps us not to be startled when we first open our phones'—a habit she learned from social media (Azka Rafi, Interview, May 26, 2025)."

Other respondents emphasized daily reflection before bedtime as an important tool in fostering spirituality. Bianca Puspa practices regular self-evaluation "*with the inclusion of Istighfar (seeking forgiveness from God) and gratitude,*" suggesting that this practice becomes a kind of internalization process of religious values. Furthermore, she also added that daily worship such as prayer and recitation of the Qur'an become the main support for inner calm and a reminder of the purpose of life. Her thoughts can be seen from the following statement.

"Regular worship is very important to me, especially the five daily prayers and recitation of the Qur'an. These activities help me feel calmer and remind me of my purpose in life as a servant of Allah. I also often do dhikr or tadabbur nature to calm my mind and be more mindful of myself and God's creation. Activities in nature, such as walks to the park or beach, make me feel more connected to nature and feel the greatness of God. I am also active in campus social activities such as community service, which in my opinion, is a great way to train empathy and raise awareness that we can have a positive impact on others" (Written interview, Bianca Puspa, May 27, 2025).

Interestingly, from her statement above, Bianca Puspa also mentioned nature tadabbur and campus social activities as an effort to connect herself with God's creation and fellow humans. This shows that spirituality is not only vertical (relationship with God), but also horizontal (relationships among humans and with nature). In line with the two previous Respondents, Candra Rizqi, as a pesantren teacher, added that "*the development of his spiritual intelligence can be done through weekly religious studies, as well as in-depth discussions on khilafiyah issues and classical books.*" This approach illustrates that religious and intellectual scientific activities can also be an important means in deepening spirituality. He implies that through discussions, one not only enriches religious knowledge, but also learns to accept differences and strengthen the value of tolerance, as important aspects in developing spiritual intelligence. This scientific approach to religion is also recognized as beneficial in enhancing spiritual intelligence, according to Evan Ramadhan, where "*reading religious books and practicing them through lecture activities*" is the way he exercises his spiritual intelligence. This activity reflects a balance between theoretical and practical aspects, where religious knowledge is not only passively consumed, but also actualized for others.

In line with the previous two respondents above, Dinda Permatasari explained that reading history books and stories of scholars in the library became a meaningful reflection for her. She realized that spiritual intelligence is not only about personal relationship with God, but also about awareness of social responsibility, namely being a person who benefits others. This practice of reading in the library became a form of contemplation that helped her *“find a loftier purpose in life, which is usefulness.”* She believes that by gaining knowledge from the stories of Muslim scholars, it can help her to have a better understanding on how to live a life with more meaning and wisdom. This gives her the drive to not only focus on personal achievement, but also to contribute positively to the surrounding community.

In conclusion to this second question, the practice of developing spiritual intelligence among university students varies greatly, but still shows a consistent pattern in several important aspects, such as self-reflection, strengthening worship, making meaning of life values, and social contribution. Students tend to develop their spiritual intelligence through activities that connect worship rituals, intellect and social engagement. This process is not just limited to formal spiritual activities such as prayer or dhikr, but also involves a deeper understanding of the meaning of life and broader social responsibilities. In other words, spiritual intelligence develops through a balance between spiritual life, intellectual pursuits, and tangible contributions to society. This emphasizes that spiritual intelligence is a very important foundation in the formation of a complete student character, both from a personal and social perspective, and plays a major role in helping them live a meaningful and purposeful life.

The final question posed to the respondents was ***“How do you interpret the contribution of spiritual intelligence to your personal and professional growth?”*** Interviews with several students showed that spiritual intelligence is seen as a crucial aspect that not only supports personal balance, but also strengthens students' professional character as future educators and leaders. Each respondent described that spiritual intelligence plays a fundamental role in dealing with life's pressures, maintaining morale, and shaping ethical attitudes and social responsibility in the academic and professional world.

Azka Rafi said that spiritual intelligence is the foundation of mental endurance, especially when facing pressure. He stated that *“many people are intellectually intelligent but spiritually fragile, when they face life's trials can cause them frustration and even end their lives.”* He emphasized that strong faith and belief can prevent a person from mental collapse, as well as provide calmness and patience in facing trials. This view is

contextualized by Dinda Permatasari, who sees spiritual intelligence as a source of enthusiasm and strength to survive in the stressful academic world. She revealed that *"when I feel tired or want to give up, spiritual intelligence helps me to return to the principal values and the original purpose of attending college."* In other words, spiritual intelligence acts as a support for psychological balance and in the context of being a student, functions as a moral and motivational compass that keeps students on the path of academic struggle.

Furthermore, Bianca Puspa explained the contribution of spiritual intelligence in two domains at once, namely personal and professional. This contribution in Evan Ramadhan's perspective can *"make students grow as balanced, effective, and successful individuals"* which is the relation of spirituality on success, both in intrapersonal aspects (managing one's own impact) and interpersonal ones (relating to others in a professional context). On the other hand, Bianca Puspa states that in the personal realm spiritual intelligence *"helps her to know herself better, manage emotions, and have a positive outlook on life."* She mentions that spiritual intelligence makes her mentally stronger and better able to learn from failures by adhering to Islamic values. On the professional side, she feels that spiritual intelligence shapes her ethics and empathetic attitude as a future religious educator and preacher. *"I also feel more empathetic towards my campus friends and have a clear direction of purpose for my future career-that is, preaching and spreading useful knowledge."* In this regard, she emphasizes that every professional action, including academic activities, is intended as worship. This points out that spiritual intelligence is not only related to improving personal performance, but also directing professionalism to the transcendental dimension, namely devotion to God.

Other respondents voiced a more professionally contextualized view. Candra Rizqi explained based on her observations that *"all teachers-not just religious teachers-need spiritual intelligence in order to teach sincerely and responsibly."* This also applies to him as a student, and all other teacher education students. Furthermore, he stated that *"many people are intellectually smart, but if not accompanied by spiritual intelligence, this intelligence can lead individuals to negative actions."* His statement shows the belief that professional integrity is formed not only by intellectual prowess, but also by moral and spiritual strength, which becomes an ethical foundation in carrying out duties and professions.

From the overall findings of the third question proposed, it appears that spiritual intelligence makes a significant contribution to the development of student character, both in terms of mental strengthening, emotional management, affirmation of life values, and the formation of ethical and empathic professional attitudes. This intelligence becomes a

kind of main buffer in the midst of the challenges of the world of higher education, as well as a source of inspiration in carrying out professional roles with sincere and meaningful intentions. Through the optimal development of spiritual intelligence, it makes them a more complete person, relevant, and ready to face the challenges of the times.

In closing, it can be concluded that students' understanding of spiritual intelligence reflects a fairly high awareness of the important role of spiritual aspects in their personal, academic and professional lives. Students interpret spiritual intelligence not only as something oriented towards religious rituals, but also as an ability that touches on inner aspects, values, meaning of life, and relationships with God and fellow humans. This shows that spiritual intelligence is understood holistically, encompassing moral, reflective and social aspects that become their foundation in dealing with the complexities of life. Moreover, students show that spiritual intelligence is not only understood normatively or theoretically, but is actually lived and practiced in everyday life. They believe that having a strong spirituality is not a barrier to academic or professional progress, but rather a foundation that strengthens their self-identity, personal resilience and the meaningfulness of their future roles. With strong spiritual intelligence, they feel better prepared to take on life's challenges and fulfill their professional roles, especially as future educators and leaders who can positively impact society.

Students Understanding of Learning and Innovation Skills

Another important theme that forms the basis of respondents' understanding of the relationship between concepts in this study is the learning and innovation skills. In exploring respondents' understanding of this concept, there were 3 questions asked in the interview which included: 1) *What do you understand by the term 21st century skills, specifically learning and innovation skills?* ; 2) *How do you think these skills have been integrated into your academic programs and learning experiences so far?;* and 3) *In your opinion, how important are learning and innovation skills in your field of study?*

Based on the results of interviews with students related to the **first question**, it was found that they have a deep and reflective understanding of the concept of 21st century skills, especially learning and innovation skills. All respondents realized the importance of these skills in facing the challenges of the modern era characterized by rapid change and high complexity. Azka Rafi, for example, stated that learning and innovation skills are “*a very important ability to have in order for someone to succeed in the modern era, especially with the rise of technological developments such as AI.*” His statement implies the

realization that these skills are not just additional skills, but an important foundation for surviving and contributing in contemporary society.

In line with his point of view, Bianca Puspa provided a very detailed and conceptual description of each component of these skills, which is considered as skills that support lifelong learning and innovation, especially in facing challenges and problems. She emphasized that critical thinking and problem-solving skills will lead her to not just accept information as it is, but to be able to analyze, and also evaluate the information logically in order to produce relevant solutions. This can be seen from her statement, "*critical thinking means that we don't just accept information raw, but are able to analyze, verify its truth, and evaluate existing ideas. So, we can solve problems by thinking logically and deeply.*" In addition, Dinda Permatasari linked critical thinking and problem solving skills as the ability to make thoughtful and deliberate decisions. She underlined the importance of using deep reasoning in problem solving and decision making. Her understanding can be seen from the following statement during the interview.

"If we are not critical in criticizing a problem, we will not be able to find the right solution. In my opinion, critical thinking is a way to think more deeply and systematically. When we have to make a decision, we need to think carefully about the steps that will be taken, as well as the impact that will result from the decision" (Interview, Dinda Permatasari, May 27, 2025).

Based on the two responses above, there is a complete understanding of how critical thinking and problem solving skills should be understood as the ability to think logically, systematically and deeply, in analyzing and evaluating information to produce relevant information and appropriate solutions. Furthermore, with regard to creativity and innovation, Bianca Puspa acknowledged it as the ability to see problems from different perspectives and generate fresh new ideas. This skill is considered as the ability for someone to deal with problems in a unique and unusual way, which is illustrated in the following statement.

"Creativity and innovation is our ability to generate ideas that are out of the box, look at problems from different angles, and find unusual solutions. It's about how we create new things or have a fresh perspective" (Written interview, Bianca Puspa, May 27, 2025).

Her statement above reveals that creativity is closely related to the development of the ability to innovate in producing an interesting idea, creative work and or a solution answer. In line with Bianca Puspa's stand point, Dinda Maharani explained that creativity and innovation are very useful for generating new ideas, where she sees a link between creativity and innovation with critical thinking and problem solving as the skills which are very relevant in the education world. She further gave a concrete example, especially in helping her to find the causes of students' problematic behavior, through a deep thinking

process, the reaction or response given can be appropriate and relevant. This explanation is based on her following statement.

“Creativity and innovation are important, because if we only have ideas but cannot develop them further, it will be very difficult to find solutions. For example, in the field of education, especially in dealing with unruly children at school, we need to criticize the child's behavior by understanding the cause. If we have an idea to overcome this problem, but cannot develop it further or analyze it in depth, then the handling will not be effective and the right solution will not be found” (Interview, Dinda Permatasari, May 27, 2025).

Her explanation above shows that critical thinking and problem solving have a close relationship with creativity and innovation, because both strengthen each other in producing effective and innovative solutions. Critical thinking allows individuals to analyze problems in depth, identify patterns, and evaluate information objectively, which is the first step in problem solving. After clearly understanding the problem, creativity plays a role in generating new ideas and alternative solutions that have not been thought of before. Then, innovation turns those creative ideas into real and applicable solutions. In other words, the ability to think critically and solve problems effectively is an important foundation to encourage creative and innovative processes in facing challenges.

Speaking about other learning and innovation skills, Dinda Permatasari said that communication has a big role as the bridge between ideas and actions. *“If we have good ideas and opinions, but cannot convey them well, then the ideas will not be implemented,”* she said. This view underlines communication as the main medium in implementing the output of critical and creative thinking. Similarly, Bianca Puspa emphasized communication as the ability to convey ideas effectively and to be a good listener. This explanation can be seen from her reflective answers as follows.

“I understand communication as the ability to convey ideas, information, or feelings clearly, either orally, in writing, or through other media. More than that, it is also important to be a good listener so that we can connect with others” (Written interview, Bianca Puspa, May 27, 2025).

Her response above does not only interpret communication as a medium of conveying ideas, but more than that, she emphasizes the importance of connecting with the other person by focusing on listening to what the others have to say, trying to understand their perspective and feelings, and giving a positive and wise response. In addition, with regard to the fourth skill, collaboration and cooperation, Bianca Puspa positions collaboration as a teamwork skill that is very important in today's workplace. This explanation can be seen in her reflection as follows.

“I see collaboration as closely related to teamwork-how we bring ideas together, divide tasks, and support each other to achieve a common goal. This is very important because I see now that almost no single work can be done alone” (Written interview, Bianca Puspa, May 27, 2025).

Bianca's answer provides an understanding that communication has a close relationship with collaboration and cooperation as mutually influencing skills. Communication plays a very important role in collaboration and teamwork. Without clear and effective communication, collaboration within a team will be hampered, as team members will not understand the common goal, their respective roles, or the steps to be taken. Conversely, good communication allows team members to share ideas, provide constructive feedback, and solve problems collectively. In the context of teamwork, communication also helps maintain relationships between individuals, clarify expectations, and ensure that everyone is moving in the same direction to achieve team goals. Therefore, effective communication is the foundation of successful collaboration and achievement in teamwork.

The importance of collaboration was also conveyed by Dinda Permatasari considering the nature of humans themselves as social creatures. She agrees with Bianca Puspa's view that not all work can be done alone and the helping hands of others are needed. She stresses collaboration as a key in achieving a common goal, which can be further understood from the following answers.

“Collaboration is important because as social creatures, we cannot do everything alone. Sometimes, we need the help of others to achieve a common goal. In addition to developing our ideas and creativity, collaboration also allows us to communicate those ideas more effectively. More than that, in running the programs we develop, we need partners to work together, share tasks, and support each other so that the results achieved are maximized” (Interview, Dinda Permatasari, May 27, 2025).

The above statement reveals the importance of collaboration as key skills because, in the context of social and professional life, human beings are social beings which cannot achieve any goal on their own. Moreover, she sees a link between collaboration and critical thinking and problem-solving skills, as well as creative and innovation skills in addition to its link to communication skills. Collaboration is not only important for developing ideas and creativity, but also for communicating those ideas more effectively to others. This leads to the creation of better solutions, as ideas obtained through collaboration are often more diverse and innovative. Additionally, collaboration facilitates the implementation of joint programs or projects, which require various expertise and contributions from different parties. With a supportive partner, each task can be shared, and the end result becomes more efficient and maximized. Collaboration allows individuals to fill in each other's gaps, creating a more solid and productive teamwork.

Another respondent, Evan Ramadhan, formulated his understanding of learning and innovation skills with a more systematic approach by providing a comprehensive

summary definition for each sub-skill. He mentioned critical and problem solving skills as the process of analyzing and making decisions based on evidence and logic, which is useful in evaluating information, identifying bias, and making reasonable conclusions. Creativity and innovation as the ability to think out of the box, in generating unique solutions, and developing new concepts. Communication as the ability to convey ideas effectively, involving the ability to speak, write, and present information clearly and persuasively. And finally, collaboration as the process of building relationships, resolving conflicts for a common goal and reaching mutually beneficial agreements. He concludes that these skills are essential to *"adapt, innovate and compete in the modern era, and help in increasing productivity, creativity and solving complex problems."*

In addition to providing a clear and comprehensive definition of learning and innovation skills, other respondents in this study provided interesting answers to their understanding of the concept. Candra Rizqi added that learning and innovation skills are adaptive abilities that are not bound by rigid boundaries, and develop along with the learning process and contextualization. He mentioned that "learning" refers to the continuous learning process, and "innovation skills" refers to the ability to create new applicable ideas, which for him, is a combination of a reflective learning process and the courage to experiment in finding solutions. He also emphasizes that the effectiveness of a learning approach is more important in developing these skills because in the learning process there is no absolute right or wrong but there is effective and ineffective learning. This indicates that learning and innovation skills are very useful skills to survive in life, where the development process must be result-oriented and flexible.

Overall, the findings show that the students have a strong conceptual understanding of learning and innovation skills. They were not only able to define the four components of the skills theoretically well, but also reflectively by linking them to real-world needs such as education and social life. Their understanding reflects an internalization of the meaning of 21st century skills, not just memorizing concepts, but interpreting them as essential competencies in facing a changing era.

Furthermore, with regard to the second interview question, *"How do you think these skills have been integrated into your academic programs and learning experiences so far?"* Findings from the research reveal that students perceive 21st century skills have begun to be integrated into their academic programs, albeit with varying levels of implementation. Azka Rafi, for example, noted that these skills appear implicitly in course assignments, especially in group work that encourages cross-character interaction and cooperation. He emphasized that the experience of dealing with different types of

teammates is a very real learning tool, even more effective than theoretical learning. *"Sometimes, there are friends who seem quiet and calm in class, but during group work they become stubborn figures,"* he said. It indicates that the collaborative process in the classroom provides an important social training space for the development of interpersonal skills and self-reflection.

Other respondents pointed to more systematic integration, especially in the context of an Islamic-based campus. Bianca Puspa mentioned that almost all courses in the Islamic Education Study Program at her campus involve collaborative tasks, class discussions, and presentations. These forms of learning provide ample space for critical thinking, expressing opinions openly, and producing creative solutions, such as when asked to design learning media or da'wah methods that are relevant to the conditions of the people. *"Lecturers often encourage us to actively ask questions and express opinions,"* she explained, describing the role of lecturers as facilitators of 21st century skills development, not just as material deliverers.

Unlike the previous two, Candra Rizqi sees that although the integration of Learning and innovation skills has begun to exist-such as through group projects and class discussions-but its application has not been evenly distributed in all courses. His thoughts as can be seen in the statement below.

"In my opinion, 21st century skills have started to be integrated into the academic program, especially through group project assignments, class discussions, and sometimes also through presentations. For example, in research assignments, we work together, think creatively in developing methods, and communicate clearly. However, I feel that the integration is still not consistent in all courses, especially in my current study program. So, even though it has started to be implemented, the implementation has not been evenly distributed throughout the courses" (Interview, Candra Rizqi, May 28, 2025).

His statement above underlines the importance of evaluating the implementation from the head of the study program so that the development of learning and innovation skills can run optimally. Candra Rizqi noted that there are imbalances in implementation, depending on the teaching style of each lecturer. This suggests that the successful integration of 21st century skills is largely determined by the consistency of the curriculum and the readiness of the teaching force in adopting active and participatory learning approaches.

Meanwhile, other respondents provided a more unique perspective. Dinda Permatasari admitted that she learned most of her 21st century skills from her experience in the field as an early childhood education teacher, alongside with formal education. Dinda Kirana's background as a teacher who is in the process of fulfilling educational

qualifications provides direct experience from the field of work, especially in the world of education. Interaction with children, problem solving in the school environment, and collaboration with fellow educators are the main sources of learning these skills.

“Actually, in terms of formal education, I have never been directly taught explicitly about critical thinking, creativity or communication skills. However, I learned them directly in the field. Since I started teaching - from PAUD, TK, TPQ (early childhood education), to now at the junior high school level - I have learned many things practically. I learned how to deal with children, handle problems at school, criticize student behavior, and look for learning ideas so that the learning process is not monotonous. I also learned communication skills from my experience interacting with coworkers. All of that I learned in the field, not from college” (Interview, Dinda Permatasari, May 27, 2025).

Additionally, Dinda Permatasari added that in college, especially in her class discussion activities, students began to be taught learning and innovation skills implicitly, because students are required to think critically and not be passive. She continuously said that inactivity can be an obstacle in understanding the material in depth *"just being silent when you don't understand, and not asking questions - that can be an obstacle for yourself."* This statement reflects a shift in implementation on campus from passive learning to a more active and reflective learning pattern.

Another respondent, Evan Ramadhan, explicitly described some learning strategies that integrate learning and innovation skills that he has experienced. He explained that learning approaches such as discussion and debate, teamwork, and problem-based learning (problem-based learning), really helped him hone various aspects of 21st century skills, which include critical thinking, creativity, communication and collaboration in the context of solving real problems. He stated that *"in my learning experience, the integration of 21st century skills can help me become more prepared to face challenges in the real world"*, which marks the strategy as very relevant to prepare students for the complex world of work.

Based on all the responses to the second question above, overall, respondents felt that the integration of 21st century skills in academic programs is already happening, but not always explicitly. Many of these skills are developed through collaborative, reflective and contextual learning experiences. Although some still see gaps in implementation, learning in Islamic universities, as stated by respondents, seems to have begun to shift towards a direction that is more relevant to the demands of the 21st century, namely encouraging students to become active learners, creative, and ready to contribute to society.

Last but not least, based on the third question asked, ***"in your opinion, how important are learning and innovation skills in your field of study?"*** The respondents showed a very high awareness of the importance of 21st century skills - specifically critical

thinking and problem solving, creativity and innovation, communication, and collaboration - in the context of their studies, especially in the field of Islamic Education. They recognize these skills as not merely complementary, but as fundamental elements in the academic process as well as in future professional practice.

Azka Rafi highlighted the importance of critical thinking as a skill that does not come instantly, but needs to be practiced from an early age. He pointed out that he began to hone it indirectly from watching movies and digital content, which helped him realize the importance of considering the consequences of a decision. *"For example, when we procrastinate, we have to think about what the bad impact will be-so we can make better decisions"* he revealed. Moreover, in his view, communication skills are even referred to as *"the key to the soul of leadership,"* showing how important the ability to convey ideas clearly and persuasively is. He added that effective communication not only strengthens arguments, but also has the potential to change the perception of the interlocutor, even in a debate situation. *"So, communication is very important, not only in the 21st century, but it has also been important for a long time,"* he answered. This shows that good communication is an important pillar in uniting different thoughts and supporting the achievement of common goals.

Furthermore, Bianca Puspa linked 21st century skills directly to the academic context of Islamic Education Study Program. She explained that critical thinking and problem solving are very helpful in understanding and interpreting religious texts in depth, not just memorizing. *"It is very important when there are fiqh case studies or contemporary issues that must be analyzed from an Islamic perspective"* he said, marking the need for optimal development of these skills. In addition, creativity and innovation are also considered important in designing innovative da'wah methods and learning media so that the teachings of Islam can be well received by the younger generation. Given the rapid development of digital technology, the development of interesting and relevant learning is needed. Bianca Puspa also considers communication as the main means in delivering religious messages to diverse audiences, while collaboration is an essential need in social activities and collective religious projects. *"For example, in organizing religious events or social activities, we need to work in teams so that the results are maximized and the message of Islam can be conveyed well,"* she responded. Bianca Puspa's explanation is in line with Evan Ramadhan's marking that the four skills are the main foundation for facing the complex real world. Both underlined that *"these skills are not only important, but an integral part of the competence of an educator"* in the contemporary era.

Candra Rizqi and Dinda Permatasari also expressed similar views on the importance of learning and innovation skills in their academic activities. Candra Rizqi emphasized that 21st century skills are not only useful in the campus world, but determine one's success in the world of work, especially in the profession as an educator. Like Dinda Permatasari, Candra Rizqi is an educator who is fulfilling her professional qualifications by continuing her education and she explained that in the field of work, especially schools in this context, *"we are not only required to be academically smart, but also to be able to think analytically, have innovations, work in teams, and be able to convey ideas well."* This shows that these 21st century skills are needed in the job as a teacher of Islamic Religious Education. In line with that, Dinda Permatasari even stated that the four skills are very important and *"if i should give the percentage, it can reach 100%."* According to her, without these skills, one's understanding will be limited and will not develop, whereas with the times the demands will continue to change and increase.

Overall, in relation to the third question mentioned above, respondents agreed that critical thinking and problem-solving, creativity and innovation, communication and collaboration skills are very important in their field of study, namely Islamic Religious Education. They not only see these skills as academic necessities, but also as essential preparation for playing an active and relevant role in the midst of social change and global challenges.

In conclusion, the responses from questions one to three indicate that students have a deep and reflective understanding of 21st century skills, both conceptually and in their academic experiences and daily practices. The four skills - critical thinking and problem solving, creativity and innovation, communication and collaboration - are considered highly relevant and essential in supporting successful learning, social interaction and professional preparation, particularly in the field of Islamic Religious Education. Although not always explicitly taught in the curriculum, students felt that the academic process - through group work, presentations, discussions and projects - indirectly practiced these skills.

In addition, students realize that being a religious educator in the modern era requires more than just understanding classical texts. They must be able to think critically about contemporary issues, convey religious teachings creatively and communicatively, and work together to build an inclusive and positive community. The development of these skills is not only obtained in the classroom, but also through experiences outside academia such as teaching, preaching, or even utilizing social media and films. Thus, the formation of 21st century skills is holistic and associated by various learning resources. In the context

of Islamic Religious Education, these skills become an important pillar to prepare graduates who are relevant, adaptive, and ready to face the challenges of the times. Therefore, strengthening 21st century skills in Islamic higher education is an urgent need to face global demands.

The Relationship between 21st Century Skill Development and Spiritual Intelligence

The main theme on which this research was conducted was to seek the understanding of the relationship between spiritual intelligence and learning and innovation skills. In exploring respondents' understanding of the relationship between these two concepts, there were 2 interview questions asked by the researcher which included: 1) *Do you see a connection between developing 21st century skills and your spiritual intelligence? If yes, can you explain what form this connection takes?* ; and 2) *How does your understanding of spiritual intelligence affect your approach to learning, working together or facing challenges in academia?* These two questions were framed to provide a comprehensive picture of the relationship between the two concepts under study.

The research findings under this theme highlight the close link between spiritual intelligence and 21st century skills, particularly in the context of learning and innovation skills which include critical thinking and problem solving, creativity and innovation, communication and collaboration. In response to the **first question** mentioned above, all respondents agreed that these two concepts complement and support each other in facing challenges in the academic world and professional life. They consistently agreed that 21st century skills, particularly critical thinking and problem solving, creativity and innovation, communication and collaboration, cannot stand on their own without the value direction provided by spiritual intelligence, which Dinda Permatasari referred to as *"true purpose."* Her statement indicates that spiritual intelligence acts as a moral and ethical foundation that guides the use of these skills in everyday life. Additionally, her statement was reinforced by Azka Rafi who said that in his view *"the level of a person's spiritual intelligence will be directly proportional to the improvement of their learning and innovation skills."* In fact, another respondent further explained the function of spiritual intelligence on learning innovation skills in the following statement.

"In my opinion, spiritual intelligence provides a foundation of values and direction in applying critical thinking, creativity, communication and collaboration skills. For example, my critical thinking does not only focus on logic or facts, but also considers ethical dimensions and Islamic values. I also direct my creativity to provide solutions that bring benefit. In communication, I learn to empathize, understand other people's points of view, and speak with adab. While in collaboration, I try to

maintain *Ukhuwah* (brotherhood) and respect differences” (Written interview, Bianca Puspa, May 27, 2025).

The explanation given by Bianca Puspa above implies her deep and complete understanding of the relationship between these two variables, especially as a basis for the ethical values he upholds. In line with her perception, Evan Ramadhan reinforced the statement above through his reflective answer as can be seen below.

"Yes, I see a connection between the development of Learning and Innovation Skills and spiritual intelligence. For example, spiritual intelligence helps me improve my self-awareness and reflection skills, which are also important parts of Learning and Innovation Skills. By understanding oneself and personal values, one can be more effective in developing learning and innovation skills. Spiritual intelligence can also help to enhance my creativity and innovation by allowing me to look at problems from a broader perspective and develop more innovative solutions. In addition, spiritual intelligence can help me to improve my critical thinking skills by allowing me to look at problems from multiple perspectives and develop more effective solutions. Well, furthermore, spiritual intelligence can also help me improve my ability to collaborate and cooperate by allowing me to understand and appreciate the differences between individuals and develop better relationships with others. Therefore, in general, spiritual intelligence can help me improve my motivation and purpose by enabling me to find meaning and purpose in life in accordance with personal values and principles. Thus, I conclude that the development of learning and innovation skills and spiritual intelligence can complement each other and enhance my ability to learn, innovate and develop holistically” (Written interview, Evan Ramadhan, May 29, 2025).

Based on the two statements above, it is clear that there is a connection between these two concepts, and while 21st century skills such as critical thinking and creativity are considered very important, these abilities require value direction in order to be used wisely and responsibly. With spirituality as a foundation, their creative ideas often lead to solutions that are not only innovative but also beneficial to people, helping them to look beyond personal achievement. Similarly, collaboration and communication are perceived to be more effective when guided by spiritual awareness. Both respondents revealed that spiritual intelligence plays a role in training to be patient and open in collaborating with others, along with understanding and appreciating differences. This can be done through the way one speaks with *adab* (etiquette), conveys ideas in a more understanding and empathetic manner, and avoids conflicts that may arise from differences of opinion. In this context, effective communication is not only about delivering messages, but also about building harmonious and respectful relationships.

More contextually, Candra Rizqi emphasized that as a prospective religious education teacher, he believes in the relevance of *"spiritual intelligence as a fundamental aspect that must be possessed by all educators without exception."* This is because this intelligence will provide *"a strong moral foundation, which helps educators to teach with*

sincere intentions and not just for material purposes," he said. This emphasizes the importance of having a loftier goal as an educator, which is to educate the people, not just to make a living. Interestingly, another respondent, went on to explain that his personal spiritual intelligence helps him to remain humble and not be rash in his thinking, especially when facing pressure. In his case, Azka Rafi foregrounds not only relying on logic and analytical reasoning, but also incorporating inner intuition, empathy, and ethical considerations in every decision or argument taken. This can be understood based on his answer as follows.

“In my own experience, when I was experiencing pressure and challenges, I relied on my spiritual intelligence-in the form of full trust in God. When my logic was stuck and I thought ‘this is bound to fail’, reality proved otherwise. From there I learned that even critical thinking requires humility, because not everything can be explained logically. And that’s the role of spiritual intelligence, as a reminder and balancer. So, even though we already have good learning and innovation skills, without spiritual intelligence, we can lose meaning, even direction. So, I think the two complement each other, support each other, and ultimately strengthen our resilience in facing challenges” (Interview, Azka Rafi, May 26, 2025).

Azka Rafi's statement above explicitly shows that spiritual intelligence makes a person wiser in making decisions, avoids rash decisions, and makes the thinking process more purposeful and unemotional. This indicates that even if a person has good critical thinking and innovation skills, without spiritual intelligence, these abilities are meaningless, and even have the potential to be misused. In other words, this intelligence is useful as a moral filter as it can balance the use of intellectual skills with a deeper moral awareness.

The importance of spiritual intelligence was further explained by Dinda Permatasari, who explained that *“spirituality is very important so that 21st century skills are not just technical, but also meaningful.”* The same thing was conveyed by Candra Rizqi who stated that through the use of spiritual intelligence, professional activities such as *“teaching is not just for making a living, but as a calling to educate the people, where learning and innovation skills can be used optimally if directed by mature spirituality.”* Therefore, spiritual intelligence is not just a complement, but the main pillar in guiding the responsible use of 21st century skills, while upholding human and moral values.

The relationship between spiritual intelligence and learning and innovation skills is not just one-way, in fact in Bianca Puspa's view, *“they are like two sides of a coin that complement each other.”* In her view, learning and innovation skills not only affect a person's level of intellect, but also enrich the level of spirituality. His understanding about this can be seen in the following explanation.

“Conversely, 21st century skills also enrich my spiritual intelligence. Through collaboration, I learned humility and empathy. Through critical thinking, I can reflect more deeply on my values and faith. So, you could say that LIS is a tool to express spiritual values in real life and the professional world” (Written interview, Bianca Puspa, May 27, 2025).

The statement above corroborates that learning and innovation and spiritual intelligence are not mutually exclusive, but interact and enrich each other. The 21st century skills such as collaboration and critical thinking give students the practical ability to interact with others and analyze problems, which in turn deepens their spiritual intelligence. Collaboration, for example, not only improves social skills, but also teaches students to empathize and be more humble, which are important aspects of spiritual intelligence. Meanwhile, critical thinking encourages students to evaluate their personal values, connect them with faith, and apply both in making wiser decisions.

Overall, the findings suggest that spiritual intelligence plays a key role in humanizing and provides a clear direction for 21st century skills. It not only enriches intellectual skills but also ensures that they are used for a greater and more meaningful purpose. On the other hand, learning and innovation skills serve as practical tools to realize spiritual values in academic, professional and social contexts. Therefore, the development of both in education is essential in shaping a comprehensive person, not only technically intelligent but also wise, ethical and ethical.

Furthermore, based on the second interview question under this theme, ***“How does your understanding of spiritual intelligence affect your approach to learning, working together or facing academic challenges?”*** It was found that spiritual intelligence affects their approach to learning, working together and facing academic challenges. All respondents agreed that SI plays an important role in building earnestness in learning and encouraging a positive inner attitude. Azka Rafi emphasized that, based on his experience at a boarding school, this intelligence *“helps him to have a better relationship with his teacher, especially where adab and respect play an important role in the learning process.”* This experience leads to the conclusion that spiritual intelligence facilitates the absorption of knowledge, of course accompanied by effort in learning. In addition, in working together, this intelligence provides the impetus to share, empathy and compassion even when one is in a limited state. This helps him to enrich his social interactions, maintain a deeper moral orientation and purpose in his education.

Additionally, as one of the respondents who came from a boarding school like Azka Rafi, Candra Rizqi related spiritual intelligence to the seriousness of learning based on the intention for the hereafter, not merely for the life in this world. The practice of values from the *Ta'limul Muta'allim* book taught him to appreciate the learning process and

interact with adab, which made him more civilized in interacting in the academic environment. His statement regarding the importance of adab can be seen in the following response.

“The yellow book (*kitab kuning*) teaches us how to behave towards teachers, friends, books, and knowledge itself. From it I learned that people who have good spiritual intelligence will be serious in learning because they realize that their knowledge is not only for the world, but also for the hereafter” (Interview, Candra Rizqi, May 28, 2025).

For Candra Rizqi, spiritual intelligence provides a higher direction in education, which relates to more meaningful achievements. He realizes that the knowledge gained is not only for personal achievement, but also to benefit the people. Moreover, the same thing was conveyed by Bianca Puspa who revealed that she views learning not only as an academic achievement, but also as part of worship that provides deeper meaning. By understanding that all knowledge comes from God, she feels encouraged to continue seeking knowledge and is open to criticism from her lecturers and friends, which can be seen as an opportunity to improve herself. This interpretation is based on the reflective answer she gave below.

“I do not just pursue grades, but also seek the meaning and relevance of the material, especially in Islamic Religious Education. I realize that all knowledge comes from Allah, so the learning process feels deeper and motivates me to continue seeking knowledge. I am also more open to receiving feedback from lecturers or friends, because I see it as an opportunity to improve myself, not as a criticism” (Written interview, Bianca Puspa, May 27, 2025).

The answer above indicates that a person's level of spiritual intelligence will lead him to maturity in thinking and acting. This is also the case in collaborative activities in coursework that often require patience to deal with differences of opinion, as well as finding the best solution to maintain their friendship. Likewise, in facing academic challenges, such as heavy assignments or unsatisfactory grades, spiritual intelligence helps Bianca Puspa to find the secret and wisdom behind it, by remaining resilient and considering these challenges as opportunities to grow.

Furthermore, Dinda Permatasari and Evan Ramadhan agreed on the contribution of spiritual intelligence on their academic experience so far. They highlighted that this intelligence is very influential in maintaining emotional stability, which has a direct impact on learning enthusiasm and relationships with friends. This can be seen in Dinda Permatasari's answer below.

“When I can't maintain my spiritual intelligence, the impact is immediate, especially on my enthusiasm for learning and relationships with friends. Therefore, from the first semester until now, I have really tried to keep my spiritual intelligence stable” (Interview, Dinda Permatasari, May 27, 2025).

The statement marks the importance of psychic stability which is highly pertinent in collaborative activities, making them smoother and more respectful, which strengthens teamwork outcomes. As such, it is an important pillar of effective and harmonious cooperation, which is much needed in the academic world. On a more personal level, Evan Ramadhan added that spiritual intelligence helps him to focus more on the purpose of life and the meaning of learning, as well as to be more organized in managing time and resources. He emphasized the importance of connecting with oneself through spiritual intelligence which *“helps him to be more aware of his own strengths and weaknesses.”* Therefore, the responses of these two respondents suggest that this intelligence helps to improve self-awareness, reflection skills and stress management, which are essential for maintaining balance in the face of academic pressure, which in turn leads to being more positive and productive in the face of challenges, and more effective in collaborating and working with others.

Overall, the findings suggest that spiritual intelligence provides an ethical and moral foundation for academic life. All respondents acknowledged that this intelligence plays a role in students' academic approach, not only influencing the way they learn, but also shaping their attitude towards social interaction, cooperation and challenges. As such, all the presentations in this theme show that there is a close link between spiritual intelligence and learning and innovation skills, where they complement each other and provide a strong foundation for students to develop holistically in their academic and professional lives.

Relevance and Challenges in Balancing Spiritual Intelligence and Learning and Innovation Skills for the 21st Century Education

The final theme found based on respondents' answers about the relationship between concepts in this study was the relevance and challenges of balancing the two. To explore respondents' understanding of this theme, two questions were asked during the interview, which included: 1) *What do you think is the relevance of developing spiritual intelligence and learning and innovation skills in facing the challenges of 21st century education?;* and 2) *What do you think is the biggest challenge in balancing the development of 21st century skills and spiritual intelligence as a student?* These two questions provide a comprehensive and interesting insight into students' understanding of the relevance of both, as well as the challenges they perceive in balancing the development of spiritual intelligence and learning and innovation skills, particularly in an Islamic higher education environment.

Based on the interviews with the five respondents, in relation to the first question, it was found that they conceded on the importance of developing spiritual intelligence and learning and innovation skills simultaneously in facing the challenges of 21st century education. As known from the previous findings, these two aspects complement each other and cannot be separated if students want to develop holistically, both in academic, personal and professional contexts. A further explanation was provided by Azka Rafi, using a religious lens he mentioned below

"In my opinion, the two things must be developed together. I remember the words of Ustadz Felix and Guru Gembul on TikTok. They said, *'It is better for people who initially love the world and then end up loving the hereafter, than people who love the hereafter from the beginning but underestimate the world'*" (Interview, Azka Rafi, May 26, 2025).

Azka Rafi's statement above illustrates the importance of integration between spirituality and practical skills, where both go hand in hand and form a healthier life balance. Furthermore, he implies that when someone only focuses on developing worldly skills (in this case learning and innovation skills) without a spiritual foundation, it can cause him/her to lose direction of life, potentially leading to emptiness despite having high skills. Azka Rafi's point interpretation previously came from this statement, *"If we only focus on worldly skills without spiritual provision, we can lose our way. But if we have good spiritual intelligence, even when we fail we can remain strong, sincere, and learn lessons from the failure."*

Besides, Bianca Puspa and Evan Ramadhan gave similar views, where they considered that with the complementary relationship between spiritual intelligence and learning and innovation skills, developing them in the academic world is absolute, especially if we want to survive in facing challenges of 21st century education. Bianca Puspa further explained that for her as an aspiring educator, learning and innovation skills *"provide practical skills to adapt to change and solve complex problems."* These skills are especially important to have in order to survive in the world of work later with its multiple challenges. Meanwhile, she continued, spiritual intelligence *"provides a moral compass that directs individuals to act with higher intentions."* Therefore, Bianca Puspa believes that these two aspects must be developed simultaneously, in order to create individuals who not only have great skills, but also have integrity and meaning in every action.

Similarly, Candra Rizqi, a university student who also teaches at an Islamic boarding school, strengthens the above point of view. However, he emphasized that *"in Islamic teachings, we are taught to keep learning and becoming better."* This process of self-improvement, according to him, is in line with the process of developing learning skills and continuous innovation. He conveyed this through the phrase *"without realizing it, the*

values in our spirituality also teach principles that are in line with learning and innovation skills.” This explanation reinforces the theme of the relationship between the two previous concepts, that spiritual intelligence not only provides a moral and ethical foundation, but also supports the development of more meaningful and applicable learning and innovation skills in personal and social life.

Interestingly, although spiritual intelligence and learning and innovation skills are considered very important by the respondents, many students still find it difficult to develop these two aspects in a balanced manner. This recognition of obstacles was obtained based on Dinda Permatasari's statement *“when viewed from the current conditions, actually spiritual intelligence and learning and innovation skills are very important, but in reality there are many students who have not been able to apply both in a balanced manner.”* Therefore, Islamic higher education in particular needs to pay attention to these problems, providing relevant solutions, because *“this is a big challenge, so it needs support from the campus environment by providing more platforms that can encourage students to develop in these two aspects simultaneously”* She said.

Furthermore, in understanding more deeply about the challenges faced, especially those they personally feel in developing both aspects at the same time, the interview was conducted by asking a second question, namely ***“In your opinion, what is the biggest challenge in balancing the development of 21st century skills and spiritual intelligence as a student?”*** Through this question, the researcher was able to extract diverse information from the five respondents, resulting in a comprehensive understanding that can form the basis for relevant educational policy-making in the future.

Azka Rafi revealed that the challenge he faces is very basic, particularly when spirituality and academics are seen as two separate things. This also indirectly reinforces the previous third theme about the relationship between spiritual intelligence and learning and innovation skills that is influencing each other. During the interview process, he states about this challenge in the below quotation.

“I think the biggest challenge is when spirituality and academics are seen as two separate things, when in fact they should support each other. In the pondok, we were taught from the book Ta'limul Muta'allim that a student must have a spiritual bond with his teacher. This bond is not only about adab, but also about closeness of heart and sincerity in studying” (Interview, Azka Rafi, May 26, 2025).

From the statement above, he explicitly reveals the importance of spiritual intelligence in the development of learning skills and innovations that will provide depth in the learning process, so that the efforts made will be more meaningful. This shows that, while spiritual intelligence is instrumental in helping to navigate academic challenges, an

imbalance between the academic and spiritual worlds can be a barrier to living a holistic academic life.

Furthermore, Bianca Putri and Evan Ramadhan gave similar answers regarding the challenges in balancing the two. In general, they said that the challenges include time management and priorities, especially in undergoing lectures with tasks that cannot be said to be small plus activities in student organizations. Bianca mentioned that with these challenges she would have a tendency to *“focus on pursuing grades and developing learning and innovation skills are more easily seen as having academic and career benefits, while the spiritual aspects are often overlooked because they are not considered to provide immediate results.”* This suggests that in a competitive academic environment, students tend to prioritize practical skills that have an immediate impact, while spirituality can be perceived as more abstract and difficult to measure.

Additionally, Evan Ramdhan added that the challenge of balancing spiritual intelligence and the ability to learn and innovate is because they have different characteristics. He stated that often *“students must be able to balance the development of logical and analytical skills with the development of spiritual intelligence which is more intuitive and reflective”* which is not easy. This is reinforced by the demands of the world of work that require practical skills, often to the exclusion of spirituality. To overcome this challenge, Bianca Puspa explained that developing spiritual intelligence can be done through various practices, as previously mentioned in the first theme, but in university life *“setting aside time for reflection, dhikr, or strengthening spiritual connection with Allah is not easy, especially in the midst of many distractions such as social media and other academic activities.”* As such, high academic pressure, coupled with the need to keep abreast of developments and the demands of the working world, often marginalizes the development of spiritual intelligence.

Another challenge was presented by Candra Rizqi, who was shaped by the pesantren (Islamic boarding school) environment. His unique perspective on the differences in learning systems between boarding schools and universities is a big challenge in balancing the two. Through his observation, in pesantren, teaching is more in-depth and focuses on understanding, while in the university, the demand to finish the material in each semester faster can make the learning process feel more superficial. This statement was conveyed by him in the following narrative.

“The biggest challenge in my opinion is the difference in the learning system between education in the hut and in college. In the hut, we will not move on to the next material before we really understand the current material. But in college, we are often required to complete courses even though we don't

really understand them. This makes the learning process more superficial” (Interview, Candra Rizqi, May 28, 2025).

Based on his analysis of this challenge, he suggested that to integrate spiritual intelligence in the higher education system, there must be an effort to create a balance between academic theory and spiritual values. *“The biggest challenge is how to create a balance between the demands of the modern education system and spiritual values,”* he said. This indicates that the modern education system does not always provide enough space to encourage the development of spiritual intelligence, which may hinder its integration with learning innovation skills.

The final respondent, Dinda Permatasari, emphasized that the challenge in balancing spiritual intelligence with learning and innovation skills lies in students' lack of awareness and insight into the importance of spirituality in education. The following narrative is her answer during the interview.

“In my opinion, the challenge in maintaining a balance between the development of 21st century skills and spiritual intelligence lies in the lack of awareness, insight and consistent guidance. Many students do not have a deep understanding of the importance of spirituality in education” (Interview, Dinda Permatasari, May 27, 2025).

Based on the above narration, she pointed out that while learning skills and innovation are highly emphasized in higher education, the spiritual aspect is often overlooked as students do not fully understand the relevance of spirituality in their educational process. Dinda Permatasari further suggested that students should discuss more with their supervisors or teachers to get clearer direction in dealing with academic and spiritual dilemmas. This suggests that low self-awareness and a lack of systematic guidance from the campus is one of the major obstacles in balancing the two. In addition, she also considers that building positive relationships with friends and deepening insights through reading books are effective ways to balance both skills. However, she emphasized that *“egoism and lack of education about the importance of balance are often the main obstacles.”* Therefore, consistent support and guidance from the campus needs to be strengthened so that students are able to consciously and understandably balance the development of both optimally in order to be ready to face the challenges of 21st century education.

Overall, the findings underscore the importance of developing spiritual intelligence and learning and innovation skills simultaneously, especially now in the era of 21st century education. Spiritual intelligence provides a strong moral foundation, which ensures that learning and innovation skills are used with a more meaningful and rewarding purpose, rather than just for personal or material achievement. As such, support from a better

academic environment, including consistent mentorship, insightful discussions, and a supportive community is necessary. Combining these two elements allows students to develop holistically, both in terms of academic skills and personality, and be prepared for future social and professional challenges.

4.2. Discussions

This part discusses the key findings of the study in relation to the research objectives, integrating both quantitative and qualitative strands to build a comprehensive understanding of the relationship between Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) among undergraduate students. This section is the key to answer the main research question “**How is the relationship between spiritual intelligence and learning and innovation skills in higher education context?**” The discussion is grounded in the theoretical framework and supported by previous literature, while also critically reflecting on the new insights gained through this study. By adopting a mixed methods approach, the study not only quantifies the association of SI on LIS but also explores students’ perceptions and meaning-making processes surrounding these constructs.

The parallel mixed methods design was utilized in this study to comprehensively investigate the relationship between learning innovation abilities and spiritual intelligence. This design involves simultaneously collecting and analyzing both quantitative and qualitative data in separate strands, which are then integrated during the interpretation phase to provide a more complete understanding of the research problem (Creswell & Plano Clark, 2018). In this study, the quantitative and qualitative findings strongly supported one another, demonstrating a high degree of complementarity. This parallel approach allowed for a richer and more nuanced understanding of the interaction between spiritual intelligence predicting and interacting with 21st century skills. By conducting both methods concurrently and integrating their results, a more holistic picture emerged that neither method could offer independently, leading to deeper insights into the complex phenomena under investigation (Johnson & Christensen, 2019).

The discussion is organized into three main sections, each aligned with one of the research questions. The first section addresses the predictive relationship between SI and LIS based on quantitative analyses, highlighting how spiritual competencies relate to core 21st-century learning skills. The second section explores the moderating role of demographic variables—namely gender and phase of study—on the SI–LIS relationship. The third section integrates the qualitative findings to deepen the interpretation, focusing on students’ lived experiences and conceptual understandings of SI and LIS. Collectively,

the findings of this study provide comprehensive answers to the main questions of the study, about the extent of the relationship between SI and LIS among students, as well as how they and respondents understand and interpret the relationship. These sections aim to connect empirical results with theoretical implications, offering nuanced interpretations and directions for future educational practices and research.

4.2.1. Spiritual Intelligence as a Predictor for 21st Century Learning and Innovation Skills

The present study provides robust empirical evidence affirming Spiritual Intelligence (SI) as a significant positive predictor of undergraduate students' Learning and Innovation Skills (LIS). The quantitative analysis yielded compelling results, commencing with a significant positive Pearson correlation coefficient of $r=.489$ ($p<.001$), indicating a substantial co-variation between SI and LIS. This strong association was further elucidated through a simple linear regression model, which demonstrated that Spiritual Intelligence accounted for approximately 23.9% of the variance observed in Learning and Innovation Skills ($R^2 =.239$, adjusted $R^2 =.236$, $F(1,272)=85.274$, $p<.001$). The unstandardized regression coefficient for SI ($\beta=.672$, $p<.001$) suggests that for every one-unit increase in a student's Spiritual Intelligence, their Learning and Innovation Skills are predicted to increase by 0.672 units.

Further structural equation modeling analysis provided a more granular understanding of these relationships at the dimensional level. It was found that among the dimensions of Spiritual Intelligence, only Personal Meaning Making (PMM) emerged as a significant positive predictor across all four dimensions of Learning and Innovation Skills. Specifically, PMM significantly predicted Critical Thinking & Problem Solving (CTPS) (path coefficient = 0.304, $p < 0.001$), Collaboration Skills (CWS) (path coefficient = 0.292, $p = 0.001$), Creativity and Innovation Skills (CIS) (path coefficient = 0.221, $p = 0.012$), and Communication Skills (CS) (path coefficient = 0.150, $p = 0.042$). Conversely, Critical Existential Thinking (CET), Conscious State Expansion (CSE), and Transcendental Awareness (TA) did not exhibit statistically significant direct effects on any of the LIS dimensions ($p > 0.05$). These dimensional pathways collectively accounted for varying proportions of variance in LIS dimensions, with R^2 values of 0.158 for CTPS, 0.155 for CIS, 0.176 for CS, and 0.126 for CWS, demonstrating a weak yet discernible explanatory power. Furthermore, the model exhibited predictive relevance for all LIS dimensions, as indicated by positive Q^2 values: CIS=0.131, CS=0.142, CTPS=0.139, CWS=0.105.

These quantitative findings provide a strong statistical foundation, establishing SI not merely as an associated factor, but as a substantive contributor to the development of critical 21st-century competencies such as critical thinking, creativity, communication, and collaboration. This statistical substantiation resonates deeply with a growing body of literature that recognizes SI as a pivotal construct in modern educational paradigms. Spiritual Intelligence, defined as the ability to draw upon spiritual qualities for enhanced daily functioning and well-being (Amram, 2022), encourages a holistic and intuitive engagement with information (Dorobantu & Watts, 2023). This cognitive approach, which transcends purely logical processing by incorporating deeper meaning and purpose, is inherently aligned with the complex demands of 21st-century skills (Dorobantu & Watts, 2023). Previous studies have consistently demonstrated that SI is positively correlated with academic achievement (Zhou et al., 2024) and even research performance among academicians (Upadhyay, 2017), underscoring its capacity to foster intellectual development and innovative thinking within educational contexts. Furthermore, SI's core aspects, such as fostering meaning and purpose in life (Ahmadian et al., 2013), enhancing adaptability in the face of existential challenges (Fuchs et al., 2024), and strengthening emotional and social skills (Pinto et al., 2024; Raheja et al., 2024), naturally lay a fertile ground for the cultivation of LIS. The integration of SI into educational curricula is therefore advocated as a means to develop a well-rounded skill set, preparing students for future complexities (Ma & Wang, 2022).

Qualitative findings from student interviews enrich and provide nuanced insights into this predictive relationship, revealing the lived experience of how SI associates LIS. Students universally recognized a deep, complementary and mutually reinforcing relationship between their Spiritual Intelligence and 21st century skills. They articulated that SI acts as an essential moral and ethical foundation, providing a "true purpose" that guides the application of these skills. This integration can be fundamentally explained through the lens of Deci and Ryan's Self-Determination Theory (SDT).

According to SDT, intrinsic motivation and psychological well-being are highly dependent on meeting three basic psychological needs: autonomy (feeling in control of one's own behavior and goals), competence (feeling capable and effective), and connectedness (feeling connected to others) (Deci & Ryan, 2015). The Personal Meaning Production dimension in King's (2008) SI model enables students to find higher purpose and value in their actions and choices. For example, Bianca Puspa vividly illustrates this, explaining how SI ensures critical thinking goes beyond mere logic by integrating dimensions of Islamic ethics and values, directing creativity towards useful solutions,

fostering empathic communication rooted in adab, and promoting collaboration through ukhuwah (brotherhood) and respect for differences. This shows how SI directly meets their need for autonomy, as their learning decisions and behaviors stem from internal values aligned with their life purpose, not just external pressures. This feeling of having control over life meaning and core values strengthens self-will, so students feel they have agency and control over their learning path.

Furthermore, when SI fosters adab and ukhuwah, students' need for connectedness is met. Feeling spiritually connected to others and the community, even to a greater divine existence through the Transcendental Awareness or Conscious State Expansion dimension of SI (King, 2008), promotes a sense of belonging and caring that can determine collaborative motivation and active participation in the learning environment. This intrinsic motivation, reinforced by SI, leads to more proactive, exploratory and independent learning behaviors (Alamri et al., 2020; Namaziandost et al., 2024), which directly supports the development of Learning and Innovation Skills (LIS). Azka Rafi's view that one's level of spiritual intelligence is directly proportional to the improvement of learning and innovation skills, as well as Dinda Permatasari's emphasis that *"spirituality is essential so that 21st century skills are not only technical, but also meaningful,"* further reinforces how SI imbues LIS with integrity and wisdom, prevents misuse or superficial application, and encourages autonomous motivation.

Qualitative insights further illuminate how SI directly nurtures intrinsic psychological factors underlying critical thinking and creativity. Students reported that SI significantly enhanced self-awareness and reflection, skills recognized in the literature as mediating metacognitive awareness crucial for critical thinking (Akcaoglu et al., 2023). This internal reinforcement, fostered by SI, is closely aligned with Bandura's Self-Efficacy Theory. Self-Efficacy theory states that an individual's belief in his or her ability to perform the behaviors necessary to achieve certain performance outcomes strongly impacts behavioral choices, the level of effort to be exerted in the face of adversity, and persistence in the face of obstacles (Maddux & Kleiman, 2016). The Personal Meaning Production aspect of SI (King, 2008) can help students find a higher purpose behind every challenge or failure. By viewing challenges as an integral part of the spiritual growth journey or as an opportunity for self-development, they develop the belief that they have the intrinsic capacity to overcome such obstacles, thus increasing their self-efficacy. Evan Ramadhan specifically noted that SI enhanced his self-awareness and reflection, allowing him to approach problems from a broader perspective and develop more innovative solutions. This

is a form of internal mastery experience that, while not necessarily derived from external success, provides confidence in one's abilities.

Moreover, Critical Existential Thinking in SI (King, 2008) encourages individuals to reflect on experiences, including setbacks, and draw deep lessons from them, cumulatively building resilience and confidence in their ability to thrive. This belief in self-ability, often rooted in inner strength, positively modify engagement in critical thinking and increases intrinsic motivation for creativity (Chen et al., 2025; Gong et al., 2020). Azka Rafi's experience of relying on spiritual intelligence (trust in God) when logic failed under pressure exemplifies how SI provides an "inner strength" that fosters humility in critical thinking and avoids rash decisions, acting as a reminder and counterbalance. This suggests that SI serves as a moral filter, ensuring intellectual skills are balanced with a deeper sense of morality and purpose. Students with high self-efficacy are more likely to engage in behaviors that support LIS (Olivier et al., 2019; Schunk & DiBenedetto, 2021) as they have confidence in their ability to succeed in the face of challenges inherent to these skills.

The observed relationship between SI and LIS also reflects the deep integration of cognitive and affective domains in the learning process, which is strongly supported by Cognitive Flexibility Theory (CFT). CFT, developed by Spiro et al. emphasizes the ability of individuals to adaptively and flexibly restructure knowledge in the face of novel, complex, and multidimensional situations (Ionescu, 2012). Students' narratives show that SI not only affects their cognitive approach (e.g., how they think critically or innovate) but also their emotional state and interpersonal interactions (affective domain).

Dinda Permatasari highlights how maintaining spiritual intelligence directly affects her passion for learning and her relationships with friends, demonstrating its role in emotional stability-factors that are strongly linked to effective collaboration and learning engagement. Critical Existential Thinking in SI inherently trains individuals to critically consider different perspectives, realities and fundamental assumptions about life. This process of deep reflection breaks down rigid mindsets and encourages the exploration of multiple possibilities of understanding, which directly enhances cognitive flexibility (Clément, 2022). Thus, SI helps students to not only think critically about issues, but also to flexibly adjust their thinking amidst the dynamics of emotions and social interactions.

In addition, Transcendental Consciousness (King, 2008) allows individuals to see the bigger picture and relationships between concepts that may not be obvious at first glance, helping them connect seemingly unrelated ideas in creative and innovative ways (Granato & Baldassarre, 2021). This ability to identify patterns beyond conventional boundaries and adapt to multiple viewpoints is at the core of SI and cognitive flexibility.

In a fast-changing learning environment, the ability to quickly reorganize existing knowledge and apply new approaches is key to adaptation and innovation. Students who have high cognitive flexibility are inherently better at demonstrating LIS, as they can analyze problems from multiple viewpoints, consider non-conventional solutions (creativity), and are more effective at solving complex problems by integrating knowledge from multiple sources and contexts (Saputra et al., 2022)

Crucially, the qualitative findings also revealed bidirectional relationship, where LIS can reciprocally enrich SI. Bianca Puspa's insight that *"21st century skills also enrich my spiritual intelligence,"* where collaboration fosters humility and empathy, and critical thinking deepens values and beliefs, demonstrates this dynamic interaction. This indicates that active engagement in critical thinking, creativity, communication, and collaboration provides practical avenues for students to actualize and further develop their spiritual values in academic and professional contexts. This mutual reinforcement underscores the importance of a holistic educational approach that integrates cognitive and trans-cognitive aspects of spiritual development (Filipsone, 2009; Hart, 2023). The role of intrinsic factors, such as motivation and self-efficacy, in skill development (Almayez et al., 2025) is reinforced by SI, which provides a deep sense of purpose and meaning, making learning not just an academic pursuit but a spiritual journey.

In the context of higher education, these findings have significant implications. The proven predictive power of SI for LIS strengthens the argument for intentionally integrating spiritual development into university curricula and pedagogical practices. Studies on SI in higher education highlight its role in improving mental health (Al-Shoubaki, 2024; Hosseinbor et al., 2023), academic performance (Sari et al., 2019), and leadership development (Prabhu & Mehta, 2023; Ramachandaran et al., 2017). Qualitative findings from university students in an Islamic higher education context, which emphasizes *adab*, *ukhuwah*, and knowledge for the hereafter, provide a concrete framework for how IS can be culturally and religiously contextualized to foster LIS in unique settings. It calls for curriculum design that not only conveys technical skills but also instills foundational values and purpose, as well as faculty development programs that equip educators to foster IS alongside traditional competencies (Karacaoğlu, 2025; Shityakova et al., 2020). By prioritizing the simultaneous development of spiritual intelligence and 21st century skills, educational institutions can foster comprehensively developed individuals-not only technically proficient but also ethical, resilient, and purposeful-ready to tackle the complex challenges of society and their professional lives.

4.2.2. Does Demography Matter? Exploring the Moderating Role of Gender and Study Phase

The present study delved into the nuanced relationship between Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS), specifically investigating whether this connection was moderated by demographic factors such as gender and academic progression (Phase of Study). The quantitative analysis, performed using a moderated multiple regression (PROCESS Macro Model 2), yielded compelling results that, while affirming the overall significant positive prediction of LIS by SI (as discussed in the preceding section), indicated no statistically significant moderating effects for either gender or phase of study. The interaction terms—SI \times Gender ($\beta=-0.199$, $p=.188$) and SI \times PoS ($\beta=0.156$, $p=.285$)—were non-significant. This finding is pivotal, suggesting that the strength and nature of the relationship between Spiritual Intelligence and students' capacities for learning and innovation remain remarkably consistent across male and female students, as well as between those in their early and later academic semesters. This implies a degree of pervasive and universal impact of SI on LIS, operating independently of these commonly examined demographic and academic progression variables.

It is important to acknowledge that the overall regression model predicting LIS from SI, Gender, PoS, and their interaction terms was indeed statistically significant ($R=.510$, $R^2=.260$, $F(5,268)=18.812$, $p<.001$), indicating that these variables collectively explain a meaningful proportion of the variance in LIS. Furthermore, a significant positive main effect for Phase of Study was observed ($\beta=0.284$, $p=.026$). This particular finding is consistent with general educational expectations, where students tend to accumulate knowledge, develop more sophisticated cognitive abilities, and gain practical experience as they progress through their academic journey. As highlighted by literature on academic maturity, students' perceptions of their abilities can evolve towards a more realistic self-assessment (Yani et al., 2019), and various learning skills become more refined across academic levels (Chinoy et al., 2022; Tadiboyina et al., 2025). Therefore, it is logical that students in more advanced semesters (such as Candra Rizqi and Evan Ramadhan, both in their 3rd year/Final Study Phase) would generally exhibit higher LIS simply due to increased exposure, practice, and the natural maturation process within higher education. However, the non-significance of the interaction term between SI and PoS clarifies that this general increase in LIS with academic progression does not alter *how* Spiritual Intelligence has a contribution to LIS; the predictive power of SI for LIS remains stable regardless of the student's academic standing.

The absence of a moderating effect for gender is a notable finding, especially when viewed against a broader psychological literature that often identifies gender as a significant moderator in various learning outcomes. For instance, studies have shown gender moderating mathematics performance based on mindful learning (Anglin et al., 2008), affecting group performance based on task content (Michinov et al., 2009), influencing affective learning outcomes in blended environments (Kobicheva et al., 2022), or even moderating perceptions of e-learning outcomes (Aditya & Permadi, 2019). The current study, however, suggests that the pathway through which Spiritual Intelligence contributes to Learning and Innovation Skills is not differentially affected by whether a student is male or female.

This non-moderation by gender aligns with a considerable portion of research specifically on Spiritual Intelligence itself. While some studies present contradictory findings regarding gender differences in absolute SI levels (e.g., Anwar and Rana, 2024, finding males higher in SI and psychological well-being; Raheja et al., 2024, noting a stronger SI-happiness relationship in females; or Galek et al., 2008, finding women reported certain spiritual constructs more frequently), a substantial body of literature, including studies on university students, reports no significant gender differences in spiritual intelligence (Hassan, 2023; Labib & Mathur, 2025; Pant & Srivastava, 2019).

In support the non moderation effect by demographical variables, the person-level distribution analysis in the present study revealed a generally similar pattern of Spiritual Intelligence abilities between genders (Figure 4.9). While male respondents possessed a slightly greater proportion at the High Level of SI (40.5% versus 35.8% for females) and females were more concentrated at the Intermediate Level (57.9% versus 50% for males), overall occurrence of LIS ability also demonstrated characteristic performance in the Intermediate and Advanced grades for both sexes (Figure 4.12). Although there were proportionate differences of a subtle kind—women having a slightly larger proportion at the 'Highly Advanced' LIS level (12.1% as against 10.7% for men) and a smaller proportion at the 'Basic' level (6.3% as against 8.3% for men)—these do not appear significant enough to alter in a fundamental way the relationship between SI and LIS. This consistency also appears in the person-level distribution analysis: the proportion of students with High-Level SI was remarkably similar for Early and Final Phases (around 37.2% for both, Figure 4.10).

The qualitative data from this study offers further insight into why this is the case, suggesting that the essence of SI and its development pathways are universal and generally applicable. As revealed from the student interviews, Spiritual Intelligence is fundamentally

understood as an "intuitive inner experience" (Azka Rafi), the ability to find "meaning and purpose in life" (Bianca Puspa), the embodiment of "moral values" (Bianca Puspa), the capacity for "deep self-awareness" and emotion management (Dinda Permatasari), and a catalyst for "holistic self-development" (Evan Ramadhan). These core aspects-which include self-transcendence, existential thinking, and the application of spiritual values in daily life (Amram, 2022; Dorobantu & Watts, 2023)-are intrinsic human capacities that are not inherently predisposed to one gender over another.

In the context of Self-Determination Theory (SDT), the fulfillment of basic psychological needs (autonomy, competence, connectedness) through SI is a universal human experience that transcends gender. The drive for purpose, meaning and connection is fundamental regardless of gender identity. If the SI helps fulfill these needs equally for all genders, its impact on motivation (which drives the LIS) will also be genderless. Students of both genders find autonomy in their spiritual goals and increase their sense of connectedness through Islamic values such as *ukhuwah* and adab. The spiritual practices described by students to develop SI, such as congregational worship, dhikr, self-reflection (Istighfar, gratitude), tadabbur of nature, engaging in social activities, and intellectual pursuits such as religious studies or reading history books, are activities that are universally available and practiced by individuals regardless of their gender.

Similarly, from the perspective of Self-Efficacy Theory, the SI's ability to cultivate "inner strength," "resilience," and a positive outlook (as sources of self-efficacy) may operate at a fundamental human psychological level that does not differ by gender in this context. Belief in one's ability to overcome challenges through spiritual strength can be equally strong for all genders. When Azka Rafi relies on spiritual intelligence (trust in God) when logic fails under pressure, this is a non-gender-specific source of efficacy.

Finally, within the framework of Cognitive Flexibility Theory, the capacity for "critical existential thinking" and "transcendental awareness" (keys to cognitive flexibility) are also fundamental cognitive and spiritual processes that may not be gender-specific in their linked to LIS. Flexible restructuring of knowledge driven by spiritual insights would be universal. The emphasis on inner presence, ethical considerations (Maqashid Syariah), tolerance, and social responsibility resonated across the diverse backgrounds of qualitative respondents, including both male (Azka Rafi, Candra Rizqi, Evan Ramadhan) and female (Bianca Puspa, Dinda Permatasari) students. This consistency in the conceptualization and embedding of SIs by both genders provides a compelling qualitative explanation for why gender does not moderate its relationship with LIS. The nature of SIs appears to transcend gender-specific association, acting as a stable and broad resource for all students.

The non-significant moderating effect of Phase of Study similarly underscores the enduring and fundamental nature of Spiritual Intelligence's association on LIS throughout a student's academic journey. While Learning and Innovation Skills generally improve with academic maturity, as evidenced by the significant main effect of PoS, the way SI predicts and contributes to these skills does not change based on whether a student is in their first year (like Azka Rafi, Bianca Puspa, Dinda Permatasari) or a later year (like Candra Rizqi, Evan Ramadhan). Moreover, while LIS skills in general showed enhancement with academic progression, particularly at the 'Highly Advanced' level for Final Phase students (13.8% vs. 9.3% for Early Phase, Figure 4.13), the trend of overall distributions did not reflect an essential transformation of how SI may connect with LIS in these phases. This suggests that SI acts as a foundational, continuously operative resource rather than a factor whose impact varies with the accumulation of academic experience.

Students' qualitative accounts reinforce this. SI is perceived as a "foundation of mental endurance" when facing academic pressure (Azka Rafi), a "source of enthusiasm and strength to survive in the stressful academic world" (Dinda Permatasari), and a motivator that helps students "return to the principal values and the original purpose of attending college" when feeling exhausted. These benefits—psychological resilience, sustained motivation, and moral compass—are crucial at *all* academic stages. Whether a student is navigating the initial challenges of adapting to university life, grappling with complex theories in intermediate semesters, or undertaking intensive research and career preparation in final semesters, the ability to draw upon spiritual resources for meaning, purpose, and inner strength provides a consistent advantage in developing and applying LIS. The belief that "spiritual intelligence makes her mentally stronger and better able to learn from failures by adhering to Islamic values" (Bianca Puspa) is relevant from the moment a student begins their higher education journey until they transition into their professional life. This implies that SI is a core competency that fosters adaptive and resilient learning behaviours consistently across all academic phases.

From the standpoint of Self-Determination Theory (SDT), although academic experience can enhance objective competence, the role of SI in providing autonomy (goal-driven learning) and connectedness (social engagement) is consistently relevant. Intrinsic motivation fostered by SI is required at all stages, from basic learning to complex research. Its impact on purpose and meaning does not diminish with academic progress; it remains a consistent driver for autonomous learning. When we consider Self-Efficacy Theory, SI's contribution to "mental resilience," "resilience," and "learning from failure" is critical throughout the academic journey. Whether a student is a freshman facing new academic

demands or a senior grappling with thesis challenges, spiritual belief in one's capacity to overcome adversity (source self-efficacy) remains a consistent factor in sustaining effort and perseverance for LIS development.

Similarly, from the perspective of Cognitive Flexibility Theory, the need for "cognitive flexibility" (adjusting thinking, seeing the big picture, integrating diverse knowledge) is equally important from introductory courses to advanced research. The role of SI in cultivating this mental agility is that of a stable resource, not one that varies in its predictive power with the complexity of academic content. The ability to spiritually restructure thinking and find meaning amidst complexity (King, 2008) is a resource that remains relevant regardless of academic phase. The belief that "spiritual intelligence makes one mentally stronger and better able to learn from failures by adhering to Islamic values" (Bianca Puspa) is relevant from the time a student begins their higher education journey until they transition into their professional lives. This implies that SI is a core competency that fosters adaptive and resilient learning behaviors consistently across all academic phases.

The consistent impact of SI on LIS, irrespective of gender or academic phase, carries significant implications for higher education. It reinforces the argument for integrating spiritual development into educational curricula as a universal strategy to enhance 21st-century skills for *all* students. Given that LIS are understood by students as "very important ability to have in order for someone to succeed in the modern era" (Azka Rafi) and "essential competencies in facing a changing era" (all respondents), fostering SI can be seen as an equitable approach to empowering diverse student populations. The findings suggest that educational interventions aimed at cultivating SI need not be specifically tailored for different genders or academic years to be effective in improving LIS. Instead, a holistic approach that emphasizes personal integrity, ethical conduct, self-awareness, and a sense of purpose—all hallmarks of high SI—can broadly benefit students across the board, supporting their ability to think critically, innovate, communicate effectively, and collaborate.

While the absence of moderation by gender and phase of study speaks to the broad applicability of SI's relation, it also opens avenues for future research. Subsequent studies could explore other potential moderating variables that might fine-tune this relationship, such as different learning environments (e.g., highly collaborative vs. lecture-based), specific pedagogical interventions (e.g., problem-based learning, experiential learning), personality traits (e.g., openness, conscientiousness, which have been linked to SI by Mahasneh et al., 2015), or socio-cultural factors beyond simple demographic categories.

Investigating these more granular relations could provide a deeper understanding of how the robust SI-LIS link might be further optimized for maximum student benefit.

4.2.3. Student Perspectives on Spiritual Intelligence and Learning Skills: Meaning, Practice, and Challenges

The intersection of spiritual intelligence (SI) and learning and innovation skills (LIS) is paramount in preparing students for the dynamic landscape of 21st-century education and beyond. This section delves into undergraduate students' perspectives on the meaning and relevance of these two constructs, their perceived practices in cultivating them, and the significant challenges they encounter in balancing their development, particularly within an Islamic higher education environment. The qualitative findings from this study provide rich, firsthand accounts that illuminate the intricate relationship between spiritual grounding and practical competencies, affirming their synergistic nature for holistic student development.

The Intertwined Meaning and Profound Relevance

Students in this study consistently articulated a profound understanding of both Spiritual Intelligence and Learning and Innovation Skills, perceiving them not as disparate entities but as fundamentally interconnected and mutually reinforcing. Their conceptualization of SI transcends a mere religious observance, embracing it as an "intuitive inner experience" (Azka Rafi), the quest for "meaning and purpose of life" (Bianca Puspa), the embodiment of "moral values," "deep self-awareness," and emotional management (Dinda Permatasari), all culminating in "holistic self-development" (Evan Ramadhan). This understanding aligns well with theoretical definitions of SI, which encompass critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion (Amram, 2022; Giannone & Kaplin, 2020; Mahasneh et al., 2015). For these students, particularly within an Islamic higher education context, SI dimensions like transcendental awareness, meaning of life, patience, and forgiveness, as highlighted by Islamic scholars (Anwar & Rana, 2024; Wijaya et al., 2025), are integral to their worldview and educational journey.

Similarly, LIS are perceived as indispensable tools for navigating the modern world. Students described them as the "*ability to adapt to change and solve complex problems*" (Bianca Puspa), emphasizing creativity, critical thinking, communication, and collaboration as "essential competencies in facing a changing era" (all respondents). Azka Rafi aptly called LIS "*a very important ability to have in order for someone to succeed in*

the modern era." These student voices resonate with the broader academic discourse on 21st-century skills, which stresses their importance for career readiness and workplace success (Mahmud & Wong, 2022). The qualitative insights from students confirm their strong perception of the value of these skills, noting their development as they progress through their academic years (Aizenkot & Ben David, 2023).

The ultimate relevance, as articulated by the respondents, lies in the simultaneous and complementary development of both SI and LIS. Azka Rafi's powerful analogy, drawing from religious teachings, *"It is better for people who initially love the world and then end up loving the hereafter, than people who love the hereafter from the beginning but underestimate the world,"* beautifully encapsulates this integration. He posits that focusing solely on "worldly skills" (LIS) without a spiritual foundation can lead to a loss of direction and inner emptiness, whereas a strong SI provides resilience to "remain strong, sincere, and learn lessons from the failure" even amidst setbacks. This aligns with the understanding that SI provides a "moral compass that directs individuals to act with higher intentions" (Bianca Puspa), ensuring that practical skills are deployed with integrity and a sense of purpose beyond mere material gain. This integrated view supports the notion that SI enables LIS to be used for "more meaningful and rewarding purposes," rather than just personal achievement.

In the context of Self-Determination Theory (SDT), these findings show how SI crucially fulfills the basic psychological needs of autonomy, competence, and connectedness, which in turn drive intrinsic motivation for LIS development. When students find a "true purpose" (as Bianca Puspa puts it) underpinned by SI, they not only fulfill the need for autonomy (actions driven by intrinsic values and personal choice), but also increase their sense of competence. The ability to learn lessons from failure and remain resilient, reinforced by SI, builds confidence in their capacity to overcome learning challenges, thus promoting intrinsic motivation to continue developing the LIS. Azka Rafi's analogy perfectly captures the essence of SDT: when LIS is imbued with a spiritual purpose, it is no longer just an extrinsic activity, but rather integrated into the self, making it a powerful autonomous motivation. In addition, SI fosters a deeper sense of connectedness—both with the higher self, the community (through *ukhuwah* and *adab*), and with God. This connectedness creates internal and external environments that support collaborative learning and innovation, as students are motivated by a greater sense of collective responsibility and meaning.

Candra Rizqi, from his *pesantren* background, further reinforces this by noting how "in Islamic teachings, we are taught to keep learning and becoming better." He observed

that "without realizing it, the values in our spirituality also teach principles that are in line with learning and innovation skills." This suggests that the principles of ethics and self-development embedded in spirituality naturally foster the mindset needed for continuous learning and innovation. This holistic perspective, which emphasizes the integration of moral and spiritual principles with academic learning, is at the core of Islamic education (Kasim & Yusoff, 2014; Mansoor et al., 2025) and is seen by students as vital to developing "individuals who not only have great skills, but also have integrity and meaning in every action." This view is also supported by the literature on meaning-making in education, where learning goes beyond the transmission of knowledge to help students find purpose in life (Schinkel et al., 2016). This link is also in line with Self-Efficacy Theory, where belief in the ability to keep learning and getting better (a form of self-efficacy) is supported by spiritual values that encourage continuous self-improvement.

Perceived Practices in Cultivating SI and LIS

The students' narratives reveal both intentional and incidental practices through which they cultivate SI and LIS. For Spiritual Intelligence, practices are deeply rooted in personal reflection, religious observance, and ethical living. Students mentioned "congregational worship, *dhikr*, self-reflection (*Istighfar*, gratitude), *tadabbur* nature, engaging in social activities, and intellectual pursuits like religious studies or reading history books." These are perceived as ways to foster inner presence, manage emotions, and adhere to ethical values (*Maqashid Sharia*), contributing to mental endurance and resilience against academic pressure. The literature on student perception of SI also highlights its link to emotional regulation and stress reduction (Bayrami et al., 2014; Wijaya et al., 2025), and the effectiveness of spiritual interventions in enhancing mental health and performance (Abdolrezaipoor & Alipoor, 2021; Al-Shoubaki, 2024). The emphasis on self-awareness and ethical conduct resonates with the Islamic perspective on SI (Anwar et al., 2021).

These SI practices directly contribute to Bandura's Self-Efficacy Theory. Through worship and self-reflection, students develop an "experience of mastery" over their internal states, building confidence in their ability to manage emotions and stress. The "mental resilience" mentioned is a manifestation of high self-efficacy, which stems from inner strength and a spiritual outlook towards challenges. Positive emotional and physiological states, which are also sources of self-efficacy, are reinforced by these practices, allowing students to feel more capable and ready to face academic challenges that require LIS. Meanwhile, in terms of Self-Determination Theory, these spiritual practices fulfill students'

need for autonomy in a profound way. As they engage in worship, dhikr and self-reflection, they actively choose to delve into intrinsic values and higher purpose, which is a manifestation of self-driven motivation. Involvement in social activities also fulfills the need for connectedness, which motivates them to collaborate and contribute authentically.

Finally, in the perspective of Cognitive Flexibility Theory, practices such as nature tadabbur and religious studies (intellectual pursuits) directly foster Critical Existential Thinking and Transcendental Consciousness (King, 2008). By contemplating the universe or delving into religious texts, students are trained to look at problems from multiple perspectives, question assumptions, and find connections between different concepts. This is an essential mental exercise to develop the ability to adapt and flexibly restructure knowledge, which is at the core of cognitive flexibility and strongly supports LIS such as critical thinking and creativity.

Regarding Learning and Innovation Skills, students recognize their development through a variety of academic and extracurricular engagements. While the provided qualitative data for this theme doesn't explicitly detail pedagogical methods, the broader literature on LIS development in higher education points to strategies such as Innovation-Based Learning (Heizelman & Matt, 2023), Digital Game-Based Learning (Sian et al., 2024), Course-Based Undergraduate Research Experience (Gao & Guo, 2023), and Project-Based Learning (Breitschuh et al., 2014; Shekhar et al., 2017). Students in this study, through their understanding of LIS as encompassing critical thinking, problem-solving, and adaptability, implicitly participate in these types of activities within their university curricula. For example, their engagement with complex tasks and projects would naturally foster these skills. The general trend of LIS improving with academic progression (Aizenkot & Ben David, 2023) further indicates that the university environment, through its curriculum and challenges, facilitates this development.

The Multifaceted Challenges in Balancing Development

Despite the unanimous recognition of the importance of both SI and LIS, students expressed significant challenges in balancing their development, particularly within the demands of contemporary Islamic higher education. Dinda Permatasari candidly states that *"many students who have not been able to apply both in a balanced manner,"* highlighting a practical gap between perceived importance and actual implementation. This recognition of obstacles points to systemic issues that Islamic higher education institutions need to address. Several specific challenges emerged from the student interviews:

Perceived Separation of Spirituality and Academics

Azka Rafi's primary challenge is "when spirituality and academics are seen as two separate things, when in fact they should support each other." He refers to traditional Islamic pedagogical wisdom, like from the book *Ta'limul Muta'allim*, which emphasizes the spiritual bond between student and teacher for deep, sincere learning. This highlights a disconnect between the holistic vision of Islamic education and the practical reality where academic metrics often overshadow spiritual development. This echoes the challenge noted in the literature regarding traditional teaching methods and the need for curriculum alignment in Islamic higher education (Alharbi, 2024; Othman et al., 2017).

From the standpoint of Self-Determination Theory (SDT), this perceived separation directly undermines autonomous motivation. When spirituality, which is a source of intrinsic purpose and autonomy, is separated from academics, students may experience more controlled motivation (e.g., focus on grades or external pressures) rather than autonomous motivation for LIS. This hinders the fulfillment of the need for autonomy in learning, as the learning process no longer feels fully aligned with their deepest spiritual values and goals. As a result, engagement in LIS may become less meaningful and more overwhelming.

Time Management and Prioritization

Bianca Puspa and Evan Ramadhan pointed to challenges related to "time management and priorities" amidst heavy academic workloads and organizational activities. Bianca noted a tendency to "focus on pursuing grades and developing learning and innovation skills are more easily seen as having academic and career benefits, while the spiritual aspects are often overlooked because they are not considered to provide immediate results." This reflects a pragmatic student perspective in a competitive environment where tangible, measurable outcomes take precedence. Evan further elaborated on the difficulty in balancing "logical and analytical skills with the development of spiritual intelligence which is more intuitive and reflective," an inherent difference in their characteristics. This is compounded by distractions like social media, making dedicated time for spiritual practices like "reflection, dhikr, or strengthening spiritual connection with Allah" challenging (Bianca Puspa). This challenge mirrors broader concerns about student mental well-being under academic stress (Barbayannis et al., 2022), and the need for support systems (Carreño-Flores et al., 2024).

These time management challenges directly linked to Self-Determination Theory and Self-Efficacy Theory. The prioritization of external outcome-driven LIS (grades,

career) over intrinsic SI indicates a shift from autonomous to controlled motivation. When students feel compelled to pursue LIS without a strong spiritual foundation, their autonomy needs may not be met, leading to burnout and lack of intrinsic satisfaction. In addition, difficulties in allocating time for spiritual practices (which support SI) may reduce sources of self-efficacy derived from inner strength, reflection, and emotion management. Lack of time for reflection may decrease students' belief in their capacity to cope with academic stress and failure through spiritual resources. Aspects of Cognitive Flexibility Theory are also affected, as the difficulty in balancing logical/analytical skills with intuition/reflection indicates difficulty in integrating different modes of thinking—a form of cognitive rigidity arising from time pressure and lack of space for deep reflection driven by SI.

Differences in Learning Systems

Candra Rizqi, drawing from his unique experience in a *pesantren*, highlighted a systemic challenge: "the difference in the learning system between education in the *pesantren* and in college." He observed that *pesantren* fosters "in-depth understanding" before progressing, while universities often demand rapid completion of material, leading to a "superficial" learning process. This contrast implies that the modern university system may not always provide sufficient space for the deep, reflective learning crucial for spiritual intelligence, potentially hindering its integration with LIS. This resonates with the challenges in integrating 21st-century skills where traditional academic paradigms persist (Alharbi, 2024).

The impact of these differences in learning systems can be analyzed through three theories. For Self-Determination Theory, "superficial" learning can hinder the fulfillment of the needs of competence (feeling truly mastered of the material) and autonomy (no freedom to explore deep meaning). This can lead to purely extrinsic motivation to achieve value, rather than intrinsic motivation for true SI-driven learning. From the perspective of Self-Efficacy Theory, a rushed process can reduce students' "mastery experience" and confidence in their ability to truly understand and apply concepts, including LIS. What's more, an approach that is not conducive to deep reflection also limits the development of SI and the source of self-efficacy from which it derives. Within the framework of Cognitive Flexibility Theory, systems that emphasize quick resolution rather than deep understanding can hinder the development of Critical Existential Thinking and Transcendental Awareness. This limits students' ability to see multiple perspectives and make non-linear connections, which is at the core of cognitive flexibility, and ultimately hinders their ability to innovate in depth.

Lack of Awareness, Insight, and Consistent Guidance

Dinda Permatasari emphasized a fundamental obstacle: "the lack of awareness, insight and consistent guidance. Many students do not have a deep understanding of the importance of spirituality in education." She pointed out that while LIS are heavily emphasized, the spiritual aspect is often neglected because students "do not fully understand the relevance of spirituality in their educational process." This lack of self-awareness and systematic guidance from the campus is seen as a major barrier. Dinda suggested solutions such as discussing more with supervisors/teachers, building positive relationships with friends, and deepening insights through reading books. She critically noted that "egoism and lack of education about the importance of balance are often the main obstacles." This aligns with the literature on the need for comprehensive support systems and educational programs for spiritual intelligence development within universities (Prabhu & Mehta, 2023). It also highlights the call for curriculum and pedagogy reforms and professional development for teachers to better integrate 21st-century skills in higher education, including Islamic university (Herlinawati et al., 2024).

This challenge is a direct threat to the fulfillment of basic needs in Self-Determination Theory. Lack of awareness of the relevance of SI means students do not see how SI can fulfill their needs for autonomy (through purpose and meaning), competence (through self-understanding and resilience), and connectedness (through ethical and community relationships). Without consistent guidance, they may not know how to develop SIs or how to integrate them with LIS, which hinders the fulfillment of these needs. The "egoism" mentioned could also be a sign of low unmet connectedness needs, where the focus shifts to the self rather than the community. On the other hand, in terms of Self-Efficacy Theory, the lack of awareness and guidance meant that students did not develop strong beliefs in their capacity to develop SI or see how SI enhances LIS. They do not gain "mastery experience" in the spiritual domain, and there is not sufficient "social persuasion" from the academic environment to encourage the development of SI. This may hinder the formation of strong self-efficacy related to the spiritual dimension of learning.

Finally, for Cognitive Flexibility Theory, the lack of insight and guidance hinders the development of Critical Existential Thinking and Transcendental Consciousness. If students do not understand the relevance of spirituality, they are less likely to see the connection between spirituality and the academic domain, limiting their ability to think flexibly, integrate different types of knowledge, and come up with holistic innovative

solutions. Lack of guidance in balancing these various aspects can result in more rigid and less adaptive thinking.

Overall, these findings underscore that while students acutely perceive the crucial relevance of integrating SI and LIS for 21st-century challenges, the practical implementation faces significant hurdles rooted in systemic educational approaches, time pressures, and a general deficit in holistic guidance. The student narratives serve as a powerful "voice on 21st-century skills" (Mahmud & Wong, 2022), illuminating the need for Islamic higher education institutions to bridge the gap between their stated holistic development goals and the lived experiences of students. By addressing these challenges through intentional curriculum design, robust teacher training, and creating a supportive campus environment that actively promotes discussions and mentorship on the synergy between spiritual growth and academic excellence, universities can better empower students to truly embody the desired competencies for a meaningful and successful future.

In conclusion, all the three findings above give comprehensive answer for the main research question of study. The use of mixed-method study strongly supports that the relationship between spiritual intelligence (SI) and learning and innovation skills (LIS) in the context of higher education is rich, positive, and extremely integrated, and constitutes a vital pillar for integral student development. Quantitative findings positively delineated SI as an intensive positive predictor of LIS, highlighting in the main the central importance of Personal Meaning Making in constructing complex 21st-century competencies. This explanatory power was found to be extremely universal in nature, remaining constant across both genders and levels of study, thus bringing into focus SI's ubiquitous and consistent impact on LIS irrespective of these demographic and levels of study factors. Qualitative findings supplemented this image further, revealing that students logically look at SI and LIS not as isolates but as inextricably related and complementary to each other. They described how spiritual intelligence, in the form of personal meaning-making, ethical regulation, and self-knowing, acts as a built-in motivator and strength reservoir and cognitive flexibility (as theorized by Self-Determination, Self-Efficacy, and Cognitive Flexibility Theories), which enables the effective and meaningful utilization of LIS.

Despite this reported synergy, students freely shared complicated issues with coordinating SI and LIS development within the current higher education environment, including a sense of compartmentalization of spirituality from academicism, undue time management pressures, dissimilar learning systems, and insufficient ongoing awareness and guidance. Coupled with this, these findings highlight the truth that the synergy between

learning and innovation capacity and spiritual intelligence is one of deep collaboration, where SI imparts LIS direction, sense, and integrity, and not only technically competent practitioners but also morally grounded practitioners are fashioned who are also robust and better able to cope with the intricacies of modern life with acumen and higher purpose. This mutual relationship draws attention to the pressing need for pedagogical models that particularly develop spiritual and practical skills for a holistic and effective student life.

CHAPTER V

CONCLUSION

This chapter serves as the culmination of the present study, offering a concise synthesis of its key findings, delineating the theoretical and practical implications, acknowledging the inherent limitations, and proposing directions for future research. It encapsulates the journey of inquiry into the intricate relationship between Spiritual Intelligence (SI) and Learning and Innovation Skills (LIS) among undergraduate students in Islamic higher education, aiming to contribute to a more holistic and future-oriented educational paradigm.

5.1. Conclusion

The investigation yielded compelling insights into the dynamics between spiritual intelligence and 21st-century competencies. Quantitatively, the study robustly demonstrated that Spiritual Intelligence significantly and positively predicts Learning and Innovation Skills among undergraduate students. This foundational relationship highlights the crucial role of a student's spiritual depth in fostering their capacity for learning, critical thinking, creativity, communication, and collaboration. Importantly, this positive predictive power was found to be consistent across different genders and academic phases of study, indicating that the beneficial contribution of SI on LIS is universal within the observed student population, transcending typical demographic or developmental distinctions. While LIS generally improved as students progressed through their academic years (a significant main effect of phase of study), this progression did not alter the fundamental predictive nature of SI.

Moreover, qualitative explorations provided rich contextual understanding, revealing that students perceive SI and LIS not as isolated constructs but as interconnected and mutually reinforcing for holistic personal and academic development. Students articulated SI as an inner compass for meaning, purpose, and moral grounding, essential for resilience and ethical application of skills. LIS were recognized as indispensable for navigating complex contemporary challenges. However, despite this acute awareness, students identified significant challenges in balancing the development of both. These challenges included a perceived separation between academic pursuits and spiritual growth, difficulties in managing time and prioritizing abstract spiritual development over tangible academic gains, contrasts between traditional Islamic learning systems and modern university demands, and, critically, a perceived lack of consistent guidance and awareness from the campus environment regarding the integrated importance of SI and LIS.

5.2. Implications of the Study

The findings of this study carry significant implications, both for theoretical understanding and practical application in education. Firstly, for theoretical implications, the consistent and positive prediction of LIS by SI, unmoderated by gender or academic phase, strengthens the theoretical conceptualization of Spiritual Intelligence as a fundamental and universal human capacity. This reinforces the notion of SI as a meta-intelligence that underpins and enriches other forms of intelligence, providing a stable wellspring for cognitive and practical competencies regardless of demographic variations. The study's qualitative insights, particularly from an Islamic perspective, further contribute to a nuanced understanding of SI's dimensions, emphasizing its role in meaning-making, self-awareness, and ethical grounding, thereby enriching existing theoretical frameworks of SI within diverse cultural and religious contexts. This also advocates for a more holistic intelligence model, where spiritual, emotional, and cognitive faculties synergistically contribute to effective human functioning and learning.

The robust link between SI and LIS provides a compelling rationale (practical implication) for integrating SI development as a core component of educational curricula, particularly within Islamic higher education. Institutions should move beyond viewing spirituality as merely an extracurricular or isolated religious subject. Instead, SI should be woven into the fabric of academic learning, emphasizing how spiritual values foster critical thinking, ethical problem-solving, and resilient innovation. This necessitates:

- **Curriculum Redesign:** Developing courses and pedagogical approaches that explicitly connect spiritual principles with 21st-century skills, for example, by framing design thinking or entrepreneurial projects through the lens of societal contribution guided by spiritual values.
- **Holistic Faculty Development:** Training educators to understand and embody the integration of SI and LIS, enabling them to serve as role models and facilitate discussions that bridge academic and spiritual domains.
- **Supportive Campus Environment:** Establishing institutional initiatives such as mentorship programs, reflective practices, and community dialogues that consciously nurture students' spiritual growth alongside their academic and skill development, addressing the identified gaps in guidance and awareness.
- **Rethinking Assessment:** Exploring innovative assessment methods that can evaluate students' holistic development, including their ethical reasoning,

resilience, and capacity for meaning-making, in addition to their technical and innovation skills.

5.3. Limitation

Despite the valuable insights generated, this study is not without limitations that warrant consideration for future research. Firstly, the cross-sectional design of the study limits the ability to establish definitive causal relationships between Spiritual Intelligence and Learning and Innovation Skills. While a predictive relationship was found, a longitudinal study would be necessary to observe how changes in SI associated the development of LIS over time. Secondly, the sample characteristics present limitations to generalizability. The quantitative sample size of 274, while substantial, was drawn from only five different Islamic higher education institutions, with an uneven distribution across them. The qualitative sample, comprising only five participants (one from each campus), provides rich depth but limits the transferability of specific qualitative insights. Furthermore, the use of convenient sampling inherently reduces the representativeness of the sample, making it challenging to generalize findings to the broader population of all undergraduate students or Islamic higher education contexts.

Furthermore, the methods of data collection, specifically the online questionnaire for quantitative data and online interviews (both oral and written) for qualitative data, carry potential limitations. Self-report measures are susceptible to response bias, and online interactions, while convenient, may sometimes lack the nuances captured in face-to-face engagements. On the other hand, the interview questions prepared in this study tend to want direct answers from respondents that have the potential to lead respondents to provide conceptual definitions compared to an in-depth exploration of their subjective experiences. With regards to the writing style utilized, although efforts have been put forth to maintain the voices of the respondents and the density of their thought by reproducing longer direct quotes within qualitative reports, this tactic has its disadvantages as well. Where, on one hand, these extensive citations also burden the reader in reconstructing the understanding and can undermine the prominence accorded to the researcher's analysis.

While the parallel mixed methods design utilized in this research allowed for a vivid and in-depth description of the relationship between spiritual intelligence and learning innovation ability by integrating quantitative and qualitative results, it is recommended to acknowledge that there are inherent limitations in utilizing this design compared to other mixed-method approaches. In particular, the nature of the parallel design, where quantitative and qualitative strands are conducted simultaneously but often

independently, means that the integration occurs primarily at the interpretation phase. This can sometimes lead to challenges in directly connecting specific qualitative insights to quantitative findings in a detailed, explanatory manner during the data collection or analysis phases themselves. Thus, while quantitative data provides broad generalizable patterns and relationships, the qualitative data, though offering rich and profound insight into "how" such relationships are expressed and students' perceptions, might not always explore every nuanced aspect of spiritual experiences or innovation skill development as deeply or as broadly as a sequential explanatory or exploratory design might allow. These limitations also mean that the initial separation of data collection, while ensuring breadth, might require careful and deliberate efforts during the integration phase to identify and articulate the overarching general phenomena that emerge from the combined evidence, especially if they are not directly linked to initial hypotheses of either standalone method. This is nevertheless a necessary part of the parallel design, which balances comprehensive understanding from multiple perspectives against the depth of exploration within a single methodological approach, in order to achieve significant research objectives.

Lastly, the study's specific focus solely on Spiritual Intelligence and Learning and Innovation Skills means that other potentially influential variables (e.g., emotional intelligence, social support, specific pedagogical interventions, institutional culture, or prior educational backgrounds) were not explored as mediators or moderators, limiting the comprehensive understanding of the complex interplay of factors influencing LIS. Another thing that needs to be considered is the selection of other relevant instruments, considering that referring to the results of the item analyst's difficulty level, the spread of the item is within the logit range of 0.0 logit and is not well spread to measure person ability with a high level.

5.4. Recommendations for Future Research

Building upon the findings and acknowledging the limitations of this study, several recommendations for future research emerge. First, expanded contexts and educational levels. Future research should broaden the scope beyond Islamic higher education institutions and programs of Islamic religious education. Investigating the relationship between SI and 21st-century skills across diverse educational settings (e.g., secular universities, vocational schools) and at different educational levels, from basic education (primary and secondary schools) through undergraduate and graduate studies, would significantly enhance the generalizability and applicability of these findings. This would allow for cross-cultural and cross-curricular comparisons. Second, considered longitudinal

and experimental designs to establish causality. Future studies could employ longitudinal designs to track the co-development of SI and LIS over time and or experimental or quasi-experimental studies could be designed to evaluate the effectiveness of specific interventions aimed at enhancing SI in fostering LIS, providing empirical evidence for the proposed integrative framework.

Additionally, estimated the inclusion of mediating and moderating variables in the model. Future studies would be wise to investigate other mediators or moderators of the interaction between SI and LIS. Such variables as emotional intelligence, psychological well-being, specific teaching strategies, school climate, and home environment are among those that can provide additional insight into this dynamic. The use of other statistical analysis can reach the investigation and giving more comprehensive information related to the relation among variabls, such as using Multilevel Modeling approach, which is considering the nested structure of data set. From this research, future study can consider the different type of university, faculty and departement of respondent, using stratified random sampling method, allows to estimate the differnces source of variation either between group or within group, serving the preference to see the effect of variables on the relation between SI and LIS among undergraduate students. Throught this approach, it can inform the policy maker holistically to develop different approach in developing SI and LIS simultaneously. Fourth, employed diverse methodologies and data sources. Utilizing a wider range of methodologies, including observation, analysis of student portfolios, and feedback, would be able to create a stronger picture of LIS development. Including input from potential employers, administrators, and faculty members would provide even more comprehensive information about skill development and its implementation.

Furthermore, investigated the development and evaluation of integrated curricula. Study must focus on the development, implementation, and systemic evaluation of curricula and extracurricular activities specifically tailored to foster SI-based 21st-century learning. This involves measuring the impact of such combined strategies on student performance, well-being, and readiness for future challenges. Lastly, examined qualitative depth on challenges and solutions. Further qualitative research could delve deeper into the specific challenges faced by students in balancing SI and LIS, exploring their coping mechanisms and seeking student-driven solutions, perhaps through participatory action research. Understanding the nuances of “lack of awareness” and “consistent guidance” would be crucial.

REFERENCES

- Abad, F. M., & López, A. A. C. C. (2017). Data-mining techniques in detecting factors linked to academic achievement. *School Effectiveness and School Improvement*, 28(1), 39–55. <https://doi.org/10.1080/09243453.2016.1235591>
- Abdolrezapour, P., & Alipour, J. (2021). Fostering spiritual intelligence and a concomitant development of WTC in EFL learners. *Teaching Theology & Religion*, 24(3), 136–151. <https://doi.org/10.1111/teth.12592>
- Absah, Y., Rini, E. S., & Sembiring, B. K. F. (2020). Role of spiritual intelligence, emotional intelligence, employee engagement and flexible working arrangements in institutional performance among the educational sector of Indonesia. *International Journal of Innovation, Creativity and Change*, 11(5), 329–347.
- Adams, R. J., Wilson, M., & Wang, W. (1997). The multidimensional random coefficients multinomial logit model. *Applied Psychological Measurement*, 21(1), 1–23. <https://doi.org/10.1177/0146621697211001>
- Adepoju, O. O., & Nwulu, N. (2020). Engineering students' innovation competence: A comparative analysis of Nigeria and South Africa. *International Journal of Engineering Pedagogy (iJEP)*, 10(6), 147. <https://doi.org/10.3991/ijep.v10i6.14695>
- Aditya, B. R., & Permadi, A. (2019). Gender differences in students' e-learning usage outcomes. *2019 5th International Conference on Science and Technology (ICST)*, 1–5. <https://doi.org/10.1109/ICST47872.2019.9166265>
- Adler-Beléndez, D., Hoppenstedt, E., Husain, M., Chng, E., & Schneider, B. (2020). How are 21st century skills captured in makerspaces?: A review of the literature. *Proceedings of the FabLearn 2020 - 9th Annual Conference on Maker Education*, 40–45. <https://doi.org/10.1145/3386201.3386214>
- Aghamohammadi, M., & Asgari, S. (2016). The relationship between personality characteristics and emotional intelligence and academic performance at the students of medical sciences the Alborz province. *Biomedical and Pharmacology Journal*, 9(2), 715–722. <https://doi.org/10.13005/bpj/994>
- Aghazadeh, S. (2019). *Assessment of 21st century skills (NIE Working Paper Series No. 14)*. Singapore: National Institute of Education. <https://hdl.handle.net/10497/22420>
- Ahmad, M., & Wilkins, S. (2025). Purposive sampling in qualitative research: A framework for the entire journey. *Quality & Quantity*, 59(2), 1461–1479. <https://doi.org/10.1007/s11135-024-02022-5>
- Ahmadi, M., Estebarsari, F., Poormansouri, S., Jahani, S., & Sedighie, L. (2021). Perceived professional competence in spiritual care and predictive role of spiritual intelligence

- in Iranian nursing students. *Nurse Education in Practice*, 57, 103227. <https://doi.org/10.1016/j.nepr.2021.103227>
- Ahmadian, E., A. Hakimzadeh, & Kordestani, S. (2013). Job stress and spiritual intelligence: A case study. *World Applied Sciences Journal*, 22(11), 1667–1676. <http://dx.doi.org/10.5829/idosi.wasj.2013.22.11.2974>
- Ahmed, A., Arshad, M. A., Mahmood, A., & Akhtar, S. (2016). Holistic human resource development: Balancing the equation through the inclusion of spiritual quotient. *Journal of Human Values*, 22(3), 165–179. <https://doi.org/10.1177/0971685816650573>
- Aizenkot, D., & Ben David, Y. (2023). An exploratory study of 21st century skills of undergraduate education students: A comparison between freshman, second, and graduation years. *Innovations in Education and Teaching International*, 60(4), 524–533. <https://doi.org/10.1080/14703297.2022.2052931>
- Akbari, T. T., Muljadi, B., Maulana, D., & Pratomo, R. R. (2024). The role of higher education leadership in developing human capital and future of jobs in ASEAN: A study on Indonesia's universities. *Journal of Higher Education Policy And Leadership Studies*, 5(2), 36–51. <https://doi.org/10.61186/johepal.5.2.36>
- Akcaoglu, M. Ö., Mor, E., & Kulekci, E. (2023). The mediating role of metacognitive awareness in the relationship between critical thinking and self-regulation. *Thinking Skills and Creativity*, 47, 101187. <https://doi.org/10.1016/j.tsc.2022.101187>
- Al-Adwan, A. S., Meet, R. K., Kala, D., Smedley, J., Urbaniková, M., & Al-Rahmi, W. M. (2024). Closing the divide: Exploring higher education teachers' perspectives on educational technology. *Information Development*, 02666669241279181. <https://doi.org/10.1177/02666669241279181>
- AlAhmad, H. (2021). The role of educational communication in promoting a student-centered learning style in multicultural classrooms: A reflective essay on learning and teaching in higher education. *International Journal of Research in Education and Science*, 7(3), 838–851. <https://doi.org/10.46328/ijres.2374>
- Alamanda, D. T., Ahmad, I., Putra, H. D., & Hashim, N. A. (2021). The role of spiritual intelligence in citizenship behaviours amongst Muslim staff in Malaysia. *HTS Theologise Studies / Theological Studies*, 77(1). <https://doi.org/10.4102/hts.v77i1.6586>
- Alamri, L. H., S. Almuslim, R., S. Alotibi, M., K. Alkadi, D., Ullah Khan, I., & Aslam, N. (2020). Predicting student academic performance using support vector machine and

- random forest. *2020 3rd International Conference on Education Technology Management*, 100–107. <https://doi.org/10.1145/3446590.3446607>
- Alarcón Orozco, E. (2023). Avanzando hacia el desarrollo íntegro de la persona: Aproximación al concepto de inteligencia espiritual. *HUMAN REVIEW. International Humanities Review / Revista Internacional de Humanidades*, 18(5), 1–9. <https://doi.org/10.37467/revhuman.v18.4898>
- Albursan, I. S., AlQudah, M. F., Bakhiet, S. F., Alzoubi, A. M., Abduljabbar, A. S., & Alghamdi, M. A. (2016). Religious orientation and its relationship with spiritual intelligence. *Social Behavior and Personality: An International Journal*, 44(8), 1281–1295. <https://doi.org/10.2224/sbp.2016.44.8.1281>
- Alharbi, N. S. (2024). Exploring the perspectives of cross-cultural instructors on integrating 21st century skills into EFL university courses. *Frontiers in Education*, 9, 1302608. <https://doi.org/10.3389/educ.2024.1302608>
- Allie, J. L., Tillman, R., Tapia, B., Mylona, E., Aung, K., & Williams, J. F. (2024). Leaders' perspectives on approaches and challenges in enacting faculty vitality in the contemporary landscape of academic medicine: A deductive thematic analysis. *Journal of Clinical Psychology in Medical Settings*, 31(4), 675–683. <https://doi.org/10.1007/s10880-024-10030-8>
- Al-Madani, F. M. (2015). Relationship between teachers' effective communication and students' academic achievement at the Northern Border University. *European Journal of Educational Research*, volume–5–201688(volume4-issue2.html), 90–96. <https://doi.org/10.12973/eu-jer.4.2.90>
- Almayez, M. A., Al-khresheh, M. H., AL-Qadri, A. H., Alkhateeb, I. A., & Alomaim, T. I. M. (2025). Motivation and English self-efficacy in online learning applications among Saudi EFL learners: Exploring the mediating role of self-regulated learning strategies. *Acta Psychologica*, 254, 104796. <https://doi.org/10.1016/j.actpsy.2025.104796>
- Al-Shoubaki, N. H. (2024). Effectiveness of educational training courses aimed at developing spiritual intelligence and reducing anxiety and depressive disorders among students. *Perspectives of Science and Education*, 69(3), 532–545. <https://doi.org/10.32744/pse.2024.3.32>
- Amadi, A. (2023). Integration in a mixed-method case study of construction phenomena: From data to theory. *Engineering, Construction and Architectural Management*, 30(1), 210–237. <https://doi.org/10.1108/ECAM-02-2021-0111>

- Amanda, F. F., Sumitro, S. B., Lestari, S. R., & Ibrohim, I. (2022). The correlation of critical thinking and concept mastery to problem-solving skills: The role of complexity science-problem based learning model. *Pedagogika*, *146*(2), 80–94. <https://doi.org/10.15823/p.2022.146.4>
- Amram, Y., & Dryer, C. (2008). *Integrated spiritual intelligence scale: Development and Preliminary validation*. American Psychological Association 2008 Convention Presentation, Boston, MA. Retrieved from <http://www.yosiamram.net/papers>
- Amram, Y. J. (2022). The intelligence of spiritual intelligence: Making the case. *Religions*, *13*(12), 1140. <https://doi.org/10.3390/rel13121140>
- Anas, I., & Hamzah, S. R. (2022). Predicting career adaptability of fresh graduates through personal factors. *European Journal of Training and Development*, *46*(3), 302–316. <https://doi.org/10.1108/EJTD-02-2020-0023>
- Andrade, C. (2021). The inconvenient truth about convenience and purposive samples. *Indian Journal of Psychological Medicine*, *43*(1), 86–88. <https://doi.org/10.1177/0253717620977000>
- Andrei, O. (2023). Enhancing religious education through emotional and spiritual intelligence. *HTS Teologiese Studies / Theological Studies*, *79*(1). <https://doi.org/10.4102/hts.v79i1.7887>
- Anglin, L. P., Pirson, M., & Langer, E. (2008). Mindful learning: A moderator of gender differences in mathematics performance. *Journal of Adult Development*, *15*(3–4), 132–139. <https://doi.org/10.1007/s10804-008-9043-x>
- Ansyori, A., Yunus, A., Imam, S., & Peristiowati, Y. (2025). Examining the effects of anxiety and education level on mental health: The role of spiritual intelligence as an intervening variable in post COVID-19 patients in Indonesia. *F1000Research*, *13*, 916. <https://doi.org/10.12688/f1000research.154599.3>
- Antunes, R. R., Silva, A. P., & Oliveira, J. (2018). Spiritual intelligence self-assessment inventory: Psychometric properties of the Portuguese version of SISRI-24. *Journal of Religion, Spirituality & Aging*, *30*(1), 12–24. <https://doi.org/10.1080/15528030.2017.1324350>
- Anwar, M. Z., Muafi, Widodo, & Suprihanto, J. (2021). The effect of Islamic Spiritual intelligence on human resource performance: Individual and organizational perspective. In B. Alareeni, A. Hamdan, & I. Elgedawy (Eds.), *The Importance of New Technologies and Entrepreneurship in Business Development: In The Context of Economic Diversity in Developing Countries* (Vol. 194, pp. 1583–1594). Springer International Publishing. https://doi.org/10.1007/978-3-030-69221-6_116

- Anwar, S., & Rana, H. (2024). Spiritual intelligence and psychological wellbeing of Pakistani University students. *Current Psychology*, 43(6), 5388–5395. <https://doi.org/10.1007/s12144-023-04717-8>
- Asnawi, N., & Setyaningsih, N. D. (2020). Perceived service quality in Indonesian Islamic higher education context: A test of Islamic higher education service quality (i-HESQUAL) model. *Journal of International Education in Business*, 13(1), 107–130. <https://doi.org/10.1108/JIEB-11-2019-0054>
- Astuti, A. P., Aziz, A., Sumarti, S. S., & Bharati, D. A. L. (2019). Preparing 21st century teachers: Implementation of 4C character's pre-service teacher through teaching practice. *Journal of Physics: Conference Series*, 1233(1), 012109. <https://doi.org/10.1088/1742-6596/1233/1/012109>
- Atalay, N., & Boyacı, Ş. D. B. (2019). Slowmation application in development of learning and innovation skills of students in science course. *International Electronic Journal of Elementary Education*, 11(5), 507–518. <https://doi.org/10.26822/iejee.2019553347>
- Atroszko, P. A., Skrzypińska, K., & Balcerowska, J. M. (2021). Is There a general factor of spiritual intelligence? Factorial validity of the polish adaptation of spiritual intelligence self-report inventory. *Journal of Religion and Health*, 60(5), 3591–3605. <https://doi.org/10.1007/s10943-021-01350-2>
- Azadmarzabadi, E. A. marzabadi, Hoshmandja, M., & Poorkhalil, M. (2013). The relationship between personnel's job stress and their spiritual intelligence and organizational spirituality in a military university. *Journal of Military Medicine*, 15(1), 45–52.
- Azevedo, A., & Jugdev, K. (2013). Individual engagement in business education: promoting spiritual intelligence and values to create sustainable communities. *The International Journal of Sustainability Education*, 8(1), 101–115. <https://doi.org/10.18848/2325-1212/CGP/v08i01/55263>
- Azizi, M., Sedaghat, Z., & Direkvand-Moghadam, A. (2018). Effect of critical thinking education on problem solving skills and self-esteem in iranian female students. *Journal of Clinical and Diagnostic Research*. <https://doi.org/10.7860/JCDR/2018/27993.11128>
- Bae, S.-M. (2022). The analysis of a causal relationship between career maturity and academic achievement on korean adolescents using autoregressive cross-lagged modeling. *International Journal of Environmental Research and Public Health*, 19(9), 5572. <https://doi.org/10.3390/ijerph19095572>

- Bagherian, F., & Mahmoudi Rad, G. H. (2020). The effect of spiritual intelligence training on communication ability for nurses. *Modern Care Journal*, 17(1). <https://doi.org/10.5812/modernc.92334>
- Bailin, S., Case, R., Coombs, J. R., & Daniels, L. B. (1999). Conceptualizing critical thinking. *Journal of Curriculum Studies*, 31(3), 285–302. <https://doi.org/10.1080/002202799183133>
- Bali-Mahomed, N. J., Ku-Johari, K. S., Mahmud, M. I., Amat, S., & Saadon, S. (2022). Psychological well-being of school counsellors model. *European Journal of Educational Research*, volume-11-2022(volume-11-issue-2-april-2022), 621–638. <https://doi.org/10.12973/eu-jer.11.2.621>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.
- Barbayannis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022). Academic stress and mental well-being in college students: correlations, affected groups, and COVID-19. *Frontiers in Psychology*, 13, 886344. <https://doi.org/10.3389/fpsyg.2022.886344>
- Barrington, M. J., D'Souza, R. S., Mascha, E. J., Narouze, S., & Kelley, G. A. (2024). Systematic reviews and meta-analyses in regional anesthesia and pain medicine (Part I): Guidelines for preparing the review protocol. *Anesthesia & Analgesia*, 138(2), 379–394. <https://doi.org/10.1213/ANE.0000000000006573>
- Bayrami, M., Movahedi, Y., & Movahedi, M. (2014). The role of spiritual intelligence in perceived stress, anxiety and depression of Lorestan medical university students (Iran). *Journal of Babol University of Medical Sciences*, 16(1), 56–62.
- Bethlehem, J. (2015). Essay: Sunday shopping - The case of three surveys. *Survey Research Methods*, Vol 9, 221-230 Pages. <https://doi.org/10.18148/SRM/2015.V9I3.6202>
- Bhagat, V., Haque, M., Bin Abu Bakar, Y., Husain, R., & Che Mat, K. (2016). Emotional maturity of medical students impacting their adult learning skills in a newly established public medical school at the east coast of Malaysian Peninsula. *Advances in Medical Education and Practice*, Volume 7, 575–584. <https://doi.org/10.2147/AMEP.S117915>
- Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble, M. (2012). Defining twenty-first century skills. In P. Griffin, B. McGaw, & E. Care (Eds.), *Assessment and Teaching of 21st Century Skills* (pp. 17–66). Springer Netherlands. https://doi.org/10.1007/978-94-007-2324-5_2

- Birru, Y. (2024). The integration of 21st-century skills into the higher education curriculum: Practices and perspectives systematic review. *Teacher Education and Curriculum Studies*, 9(3), 60–68. <https://doi.org/10.11648/j.tecs.20240903.12>
- Boel, C. (2025). Perceptions of higher education students on immersive virtual reality for communication skills training. The Bodyswaps Case. In J. M. Krüger, D. Pedrosa, D. Beck, M.-L. Bourguet, A. Dengel, R. Ghannam, A. Miller, A. Peña-Rios, & J. Richter (Eds.), *Immersive Learning Research Network* (Vol. 2271, pp. 142–155). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-80475-5_10
- Bond, T., & Fox, C. M. (2015). *Applying the Rasch model: Fundamental measurement in the human science, Thrid edition* (3rd ed.). Routledge. <https://doi.org/10.4324/9781315814698>
- Bone, M., González Ehlinger, E., & Stephany, F. (2025). Skills or degree? The rise of skill-based hiring for AI and green jobs. *Technological Forecasting and Social Change*, 214, 124042. <https://doi.org/10.1016/j.techfore.2025.124042>
- Boone, W. J., & Staver, J. R. (2020). Wright maps (Part 3 and Counting...). In *Advances in Rasch Analyses in the Human Sciences* (pp. 215–253). Springer International Publishing. https://doi.org/10.1007/978-3-030-43420-5_16
- Boone, W., & Rogan, J. (2005). Rigour in quantitative analysis: The promise of Rasch analysis techniques. *African Journal of Research in Mathematics, Science and Technology Education*, 9(1). <https://hdl.handle.net/10520/EJC92807>
- Boonstra, P. S., Little, R. J. A., West, B. T., Andridge, R. R., & Alvarado-Leiton, F. (2021). A simulation study of diagnostics for selection bias. *Journal of Official Statistics*, 37(3), 751–769. <https://doi.org/10.2478/jos-2021-0033>
- Botha, W. (2025). Academic literacy skills and the challenge for Australian higher education. *Educational Studies*, 51(2), 225–245. <https://doi.org/10.1080/03055698.2022.2130178>
- Braga, I., & Abreu, A. (2023). Communication skills in higher education versus the labor market: different perceptions and valuations. In A. Abreu, J. V. Carvalho, D. Liberato, & I. S. Galdames (Eds.), *Advances in Tourism, Technology and Systems* (Vol. 340, pp. 229–245). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-9960-4_21
- Bravo, M. C. M., Chalezquer, C. S., & Serrano-Puche, J. (2021). Meta-marco de la alfabetización digital: Análisis comparado de marcos de competencias del Siglo XXI. *Revista Latina de Comunicación Social*, 79, 76–110. <https://doi.org/10.4185/RLCS-2021-1508>

- Breitschuh, J., Helmich, A., Albers, A., & Gidion, G. (2014). *Evaluating learning outcomes of soft skills in mechanical engineering education*. International Conference on Engineering and Product Design Education, University of Twente, The Netherlands.
- Briciu, B. (2024). Theory U as case study of integral transformative learning for spiritual development in higher education. *Journal for the Study of Spirituality*, *14*(1), 5–20. <https://doi.org/10.1080/20440243.2024.2322423>
- Bruce, A., Beuthin, R., Sheilds, L., Molzahn, A., & Schick-Makaroff, K. (2016). Narrative research evolving: Evolving through narrative research. *International Journal of Qualitative Methods*, *15*(1), 1609406916659292. <https://doi.org/10.1177/1609406916659292>
- Bujang, M. A., Ghani, P. A., Bujang, M. A., Zolkepalı, N. A., Adnan, T. H., Ali, M. M., Selvarajah, S., & Haniff, J. (2012). A comparison between convenience sampling versus systematic sampling in getting the true parameter in a population: Explore from a clinical database: The Audit Diabetes Control Management (ADCM) registry in 2009. *2012 International Conference on Statistics in Science, Business and Engineering (ICSSBE)*, 1–5. <https://doi.org/10.1109/ICSSBE.2012.6396615>
- Busyairi, A. (2020). Laduni Science: An overview of sufism, spiritual intelligence and modern learning theory. *International Journal of Scientific & Technology Research*, *9*(2), 1600–1602.
- Cáceres, M., Nussbaum, M., & Ortiz, J. (2020). Integrating critical thinking into the classroom: A teacher’s perspective. *Thinking Skills and Creativity*, *37*, 100674. <https://doi.org/10.1016/j.tsc.2020.100674>
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, *25*(8), 652–661. <https://doi.org/10.1177/1744987120927206>
- Campo, L., Galindo-Domínguez, H., Bezanilla, M.-J., Fernández-Nogueira, D., & Poblete, M. (2023). Methodologies for fostering critical thinking skills from university students’ points of view. *Education Sciences*, *13*(2), 132. <https://doi.org/10.3390/educsci13020132>
- Cara, O. (2023). Mixed methods in education research. In *Designing research in education: Concepts and methodologies*. SAGE Publications Ltd. <https://doi.org/10.4135/9781529622775>
- Care, E., Kim, H., Vista, A., & Anderson, K. (2018). *Education system alignment for 21st century skills focus on assessment*. The Brookings Institution.

<https://www.brookings.edu/articles/education-system-alignment-for-21st-century-skills/>

- Carreño-Flores, O. D., Jalixto-Eraza, H. M., Santos, M. A. O. D. L., Mejia-Guerrero, H., Cantaro-Popayan, F. A., Quispe-Anccasi, F. K., & Rodriguez-Barboza, J. R. (2024). Emotional well-being and its impact on academic performance in university students: A pathway to achieving the sustainable development goals (SDGS). *Pakistan Journal of Life and Social Sciences (PJLSS)*, 22(2). <https://doi.org/10.57239/PJLSS-2024-22.2.00365>
- Carroll, D. J., Blakey, E., & FitzGibbon, L. (2016). Cognitive flexibility in young children: Beyond perseveration. *Child Development Perspectives*, 10(4), 211–215. <https://doi.org/10.1111/cdep.12192>
- Catarino, P., Vasco, P., Lopes, J., Silva, H., & Morais, E. (2019). Aprendizaje Cooperativo para Promover el Pensamiento Creativo y la Creatividad Matemática en la Educación Superior. *REICE. Revista Iberoamericana Sobre Calidad, Eficacia y Cambio En Educación*, 17(3). <https://doi.org/10.15366/reice2019.17.3.001>
- Chandratreya, A. (2025). The AI Revolution Implications for Workforce Dynamics and Employment in Supply Chains. In *Ecological and Human Dimensions of AI-Based Supply Chain* (pp. 433–460). IGI Global. <https://doi.org/10.4018/979-8-3693-7478-8.ch019>
- Chen, D. (2023). Toward an understanding of 21st-century skills: From a systematic review. *International Journal for Educational and Vocational Guidance*, 23(2), 275–294. <https://doi.org/10.1007/s10775-021-09511-1>
- Chen, H.-L. S., Helen Jou, Shi-Ping Lin, & Iwan A. J. Sianturi. (2024). Developing teacher performance indicators for 21st century competency-oriented teaching and learning: Implications from IB philosophy and practices. *教育研究集刊*, 70:4. [https://doi.org/10.6910/BER.202412_70\(4\).0003](https://doi.org/10.6910/BER.202412_70(4).0003)
- Chen, T., Kim, T., Gong, Y., & Liang, Y. (2025). Competence drives interest or vice versa? untangling the bidirectional relationships between creative self-efficacy and intrinsic motivation for creativity in shaping employee creativity. *Journal of Management Studies*, 62(2), 775–811. <https://doi.org/10.1111/joms.13072>
- Chew, S. W., Lin, I.-H., & Chen, N.-S. (2019). Using Socratic questioning strategy to enhance critical thinking skill of elementary school students. *2019 IEEE 19th International Conference on Advanced Learning Technologies (ICALT)*, 290–294. <https://doi.org/10.1109/ICALT.2019.00088>

- Chiappe, A., Samper, A. M. T. D., Wills, A. E., & Restrepo, I. (2019). Rethinking 21st century schools: The quest for lifelong learning ecosystems. *Ensaio: Avaliação e Políticas Públicas Em Educação*, 28(107), 521–544. <https://doi.org/10.1590/s0104-40362019002702138>
- Chiappe, A., Samper, A. M. T. D., Wills, A. E., & Restrepo Uribe, I. (2020). 21st-century education or the awakening of the sleeping beauties: A systematic literature review. *Education in the Knowledge Society (EKS)*, 21(0), 15. <https://doi.org/10.14201/eks.20918>
- Chin, S. T. S., Raman, K., Yeow, J. A., & Eze, U. C. (2013). The influence of emotional intelligence and spiritual intelligence in engineering entrepreneurial creativity and innovation. *2013 IEEE 5th Conference on Engineering Education (ICEED)*, 109–113. <https://doi.org/10.1109/ICEED.2013.6908313>
- Chinoy, N., Stoub, H., Ogrodzinski, Y., Smith, K., Bahal, D., & Zubek, J. (2022). Assessing student desire for professional skills development within the undergraduate science curriculum: A focus on teamwork. *Advances in Physiology Education*, 46(1), 179–189. <https://doi.org/10.1152/advan.00051.2021>
- Choi, H. (2004). The Effects of PBL(Problem-Based Learning) on the metacognition, critical thinking, and problem solving process of nursing students. *Journal of Korean Academy of Nursing*, 34(5), 712. <https://doi.org/10.4040/jkan.2004.34.5.712>
- Clandinin, D. J., Murphy, M. S., Huber, J., & Orr, A. M. (2009). Negotiating narrative inquiries: Living in a tension-filled midst. *The Journal of Educational Research*, 103(2), 81–90. <https://doi.org/10.1080/00220670903323404>
- Clément, E. (Ed.). (2022). *Cognitive flexibility: The cornerstone of learning*. ISTE, Ltd. ; Wiley.
- Cohen, L., Manion, L., & Morrison, K. (2009). *Research methods in education* (6. ed., reprint). Routledge.
- Cowan, D. A. (2005). Translating spiritual intelligence into leadership competencies. *Journal of Management, Spirituality & Religion*, 2(1), 3–38. <https://doi.org/10.1080/14766080509518565>
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed). Pearson.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (Third Edition). SAGE.

- Dami, Z. A., Setiawan, I., Gurnaryo, S., & Lu, Y. (2019). Effectiveness of group counseling on depression, anxiety, stress and components of spiritual intelligence in student. *International Journal of Scientific & Technology Research*, 8(9), 236–243.
- Deci, E. L. (2017). Intrinsic motivation and self-determination. In *Reference Module in Neuroscience and Biobehavioral Psychology* (p. B9780128093245056133). Elsevier. <https://doi.org/10.1016/B978-0-12-809324-5.05613-3>
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology / Psychologie Canadienne*, 49(3), 182–185. <https://doi.org/10.1037/a0012801>
- Deci, E. L., & Ryan, R. M. (2015). Self-determination theory. In *International Encyclopedia of the Social & Behavioral Sciences* (pp. 486–491). Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.26036-4>
- Disassa, G. A., Bekele, S. O., Tefera, B. S., & Gita, D. U. (2023). The contribution of multiple intelligence on marital decision making among Jimma College of Teachers Education. *Current Psychology*, 42(25), 21499–21504. <https://doi.org/10.1007/s12144-022-03213-9>
- Dixon, G., & Beverly, G. (2015). Improving undergrad presentation skills. *2015 ASEE Annual Conference and Exposition Proceedings*, 26.933.1-26.933.17. <https://doi.org/10.18260/p.24270>
- Dorobantu, M., & Watts, F. (2023). Spiritual intelligence: Processing different information or processing information differently? *Zygon®*, 58(3), 732–748. <https://doi.org/10.1111/zygo.12884>
- Dorobantu, M., & Watts, F. (2024). *Perspectives on spiritual intelligence* (1st ed.). Routledge. <https://doi.org/10.4324/9781032646244>
- Dunbar, M. (2015). *Skills and capacity: What does learning need to look like today to prepare the workforce of 2030?* [Assignment Report]. UK’s Department for International Development. <https://www.gov.uk/research-for-development-outputs/assignment-report-skills-and-capacity-what-does-learning-need-to-look-like-today-to-prepare-the-workforce-of-2030>
- Dunn, K. S., & Robinson-Lane, S. G. (2020). A philosophical analysis of spiritual coping. *Advances in Nursing Science*, 43(3), 239–250. <https://doi.org/10.1097/ANS.0000000000000323>
- Duran, A., Foste, Z., & Williams, J. A. (2025). Who are the “Scholars” in “Scholarship?”: how higher education researchers represent positionality in their studies. *The Journal of Higher Education*, 1–24. <https://doi.org/10.1080/00221546.2025.2494483>

- Dwyer, C. P., Hogan, M. J., & Stewart, I. (2014). An integrated critical thinking framework for the 21st century. *Thinking Skills and Creativity*, 12, 43–52. <https://doi.org/10.1016/j.tsc.2013.12.004>
- Dwyer, C. P., & Walsh, A. (2020). An exploratory quantitative case study of critical thinking development through adult distance learning. *Educational Technology Research and Development*, 68(1), 17–35. <https://doi.org/10.1007/s11423-019-09659-2>
- Echarri-Iribarren, F., & Echarri-Iribarren, V. (2021). Environmental education and ecological spiritual intelligence: The case of Basque mythology. *Australian Journal of Environmental Education*, 37(2), 120–131. <https://doi.org/10.1017/ae.2020.33>
- Edmondson, M. (2024). Struggling with agility: Higher education institutions and the crisis of opportunity with skills-based learning. In *Advances in Educational Marketing, Administration, and Leadership* (pp. 1–16). IGI Global. <https://doi.org/10.4018/979-8-3693-8125-0.ch001>
- Elhami, A., & Khoshnevisan. (2022). Conducting an interview in qualitative research: The modus operandi. *Mextesol Journal*, 46(1), 1–7. <https://doi.org/10.61871/mj.v46n1-3>
- Elmi, C. (2020). Integrating social emotional learning strategies in higher education. *European Journal of Investigation in Health, Psychology and Education*, 10(3), 848–858. <https://doi.org/10.3390/ejihpe10030061>
- Emmons, R. A. (2000). Is spirituality an intelligence? Motivation, cognition, and the Psychology of ultimate concern. *International Journal for the Psychology of Religion*, 10(1), 3–26. https://doi.org/10.1207/S15327582IJPR1001_2
- Engelhard Jr., G. (2013). *Invariant measurement: using Rasch models in the social, behavioral, and health sciences* (0 ed.). Routledge. <https://doi.org/10.4324/9780203073636>
- Ennis, R. H. (2015). Critical thinking: A streamlined conception. In M. Davies & R. Barnett (Eds.), *The Palgrave Handbook of Critical Thinking in Higher Education* (pp. 31–47). Palgrave Macmillan US. https://doi.org/10.1057/9781137378057_2
- Erstad, O., & Siddiq, F. (2023). Educational assessment of 21st century skills—Novel initiatives, yet a lack of systemic transformation. In *International Encyclopedia of Education (Fourth Edition)* (pp. 245–255). Elsevier. <https://doi.org/10.1016/B978-0-12-818630-5.09038-2>
- Evans, C., Kay, W., Amici-Dargan, S., González, R. D. M., Donert, K., & Rutherford, S. (2024). Developing a scale to explore self-regulatory approaches to assessment and

- feedback with academics in higher education. *Frontiers in Psychology*, 15, 1357939. <https://doi.org/10.3389/fpsyg.2024.1357939>
- Evans, D. J. R. (2011). Promoting knowledge and understanding in society: Training our students for effective communication. *Journal of Applied Research in Higher Education*, 3(1), 35–46. <https://doi.org/10.1108/17581181111150892>
- Facione, P. A. (2015). *Critical thinking: What It is and why It counts*. California Academic Press. https://www.researchgate.net/publication/251303244_Critical_Thinking_What_It_Is_and_Why_It_Counts
- Farisi, M. I. (2016). Developing the 21st-century social studies skills through technology integration. *Turkish Online Journal of Distance Education*, 0(0). <https://doi.org/10.17718/tojde.47374>
- Fave, A. D., Brdar, I., Wissing, M. P., & Vella-Brodrick, D. A. (2013). Sources and motives for personal meaning in adulthood. *The Journal of Positive Psychology*, 8(6), 517–529. <https://doi.org/10.1080/17439760.2013.830761>
- Fedorov, A. A. (2011). “Spiritual intelligence” and secular psychology (commentary on G. V. Ozhiganova’s article “psychological aspects of spirituality. Part I. Spiritual intelligence”). *Psikhologicheskii Zhurnal*, 32(4), 107–109.
- Fernández-Cruz, F. J., & Rodríguez-Legendre, F. (2022). The innovation competence profile of teachers in higher education institutions. *Innovations in Education and Teaching International*, 59(6), 634–645. <https://doi.org/10.1080/14703297.2021.1905031>
- Ferreira, C., & Schulze, S. (2016). Cultivating spiritual intelligence in adolescence in a divisive religion education classroom: A bridge over troubled waters. *International Journal of Children’s Spirituality*, 21(3–4), 230–242. <https://doi.org/10.1080/1364436X.2016.1244518>
- Fidelis, A., Moreira, A. C., & Vitória, A. (2024). Multiple perspectives of spiritual intelligence: A systematic literature review. *Social Sciences & Humanities Open*, 9, 100879. <https://doi.org/10.1016/j.ssaho.2024.100879>
- Fielding, N. G. (2012). Triangulation and mixed methods designs: Data integration with new research technologies. *Journal of Mixed Methods Research*, 6(2), 124–136. <https://doi.org/10.1177/1558689812437101>
- Filipson, A. (2009). Religious literacy or spiritual awareness? Comparative critique of Andrew Wright’s and David Hay’s approaches to spiritual education. *International*

- Journal of Children's Spirituality*, 14(2), 121–128.
<https://doi.org/10.1080/13644360902830242>
- Fivush, R., Booker, J. A., & Graci, M. E. (2017). Ongoing narrative meaning-making within events and across the life span. *Imagination, Cognition and Personality*, 37(2), 127–152. <https://doi.org/10.1177/0276236617733824>
- Forster, G. (2014). *The influence of islamic values on management practice*. Palgrave Macmillan UK. <https://doi.org/10.1057/9781137335128>
- Foster, N., & Piacentini, M. (2023, April 28). *Innovating assessments to measure and support complex skills*. OECD. <https://doi.org/10.1787/e5f3e341-en>
- Fourianalistyawati, E., Uswatunnisa, A., Mahdiannur, M. A., Saleky, A. P., Soebandhi, S., Reni, A., & Kurniasih, N. (2018). Research development in indonesia: Ethics committee in open science and collaboration era. *Journal of Physics: Conference Series*, 1114, 012069. <https://doi.org/10.1088/1742-6596/1114/1/012069>
- Fry, L. W. (2003). Toward a theory of spiritual leadership. *The Leadership Quarterly*, 14(6), 693–727. <https://doi.org/10.1016/j.leaqua.2003.09.001>
- Fuchs, H., Benkova, E., Fishbein, A., & Fuchs, A. (2024). The importance of psychological and cognitive flexibility in educational processes to prepare and acquire the skills required in the twenty-first century. In S. Kot, B. Khalid, & A. U. Haque (Eds.), *Corporate Practices: Policies, Methodologies, and Insights in Organizational Management* (pp. 91–114). Springer Nature Singapore. https://doi.org/10.1007/978-981-97-0996-0_6
- Galek, K., Flannelly, K. J., Jacobs, M. R., & Barone, J. D. (2008). Spiritual needs: Gender differences among professional spiritual care providers. *Journal of Pastoral Care & Counseling: Advancing Theory and Professional Practice through Scholarly and Reflective Publications*, 62(1–2), 29–35. <https://doi.org/10.1177/154230500806200104>
- Gao, L., & Guo, M. (2023). A COURSE-BASED undergraduate research experience for bioinformatics education in undergraduate students. *Biochemistry and Molecular Biology Education*, 51(2), 189–199. <https://doi.org/10.1002/bmb.21710>
- Gao, S., Chi, J., Liu, Z., Tao, M., & Dou, W. (2021). Exploration on the cultivation of innovative undergraduate talents in computer major promoted by organic integration of teaching and scientific research. *2021 9th International Conference on Information and Education Technology (ICIET)*, 279–284. <https://doi.org/10.1109/ICIET51873.2021.9419625>

- Garcia, G. L., Moral, M., Rocete, A. R., Ilagan, M., Cabido, J. C., Escueta, H. G., Novilla, K. J., & Retone, L. (2023). Influence of social pressures on the academic performance of HUMSS students at NU-Nazareth. *Edukasiana: Jurnal Inovasi Pendidikan*, 3(1), 57–87. <https://doi.org/10.56916/ejip.v3i1.496>
- García-Peñalvo, F. J. (2022). Desarrollo de estados de la cuestión robustos: Revisiones Sistemáticas de Literatura. *Education in the Knowledge Society (EKS)*, 23, e28600. <https://doi.org/10.14201/eks.28600>
- Gardner, H. (2000). A case against spiritual intelligence. *International Journal for the Psychology of Religion*, 10(1), 27–34. https://doi.org/10.1207/S15327582IJPR1001_3
- Gaus, N. (2024). Indonesian higher education: Issues in institutional and individual capacities. In L. Pe Symaco (Ed.), *International Perspectives on Education and Society* (pp. 19–33). Emerald Publishing Limited. <https://doi.org/10.1108/S1479-367920240000049003>
- Gay, L. R., Mills, G. E., & Airasian, P. W. (2012). *Educational research: Competencies for analysis and applications* (10th ed). Pearson.
- Gayatri, G., Jaya, I. G. N. M., & Rumata, V. M. (2022). The Indonesian digital workforce gaps in 2021–2025. *Sustainability*, 15(1), 754. <https://doi.org/10.3390/su15010754>
- Gera, N., Vesperi, W., Fatta, D. D., Sahni, A., & Arora, A. (2021). Human resource development and spiritual intelligence: An investigation amongst management students in Delhi NCR. *International Journal of Innovation and Learning*, 29(1), 45. <https://doi.org/10.1504/IJIL.2021.111831>
- Giannone, D. A., & Kaplin, D. (2020). How does spiritual intelligence relate to mental health in a western sample? *Journal of Humanistic Psychology*, 60(3), 400–417. <https://doi.org/10.1177/0022167817741041>
- Gibson, C. B. (2017). Elaboration, generalization, triangulation, and interpretation: On enhancing the value of mixed method research. *Organizational Research Methods*, 20(2), 193–223. <https://doi.org/10.1177/1094428116639133>
- Gill, R. (2017). *The effect of collaborative learning on enhancing student achievement: A meta-analysis*. <https://doi.org/10.13140/RG.2.2.27289.26721>
- Golden, B. (2023). Enabling critical thinking development in higher education through the use of a structured planning tool. *Irish Educational Studies*, 42(4), 949–969. <https://doi.org/10.1080/03323315.2023.2258497>
- Goleman, D. (2015). *Focus: The hidden driver of excellence* (First Harper paperback edition). Harper.

- Gómez, J. D. L., Álvarez Maestre, A. J., Parada Trujillo, A. E., Pérez Fuentes, C. A., Bedoya Ortiz, D. H., & Sanabria Alarcón, R. K. (2025). Determining factors for the development of critical thinking in higher education. *Journal of Intelligence*, *13*(6), 59. <https://doi.org/10.3390/jintelligence13060059>
- Gong, Y., Kim, T.-Y., & Liu, Z. (2020). Diversity of social ties and creativity: Creative self-efficacy as mediator and tie strength as moderator. *Human Relations*, *73*(12), 1664–1688. <https://doi.org/10.1177/0018726719866001>
- Goosse, M., Kreusch, F., Van Der Molen, H. T., & Willems, S. (2023). Impact of e-learning and role play-based training on psychology students' communication skills: A feasibility study. *Journal of Communication in Healthcare*, *16*(3), 287–297. <https://doi.org/10.1080/17538068.2023.2193493>
- Gorji, A. H., Darabinia, M., & Ranjbar, M. (2017). Emotional and spiritual intelligence among medical students in Iran. *Iranian Journal of Psychiatry and Behavioral Sciences*, *11*(4). <https://doi.org/10.5812/ijpbs.9504>
- Gosselin, D. C., Thompson, K., Pennington, D., & Vincent, S. (2020). Learning to be an interdisciplinary researcher: Incorporating training about dispositional and epistemological differences into graduate student environmental science teams. *Journal of Environmental Studies and Sciences*, *10*(3), 310–326. <https://doi.org/10.1007/s13412-020-00605-w>
- Gowri, M. P., & Sreeya, B. (2019). Public opinion on problem solving skills. *International Journal of Innovative Technology and Exploring Engineering*, *9*(1), 3348–3350. <https://doi.org/10.35940/ijitee.A9183.119119>
- Granato, G., & Baldassarre, G. (2021). Internal manipulation of perceptual representations in human flexible cognition: A computational model. *Neural Networks*, *143*, 572–594. <https://doi.org/10.1016/j.neunet.2021.07.013>
- Grasmane, I., Pipere, A., & Raščevskis, V. (2025). Effectiveness of a psycho-pedagogical intervention on spiritual intelligence, happiness, and spiritual well-being for primary school children: A non-randomized controlled trial. *Journal of Happiness Studies*, *26*(1), 5. <https://doi.org/10.1007/s10902-024-00844-6>
- Grasmane, I., Raščevskis, V., & Pipere, A. (2022). Primary validation of Children Spiritual Intelligence Scale in a sample of Latvian elementary school pupils. *International Journal of Children's Spirituality*, *27*(2), 97–112. <https://doi.org/10.1080/1364436X.2022.2043833>
- Griffin, P., Care, E., & McGaw, B. (2012). The changing role of education and schools. In P. Griffin, B. McGaw, & E. Care (Eds.), *Assessment and Teaching of 21st Century*

- Skills* (pp. 1–15). Springer Netherlands. https://doi.org/10.1007/978-94-007-2324-5_1
- Guenther, Z., & Németh-Torres, G. (2016). In spirituality: A perspective from a traditionally Latin culture. *Gifted Education International*, 32(3), 216–223. <https://doi.org/10.1177/0261429415602583>
- Gunnlaugson, O., & Vokey, D. (2014). Evolving a public language of spirituality for transforming academic and campus life. *Innovations in Education and Teaching International*, 51(4), 436–445. <https://doi.org/10.1080/14703297.2013.771993>
- Guo, K., Zhong, Y., Li, D., & Chu, S. K. W. (2023). Effects of chatbot-assisted in-class debates on students' argumentation skills and task motivation. *Computers & Education*, 203, 104862. <https://doi.org/10.1016/j.compedu.2023.104862>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) using R: A workbook*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-80519-7>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Halama, P. (2004). Spiritual, existential or both? Theoretical considerations on the nature of “higher” intelligences. *Studia Psychologica*, 46(3), 239–253.
- Hamzah, R., Mohamad, A. M., Latada, F., Abdul Rani, A., Abdullah, N. A. M. T., Abdullah, C. A., & Ali, Z. M. (2024). Introduction to spiritual intelligence for non-Muslim students at a higher learning institution. *Jurnal Ilmiah Peuradeun*, 12(2), 831. <https://doi.org/10.26811/peuradeun.v12i2.1000>
- Han, H. (2023). Fuzzy clustering algorithm for university students' psychological fitness and performance detection. *Heliyon*, 9(8), e18550. <https://doi.org/10.1016/j.heliyon.2023.e18550>
- Hart, T. (2023). Consciousness, culture, and the place of psychospiritual capacities in cultivating values. In T. Lovat, R. Toomey, N. Clement, & K. Dally (Eds.), *Second International Research Handbook on Values Education and Student Wellbeing* (pp. 191–203). Springer International Publishing. https://doi.org/10.1007/978-3-031-24420-9_10
- Harun, H., Wardhaningtyas, S., Khan, H. Z., An, Y., & Masdar, R. (2020). Understanding the institutional challenges and impacts of higher education reforms in Indonesia.

- Public Money & Management*, 40(4), 307–315.
<https://doi.org/10.1080/09540962.2019.1627063>
- Hassan, A. A. S. (2023). The components of the spiritual intelligence predicting the mental toughness and emotional creativity for the university students. *Education Research International*, 2023, 1–13. <https://doi.org/10.1155/2023/1631978>
- Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs*, 85(1), 4–40. <https://doi.org/10.1080/03637751.2017.1352100>
- Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (Third edition). The Guilford Press.
- Heizelman, I., & Matt, M. (2023). Board 71: Innovation-based learning. learning by failure. *2023 ASEE Annual Conference & Exposition Proceedings*, 42915. <https://doi.org/10.18260/1-2--42915>
- Hensey, J. (2018). EQ + SQ = ST²: A spiritually intelligent approach to actor training part one – the 12 principles. *Stanislavski Studies*, 6(1), 51–60. <https://doi.org/10.1080/20567790.2018.1437961>
- Herlinawati, H., Marwa, M., Ismail, N., Junaidi, Liza, L. O., & Situmorang, D. D. B. (2024). The integration of 21st century skills in the curriculum of education. *Heliyon*, 10(15), e35148. <https://doi.org/10.1016/j.heliyon.2024.e35148>
- Hernández Huaripaucar, E., Becerra-Canales, B., Puza-Mendoza, G., Pastor-Ramírez, N., Cordova-Delgado, M., & Curro-Urbano, O. (2023). Perfil de inteligencia espiritual en estudiantes peruanos de ciencias de la salud. *Enfermería Global*, 22(4), 462–489. <https://doi.org/10.6018/eglobal.565581>
- Hero, L.-M., Pitkäljärvi, M., & Matinheikki-Kokko, K. (2021). Validating an individual innovation competence assessment tool for university–industry collaboration. *Industry and Higher Education*, 35(4), 485–496. <https://doi.org/10.1177/09504222211017447>
- Hilt, L. T., Riese, H., & Søreide, G. E. (2019). Narrow identity resources for future students: The 21st century skills movement encounters the Norwegian education policy context. *Journal of Curriculum Studies*, 51(3), 384–402. <https://doi.org/10.1080/00220272.2018.1502356>
- Hobart, J., & Cano, S. (2011). Rasch analysis. In C. Jenkinson, M. Peters, & M. B. Bromberg (Eds.), *Quality of life measurement in neurodegenerative and related conditions* (1st ed., pp. 147–164). Cambridge University Press. <https://doi.org/10.1017/CBO9780511975363.013>

- Hosseinbor, M., Jadgal, M. S., & Kordsalarzehi, F. (2023). Relationship between spiritual well-being and spiritual intelligence with mental health in students. *International Journal of Adolescent Medicine and Health*, 35(2), 197–201. <https://doi.org/10.1515/ijamh-2022-0078>
- Howard, P. G. (2018). Twenty-First century learning as a radical re-thinking of education in the service of life. *Education Sciences*, 8(4), 189. <https://doi.org/10.3390/educsci8040189>
- Huang, Y.-C., & Lin, S.-H. (2018). An inventory for assessing interpersonal communication competence of college students. *British Journal of Guidance & Counselling*, 46(4), 385–401. <https://doi.org/10.1080/03069885.2016.1237614>
- Huertas-Lopez, S., Sanchez-Trujillo, M. D. L. A., Riega-Virú, Y., & Ninaquispe-Soto, M. (2025). Assessment of problem-solving competence in engineering students: Analysis and proposals for improvement. *Journal of Educational and Social Research*, 15(3), 1. <https://doi.org/10.36941/jesr-2025-0078>
- Hufri, Ellizar, Lufri, & Triani, F. (2023). Preliminary research on the development of PS-BK learning model in basic electronics courses. *Journal of Physics: Conference Series*, 2582(1), 012062. <https://doi.org/10.1088/1742-6596/2582/1/012062>
- Hundeling, M., & Rosing, K. (2020). The role of affect and its regulation for creativity and innovation. In L.-Q. Yang, R. Cropanzano, C. S. Daus, & V. Martínez-Tur (Eds.), *The Cambridge Handbook of Workplace Affect* (1st ed., pp. 131–145). Cambridge University Press. <https://doi.org/10.1017/9781108573887.011>
- Idawati, K., & Mahadun, H. (2021). A strategy to strengthen the performance of Islamic higher education's lecturer. *Academy of Strategic Management Journal*, 20(5), 1–13.
- Ionescu, T. (2012). Exploring the nature of cognitive flexibility. *New Ideas in Psychology*, 30(2), 190–200. <https://doi.org/10.1016/j.newideapsych.2011.11.001>
- Ishar, N. I. M. (2024). The effects of co-creation efforts on unfavourable experience and response behaviour: A hybrid of Rasch measurement and PLS-SEM analysis. *Atlantis Highlights in Social Sciences, Education and Humanities*, 124–141. https://doi.org/10.2991/978-94-6463-494-5_8
- Iskandar, I., Abu Bakar, A. Y., Defrianti, D., & Setiawan, M. E. (2024). Emotion regulation and gender as the key predictors of academic stress among STEM students in Islamic universities. *Cogent Psychology*, 11(1), 2406640. <https://doi.org/10.1080/23311908.2024.2406640>

- Ismail, A. A., Sulaiman, T., & Roslan, S. (2020). Models of relationship between emotional, spiritual, physical and social intelligence, resilience and burnout among high school teachers. *Universal Journal of Educational Research*, 8(1A), 1–7. <https://doi.org/10.13189/ujer.2020.081301>
- Janghorban, R., Roudsari, R. L., & Taghipour, A. (2014). Skype interviewing: The new generation of online synchronous interview in qualitative research. *International Journal of Qualitative Studies on Health and Well-Being*, 9(1), 24152. <https://doi.org/10.3402/qhw.v9.24152>
- Javadi Nejad, A., Heidari, A., Naderi, F., Bakhtiyar Pour, S., & Haffezi, F. (2019). Effectiveness of spiritual intelligence in resilience and responsibility of students. *International Journal of School Health*, 6(3). <https://doi.org/10.5812/intjsh.86677>
- Johnson, R. B., & Christensen, L. B. (2020). *Educational research: Quantitative, qualitative, and mixed approaches* (Seventh edition). SAGE.
- Johnson, S., Veitch, S., & Dewiyanti, S. (2015). A framework to embed communication skills across the curriculum: A design-based research approach. *Journal of University Teaching & Learning Practice*, 12(4). <http://ro.uow.edu.au/jutlp/vol12/iss4/6>
- Jonkisz, J. (2012). Consciousness: A four-fold taxonomy. *Journal of Consciousness Studies*, 19(11), 55–58.
- Joynes, C., Rossignoli, S., & Amonoo-Kuofi, E. F. (2019). *21st century skills: Evidence of issues in definition, demand and delivery for development contexts (K4D Helpdesk Report)*. UK: Institute of Development Studies. https://assets.publishing.service.gov.uk/media/5d71187ce5274a097c07b985/21st_century.pdf
- Jucevičienė, P., & Škėrienė, S. (2016). Spiritual intelligence: A structural perspective. *Pedagogika*, 123(3), 5–22. <https://doi.org/10.15823/p.2016.29>
- Kadkhoda, M., Mirsanei, S. A., & Jahani, H. (2013). A teamwork communication model based on spiritual intelligence by fuzzy logic. *2013 13th Iranian Conference on Fuzzy Systems (IFSC)*, 1–6. <https://doi.org/10.1109/IFSC.2013.6675686>
- Kallio, H., Pietilä, A., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954–2965. <https://doi.org/10.1111/jan.13031>
- Kao, Y.-F., Chen, H.-C., & Lo, J.-H. (2023). Exploring an interdisciplinary curriculum in product and media design education: Knowledge innovation and competency development. *Sustainability*, 15(23), 16369. <https://doi.org/10.3390/su152316369>

- Karacaoğlu, Ö. C. (2025). Basic skills of 21st century teachers. *Australian Journal of Teacher Education*, 50(1). <https://doi.org/10.14221/1835-517X.6455>
- Karimi, H., & Farivarsadri, G. (2024). Exploring the collaboration skills among architecture students: A quantitative study in North Cyprus. *Buildings*, 14(7), 1984. <https://doi.org/10.3390/buildings14071984>
- Karimi, Z., & Karimi, F. (2016). The structural model of relationship between spiritual intelligence and emotional intelligence with quality of work life and work engagement of employees. *International Journal of Management in Education*, 10(3), 278. <https://doi.org/10.1504/ijmie.2016.077508>
- Karimi-Moonaghi, H., Gazerani, A., Vaghee, S., Gholami, H., Salehmoghaddam, A., & Gharibnavaz, R. (2015). Relation between spiritual intelligence and clinical competency of nurses in Iran. *Iranian Journal of Nursing and Midwifery Research*, 20(6), 665. <https://doi.org/10.4103/1735-9066.170002>
- Karmas, C. (2012). Me Tarzan You Jane: Using active learning in the communications classroom. *The International Journal of the Humanities: Annual Review*, 9(10), 147–162. <https://doi.org/10.18848/1447-9508/CGP/v09i10/43359>
- Karmini, N. W., Yudari, A. A. K. S., Suasthi, I. G. A., Hadriani, N. L. G., & Setini, M. (2021). Model of humanism education based on local wisdom in elementary school in Bali. *International Journal of Early Childhood Special Education*, 13(2), 1056–1063. <https://doi.org/10.9756/INT-JECSE/V13I2.211150>
- Kasim, T. S. A. T., & Yusoff, Y. M. (2014). Active teaching methods: Personal experience of integrating spiritual and moral values. *Religious Education*, 109(5), 554–570. <https://doi.org/10.1080/00344087.2014.956560>
- Kasler, J., Walter, O., & Elias, M. J. (2024). Life satisfaction in emerging adults: The role of emotional and spiritual intelligences. *Journal of American College Health*, 72(3), 849–858. <https://doi.org/10.1080/07448481.2022.2058881>
- Kaufman, K. (2019). What skills do 21st century high school graduates need to have to be successful in college and life? In A. Sahin & M. J. Mohr-Schroeder (Eds.), *STEM Education 2.0* (pp. 337–349). BRILL. https://doi.org/10.1163/9789004405400_018
- Kayhan, O., & Korkmaz, Ö. (2024). Development and validation of learning and innovation skills self-efficacy scale (LIS-SES). *Studies in Educational Evaluation*, 83, 101396. <https://doi.org/10.1016/j.stueduc.2024.101396>
- Keinänen, M., Ursin, J., & Nissinen, K. (2018). How to measure students' innovation competences in higher education: Evaluation of an assessment tool in authentic

- learning environments. *Studies in Educational Evaluation*, 58, 30–36.
<https://doi.org/10.1016/j.stueduc.2018.05.007>
- Khalilzadeh, M., Bahari, A., & Kiaee, M. (2023). The influence of philosophical mentality and spiritual intelligence on creativity of employees mediated by organizational commitment. *Creativity Studies*, 16(2), 650–667.
<https://doi.org/10.3846/cs.2023.16462>
- Kholifah, N., Nurtanto, M., Sutrisno, V. L. P., Majid, N. W. A., Subakti, H., Daryono, R. W., & Achmadi, A. (2025). Unlocking workforce readiness through digital employability skills in vocational education Graduates: A PLS-SEM analysis based on human capital Theory. *Social Sciences & Humanities Open*, 11, 101625.
<https://doi.org/10.1016/j.ssaho.2025.101625>
- Kholis, N. (2012). Gendered career productivity and success in academia in Indonesia's islamic higher education institutions. *Jurnal of Indonesian Islam*, 6(2), 341–366.
<http://dx.doi.org/10.15642/JIIS.2012.6.2.341-366>
- Khosravi, M. (2023). The impact of openness to experience personality trait on attitudes of medical students toward euthanasia: The moderating role of spiritual intelligence. *European Journal of Translational Myology*.
<https://doi.org/10.4081/ejtm.2023.11845>
- Kiesling, C., Sorell, G. T., Montgomery, M. J., & Colwell, R. K. (2006). Identity and spirituality: A psychosocial exploration of the sense of spiritual self. *Developmental Psychology*, 42(6), 1269–1277. <https://doi.org/10.1037/0012-1649.42.6.1269>
- King, D. B. (2008). *Rethinking claims of spiritual intelligence: A definition, model, and measure* [Master Degree program, Trent University].
<https://api.semanticscholar.org/CorpusID:146499861>
- King, D. B. (2010). Personal meaning production as a component of spiritual intelligence. *International Journal of Existential Psychology & Psychotherapy*, 3(1), 1–5.
- King, D. B., & DeCicco, T. L. (2009). A viable model and self-report measure of spiritual intelligence. *International Journal of Transpersonal Studies*, 28(1), 68–85.
<https://doi.org/10.24972/ijts.2009.28.1.68>
- Kleckner, M. J., & Butz, N. (2021). Addressing undergraduate skill gaps in higher education: Revisiting communication in the major course outcomes. *Journal of Education for Business*, 96(7), 411–423.
<https://doi.org/10.1080/08832323.2020.1844119>
- Klemola, K., Hyytinen, H., & Toom, A. (2022). Exploring internal structure of a performance-based critical thinking assessment for new students in higher education.

- Assessment & Evaluation in Higher Education*, 47(4), 556–569.
<https://doi.org/10.1080/02602938.2021.1946482>
- Klegeris, A. (2021). Mixed-mode instruction using active learning in small teams improves generic problem-solving skills of university students. *Journal of Further and Higher Education*, 45(7), 871–885. <https://doi.org/10.1080/0309877X.2020.1826036>
- Knoll, T., Omar, M. I., Maclennan, S., Hernández, V., Canfield, S., Yuan, Y., Bruins, M., Marconi, L., Van Poppel, H., N'Dow, J., & Sylvester, R. (2018). Key steps in conducting systematic reviews for underpinning clinical practice guidelines: Methodology of the European Association of Urology. *European Urology*, 73(2), 290–300. <https://doi.org/10.1016/j.eururo.2017.08.016>
- Kobicheva, A., Tokareva, E., & Baranova, T. (2022). Students' affective learning outcomes and academic performance in the blended environment at university: Comparative study. *Sustainability*, 14(18), 11341. <https://doi.org/10.3390/su141811341>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Kocsis, Z., & Pusztai, G. (2025). The role of higher education through the eyes of Hungarian undergraduate students and graduates: A Qualitative exploratory study. *International Journal for Research in Vocational Education and Training*, 12(1), 48–75. <https://doi.org/10.13152/IJRVET.12.1.3>
- Kono, S., & Sato, M. (2023). The potentials of partial least squares structural equation modeling (PLS-SEM) in leisure research. *Journal of Leisure Research*, 54(3), 309–329. <https://doi.org/10.1080/00222216.2022.2066492>
- Kopechek, K., Langston, D. M., Kleinguetl, C., Posid, T., & Knudsen, B. E. (2025). Cross-sectional study: Design, measures, and classic examples. In *Translational Urology* (pp. 153–157). Elsevier. <https://doi.org/10.1016/B978-0-323-90186-4.00014-6>
- Kori, F. A., & Omar, M. K. (2022). Individual, organizational, and environmental factors affecting work-life balance among Malaysian lecturers amidst COVID-19 pandemic. *Clinical Case Reports: Open Access*, 5(4). <https://doi.org/10.46527/2582-5038.235>
- Kotten, N. B., Bataona, Y. D., Ali, U., Koten, A. N., & Tasrim, I. W. (2025). Exploring spiritually oriented supervision: Enhancing teacher performance and holistic education in religious-based primary schools. *International Journal of Learning, Teaching and Educational Research*, 24(2), 227–241. <https://doi.org/10.26803/ijlter.24.2.12>

- Kurniati, E., Mujahidin, A., Suciari, N. K. D., Hestari, S., & Susilo, H. (2021). *STAD-jeopardy games: A strategy to improve communication and collaboration skills' mathematics pre-service teachers*. 040015. <https://doi.org/10.1063/5.0043170>
- Kutuzov, A. I., & Bogdanova, A. V. (2025). Assessment tools for students' group and teamwork in higher education: A systematic literature review. *Vysshie Obrazovanie v Rossii = Higher Education in Russia*, 34(4), 118–143. <https://doi.org/10.31992/0869-3617-2025-34-4-118-143>
- Kyllonen, P. C. (2017). *Rethinking how we define and measure 21st century skills* (Vol. 1). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199373222.003.0005>
- Labib, M., & Mathur, K. (2025). Spiritual intelligence as a predictor of psychological capital among international students from Asian and African backgrounds at Gujarat State Universities. *Pastoral Psychology*. <https://doi.org/10.1007/s11089-025-01207-5>
- Lai, E. R., & Viering, M. (2012). *Assessing 21st century skills: Integrating research findings*. [Paper Presented at The National Council on Measurement in Education (Vancouver, B.C.)]. Pearson. <https://eric.ed.gov/?id=ED577778>
- Lee, C. S., & Chou, C.-C. (2018). Discipline-specific critical thinking curriculum with a problem solving life cycle framework. *2018 International Conference on Computational Science and Computational Intelligence (CSCI)*, 671–674. <https://doi.org/10.1109/CSCI46756.2018.00135>
- Leong, S. Y., & Said, H. (2024). Development and refinement of the interview protocol: Interview questions for international school teacher retention. *International Journal of Evaluation and Research in Education (IJERE)*, 13(5), 3017. <https://doi.org/10.11591/ijere.v13i5.29079>
- Li, C. (2020). Self-efficacy theory. In J. A. Haegele, S. R. Hodge, & D. R. Shapiro (Eds.), *Routledge Handbook of Adapted Physical Education* (1st ed., pp. 313–325). Routledge. <https://doi.org/10.4324/9780429052675-24>
- Li, L. (2014). An innovation capability evaluation model based on AHP and training strategy of college students. *Proceedings of 2014 IEEE International Conference on Service Operations and Logistics, and Informatics*, 198–201. <https://doi.org/10.1109/SOLI.2014.6960719>
- Lin, Y.-L., & Wang, W.-T. (2024). Enhancing students' online collaborative PBL learning performance in the context of coauthoring-based technologies: A case of wiki

- technologies. *Education and Information Technologies*, 29(2), 2303–2328. <https://doi.org/10.1007/s10639-023-11907-1>
- Lingard, R., & Barkataki, S. (2011). Teaching teamwork in engineering and computer science. *2011 Frontiers in Education Conference (FIE)*, F1C-1-F1C-5. <https://doi.org/10.1109/FIE.2011.6143000>
- Livingston, L. (2010). Teaching creativity in higher education. *Arts Education Policy Review*, 111(2), 59–62. <https://doi.org/10.1080/10632910903455884>
- Long, T. Q., Hoang, T. C., & Simkins, B. (2023). Gender gap in digital literacy across generations: Evidence from Indonesia. *Finance Research Letters*, 58, 104588. <https://doi.org/10.1016/j.frl.2023.104588>
- Luft, J. A., Jeong, S., Idsardi, R., & Gardner, G. (2022). Literature reviews, theoretical frameworks, and conceptual frameworks: an introduction for new Biology education researchers. *CBE—Life Sciences Education*, 21(3), rm33. <https://doi.org/10.1187/cbe.21-05-0134>
- Ma, Q., & Wang, F. (2022). The role of students' spiritual intelligence in enhancing their academic engagement: A theoretical review. *Frontiers in Psychology*, 13, 857842. <https://doi.org/10.3389/fpsyg.2022.857842>
- Maddux, J. E. (2009). Self-Efficacy: The power of believing you can. In S. J. Lopez & C. R. Snyder (Eds.), *The Oxford Handbook of Positive Psychology* (pp. 334–344). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780195187243.013.0031>
- Maddux, J. E., & Kleiman, E. M. (2016). Self-efficacy: a foundational concept for Positive Clinical Psychology. In A. M. Wood & J. Johnson (Eds.), *The Wiley Handbook of Positive Clinical Psychology* (1st ed., pp. 89–101). Wiley. <https://doi.org/10.1002/9781118468197.ch7>
- Mahasneh, A. M., Shammout, N., Alkhazaleh, Z., Abueita, J., & Al-Alwan, A. (2015). The relationship between spiritual intelligence and personality traits among Jordanian university students. *Psychology Research and Behavior Management*, 89. <https://doi.org/10.2147/PRBM.S76352>
- Mahmud, M. M., & Wong, S. F. (2022). Digital age: The importance of 21st century skills among the undergraduates. *Frontiers in Education*, 7, 950553. <https://doi.org/10.3389/feduc.2022.950553>
- Makanui, K. P., Jackson, Y., & Gusler, S. (2019). Spirituality and its relation to mental health outcomes: An examination of youth in foster care. *Psychology of Religion and Spirituality*, 11(3), 203–213. <https://doi.org/10.1037/rel0000184>

- Manchikanti, L., Datta, S., Smith, H. S., & Hirsch, J. A. (2009). Evidence-based medicine, systematic reviews, and guidelines in interventional pain management: Part 6. Systematic reviews and meta-analyses of observational studies. *Pain Physician, 12*(5), 819–850.
- Mansoor, H. S., Muhibbin, A., Khan, A. B., & Riaz, H. (2025). Prophetic pedagogy in English language teaching in Pakistani universities. *Forum for Linguistic Studies, 7*(5). <https://doi.org/10.30564/fls.v7i5.9345>
- Mardiani, R., & Hanifah, M. (2023). Enhancing English language skills through a collaborative drama project. *Athens Journal of Education, 10*(3), 463–480. <https://doi.org/10.30958/aje.10-3-6>
- Marenco-Escuderos, A. D., Restrepo Cervantes, D., & Rambal-Rivaldo, L. I. (2021). Resilience profiles associated with social support and engagement for overcoming academic obstacles in undergraduate education. *Journal of Systemics, Cybernetics and Informatics, 19*(8), 139–147. <https://doi.org/10.54808/JSCI.19.08.139>
- Mariano, W. K., & Chiappe, A. (2021). Habilidades del siglo XXI y entornos de aprendizaje STEAM: Una revisión. *Revista de Educación a Distancia (RED), 21*(68). <https://doi.org/10.6018/red.470461>
- Mariyana, A. L. D., Annaufal, A. I., & Muafi. (2024). Islamic values impact on managerial autonomy. In A. Hamdan & E. S. Aldhaen (Eds.), *Artificial Intelligence and Transforming Digital Marketing* (Vol. 487, pp. 1007–1015). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-35828-9_84
- Marshel, J. & Ratnawulan. (2020). Analysis of students worksheet (LKPD) integrated science with the theme of the motion in life using integrated connected type 21st century learning. *Journal of Physics: Conference Series, 1481*(1), 012046. <https://doi.org/10.1088/1742-6596/1481/1/012046>
- Martela, F. (2020). Self-Determination Theory. In B. J. Carducci, C. S. Nave, J. S. Mio, & R. E. Riggio (Eds.), *The Wiley encyclopedia of personality and individual differences* (1st ed., pp. 369–373). Wiley. <https://doi.org/10.1002/9781119547143.ch61>
- Martinez, J. A. (2025). Are critical thinking and problem-solving skills enough to help prepare students to meet the modern workforce demands with Artificial Intelligence? In *Advances in Educational Technologies and Instructional Design* (pp. 137–154). IGI Global. <https://doi.org/10.4018/979-8-3373-0502-8.ch006>
- Masaong, Abd. K., & Mas, S. R. (2019). Character education management model development based on multiple intelligence for strengthening “student-ethos

- transformation” in the revolutionary era of industry 4.0. *International Journal of Innovation, Creativity and Change*, 5(4), 692–703.
- Matthee, M., & Turpin, M. (2019). Invited paper: teaching critical thinking, problem solving, and design thinking: preparing IS students for the future. *Journal of Information Systems Education*, 30(4), 242–252.
- Mazijk, C. V. (2020). Transcendental consciousness: Subject, object, or neither? In I. Apostolescu (Ed.), *The Subject(s) of Phenomenology* (Vol. 108, pp. 45–56). Springer International Publishing. https://doi.org/10.1007/978-3-030-29357-4_4
- McAllister, S. (2008). Introduction to the use of Rasch analysis to assess patient performance. *International Journal of Therapy and Rehabilitation*, 15(11), 482–490. <https://doi.org/10.12968/ijtr.2008.15.11.31544>
- Mehralian, G., Yusefi, A. R., Dastyar, N., & Bordbar, S. (2023). Communication competence, self-efficacy, and spiritual intelligence: Evidence from nurses. *BMC Nursing*, 22(1), 99. <https://doi.org/10.1186/s12912-023-01262-4>
- Memon, M. A., Thurasamy, R., Ting, H., & Cheah, J.-H. (2024). Purposive Sampling: A Review and Guidelines for Quantitative Research. *Journal of Applied Structural Equation Modeling*, 9(1), 1–23. [https://doi.org/10.47263/JASEM.9\(1\)01](https://doi.org/10.47263/JASEM.9(1)01)
- Mendo-Lázaro, S., León-del-Barco, B., Felipe-Castaño, E., Polo-del-Río, M.-I., & Iglesias-Gallego, D. (2018). Cooperative team learning and the development of social skills in higher education: The variables involved. *Frontiers in Psychology*, 9, 1536. <https://doi.org/10.3389/fpsyg.2018.01536>
- Menon, P., & Sadasivan, A. (2019). A vignette of spiritual intelligence and transformational leadership. *International Journal of Innovative Technology and Exploring Engineering*, 8(10), 2529–2535. <https://doi.org/10.35940/ijitee.J1240.0881019>
- Mercer-Mapstone, L. D., & Matthews, K. E. (2017). Student perceptions of communication skills in undergraduate science at an Australian research-intensive university. *Assessment & Evaluation in Higher Education*, 42(1), 98–114. <https://doi.org/10.1080/02602938.2015.1084492>
- Michinov, E., Michinov, N., & Huguet, P. (2009). Effects of gender role and task content on performance in same-gender dyads: Transactive memory as a potential mediator. *European Journal of Psychology of Education*, 24(2), 155–168. <https://doi.org/10.1007/BF03173008>
- Milner, K. A. (2015). Systematic reviews. *Oncology Nursing Forum*, 42(1), 89–93. <https://doi.org/10.1188/15.ONF.89-93>

- Miyata, K., Yuizono, T., Nagai, Y., & Kunifuji, S. (2017). Human capital development through innovation design education. *SIGGRAPH Asia 2017 Symposium on Education*, 1–8. <https://doi.org/10.1145/3134368.3139219>
- Mohamed, N., Ghani, M. H., Sulaiman, R., & Noor, M. M. (2024). Pembinaan etos dalam komuniti muslim: perspektif antropologi dan sosiologi: The construction of ethos in muslim communities: an anthropological and sociological perspective. *Global Journal Al-Thaqafah*, 279–289. <https://doi.org/10.7187/GJATSI122024-18>
- Mohammed, S. O. (2019). Spiritual intelligence and its relationship to perceived academic self-efficacy for university students. *Universidad Del Zulia*, 35(19), 2009.
- Møller, C., Hansen, N. Chr., Vuust, P., & Müllensiefen, D. (2024). The Danish Goldsmiths musical sophistication index: validation in samples with different degrees of representativeness. *Music & Science*, 7, 20592043241289087. <https://doi.org/10.1177/20592043241289087>
- Molwus, J. J., Erdogan, B., & Ogunlana, S. O. (2013). Sample size and model fit indices for Structural Equation Modelling (SEM): The Case of Construction Management Research. *ICCREM 2013*, 338–347. <https://doi.org/10.1061/9780784413135.032>
- Mostafavi, N. (2022). Comparative evaluation of wisdom intelligence with spiritual intelligence and its relationship with education. *Journal of Philosophical Investigations*, 16(40), 111-126. <https://doi.org/10.22034/jpiut.2022.51084.3293>
- Motallebzadeh, K., Ahmadi, F., & Hosseinnia, M. (2018). Relationship between 21st century skills, speaking and writing skills: a structural equation modelling approach. *International Journal of Instruction*, 11(3), 265–276. <https://doi.org/10.12973/iji.2018.11319a>
- Mousavimoghadam, S. R., Hamedheydari, S., & Abbasalipour, S. (2015). Examine the relationship between spiritual intelligence of employed mothers, teachers elementary with mental health of children aged 6-12 years in ILAM. *Der Pharmacia Lettre*, 7(10), 39–43.
- Mušinović, F. (2020). Spiritual intelligence and business environments. *Academica Turistica*, 13(2), 167–177. <https://doi.org/10.26493/2335-4194.13.167-177>
- Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A step-by-step process of thematic analysis to develop a conceptual model in qualitative research. *International Journal of Qualitative Methods*, 22, 16094069231205789. <https://doi.org/10.1177/16094069231205789>
- Najmi, S., Hovsepiyan, S., Jamshidibeyk, A., Nasiripour, L., & Maracy, M. R. (2019). The association between demographic and familial characteristics and psychological

- properties of adolescents. *Journal of Research in Medical Sciences*, 24(1), 14. https://doi.org/10.4103/jrms.jrms_444_18
- Namazandost, E., Behbahani, H. K., & Heydarnejad, T. (2024). Like coloured pencils in a pencil case: A portray of the connections between learning style preferences, needs satisfaction, academic motivation, and psychological well-being from the window of self-determination theory. *European Journal of Education*, 59(4), e12715. <https://doi.org/10.1111/ejed.12715>
- Namazandost, E., Çakmak, F., Heydarnejad, T., & Rezai, A. (2024). The predictive effects of learner autonomy and academic engagement on willingness to communicate, foreign language learning self-esteem, and L2 grit in an EFL context. *Acta Psychologica*, 250, 104528. <https://doi.org/10.1016/j.actpsy.2024.104528>
- Nandram, B., & Rao, J. (2023). *Bayesian predictive inference when integrating a non-probability sample and a probability sample* (Version 1). arXiv. <https://doi.org/10.48550/ARXIV.2305.08997>
- Narayanswamy, R. (2008). Why is spirituality integral to management education? my experience of integrating management and spirituality. *Journal of Human Values*, 14(2), 115–128. <https://doi.org/10.1177/097168580801400203>
- Neiman, A. M. (1999). Religious belief and education for spirituality after the enlightenment: the vision of Elmer Thiessen. *Religious Education*, 94(4), 428–441. <https://doi.org/10.1080/0034408990940405>
- Neumann, C., Stroud, K. M., Bailey, S., Allison, K., & Everts, S. (Sally). (2021). 21st-century competencies in higher education: a practitioner's guide. In H. K. Dhir (Ed.), *Advances in Educational Technologies and Instructional Design* (pp. 293–315). IGI Global. <https://doi.org/10.4018/978-1-7998-6967-2.ch016>
- Neville, S., Adams, J., & Cook, C. (2016). Using internet-based approaches to collect qualitative data from vulnerable groups: Reflections from the field. *Contemporary Nurse*, 52(6), 657–668. <https://doi.org/10.1080/10376178.2015.1095056>
- Nguyen, T. A. H. (2023). Spiritual Intelligence: A vision for formation in religious education. *Religious Education*, 118(4), 343–355. <https://doi.org/10.1080/00344087.2023.2264554>
- Nhan, L. K. (2024). Enhancing teaching and learning through formative assessment. *International Journal of Science and Management Studies (IJSMS)*, 356–365. <https://doi.org/10.51386/25815946/ij sms-v7i3p128>
- Nicholson, P., Griffin, P., Gillis, S., Wu, M., & Dunning, T. (2013). Measuring nursing competencies in the operating theatre: Instrument development and psychometric

- analysis using Item Response Theory. *Nurse Education Today*, 33(9), 1088–1093. <https://doi.org/10.1016/j.nedt.2012.04.008>
- Nizaruddin, & Kusmaryono, I. (2023). How are critical thinking skills related to students' self-regulation and independent learning? *Pegem Journal of Education and Instruction*, 13(4). <https://doi.org/10.47750/pegegog.13.04.10>
- Nudelman, G., Kalil, C., Navarro-Astor, E., & English, J. (2022). Student teamwork in professional programmes in higher education: A comparative study of Spain and South Africa. *Journal of Teaching and Learning for Graduate Employability*, 13(1), 94–108. <https://doi.org/10.21153/jtlge2022vol13no1art1463>
- Nurhadi, D., Zahro, S., & Lyau, N.-M. (2017). A retrospective on educational policies and their implementation in the vocational teacher education provision / Osvrt na obrazovne politike i njihovu provedbu u obrazovanju strukovnih nastavnika. *Croatian Journal of Education - Hrvatski Časopis Za Odgoj i Obrazovanje*, 19(3). <https://doi.org/10.15516/cje.v19i3.2356>
- Nurochim, N. A., Mahmudiono, T., Chupradit, S., Smolentsev, V. M., Chupradit, P. W., Komariah, A., Iswanto, A. H., Istomina, O. B., & Shalaby, M. N. (2022). Investigating the relationship between spiritual intelligence, emotional regulation and stress coping strategies in the Russian education industry. *International Journal of Work Organisation and Emotion*, 13(3), 212. <https://doi.org/10.1504/IJWOE.2022.126952>
- O'Connor, A. M., Sargeant, J. M., & Wang, C. (2014). Conducting systematic reviews of intervention questions III: Synthesizing data from intervention studies using meta-analysis. *Zoonoses and Public Health*, 61(S1), 52–63. <https://doi.org/10.1111/zph.12123>
- OECD. (2018). *The future of education and skills: education 2030* (OECD Education Policy Perspectives No. 98; OECD Education Policy Perspectives, Vol. 98). <https://doi.org/10.1787/54ac7020-en>
- OECD & Asian Development Bank. (2020). *Employment and skills strategies in Indonesia*. OECD. <https://doi.org/10.1787/dc9f0c7c-en>
- Okros, A. (2020). Education and Learning. In A. Okros, *Harnessing the potential of digital post-millennials in the future workplace* (pp. 53–72). Springer International Publishing. https://doi.org/10.1007/978-3-030-25726-2_3
- Oktasari, D., Jumadi, J., Dwijohartoko, W., & Syari, E. nurulita. (2019). 3D Page-flipped worksheet on impulse-momentum to develop students' scientific communication

- skills. *Jurnal Pendidikan IPA Indonesia*, 8(2).
<https://doi.org/10.15294/jpii.v8i2.15737>
- Olivier, E., Archambault, I., De Clercq, M., & Galand, B. (2019). Student self-efficacy, classroom engagement, and academic achievement: comparing three theoretical frameworks. *Journal of Youth and Adolescence*, 48(2), 326–340.
<https://doi.org/10.1007/s10964-018-0952-0>
- Olsson, M., & Martiny, S. E. (2018). Does exposure to counterstereotypical role models influence girls' and women's gender stereotypes and career choices? a review of social psychological research. *Frontiers in Psychology*, 9, 2264.
<https://doi.org/10.3389/fpsyg.2018.02264>
- Orchard, C., Mahler, C., & Khalili, H. (2021). Assessment of the interprofessional team collaboration scale for students-AITCS-II (student): Development and testing. *Journal of Allied Health*, 50(1).
https://www.researchgate.net/publication/350559328_Assessment_of_the_Interprofessional_Team_Collaboration_Scale_for_Students-AITCS-II_Student_Development_and_Testing
- Othman, A., Hussien, S., Ahmad, I. S., Rashid, A. A., & Badzis, M. (2017). Islamic integrated education system model in the Malay archipelago: Implications for educational leadership. *Intellectual Discourse*, 25(1), 201–224.
<https://doi.org/10.31436/id.v25i1.998>
- Ouden, M. E. M. den, Groeneveld, S., Engelbertink, M., Talsma, A., Ríos Rincón, A., & Liu, L. (2025). Future-proof healthcare professionals: innovative approaches from Canada, the Netherlands, and the United States of America. *OJIN: The Online Journal of Issues in Nursing*, 30(1).
<https://doi.org/10.3912/OJIN.Vol30No01Man06>
- Oxford University Press. (2024). Oxford learner's dictionaries. *Dictionary*.
<https://www.oxfordlearnersdictionaries.com>
- Oyewunmi, A. E., Esho, E., & Oyewunmi, Olabode. A. (2021). Spiritual intelligence and employee outcomes in an African sample. *Journal of Management, Spirituality & Religion*, 18(2), 151–171. <https://doi.org/10.51327/ZPDN7247>
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). Routledge. <https://doi.org/10.4324/9781003117452>
- Pandya, S. P. (2024). College students with high abilities in liberal arts disciplines: Examining the effect of spirituality in bolstering self-regulated learning, affect

- balance, peer relationships, and well-being. *High Ability Studies*, 35(1), 45–71. <https://doi.org/10.1080/13598139.2023.2278811>
- Pannen, P. (2018). Higher education systems and institutions, Indonesia. In *Encyclopedia of International Higher Education Systems and Institutions* (pp. 1–10). Springer Netherlands. https://doi.org/10.1007/978-94-017-9553-1_581-1
- Paños-Castro, J., Korres, O., Iriondo, I., & Petchamé, J. (2024). Digital Transformation and Teaching Innovation in Higher Education: A Case Study. *Education Sciences*, 14(8), 820. <https://doi.org/10.3390/educsci14080820>
- Pant, N., & Srivastava, S. K. (2019). The impact of spiritual intelligence, gender and educational background on mental health among college students. *Journal of Religion and Health*, 58(1), 87–108. <https://doi.org/10.1007/s10943-017-0529-3>
- Partnership for 21st Century Learning. (2019). *Framework for 21st century learning definition*. Battelle for Kids. https://www.battelleforkids.org/wp-content/uploads/2023/11/P21_Framework_DefinitionsBFK.pdf
- Patton, M. Q. (2015). Sampling, qualitative (purposeful). In G. Ritzer (Ed.), *The Blackwell Encyclopedia of Sociology* (1st ed.). Wiley. <https://doi.org/10.1002/9781405165518.wbeoss012.pub2>
- Pearse, N. (2019). *An illustration of deductive analysis in qualitative research*. 18th european conference on research methodology for business and management studies. <https://doi.org/10.34190/RM.19.006>
- Pelger, S., & Nilsson, P. (2018). Observed learning outcomes of integrated communication training in science education: Skills and subject matter understanding. *International Journal of Science Education, Part B*, 8(2), 135–149. <https://doi.org/10.1080/21548455.2017.1417653>
- Phillips, M., Reed, J. B., Zwicky, D., Van Epps, A. S., Buhler, A. G., Rowley, E. M., Zhang, Q., Cox, J. M., & Zakharov, W. (2024). Systematic reviews in the engineering literature: a scoping review. *IEEE Access*, 12, 62648–62663. <https://doi.org/10.1109/ACCESS.2024.3394755>
- Pinnegar, S., & Lynn Hamilton, M. (2012). Chapter one openness and inconclusivity in interpretation in narrative inquiry: dimensions of the social/personal. In E. Chan, D. Keyes, & V. Ross (Eds.), *Advances in Research on Teaching* (pp. 1–22). Emerald Group Publishing Limited. [https://doi.org/10.1108/S1479-3687\(2012\)0000016005](https://doi.org/10.1108/S1479-3687(2012)0000016005)
- Pinto, C. T., Guedes, L., Pinto, S., & Nunes, R. (2024). Spiritual intelligence: A scoping review on the gateway to mental health. *Global Health Action*, 17(1), 2362310. <https://doi.org/10.1080/16549716.2024.2362310>

- Plano Clark, V. L., Garrett, A. L., & Leslie-Pelecky, D. L. (2010). Applying three strategies for integrating quantitative and qualitative databases in a mixed methods study of a nontraditional graduate education program. *Field Methods*, 22(2), 154–174. <https://doi.org/10.1177/1525822X09357174>
- Plucker, J. A. (2022). *Creativity and innovation theory, research, and practice* (2nd ed.). Routledge. <https://doi.org/10.4324/9781003233923>
- Plucker, J. A., Meyer, M. S., & Makel, M. C. (2023). Supporting innovation: sociocultural and developmental considerations in the assessment of creativity. In D. D. Preiss, M. Singer, & J. C. Kaufman (Eds.), *Creativity, Innovation, and Change Across Cultures* (pp. 29–50). Springer International Publishing. https://doi.org/10.1007/978-3-031-28206-5_2
- Porkodi, S., Saranya, R., Sultana, A., & Mittal, P. (2023). Assessing the impact of collaborative learning practices on competency development in entrepreneurship program: a study of higher education students in Delhi NCR region of India. *Journal of Information & Knowledge Management*, 22(05), 2350021. <https://doi.org/10.1142/S0219649223500211>
- Portoghese, I., Lasio, M., Conti, R., Mascia, M. L., Hitchcott, P., Agus, M., Gemignani, A., & Penna, M. P. (2020). Cognitive flexibility inventory: factor structure, invariance, reliability, convergent, and discriminant validity among Italian university students. *PsyCh Journal*, 9(6), 934–941. <https://doi.org/10.1002/pchj.401>
- Poth, R. D. (2018). Connecting and the future of learning. *Journal of Digital Learning in Teacher Education*, 34(4), 196–197. <https://doi.org/10.1080/21532974.2018.1505165>
- Prabhu, C. J., Mehta, M., & Srivastava, A. P. (2020). A new model of practical spiritual intelligence for the leadership development of human capital in Indian Universities. *Journal of Applied Research in Higher Education*, 12(5), 957–973. <https://doi.org/10.1108/JARHE-11-2019-0296>
- Prabhu, C., & Mehta, M. (2023). A new validated model of leadership development in higher education; empirical assessment using universal attributes of spiritual intelligence. *Higher Education, Skills and Work-Based Learning*, 13(3), 465–487. <https://doi.org/10.1108/HESWBL-12-2022-0276>
- Prada, E. D., Mareque, M., & Pino-Juste, M. (2022). Teamwork skills in higher education: Is university training contributing to their mastery? *Psicologia: Reflexão e Crítica*, 35(1), 5. <https://doi.org/10.1186/s41155-022-00207-1>

- Prakong, S. (2024). The role of critical thinking in enhancing students' problem-solving abilities in higher education. *Journal of Education, Humanities, and Social Research*, 1(1), 10–16. <https://doi.org/10.70088/scx8x622>
- Priadi, A. A., & Mutia, N. (2023). *Transformation of Indonesian vocational higher education management through human resource development agency Next Generation Go*. 030014. <https://doi.org/10.1063/5.0113985>
- Putri, I. G. A. P. E., Widdop Quinton, H., & Selkrig, M. (2024). Reshaping teaching in higher education through a mandala of creative pedagogies. *Teaching in Higher Education*, 29(8), 2075–2094. <https://doi.org/10.1080/13562517.2023.2193665>
- Raheja, S., Gupta, R., & Yadav, G. (2024). Spiritual Intelligence, happiness and success of students in select higher education institutions of University of Delhi. *Environment and Social Psychology*, 9(6). <https://doi.org/10.54517/esp.v9i6.1984>
- Rahman, M. Y. H., Sauri, H. S., & Naim, A. R. N. (2012). Development of Science Spiritual Model for Pre-school Education. *Global Journal Al-Thaqafah*, 2(1), 23–34. <https://doi.org/10.7187/GJAT112012.02.01>
- Ramachandaran, S. D., Krauss, S. E., Hamzah, A., & Idris, K. (2017). Effectiveness of the use of spiritual intelligence in women academic leadership practice. *International Journal of Educational Management*, 31(2), 160–178. <https://doi.org/10.1108/IJEM-09-2015-0123>
- Ramdani, D., Susilo, H., Suhadi, S., & Sueb, S. (2022). The effectiveness of collaborative learning on critical thinking, creative thinking, and metacognitive skill ability: Meta-analysis on biological learning. *European Journal of Educational Research*, volume–11–2022(volume–11–issue–3–july–2022), 1607–1628. <https://doi.org/10.12973/euler.11.3.1607>
- Ramey, J., & Rao, P. G. (2011). The systematic literature review as a research genre. *2011 IEEE International Professional Communication Conference*, 1–7. <https://doi.org/10.1109/IPCC.2011.6087229>
- Razak, A., Wirawan, H., Alwi, M. A., Lukman, & Jalal, N. M. (2024). The development of spiritual competence training for high school students in Indonesia. *Cogent Education*, 11(1), 2401254. <https://doi.org/10.1080/2331186X.2024.2401254>
- Reave, L. (2005). Spiritual values and practices related to leadership effectiveness. *The Leadership Quarterly*, 16(5), 655–687. <https://doi.org/10.1016/j.leaqua.2005.07.003>
- Reisdorf, C., & Murray, M. (2024). Leadership: Emotional and spiritual intelligence in the mix. *Journal of Business Strategy*, 45(6), 378–385. <https://doi.org/10.1108/JBS-08-2023-0160>

- Remaycuna-Vasquez, A., Atoche-Silva, L. A., Carrión-Barco, G., & Niño-Tezén, A. L. (2024). Inteligencia espiritual como correlato de la felicidad: Perspectivas de los estudiantes universitarios de Perú. *Revista Venezolana de Gerencia*, 29(107), 1111–1129. <https://doi.org/10.52080/rvgluz.29.107.8>
- Resnick, B. (2018). Theory of self-efficacy. In M. J. Smith & P. R. Liehr (Eds.), *Middle Range Theory for Nursing*. Springer Publishing Company. <https://doi.org/10.1891/9780826159922.0010>
- Riahi, S., Goudarzi, F., Fateme Goudarzi, Hasanvand, S., Abdollahzadeh, H., Ebrahimzadeh, F., & Dadvari, Z. (2018). Assessing the effect of spiritual intelligence training on spiritual care competency in critical care nurses. *Journal of Medicine and Life*, 11(4), 346–354. <https://doi.org/10.25122/jml-2018-0056>
- Rieckmann, M. (2018). Learning to transform the world: Key competencies in Education for Sustainable Development. In *Issues and trends in Education for Sustainable Development* (pp. 39–59). UNESCO.
- Ritter, S. M., Gu, X., Crijns, M., & Biekens, P. (2020). Fostering students' creative thinking skills by means of a one-year creativity training program. *PLOS ONE*, 15(3), e0229773. <https://doi.org/10.1371/journal.pone.0229773>
- Rivas, S. F., Saiz, C., & Ossa, C. (2022). Metacognitive strategies and development of critical thinking in higher education. *Frontiers in Psychology*, 13, 913219. <https://doi.org/10.3389/fpsyg.2022.913219>
- Robbins, T. L., & Kegley, K. (2010). Playing with Thinkertoys to build creative abilities through online instruction. *Thinking Skills and Creativity*, 5(1), 40–48. <https://doi.org/10.1016/j.tsc.2009.07.001>
- Rosienkiewicz, M., Helman, J., Cholewa, M., Molasy, M., Górecka, A., Kohen-Vacs, D., Winokur, M., Amador Nelke, S., Levi, A., Gómez-González, J. F., Bourgain, M., Sagar, A., Berselli, G., & Benis, A. (2024). Enhancing technology-focused entrepreneurship in higher education institutions ecosystem: implementing innovation models in international projects. *Education Sciences*, 14(7), 797. <https://doi.org/10.3390/educsci14070797>
- Ryan, R. M. (Ed.). (2023). *The Oxford handbook of self-determination theory* (1st ed.). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780197600047.001.0001>
- Ryan, R. M., & Deci, E. L. (Eds.). (2017). *Self-determination theory: basic psychological needs in motivation, development, and wellness*. Guilford Press. <https://doi.org/10.1521/978.14625/28806>

- Saaida, M. (2023). *Balancing national identity and cultural heritage with the influences of globalization*. <https://doi.org/10.5281/ZENODO.10884119>
- Saavedra, A. R., & Opfer, V. D. (2012). Learning 21st-century skills requires 21st-century teaching. *Phi Delta Kappan*, 94(2), 8–13. <https://doi.org/10.1177/003172171209400203>
- Sabzianpur, Z., & Nuri, S. (2019). Effect of spiritual intelligence on quality of nursing care of educational and treatment hospitals in hamadan. *Avicenna Journal of Nursing and Midwifery Care*, 27(1), 18–24. <https://doi.org/10.30699/ajnmc.27.1.18>
- Sáenz-Rodríguez, R. R., Ramirez-Asis, E. E., Dextre-Martinez, W. R., & Guerra-Muñoz, M. E. (2021). Cooperative learning enhances critical thinking in Peruvian economics university students. *Economic Annals-XXI*, 193(9–10), 146–151. <https://doi.org/10.21003/ea.V193-18>
- Sahin, A. (2018). Critical issues in Islamic education studies: Rethinking Islamic and Western liberal secular values of education. *Religions*, 9(11), 335. <https://doi.org/10.3390/rel9110335>
- Samala, A. D., Rawas, S., Criollo-C, S., Bondarenko, O., Gentarefori Samala, A., & Novalindry, D. (2024). Harmony in education: an in-depth exploration of Indonesian academic landscape, challenges, and prospects towards the golden generation 2045 vision. *TEM Journal*, 2436–2456. <https://doi.org/10.18421/TEM133-71>
- Samul, J. (2020). Emotional and spiritual intelligence of future leaders: Challenges for education. *Education Sciences*, 10(7), 178. <https://doi.org/10.3390/educsci10070178>
- Sanchez, T. R., Inostroza-Nieves, Y., Hemal, K., & Chen, W. (2023). Cross-sectional study. In *Translational Surgery* (pp. 219–222). Elsevier. <https://doi.org/10.1016/B978-0-323-90300-4.00030-6>
- Sanchez-Cid, J. E., Osorio-Guzman, M. I., Martinez-Valdes, V. A., & Gregorio Garcia-Aguilar. (2018). Differentiated phenomena in university education: Academic performance, intelligence and creativity. *Revista Interamericana de Psicología/Interamerican Journal of Psychology (IJP)*, 52(2), 225–235.
- Santoso, T., & Hassan, R. (2018). Developing k-workers' competencies framework for undergraduate university students. *Journal of Technical Education and Training*, 10(2). <https://doi.org/10.30880/jtet.2018.10.02.006>
- Sapiee, M. L., Abdullah, N. A., Halim, F. W., Kasim, A. C., & Ibrahim, N. (2024). Exploring the impact of emotional intelligence on employee creativity: The

- mediating role of spiritual intelligence. *Journal of Chinese Human Resources Management*, 15(3). <https://doi.org/10.47297/wspchrmWSP2040-800502.20241503>
- Saputra, B., Etin Solihatin, & Suyitno Muslim. (2022). Cognitive flexibility abilities in learning: A systematic review of the literature. *Asian Journal of Educational Technology*, 2(2), 54–58. <https://doi.org/10.53402/ajet.v2i2.373>
- Sargeant, J. M., & O'Connor, A. M. (2014). Conducting systematic reviews of intervention questions II: Relevance screening, data extraction, assessing risk of bias, presenting the results and interpreting the findings. *Zoonoses and Public Health*, 61(S1), 39–51. <https://doi.org/10.1111/zph.12124>
- Sari, R. K., Mahdiyah, D., & Siti THOMAS Zulaikhah. (2019). Study on emotional intelligence and spiritual intelligence as a prediction of students cumulative grade points average. *Journal of Critical Review*, 6(5), 30–35.
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research*, 69(10), 3998–4010. <https://doi.org/10.1016/j.jbusres.2016.06.007>
- Schinkel, A., De Ruyter, D. J., & Aviram, A. (2016). Education and life's meaning: education and life's meaning. *Journal of Philosophy of Education*, 50(3), 398–418. <https://doi.org/10.1111/1467-9752.12146>
- Schleicher, A. (2018). *World class: How to build a 21st-century school system*. OECD.
- Schunk, D. H., & DiBenedetto, M. K. (2015). Self-efficacy: education aspects. In *International Encyclopedia of the Social & Behavioral Sciences* (pp. 515–521). Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.92019-1>
- Schunk, D. H., & DiBenedetto, M. K. (2021). Self-efficacy and human motivation. In *Advances in Motivation Science* (Vol. 8, pp. 153–179). Elsevier. <https://doi.org/10.1016/bs.adms.2020.10.001>
- Scott, C. L. (2015a). *The futures of learning 1: Why must learning content and methods change in the 21st century?* (Education, Research and Foresight: Working Paper No. 13). UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000234807>
- Scott, C. L. (2015b). *The futures of learning 3: What kind of pedagogies for the 21st century?* (Education, Research and Foresight: Working Papers No. 15). UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000243126>
- Selvamani, L., Dhilipan, C., Divyalakshmi, G., Lakshmi, J., & Krishna, V. B. (2024). Exploring the role of self-determination theory and theory of planned behaviour in understanding the link between spiritual motivation and university-industry

- collaboration. *Journal of Organizational Change Management*, 37(5), 988–1011. <https://doi.org/10.1108/JOCM-05-2023-0181>
- Senmar, M., Azimian, J., Noorian, S., Aliakbari, M., & Chegini, N. (2023). Relationship between spiritual intelligence and lifestyle with life satisfaction among students of medical sciences. *BMC Medical Education*, 23(1), 520. <https://doi.org/10.1186/s12909-023-04506-8>
- Setia, M. (2016). Methodology series module 3: Cross-sectional studies. *Indian Journal of Dermatology*, 61(3), 261. <https://doi.org/10.4103/0019-5154.182410>
- Severino-González, P., Sarmiento-Peralta, G., Villar-Olaeta, J., & Ramírez-Molina, R. I. (2022). Consumo sustentable socialmente responsable: El caso de estudiantes universitarios de una ciudad de Perú. *Formación Universitaria*, 15(1), 219–230. <https://doi.org/10.4067/S0718-50062022000100219>
- Severino-González, P., Toro-Lagos, V., Santinelli-Ramos, M. A., Romero-Argueta, J., Sarmiento-Peralta, G., Kinney, I. S., Ramírez-Molina, R., & Villar-Olaeta, F. (2022). Social responsibility and spiritual intelligence: University students' attitudes during COVID-19. *International Journal of Environmental Research and Public Health*, 19(19), 11911. <https://doi.org/10.3390/ijerph191911911>
- Shabani, J., Hassan, S. A., Ahmad, A., & Baba, M. (2011). Moderating influence of gender on the link of spiritual and emotional intelligences with mental health among adolescents. *Life Science Journal*, 8(1), 106–112.
- Shadiev, R., & Wang, X. (2022). A Review of research on technology-supported language learning and 21st century skills. *Frontiers in Psychology*, 13, 897689. <https://doi.org/10.3389/fpsyg.2022.897689>
- Shafie, H., Abd Majid, F., & Ismail, I. S. (2019). Technological Pedagogical Content Knowledge (TPACK) in teaching 21st century skills in the 21st century classroom. *Asian Journal of University Education*, 15(3), 24. <https://doi.org/10.24191/ajue.v15i3.7818>
- Shatery, K., Hayat, A. A., & Jayervand, H. (2018). The relationship between mental health and spiritual intelligence among primary school teachers. *International Journal of School Health, In Press*(In Press). <https://doi.org/10.5812/intjsh.74031>
- Shaw, D. H., & Ihle, S. L. (2006). Communication skills training at the Atlantic Veterinary College, University of Prince Edward Island. *Journal of Veterinary Medical Education*, 33(1), 100–104. <https://doi.org/10.3138/jvme.33.1.100>

- Shekhar, P., Huang-Saad, A., Libarkin, J., Cummings, R., & Tafurt, V. (2017). Assessment of student learning in an entrepreneurship practicum course. *2017 ASEE Annual Conference & Exposition Proceedings*, 27639. <https://doi.org/10.18260/1-2--27639>
- Shida, N., Abdullah, A. H., Osman, S., & Ismail, N. (2023). Design and development of critical thinking learning strategy in integral calculus. *International Journal of Evaluation and Research in Education (IJERE)*, 12(1), 284. <https://doi.org/10.11591/ijere.v12i1.23779>
- Shityakova, N. P., Verkhovyykh, I. V. & Zabrodina, I. V. (2020). The attitude of teachers to the opportunities and risks of spiritual and moral education in the context of digitalization. *Perspectives of Science and Education*, 48(6), 446–458. <https://doi.org/10.32744/pse.2020.6.34>
- Sholehuddin, M. S., Mucharomah, M., Atqia, W., & Aini, R. (2023). Developing children's Islamic spiritual intelligence in the digital age: Indonesian family education methods. *International Journal of Instruction*, 16(1), 357–376. <https://doi.org/10.29333/iji.2023.16120a>
- Shrivastava, P., & Mishra, R. (2025). Systematic reviews in epidemiological studies. In T. Rana (Ed.), *Epidemiology and Environmental Hygiene in Veterinary Public Health* (1st ed., pp. 229–244). Wiley. <https://doi.org/10.1002/9781394208180.ch18>
- Sian, T. B., Hoe, T. W., Ali, A. Z. M., & Soon, C. K. (2024). Effects of digital game-based learning on product innovation skills development: comparative analysis between applied arts and applied science undergraduate students. *Malaysian Journal of Learning and Instruction*, 21(2), 357–386. <https://doi.org/10.32890/mjli2024.21.2.12>
- Simelane, B., & Engelbrecht, J. (2024). Measuring the Mathematical maturity of students in an academic development programme. *International Journal of Research in Undergraduate Mathematics Education*, 10(2), 577–606. <https://doi.org/10.1007/s40753-023-00222-2>
- Šimunović, Z., & Vekić-Kljaić, V. (2024). Competencies for the 21st century: is education keeping up with industry 4.0? In I. Karabegovic, A. Kovačević, & S. Mandzuka (Eds.), *New Technologies, Development and Application VII* (Vol. 1070, pp. 335–343). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-66271-3_36
- Sisk, D. (2002). Spiritual intelligence: The tenth intelligence that integrates all other intelligences. *Gifted Education International*, 16(3), 208–213. <https://doi.org/10.1177/026142940201600304>

- Sisk, D. (2008). Engaging the spiritual intelligence of gifted students to build global awareness in the classroom. *Roeper Review*, 30(1), 24–30. <https://doi.org/10.1080/02783190701836296>
- Sjawie, F., & Ardi, R. (2021). The impact of employability skills on employers' satisfaction: a conceptual model for fresh graduates of engineering. *4th Asia Pacific Conference on Research in Industrial and Systems Engineering 2021*, 200–206. <https://doi.org/10.1145/3468013.3468332>
- Solanki, S. M., & Xu, D. (2018). Looking beyond academic performance: The influence of instructor gender on student motivation in STEM fields. *American Educational Research Journal*, 55(4), 801–835. <https://doi.org/10.3102/0002831218759034>
- Songkram, N. (2017). Online course design for creativity and innovative skills in virtual cultural ASEAN community: From research to empirical practice. *International Journal of Emerging Technologies in Learning (iJET)*, 12(01), 4. <https://doi.org/10.3991/ijet.v12i01.6032>
- Soni, K. D. (2025). Critical appraisal of systematic reviews and meta-analyses. *Indian Journal of Anaesthesia*, 69(1), 161–164. https://doi.org/10.4103/ija.ija_1223_24
- Spychała, M., Said, E., & Branowska, A. (2022). Model of academic teachers communication competencies management. In J. Machado, F. Soares, J. Trojanowska, & V. Ivanov (Eds.), *Innovations in Industrial Engineering* (pp. 160–173). Springer International Publishing. https://doi.org/10.1007/978-3-030-78170-5_15
- Stamer, T., Steinhäuser, J., & Flägel, K. (2023). Artificial intelligence supporting the training of communication skills in the education of health care professions: scoping review. *Journal of Medical Internet Research*, 25, e43311. <https://doi.org/10.2196/43311>
- Sternberg, R. J., Kaufman, J. C., & Karami, S. (Eds.). (2023). *Intelligence, creativity, and wisdom: Exploring their connections and distinctions*. Springer International Publishing. <https://doi.org/10.1007/978-3-031-26772-7>
- Sumintono, B., & Widhiarso, W. (2015). *Aplikasi pemodelan Rasch pada assessment pendidikan*. Penerbit Trim Komunikata.
- Sztukowski-Crowley, C. A., & Funk, D. R. (2020). Personal narratives. In B. J. Carducci, C. S. Nave, J. S. Mio, & R. E. Riggio (Eds.), *The Wiley Encyclopedia of Personality and Individual Differences* (1st ed., pp. 79–83). Wiley. <https://doi.org/10.1002/9781119547167.ch83>

- Tadiboyina, V. R., Deepak, B. B. V. L., & Bisht, D. S. (2025). Skill development and assessment through game-based learning: A review. In B. B. V. L. Deepak, M. V. A. R. Bahubalendruni, D. R. K. Parhi, & B. B. Biswal (Eds.), *Recent Advancements in Product Design and Manufacturing Systems* (pp. 707–717). Springer Nature Singapore. https://doi.org/10.1007/978-981-97-6732-8_57
- Tam, C. O. (2023). Integrating creative thinking skills pedagogies into a higher education visual arts course. *International Journal of Art & Design Education*, 42(1), 16–32. <https://doi.org/10.1111/jade.12452>
- Taufik, M. (2020). Strategic role of Islamic religious education in strengthening character education in the era of industrial revolution 4.0. *Jurnal Ilmiah Islam Futura*, 20(1), 86. <https://doi.org/10.22373/jiif.v20i1.5797>
- Tennant, A., McKenna, S. P., & Hagell, P. (2004). Application of Rasch Analysis in the Development and Application of Quality of Life Instruments. *Value in Health*, 7, S22–S26. <https://doi.org/10.1111/j.1524-4733.2004.7s106.x>
- Thakadipuram, T. (2023). *Leadership Wholeness, Volume 1: A Model of Spiritual Intelligence*. Springer International Publishing. <https://doi.org/10.1007/978-3-031-08053-1>
- Thornhill-Miller, B., Camarda, A., Mercier, M., Burkhardt, J.-M., Morisseau, T., Bourgeois-Bougrine, S., Vinchon, F., El Hayek, S., Augereau-Landais, M., Mourey, F., Feybesse, C., Sundquist, D., & Lubart, T. (2023). Creativity, critical thinking, communication, and collaboration: Assessment, certification, and promotion of 21st century skills for the future of work and education. *Journal of Intelligence*, 11(3), 54. <https://doi.org/10.3390/jintelligence11030054>
- Tiandem-Adamou, Y. M. (2024). Navigating the digital era and future workplaces: cultivating critical skills for success in the 21st century. In G. Huzooree & H. Chandan (Eds.), *Advances in Higher Education and Professional Development* (pp. 1–36). IGI Global. <https://doi.org/10.4018/979-8-3693-3856-8.ch001>
- Tirri, K. (2023). Spirituality and giftedness. *Gifted Education International*, 39(1), 73–79. <https://doi.org/10.1177/02614294221129394>
- Tong, K., Chan, Y. N., Cheng, X., Cheon, B., Ellefson, M., Fauziana, R., Feng, S., Fischer, N., Gulyás, B., Hoo, N., Hung, D., Kalaivanan, K., Langley, C., Lee, K. M., Lee, L. L., Lee, T., Melani, I., Melia, N., Pei, J. Y., ... CLIC Phase 1 Consortium. (2023). Study protocol: How does cognitive flexibility relate to other executive functions and learning in healthy young adults? *PLOS ONE*, 18(7), e0286208. <https://doi.org/10.1371/journal.pone.0286208>

- Tongco, Ma. D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5, 147. <https://doi.org/10.17348/era.5.0.147-158>
- Tucker, S. Y. (2014). Transforming Pedagogies: Integrating 21st century skills and web 2.0 technology. *Turkish Online Journal of Distance Education*, 15(1). <https://doi.org/10.17718/tojde.32300>
- Turk, N. (2021). Metodologija priprave sistematičnih preglednih člankov. *Slovenian Medical Journal*, 90(7–8), 432–442. <https://doi.org/10.6016/ZdravVestn.3138>
- Tursynkulova, E., Madiyarov, N., Sultanbek, T., & Duysebayeva, P. (2023). The effect of problem-based learning on cognitive skills in solving geometric construction problems: A case study in Kazakhstan. *Frontiers in Education*, 8, 1284305. <https://doi.org/10.3389/educ.2023.1284305>
- UNICEF & Oxford Policy Management. (2019). *Skills for the future*. UNICEF Indonesia. <https://www.unicef.org/indonesia/education/reports/skills-future>
- Upadhyay, S. (2017). Can spiritual intelligence influence research performance in higher education? Framework for human resource development in higher education. *Administratie Si Management Public*, 28, 153–173.
- Vago, D. R., & Silbersweig, D. A. (2012). Self-awareness, self-regulation, and self-transcendence (S-ART): A framework for understanding the neurobiological mechanisms of mindfulness. *Frontiers in Human Neuroscience*, 6. <https://doi.org/10.3389/fnhum.2012.00296>
- Varghese, S., Ravikumar T, Mathew, J., & Sathiyaseelan B. (2024). Impact of learnability quotient on employability of students: Mediating role of spiritual intelligence. *International Research Journal of Multidisciplinary Scope*, 05(04), 1292–1302. <https://doi.org/10.47857/irjms.2024.v05i04.01833>
- Vartiainen, T., & Säily, T. (2025). Constructional approaches to creativity and productivity in English: Introduction. *English Language and Linguistics*, 1–9. <https://doi.org/10.1017/S1360674325000176>
- Vasodavan, V., DeWitt, D., & Alias, N. (2022). Collaborative assessment survey: A measure of group teamwork. In F. D. Yusop & A. Firdaus (Eds.), *Alternative Assessments in Malaysian Higher Education* (pp. 57–67). Springer Singapore. https://doi.org/10.1007/978-981-16-7228-6_7
- Vaughan-Johnston, T. I., & Jacobson, J. A. (2020). Self-efficacy theory. In B. J. Carducci, C. S. Nave, & C. S. Nave (Eds.), *The Wiley Encyclopedia of Personality and*

- Individual Differences* (1st ed., pp. 375–379). Wiley.
<https://doi.org/10.1002/9781118970843.ch62>
- Venugopal, A., Singh, R., & Devika. (2020). Role of self-efficacy in the learning output of engineering education. In K. S. Sangwan & C. Herrmann (Eds.), *Enhancing Future Skills and Entrepreneurship* (pp. 233–242). Springer International Publishing.
https://doi.org/10.1007/978-3-030-44248-4_23
- Vettical, A. (2004). That “something more” in education: Youthful spirituality of communion. *Journal of Youth and Theology*, 3(1), 49–76.
<https://doi.org/10.1163/24055093-90000275>
- Visic, M. (2022). Connecting puzzle pieces: Systematic literature review method in the social sciences. *Sociologija*, 64(4), 543–562. <https://doi.org/10.2298/SOC2204543V>
- Vogl, S. (2023). Strategies to integrative mixed methods analysis. In *International Encyclopedia of Education (Fourth Edition)* (pp. 491–499). Elsevier.
<https://doi.org/10.1016/B978-0-12-818630-5.11048-6>
- Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2013). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of Computer Assisted Learning*, 29(5), 403–413. <https://doi.org/10.1111/jcal.12029>
- Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21 century competences: Implications for national curriculum policies. *Journal of Curriculum Studies*, 44(3), 299–321.
<https://doi.org/10.1080/00220272.2012.668938>
- Wagner, R., & Grimm, M. S. (2023). Empirical validation of the 10-times rule for SEM. In L. Radomir, R. Ciornea, H. Wang, Y. Liu, C. M. Ringle, & M. Sarstedt (Eds.), *State of the Art in Partial Least Squares Structural Equation Modeling (PLS-SEM)* (pp. 3–7). Springer International Publishing. https://doi.org/10.1007/978-3-031-34589-0_1
- Wajahat, A., Ayesha, K., & Sayma, Z. (2024). Spiritual intelligence in education exploring the impact of teachers’ spiritual intelligence on student satisfaction in higher education using dyad analysis. *Siazga Research Journal*, 3(1).
<https://doi.org/10.58341/srj.v3i1.53>
- Walt, E. A. V. D., Du Plessis, D., & Barker, R. (2006). Exploring a spiritual intelligence (SQ) model of communication to recontextualise differences between management and employees. *Communicatio*, 32(2), 264–290.
<https://doi.org/10.1080/02500160608537973>

- Walter, O., Kasler, J., & Routray, S. (2024). Emotional intelligence, spiritual intelligence, depression and anxiety, and satisfaction with life among emerging adults in Israel and India: The impact of gender and individualism/collectivism. *BMC Psychology*, *12*(1), 332. <https://doi.org/10.1186/s40359-024-01806-6>
- Welch, A. R. (2012). Locating Indonesia within the emergent regionalism of Southeast Asian higher education. In J. N. Hawkins, K. H. Mok, & D. E. Neubauer (Eds.), *Higher Education Regionalization in Asia Pacific* (pp. 91–115). Palgrave Macmillan US. https://doi.org/10.1057/9781137311801_7
- White, L. (2020). The importance of accountability in teacher learning. *BU Journal of Graduate Studies in Education*, *12*(1), 22–25.
- White, S. R. (2006). Spirituality and the intellectual development of college students: the new leadership challenge in higher education. *International Electronic Journal for Leadership in Learning*, *10*(13), 1–20.
- Whorton, R., Casillas, A., Oswald, F. L., & Shaw, A. (2017). *Critical skills for the 21st century workforce* (Vol. 1). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199373222.003.0003>
- Wijaya, I. S., Tahir, M., Armella, R., & Abdi, A. M. (2025). The role of spiritual intelligence in developing individual emotional intelligence in interacting based on an Islamic perspective. *Pharos Journal of Theology*, *106.3*. <https://doi.org/10.46222/pharosjot.106.301>
- Wilson, L., Ho, S., & Brookes, R. H. (2018). Student perceptions of teamwork within assessment tasks in undergraduate science degrees. *Assessment & Evaluation in Higher Education*, *43*(5), 786–799. <https://doi.org/10.1080/02602938.2017.1409334>
- Wind, S. A., & Hua, C. (2022). *Rasch measurement theory analysis in R* (1st ed.). Chapman and Hall/CRC. <https://doi.org/10.1201/9781003174660>
- Wiseman, H., & Watts, F. (2022). Spiritual intelligence: Participating with heart, mind, and body. *Zygon*®, *57*(3), 710–718. <https://doi.org/10.1111/zygo.12804>
- World Economic Forum. (2020). *The future of jobs report 2020*. World Economic Forum. <https://www.weforum.org/publications/the-future-of-jobs-report-2020/>
- Xue, M., Cao, X., Feng, X., Gu, B., & Zhang, Y. (2022). Is college education less necessary with AI? Evidence from firm-level labor structure changes. *Journal of Management Information Systems*, *39*(3), 865–905. <https://doi.org/10.1080/07421222.2022.2096542>

- Yadav, M., Mittal, S., Kumar, M., Sahoo, A., & Jayarathne, P. G. S. A. (2024). From textbooks to teamwork: The importance of collaboration skills in workforce preparation. In G. Huzooree & H. Chandan (Eds.), *Advances in Higher Education and Professional Development* (pp. 333–352). IGI Global. <https://doi.org/10.4018/979-8-3693-3856-8.ch011>
- Yaghoubi, Z., Babazadeh, S., Karimzadeh Sharaf, F., Shafieian, R., & Behbahanimrad, A. (2020). The relationship between burnout and spiritual intelligence among dental residents in Shiraz, Iran. *Journal of Health Sciences & Surveillance System*, 8(4). <https://doi.org/10.30476/jhsss.2020.87470.1112>
- Yang, K.-P. (2006). The spiritual intelligence of nurses in Taiwan. *Journal of Nursing Research*, 14(1), 24–35. <https://doi.org/10.1097/01.JNR.0000387559.26694.0b>
- Yani, B., Harding, A., & Engelbrecht, J. (2019). Academic maturity of students in an extended programme in mathematics. *International Journal of Mathematical Education in Science and Technology*, 50(7), 1037–1049. <https://doi.org/10.1080/0020739X.2019.1650305>
- Yoana, Auwalin, I., & Rumayya. (2024). The role of vocational education on unemployment in Indonesia. *Cogent Education*, 11(1), 2340858. <https://doi.org/10.1080/2331186X.2024.2340858>
- Yoo, H., & Kang, S. (2021). Teaching as improvising: Preservice music teacher field experience with 21st-century skills activities. *Journal of Music Teacher Education*, 30(3), 54–68. <https://doi.org/10.1177/10570837211021373>
- Yu, C., Beckmann, J. F., & Birney, D. P. (2019). Cognitive flexibility as a meta-competency / Flexibilidad cognitiva como meta-competencia. *Estudios de Psicología*, 40(3), 563–584. <https://doi.org/10.1080/02109395.2019.1656463>
- Zabolotna, K., Nøhr, L., Iwata, M., Spikol, D., Malmberg, J., & Järvenoja, H. (2025). How does collaborative task design shape collaborative knowledge construction and group-level regulation of learning? A study of secondary school students' interactions in two varied tasks. *International Journal of Computer-Supported Collaborative Learning*. <https://doi.org/10.1007/s11412-024-09442-3>
- Zamani, A., Ghaffari, M., Mohseny, M., & Rakhshanderou, S. (2023). The effect of spiritual intelligence on occupational stress among medical interns during COVID-19 pandemic: A structural equation model. *Iranian Journal of Psychiatry and Behavioral Sciences*, 17(3). <https://doi.org/10.5812/ijpbs-131368>
- Zizzerini, G. (2021). Skills – Innovation and entrepreneurial skills. In D. Uzunidis, F. Kasmi, & L. Adatto (Eds.), *Innovation Economics, Engineering and Management*

Handbook 2 (1st ed., pp. 241–246). Wiley.
<https://doi.org/10.1002/9781119832522.ch29>

- Zha, Q., & Tu, D. (2016). Doing mixed methods research in comparative education: some reflections on the fit and a survey of the literature. In *International Perspectives on Education and Society* (pp. 165–191). Emerald Group Publishing Limited.
<https://doi.org/10.1108/s1479-367920150000028014>
- Zhang, Z., Zhang, X., Fei, Y., Zong, X., Wang, H., Xu, C., Yang, L., & Jiang, S. (2023). Emotional intelligence as a mediator between spiritual care-giving competency and core competencies in Chinese nursing interns: A cross-sectional study. *Supportive Care in Cancer*, 31(6), 367. <https://doi.org/10.1007/s00520-023-07839-8>
- Zhou, Z., Tavan, H., Kavarizadeh, F., Sarokhani, M., & Sayehmiri, K. (2024). The relationship between emotional intelligence, spiritual intelligence, and student achievement: A systematic review and meta-analysis. *BMC Medical Education*, 24(1), 217. <https://doi.org/10.1186/s12909-024-05208-5>
- Ziauddin, L., Krivicich, L. M., & Nho, S. J. (2023). Cross-section study. In *Translational Sports Medicine* (pp. 191–193). Elsevier. <https://doi.org/10.1016/B978-0-323-91259-4.00081-3>
- Zoccolotti, P., Angelelli, P., Marinelli, C. V., & Romano, D. L. (2021). A network analysis of the relationship among reading, spelling and Maths skills. *Brain Sciences*, 11(5), 656. <https://doi.org/10.3390/brainsci11050656>
- Zohar, D., & Marshall, I. (2001). *Spiritual intelligence: The ultimate intelligence*. Bloomsbury Publishing Plc.
- Zweiback, Y., Kaplan, S. N., & Manzone, J. (2016). An awareness of spirituality from two perspectives. *Gifted Education International*, 32(3), 232–241.
<https://doi.org/10.1177/0261429415602580>

APPENDIX

Appendix 1: Spiritual Intelligence Instrument

To measure spiritual intelligence, The Spiritual Intelligence Self-Report Inventory (SISRI -24) developed by King and DeCicco (2009) used can be shown below.

1.1. The Spiritual Intelligence Self-Report Inventory (SISRI -24)

Dimension	Item Number	Item (Original English/Source Language)	Item (Translated to Bahasa Indonesia)
Critical Existential Thinking (CET)	1	I have often questioned or pondered the nature of reality.	<i>Saya sering mempertanyakan atau merenungkan sifat dasar dari realitas.</i>
	3	I have spent time contemplating the purpose or reason for my existence.	<i>Saya pernah berpikir secara mendalam tentang apa tujuan hidup saya.</i>
	5	I am able to deeply contemplate what happens after death.	<i>Saya mampu merenungkan secara mendalam apa yang terjadi setelah kematian.</i>
	9	I have developed my own theories about such things as life, death, reality, and existence.	<i>Saya telah mengembangkan teori-teori saya sendiri tentang hal-hal seperti kehidupan, kematian, realitas, dan keberadaan.</i>
	13	I frequently contemplate the meaning of events in my life.	<i>Saya sering merenungkan makna dari berbagai peristiwa dalam hidup saya.</i>
	17	I have often contemplated the relationship between human beings and the rest of the universe.	<i>Saya sering merenungkan hubungan antara manusia dan seluruh alam semesta.</i>
	21	I have deeply contemplated whether or not there is some greater power or force (e.g., god, goddess, divine being, higher energy, etc.).	<i>Saya telah merenungkan secara mendalam kemungkinan adanya kekuatan yang lebih besar, seperti entitas ilahi atau energi spiritual yang melampaui diri saya.</i>
Personal Meaning Making (PMM)	7	My ability to find meaning and purpose in life helps me adapt to stressful situations.	<i>Kemampuan saya untuk menemukan makna dan tujuan hidup membantu saya beradaptasi dengan situasi yang penuh tekanan.</i>
	11	I am able to define a purpose or reason for my life.	<i>Saya mampu menentukan tujuan atau alasan hidup saya.</i>
	15	When I experience a failure, I am still able to find meaning in it.	<i>Ketika saya mengalami kegagalan, saya masih dapat menemukan makna di dalamnya.</i>
	19	I am able to make decisions according to my purpose in life.	<i>Saya mampu mengambil keputusan sesuai dengan tujuan hidup saya.</i>
	23	I am able to find meaning and purpose in my everyday experiences.	<i>Saya mampu menemukan makna dan tujuan dalam pengalaman sehari-hari saya.</i>

Transcendental Awareness (TA)	2	I recognize aspects of myself that are deeper than my physical body.	<i>Saya mengenali aspek-aspek diri saya yang lebih dalam daripada tubuh fisik saya.</i>
	6	It is difficult for me to sense anything other than the physical and material (item deleted).*	<i>Saya merasa kesulitan untuk merasakan hal-hal yang bersifat non-fisik atau spiritual (item dihapus).*</i>
	10	I am aware of a deeper connection between myself and other people.	<i>Saya menyadari adanya hubungan yang lebih dalam antara diri saya dan orang lain.</i>
	14	I define myself by my deeper, non-physical self.	<i>Saya mendefinisikan diri saya dengan diri saya yang lebih dalam dan non-fisik.</i>
	18	I am highly aware of the nonmaterial aspects of life.	<i>Saya sangat sadar akan aspek-aspek non-materi dari kehidupan.</i>
	20	I recognize qualities in people which are more meaningful than their body, personality, or emotions.	<i>Saya mengenali kualitas-kualitas dalam diri orang lain yang lebih bermakna daripada tubuh, kepribadian, atau emosi mereka.</i>
	22	Recognizing the nonmaterial aspects of life helps me feel centered.	<i>Menyadari adanya aspek non-materi dalam kehidupan memberikan ketenangan batin bagi saya.</i>
Conscious State Expansion (CSE)	4	I am able to enter higher states of consciousness or awareness.	<i>Saya dapat memasuki kondisi kesadaran atau kesadaran yang lebih tinggi.</i>
	8	I can control when I enter higher states of consciousness or awareness.	<i>Saya dapat mengontrol kapan saya memasuki kondisi kesadaran atau kesadaran yang lebih tinggi.</i>
	12	I am able to move freely between levels of consciousness or awareness.	<i>Saya dapat bergerak bebas di antara tingkat kesadaran atau kesadaran yang lebih tinggi.</i>
	16	I often see issues and choices more clearly while in higher states of consciousness/ awareness.	<i>Saya sering melihat masalah dan pilihan dengan lebih jelas saat berada dalam kondisi kesadaran/kesadaran yang lebih tinggi.</i>
	24	I have developed my own techniques for entering higher states of consciousness or awareness.	<i>Saya telah mengembangkan teknik saya sendiri untuk memasuki kondisi kesadaran atau kesadaran yang lebih tinggi.</i>

1.2. Reliability of SI Instrument

TABLE 3.1 C:\Users\maula\OneDrive\Desktop\Main D ZOU487WS.TXT Jun 21 16:56 2025
 INPUT: 274 Person 23 Item REPORTED: 274 Person 23 Item 5 CATS WINSTEPS 3.73

SUMMARY OF 274 MEASURED Person

	TOTAL		MEASURE	MODEL		INFIT		OUTFIT	
	SCORE	COUNT		ERROR	MNSQ	ZSTD	MNSQ	ZSTD	
MEAN	80.6	23.0	.71	.27	1.00	-.4	.99	-.4	
S.D.	12.3	.0	.87	.03	.64	2.3	.63	2.3	
MAX.	110.0	23.0	3.47	.47	3.48	5.3	3.44	5.2	
MIN.	41.0	23.0	-1.82	.24	.09	-6.1	.10	-6.0	
REAL RMSE	.30	TRUE SD	.82	SEPARATION	2.74	Person	RELIABILITY	.88	
MODEL RMSE	.27	TRUE SD	.83	SEPARATION	3.10	Person	RELIABILITY	.91	
S.E. OF Person MEAN = .05									

Person RAW SCORE-TO-MEASURE CORRELATION = .99
 CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .90

SUMMARY OF 23 MEASURED Item

	TOTAL		MEASURE	MODEL		INFIT		OUTFIT	
	SCORE	COUNT		ERROR	MNSQ	ZSTD	MNSQ	ZSTD	
MEAN	960.3	274.0	.00	.08	1.00	-.2	.99	-.2	
S.D.	69.1	.0	.40	.00	.23	2.5	.22	2.5	
MAX.	1089.0	274.0	.77	.08	1.77	7.8	1.76	7.7	
MIN.	823.0	274.0	-.78	.07	.76	-3.2	.75	-3.3	
REAL RMSE	.08	TRUE SD	.39	SEPARATION	4.97	Item	RELIABILITY	.96	
MODEL RMSE	.08	TRUE SD	.40	SEPARATION	5.17	Item	RELIABILITY	.96	
S.E. OF Item MEAN = .09									

UMEAN=.0000 USCALE=1.0000
 Item RAW SCORE-TO-MEASURE CORRELATION = -1.00
 6302 DATA POINTS. LOG-LIKELIHOOD CHI-SQUARE: 14523.51 with 6003 d.f. p=.0000
 Global Root-Mean-Square Residual (excluding extreme scores): .7907

1.3. Item Fit Statistics of SI Instrument (Winstep)

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\Main ZOU487WS.TXT Jun 21 16:56 2025
 INPUT: 274 Person 23 Item REPORTED: 274 Person 23 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 2.74 REL.: .88 ... Item: REAL SEP.: 4.97 REL.: .96

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		Item
					MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	
20	823	274	.77	.07	1.77	7.8	1.76	7.7	.44	.58	36.5	44.8	SI20
5	1003	274	-.24	.08	1.36	3.9	1.35	3.8	.48	.55	44.2	47.2	SI5
3	1034	274	-.43	.08	1.33	3.6	1.31	3.4	.50	.54	50.0	46.9	SI3
2	934	274	.16	.08	1.08	1.0	1.12	1.4	.51	.56	50.4	47.5	SI2
8	880	274	.46	.07	1.11	1.3	1.09	1.1	.60	.57	47.4	46.7	SI8
16	959	274	.02	.08	1.06	.8	1.06	.7	.55	.56	48.2	47.4	SI16
14	1089	274	-.78	.08	1.05	.6	1.01	.1	.53	.52	48.9	47.8	SI14
6	1004	274	-.25	.08	1.03	.3	1.02	.2	.57	.55	52.6	47.2	SI6
9	970	274	-.04	.08	1.02	.3	1.00	.0	.57	.56	50.7	47.2	SI9
4	978	274	-.09	.08	1.00	.0	.99	-.1	.54	.56	51.5	47.2	SI4
11	896	274	.37	.07	.96	-.5	.96	-.4	.55	.57	50.7	47.0	SI11
21	881	274	.46	.07	.94	-.7	.95	-.6	.54	.57	52.9	46.7	SI21
18	1026	274	-.38	.08	.93	-.9	.90	-1.2	.59	.54	51.5	47.0	SI18
12	1065	274	-.63	.08	.92	-.9	.90	-1.2	.56	.53	49.6	47.2	SI12
10	1052	274	-.54	.08	.91	-1.1	.90	-1.2	.56	.54	51.1	46.9	SI10
1	905	274	.32	.07	.85	-1.8	.91	-1.1	.47	.57	53.6	47.1	SI1
19	914	274	.27	.07	.89	-1.3	.90	-1.2	.62	.57	53.6	47.1	SI19
7	946	274	.09	.08	.82	-2.2	.83	-2.1	.58	.56	54.0	47.6	SI7
22	1012	274	-.29	.08	.79	-2.7	.81	-2.5	.60	.55	56.6	46.9	SI22
15	1021	274	-.35	.08	.80	-2.5	.78	-2.8	.62	.55	59.1	47.1	SI15
13	897	274	.37	.07	.79	-2.7	.79	-2.7	.64	.57	52.9	47.0	SI13
17	907	274	.31	.07	.76	-3.1	.78	-2.8	.64	.57	55.1	47.1	SI17
23	890	274	.41	.07	.76	-3.2	.75	-3.3	.65	.57	57.3	46.9	SI23
MEAN	960.3	274.0	.00	.08	1.00	-.2	.99	-.2			51.2	47.0	
S.D.	69.1	.0	.40	.00	.23	2.5	.22	2.5			4.5	.5	

1.4. Unidimensionality of SI

TABLE 23.0 C:\Users\maula\OneDrive\Desktop\Main ZOU487WS.TXT Jun 21 16:56 2025
 INPUT: 274 Person 23 Item REPORTED: 274 Person 23 Item 5 CATS WINSTEPS 3.73

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

		-- Empirical --	Modeled
Total raw variance in observations	=	35.9 100.0%	100.0%
Raw variance explained by measures	=	12.9 36.0%	35.9%
Raw variance explained by persons	=	5.1 14.1%	14.1%
Raw Variance explained by items	=	7.9 21.9%	21.8%
Raw unexplained variance (total)	=	23.0 64.0%	100.0% 64.1%
Unexplained variance in 1st contrast	=	2.3 6.5%	10.1%
Unexplained variance in 2nd contrast	=	2.0 5.4%	8.5%
Unexplained variance in 3rd contrast	=	1.9 5.2%	8.1%
Unexplained variance in 4th contrast	=	1.6 4.3%	6.8%
Unexplained variance in 5th contrast	=	1.4 3.9%	6.1%

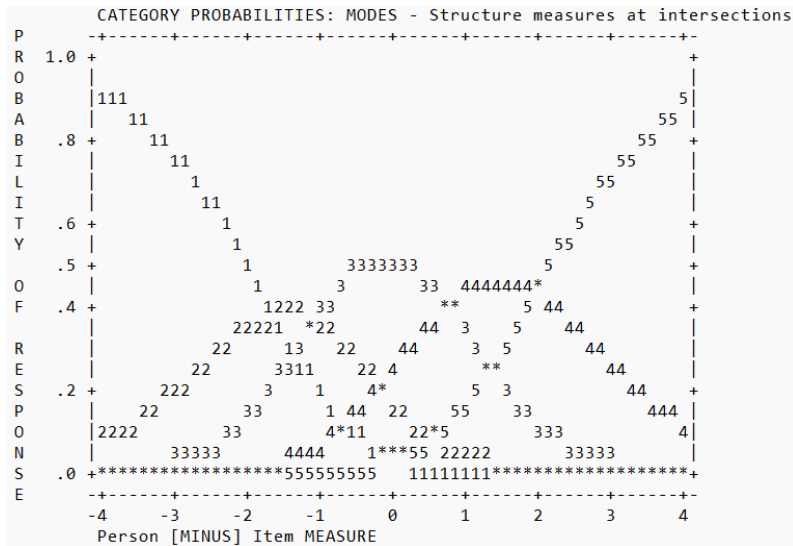
1.5. Rasch Model Thresholds of SI Instrument

TABLE 3.2 C:\Users\maula\OneDrive\Desktop\Main D ZOU487WS.TXT Jun 21 16:56 2025
 INPUT: 274 Person 23 Item REPORTED: 274 Person 23 Item 5 CATS WINSTEPS 3.73

SUMMARY OF CATEGORY STRUCTURE. Model="R"

CATEGORY	OBSERVED	OBSVD	SAMPLE	INFINIT	OUTFIT	ANDRICH	CATEGORY		
LABEL	SCORE	COUNT	%	AVRGE	EXPECT	MNSQ	MNSQ	THRESHOLD	MEASURE
1	1	181	3	-.34	-.52	1.15	1.18	NONE	(-3.03)
2	2	680	11	-.11	-.10	1.03	1.04	-1.63	-1.46
3	3	2285	36	.30	.37	.84	.83	-1.09	-.10
4	4	2090	33	1.05	.96	.83	.84	.74	1.44
5	5	1066	17	1.61	1.67	1.11	1.09	1.98	(3.25)

OBSERVED AVERAGE is mean of measures in category. It is not a parameter estimate.



1.8. Item Fit Statistics of Subdimensional SI

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\SI_CE ZOU249WS.TXT Jun 30 9:07 2025
 INPUT: 274 Person 7 Item REPORTED: 274 Person 7 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 1.48 REL.: .69 ... Item: REAL SEP.: 5.74 REL.: .97

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	PT-MEASURE CORR.	EXP.	EXACT MATCH OBS%	EXP%	Item
7	819	274	.72	.07	1.48	5.3	1.48	5.2	A .54	.62	36.3	43.0	CET7
2	1032	274	-.45	.08	1.07	.9	1.07	.9	B .61	.57	53.5	47.6	CET2
3	1004	274	-.28	.08	1.01	.1	.98	-.2	C .63	.58	49.8	46.9	CET3
4	880	274	.40	.07	.89	-1.3	.88	-1.5	D .66	.61	51.3	45.6	CET4
5	1062	274	-.64	.08	.88	-1.4	.89	-1.3	c .58	.56	54.9	47.6	CET5
6	959	274	-.03	.07	.85	-1.8	.88	-1.5	b .63	.60	50.2	46.6	CET6
1	903	274	.28	.07	.78	-2.8	.84	-2.1	a .54	.61	57.9	45.5	CET1
MEAN	951.3	274.0	.00	.08	.99	-.2	1.00	-.1			50.5	46.1	
S.D.	81.5	.0	.45	.00	.22	2.5	.21	2.3			6.4	1.5	

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\SI_PM ZOU817WS.TXT Jun 30 9:10 2025
 INPUT: 274 Person 5 Item REPORTED: 274 Person 5 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 1.53 REL.: .70 ... Item: REAL SEP.: 2.62 REL.: .87

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	PT-MEASURE CORR.	EXP.	EXACT MATCH OBS%	EXP%	Item
1	1003	274	.28	.09	1.35	3.8	1.33	3.6	A .62	.71	54.1	55.4	PMM1
3	1087	274	-.48	.10	.97	-.4	.94	-.7	B .71	.68	59.4	56.9	PMM3
5	1011	274	.21	.09	.94	-.7	.94	-.7	C .69	.71	63.2	55.0	PMM5
2	1048	274	-.12	.09	.86	-1.7	.86	-1.7	b .73	.69	60.5	55.3	PMM2
4	1022	274	.11	.09	.85	-1.8	.86	-1.7	a .75	.70	58.6	55.3	PMM4
MEAN	1034.2	274.0	.00	.09	1.00	-.1	.98	-.2			59.2	55.6	
S.D.	30.5	.0	.27	.00	.19	2.1	.18	2.0			2.9	.7	

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\SI_TA ZOU807WS.TXT Jun 30 9:12 2025
 INPUT: 274 Person 6 Item REPORTED: 274 Person 6 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 1.58 REL.: .71 ... Item: REAL SEP.: 2.13 REL.: .82

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	PT-MEASURE CORR.	EXP.	EXACT MATCH OBS%	EXP%	Item
1	936	274	-.15	.09	1.20	2.3	1.19	2.2	A .60	.66	54.0	51.8	TA1
2	966	274	-.37	.09	1.07	.8	1.04	.6	B .66	.66	53.3	51.6	TA2
6	879	274	.26	.08	1.06	.7	1.06	.8	C .62	.67	53.6	51.4	TA6
5	910	274	.04	.08	.97	-.3	.96	-.4	c .69	.67	56.2	51.3	TA5
4	906	274	.07	.08	.87	-1.7	.87	-1.7	b .70	.67	62.8	51.4	TA4
3	895	274	.15	.08	.82	-2.3	.83	-2.2	a .73	.67	58.8	51.5	TA3
MEAN	915.3	274.0	.00	.09	1.00	-.1	.99	-.1			56.4	51.5	
S.D.	28.4	.0	.21	.00	.13	1.5	.12	1.5			3.4	.2	

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\SI_CS ZOU765WS.TXT Jun 30 9:14 2025
 INPUT: 274 Person 5 Item REPORTED: 274 Person 5 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 1.57 REL.: .71 ... Item: REAL SEP.: 4.32 REL.: .95

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL		INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		Item
				S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
1	975	274	-.25	.09	1.13	1.5	1.14	1.6	A	.66	.69	59.9	56.0	CSE1
4	1020	274	-.64	.09	1.10	1.1	1.06	.7	B	.65	.69	59.5	56.3	CSE4
3	895	274	.41	.09	1.03	.4	1.01	.1	C	.70	.70	59.5	54.9	CSE3
5	888	274	.47	.09	.86	-1.7	.88	-1.5	b	.74	.70	65.0	54.9	CSE5
2	943	274	.02	.09	.86	-1.7	.86	-1.6	a	.73	.70	59.1	55.9	CSE2
MEAN	944.2	274.0	.00	.09	1.00	-.1	.99	-.1				60.6	55.6	
S.D.	49.5	.0	.42	.00	.12	1.4	.11	1.2				2.2	.6	

1.9. Wright Map of Subdimensional SI

TABLE 12.2 C:\Users\maula\OneDrive\Desktop\SI_CE ZOU249WS.TXT Jun 30 9:07 2025
 INPUT: 274 Person 7 Item REPORTED: 274 Person 7 Item 5 CATS WINSTEPS 3.73

TABLE 12.2 C:\Users\maula\OneDrive\Desktop\SI_PH ZOU817WS.TXT Jun 30 9:10 2025
 INPUT: 274 Person 5 Item REPORTED: 274 Person 5 Item 5 CATS WINSTEPS 3.73

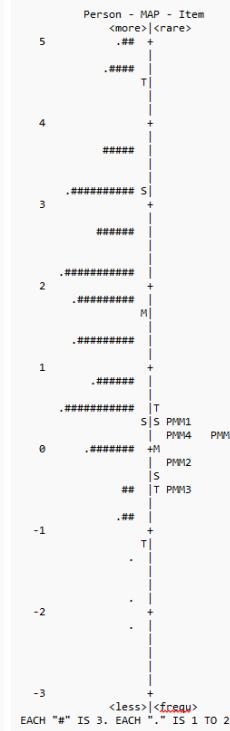
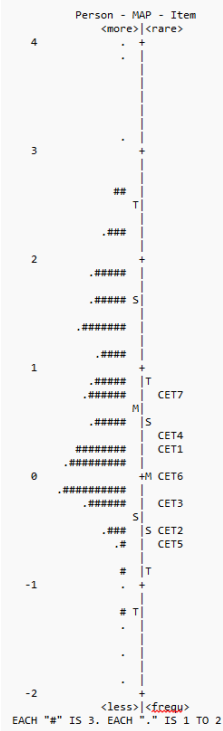


TABLE 12.2 C:\Users\maula\OneDrive\Desktop\SI_TA_ZOU807WS.TXT Jun 30 9:12 2025
 INPUT: 274 Person 6 Item REPORTED: 274 Person 6 Item 5 CATS WINSTEPS 3.73

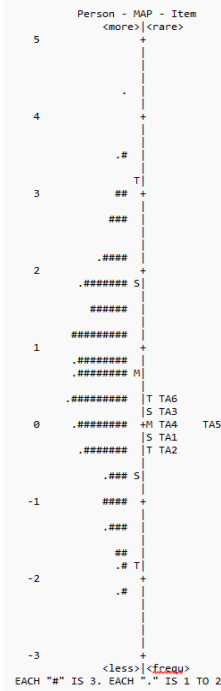
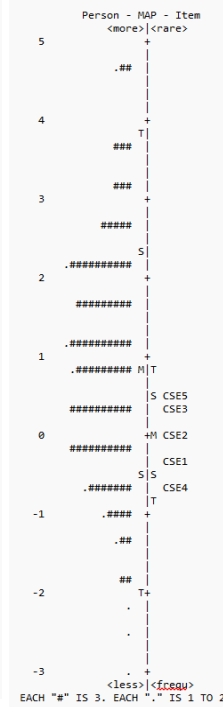


TABLE 12.2 C:\Users\maula\OneDrive\Desktop\SI_CS_ZOU765WS.TXT Jun 30 9:14 2025
 INPUT: 274 Person 5 Item REPORTED: 274 Person 5 Item 5 CATS WINSTEPS 3.73



Note: Dimension 1 (CET), Dimension 2 (PMM), Dimension 3 (TA), and Dimension 4 (CSE)

1.10. Person Level Analysis of SI

Person Level Distribution of SI based on Gender

Gender	Low	Medium	High	Total
Male	8	42	34	84
Female	12	110	68	190
Total	20	152	102	274

Person Level Distribution of SI based on Phase of Study

Phase of Study	Low	Medium	High	Total
Early Phase	11	70	48	129
Final Phase	9	82	54	145
Total	20	152	102	274

Person Level Distribution of SI based on it's dimensions

Dimensions of SI	Low	Medium	High	Total
Critical Existential Thinking	16	169	89	274
Personal Meaning Making	13	82	179	274
Transcendental Awareness	46	127	101	274
Conscious State Expansion	55	89	130	274

1.11. Differential Item Functioning Analysis of SI Instrument

1.11.1. Differential Item Functioning Analysis of SI based on Gender

TABLE 30.4 C:\Users\maula\OneDrive\Desktop\Main ZOU650WS.TXT Jul 29 9:04 2025
 INPUT: 274 Person 23 Item REPORTED: 274 Person 23 Item 5 CATS WINSTEPS 3.73

DIF class specification is: DIF=\$S4W1

Person CLASSES	SUMMARY DIF		D.F.	PROB.	BETWEEN-CLASS		Item	
	CHI-SQUARE				MEAN-SQUARE	t=ZSTD	Number	Name
2	.5652	1	.4522	.2429	-.3263	1	SI1	
2	2.3885	1	.1222	1.0318	-.4937	2	SI2	
2	.4645	1	.4955	.1921	-.4260	3	SI3	
2	1.7333	1	.1880	.7506	.2779	4	SI4	
2	.5530	1	.4571	.2306	-.3490	5	SI5	
2	3.9418	1	.0471	1.7144	.8890	6	SI6	
2	.0000	1	1.0000	.0006	-1.4727	7	SI7	
2	.6298	1	.4274	.2682	-.2819	8	SI8	
2	4.9174	1	.0266	2.1415	1.0844	9	SI9	
2	1.6679	1	.1965	.7255	-.2562	10	SI10	
2	.6670	1	.4141	.2835	-.2563	11	SI11	
2	.0000	1	1.0000	.0037	-1.3221	12	SI12	
2	.0580	1	.8097	.0344	-.9601	13	SI13	
2	.2332	1	.6292	.1047	-.6502	14	SI14	
2	.0776	1	.7806	.0550	-.8431	15	SI15	
2	3.7610	1	.0525	1.6135	.8381	16	SI16	
2	.8521	1	.3560	.3622	-.1378	17	SI17	
2	1.5873	1	.2077	.6686	-.2050	18	SI18	
2	.8159	1	.3664	.3464	-.1601	19	SI19	
2	4.3593	1	.0368	1.8848	.9705	20	SI20	
2	.0000	1	1.0000	.0013	-1.4164	21	SI21	
2	1.1343	1	.2869	.4929	.0258	22	SI22	
2	.2186	1	.6401	.0926	-.6902	23	SI23	

1.11.2. Differential Item Functioning Analysis of SI based on Phase of Study

TABLE 30.4 C:\Users\maula\OneDrive\Desktop\Main ZOU650WS.TXT Jul 29 9:04 2025
 INPUT: 274 Person 23 Item REPORTED: 274 Person 23 Item 5 CATS WINSTEPS 3.73

DIF class specification is: DIF=\$S6W1

Person CLASSES	SUMMARY DIF		D.F.	PROB.	BETWEEN-CLASS		Item	
	CHI-SQUARE				MEAN-SQUARE	t=ZSTD	Number	Name
2	.6159	1	.4326	.3085	-.2166	1	SI1	
2	.1062	1	.7445	.0529	-.8538	2	SI2	
2	3.2500	1	.0714	1.6308	.8470	3	SI3	
2	.4558	1	.4996	.2287	-.3527	4	SI4	
2	.5834	1	.4450	.2908	-.2445	5	SI5	
2	.0000	1	1.0000	.0039	-1.3164	6	SI6	
2	.9807	1	.3220	.4903	.0228	7	SI7	
2	.4560	1	.4995	.2282	-.3536	8	SI8	
2	2.1727	1	.1405	1.0917	.5343	9	SI9	
2	.3941	1	.5301	.1982	-.4131	10	SI10	
2	3.7358	1	.0533	1.8812	.9688	11	SI11	
2	.2349	1	.6279	.1165	-.6140	12	SI12	
2	.0000	1	1.0000	.0239	-1.0389	13	SI13	
2	.9098	1	.3402	.4532	-.0205	14	SI14	
2	.7479	1	.3871	.3729	-.1230	15	SI15	
2	.9682	1	.3251	.4838	.0154	16	SI16	
2	1.1517	1	.2832	.5773	.1165	17	SI17	
2	.8322	1	.3616	.4178	-.0640	18	SI18	
2	.2765	1	.5990	.1380	-.5537	19	SI19	
2	.0000	1	1.0000	.0001	-1.5390	20	SI20	
2	.5544	1	.4565	.2775	-.2662	21	SI21	
2	.0443	1	.8332	.0359	-.9504	22	SI22	
2	.9992	1	.3175	.5001	.0339	23	SI23	

1.12. Informed Consent for collecting quantitative data

Bagian 1 dari 5

Kuesioner Penelitian: Exploring the Relationship of Spiritual Intelligence and Learning and Innovation Skills Among Undergraduate Students for 21st Century Education"

B *I* U [↔](#) [✕](#)

Yth. Responden,

Terima kasih telah meluangkan waktu untuk berpartisipasi dalam penelitian ini. Saya adalah Muhamad Maulana, mahasiswa S2 dalam program studi MA in Education di Universitas Islam Internasional Indonesia (UIII), yang sedang melakukan penelitian berjudul **"Exploring the Relationship of Spiritual Intelligence and Learning and Innovation Skills Among Undergraduate Students for 21st Century Education"** atau Eksplorasi Hubungan Kecerdasan Spiritual dan Keterampilan Belajar dan Inovasi di Kalangan Mahasiswa untuk Pendidikan Abad 21.

Penelitian ini bertujuan untuk memahami hubungan antara kecerdasan spiritual dan keterampilan belajar serta inovasi di kalangan mahasiswa dalam menghadapi tantangan pendidikan abad ke-21. Partisipasi Anda bersifat sukarela dan sangat berharga dalam memberikan wawasan akademik yang lebih baik terkait topik ini. Hasil penelitian ini diharapkan dapat memberikan wawasan baru bagi pengembangan pendidikan yang lebih holistik dan berkelanjutan.

Kuesioner ini diperkirakan akan memerlukan waktu sekitar **10-20 menit** untuk diselesaikan. Jawaban Anda akan dijaga kerahasiaannya dan hanya digunakan untuk keperluan penelitian. Tidak ada informasi pribadi yang akan dipublikasikan atau dibagikan kepada pihak lain.

Jika Anda memiliki pertanyaan atau membutuhkan informasi lebih lanjut, silakan hubungi kami melalui email: muhamad.maulana@uiii.ac.id

Persetujuan Partisipasi *

Saya bersedia berpartisipasi dalam penelitian ini dengan sukarela dan memahami bahwa data saya akan...

Appendix 2: Learning and Innovation Skills Instrument

To measure learning and innovation skills, this study used a scale measuring the 4C main dimensions—critical thinking and problem solving, creativity and innovation, communication, and collaborative working—developed by Kayhan and Korkmaz (2024), as can be seen below.

2.1. Instrument

Dimension	Item Number	Item (Original English/Source Language)	Item (Translated Bahasa Indonesia)
Critical Thinking and Problem-Solving Skill Self-efficacy (CTPS)	1	I can analyze the steps for solving a problem in detail.	<i>Saya dapat menganalisis langkah-langkah untuk memecahkan masalah secara rinci.</i>
	2	I can analyze in detail different ways of solving a problem.	<i>Saya dapat menganalisis secara rinci berbagai cara untuk memecahkan masalah.</i>
	3	I can analyze the relationship between a whole and its parts in detail.	<i>Saya dapat menganalisis hubungan antara suatu keutuhan dan bagian-bagiannya secara rinci.</i>
	4	I can find appropriate solutions for problems that require more than one step.	<i>Saya dapat menemukan solusi yang tepat untuk masalah yang membutuhkan lebih dari satu langkah.</i>
	5	I can generate questions about the process to reach better solutions.	<i>Saya dapat membuat pertanyaan tentang proses untuk mencapai solusi yang lebih baik.</i>
	6	I can reach the most appropriate solution by interpreting the information I have obtained.	<i>Saya dapat mencapai solusi yang paling tepat dengan menginterpretasikan informasi yang saya peroleh.</i>
	7	I can make the right decisions by evaluating information critically.	<i>Saya dapat membuat keputusan yang tepat dengan mengevaluasi informasi secara kritis.</i>
	8	I can consider alternative ideas on any topic.	<i>Saya dapat mempertimbangkan ide-ide alternatif tentang topik apa pun.</i>
	9	I can solve a problem using what I have learnt.	<i>Saya dapat memecahkan masalah dengan menggunakan apa yang telah saya pelajari.</i>
Creativity and Innovation Skill Self-efficacy (CIS)	10	I can develop new ideas on any subject.	<i>Saya dapat mengembangkan ide-ide baru dalam hal apapun.</i>
	11	I can elaborate my ideas to be more creative.	<i>Saya dapat menguraikan ide-ide saya menjadi lebih kreatif.</i>
	12	I value different points of view.	<i>Saya menghargai sudut pandang yang berbeda.</i>
	13	I can generate new ideas in activities where various idea generation techniques such as brainstorming, and six-hat thinking are used	<i>Saya dapat menghasilkan ide-ide baru dalam kegiatan yang menggunakan berbagai teknik menghasilkan ide seperti curah pendapat, dan pemikiran dengan berbagai sudut pandang.</i>

	14	I find new ideas on any subject worthy of attention.	<i>Saya menemukan ide-ide baru tentang subjek apa pun yang layak untuk diperhatikan.</i>
	15	Any ideas I develop on any subject are recognized.	<i>Setiap ide yang saya kembangkan dalam subjek apa pun diakui.</i>
	16	I can contribute to the development of a new product.	<i>Saya dapat berkontribusi pada pengembangan produk baru.</i>
Communication Skill Self-efficacy	17	I can express my feelings and thoughts effectively by using non-verbal communication skills.	<i>Saya dapat mengekspresikan perasaan dan pikiran saya secara efektif dengan menggunakan keterampilan komunikasi non-verbal.</i>
	18	I can express my feelings and thoughts effectively by using written*communication skills.	<i>Saya dapat mengekspresikan perasaan dan pikiran saya secara efektif dengan menggunakan keterampilan komunikasi tertulis.</i>
	19	I can use different technologies for * communication.	<i>Saya dapat menggunakan teknologi* yang berbeda untuk berkomunikasi.</i>
	20	I can express my feelings and thoughts effectively by using* verbal communication skills.	<i>Saya dapat mengekspresikan perasaan dan pikiran saya secara efektif dengan menggunakan keterampilan* komunikasi verbal.</i>
	21	I can evaluate the effects of media and technology on* communication.	<i>Saya dapat mengevaluasi efek media* dan teknologi pada komunikasi.</i>
	22	I can evaluate whether the media and technology I use for communication*are effective.	<i>Saya dapat mengevaluasi apakah media dan teknologi*yang saya gunakan untuk berkomunikasi sudah efektif.</i>
	23	I can communicate effectively in various social environments.	<i>Saya dapat berkomunikasi secara efektif di berbagai lingkungan sosial.</i>
	24	I can use communication for different purposes, such as informing and persuading.	<i>Saya dapat menggunakan komunikasi untuk tujuan yang berbeda, seperti menginformasikan dan membujuk.</i>
Collaborative Working Skill Self-efficacy	25	I fulfill my responsibilities when working in a collaborative manner.	<i>Saya memenuhi tanggung jawab saya ketika bekerja secara kolaboratif.</i>
	26	I can work respectfully with various groups.	<i>Saya dapat bekerja dengan penuh hormat dengan berbagai kelompok.</i>
	27	I can use digital tools effectively to collaborate.	<i>Saya dapat menggunakan alat bantu digital secara efektif untuk berkolaborasi.</i>
	28	Collaborative work increases my success.	<i>Kerja kolaboratif meningkatkan kesuksesan saya.</i>
	29	I can work harmoniously with various groups.	<i>Saya dapat bekerja secara harmonis dengan berbagai kelompok.</i>
	30	I value the individual contributions of each team member in a	<i>Saya menghargai peran dan kontribusi setiap anggota dalam tim yang bekerja secara</i>

2.2. Reliability of LIS Instrument

TABLE 3.1 C:\Users\maula\OneDrive\Desktop\Main D ZOU819WS.TXT Jun 21 16:57 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73

SUMMARY OF 274 MEASURED Person

	TOTAL	COUNT	MEASURE	MODEL	INFIT		OUTFIT	
	SCORE				ERROR	MNSQ	ZSTD	MNSQ
MEAN	107.6	30.0	1.11	.27	.99	-.6	.99	-.6
S.D.	17.6	.0	1.20	.03	.72	2.8	.72	2.8
MAX.	141.0	30.0	3.92	.38	3.84	6.9	3.81	6.9
MIN.	58.0	30.0	-2.05	.24	.09	-6.3	.10	-6.3
REAL RMSE	.30	TRUE SD	1.17	SEPARATION	3.90	Person	RELIABILITY	.94
MODEL RMSE	.27	TRUE SD	1.17	SEPARATION	4.38	Person	RELIABILITY	.95
S.E. OF Person MEAN = .07								

Person RAW SCORE-TO-MEASURE CORRELATION = 1.00
 CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .95

SUMMARY OF 30 MEASURED Item

	TOTAL	COUNT	MEASURE	MODEL	INFIT		OUTFIT	
	SCORE				ERROR	MNSQ	ZSTD	MNSQ
MEAN	982.4	274.0	.00	.09	1.00	.0	.99	-.2
S.D.	60.8	.0	.47	.00	.16	1.8	.15	1.7
MAX.	1138.0	274.0	.96	.10	1.55	5.5	1.43	4.4
MIN.	851.0	274.0	-1.28	.08	.74	-3.3	.74	-3.4
REAL RMSE	.09	TRUE SD	.46	SEPARATION	5.11	Item	RELIABILITY	.96
MODEL RMSE	.09	TRUE SD	.46	SEPARATION	5.30	Item	RELIABILITY	.97
S.E. OF Item MEAN = .09								

UMEAN=.0000 USCALE=1.0000
 Item RAW SCORE-TO-MEASURE CORRELATION = -1.00
 8220 DATA POINTS. LOG-LIKELIHOOD CHI-SQUARE: 16939.52 with 7914 d.f., p=.0000
 Global Root-Mean-Square Residual (excluding extreme scores): .6914

2.3. Item Fit Statistics of LIS Instrument (Winstep)

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\Main ZOU819WS.TXT Jun 21 16:57 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73
 Person: REAL SEP.: 3.90 REL.: .94 ... Item: REAL SEP.: 5.11 REL.: .96

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	TOTAL MEASURE	MODEL		INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		Item
				S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
12	1138	274	-1.28	.10	1.55	5.5	1.43	4.4	A	.57	.60	43.1	57.2	LIS12
26	1100	274	-.93	.09	1.25	2.8	1.21	2.4	B	.59	.61	54.4	55.2	LIS26
19	972	274	.09	.09	1.20	2.3	1.17	2.0	C	.63	.65	55.5	52.8	LIS19
28	1031	274	-.36	.09	1.16	1.8	1.16	1.9	D	.57	.63	53.3	53.8	LIS28
30	1079	274	-.75	.09	1.16	1.8	1.11	1.3	E	.64	.62	50.4	54.4	LIS30
29	1061	274	-.60	.09	1.11	1.3	1.14	1.7	F	.62	.63	58.0	54.0	LIS29
18	937	274	.35	.09	1.13	1.5	1.12	1.5	G	.59	.65	52.2	51.6	LIS18
23	982	274	.02	.09	1.12	1.5	1.10	1.2	H	.65	.64	55.1	53.1	LIS23
15	851	274	.96	.08	1.09	1.1	1.08	1.0	I	.56	.66	58.4	49.6	LIS15
4	969	274	.11	.09	1.07	.8	1.08	.9	J	.63	.65	54.0	52.8	LIS4
17	916	274	.50	.08	1.06	.7	1.04	.5	K	.59	.65	55.5	50.9	LIS17
5	965	274	.14	.09	1.02	.3	1.02	.2	L	.63	.65	55.1	52.5	LIS5
25	1052	274	-.53	.09	1.01	.2	1.02	.2	M	.63	.63	54.4	54.0	LIS25
20	922	274	.46	.08	.99	-.1	1.00	.0	N	.64	.65	56.6	51.1	LIS20
8	928	274	.41	.09	.98	-.2	.97	-.4	O	.63	.65	55.1	51.2	LIS8
13	980	274	.03	.09	.96	-.5	.95	-.6	P	.67	.64	63.5	53.1	LIS13
9	1036	274	-.40	.09	.94	-.7	.91	-1.0	Q	.65	.63	62.8	53.8	LIS9
22	999	274	-.11	.09	.93	-.8	.94	-.7	R	.66	.64	62.0	53.4	LIS22
24	1010	274	-.20	.09	.93	-.8	.91	-1.0	S	.68	.64	61.7	53.6	LIS24
10	955	274	.22	.09	.92	-.9	.90	-1.2	T	.68	.65	59.5	52.2	LIS10
27	997	274	-.10	.09	.88	-1.5	.92	-1.0	U	.69	.64	57.3	53.4	LIS27
16	918	274	.49	.08	.90	-1.2	.89	-1.3	V	.62	.65	56.6	51.0	LIS16
3	911	274	.54	.08	.89	-1.3	.88	-1.5	W	.66	.65	59.9	50.9	LIS3
11	937	274	.35	.09	.89	-1.4	.88	-1.5	X	.69	.65	58.4	51.6	LIS11
21	1003	274	-.14	.09	.88	-1.5	.88	-1.5	Y	.68	.64	62.4	53.5	LIS21
7	938	274	.34	.09	.85	-1.9	.84	-2.1	Z	.74	.65	58.0	51.6	LIS7
6	969	274	.11	.09	.85	-1.9	.84	-2.0	aa	.70	.65	60.2	52.8	LIS6
14	977	274	.05	.09	.82	-2.3	.81	-2.5	ab	.68	.64	67.2	53.0	LIS14
1	964	274	.15	.09	.78	-2.8	.78	-2.8	ba	.69	.65	64.2	52.5	LIS1
2	975	274	.07	.09	.74	-3.3	.74	-3.4	ca	.69	.64	64.2	53.0	LIS2
MEAN	982.4	274.0	.00	.09	1.00	.0	.99	-.2				57.6	52.8	
S.D.	60.8	.0	.47	.00	.16	1.8	.15	1.7				4.8	1.5	

2.4. Unidimensionality of LIS

TABLE 23.0 C:\Users\maula\OneDrive\Desktop\Main ZOU819WS.TXT Jun 21 16:57 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

	Empirical	Modeled
Total raw variance in observations	54.6 100.0%	100.0%
Raw variance explained by measures	24.6 45.1%	45.0%
Raw variance explained by persons	13.3 24.4%	24.4%
Raw Variance explained by items	11.3 20.7%	20.6%
Raw unexplained variance (total)	30.0 54.9%	55.0%
Unexplned variance in 1st contrast	3.4 6.2%	11.3%
Unexplned variance in 2nd contrast	2.9 5.2%	9.5%
Unexplned variance in 3rd contrast	2.0 3.7%	6.7%
Unexplned variance in 4th contrast	1.7 3.2%	5.8%
Unexplned variance in 5th contrast	1.6 2.9%	5.2%

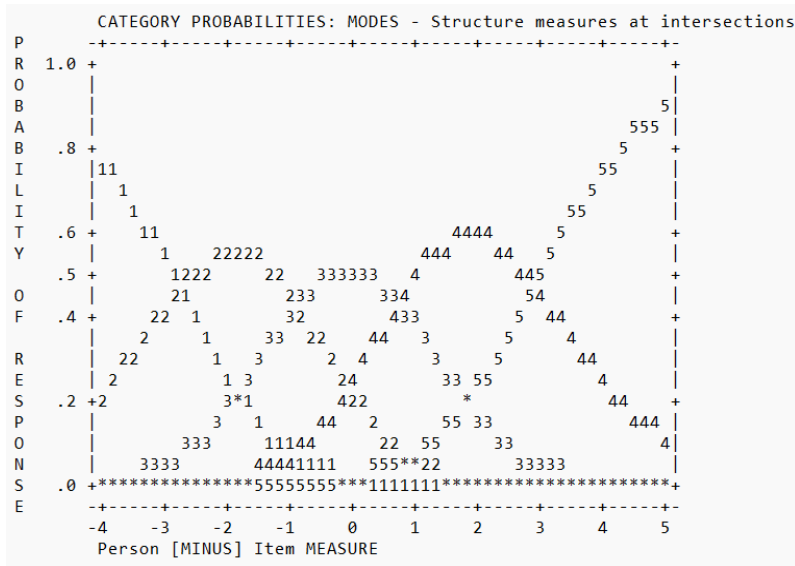
2.5. Rasch Model Thresholds of LIS Instrument

TABLE 3.2 C:\Users\maula\OneDrive\Desktop\Main D ZOU819WS.TXT Jun 21 16:57 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73

SUMMARY OF CATEGORY STRUCTURE. Model="R"

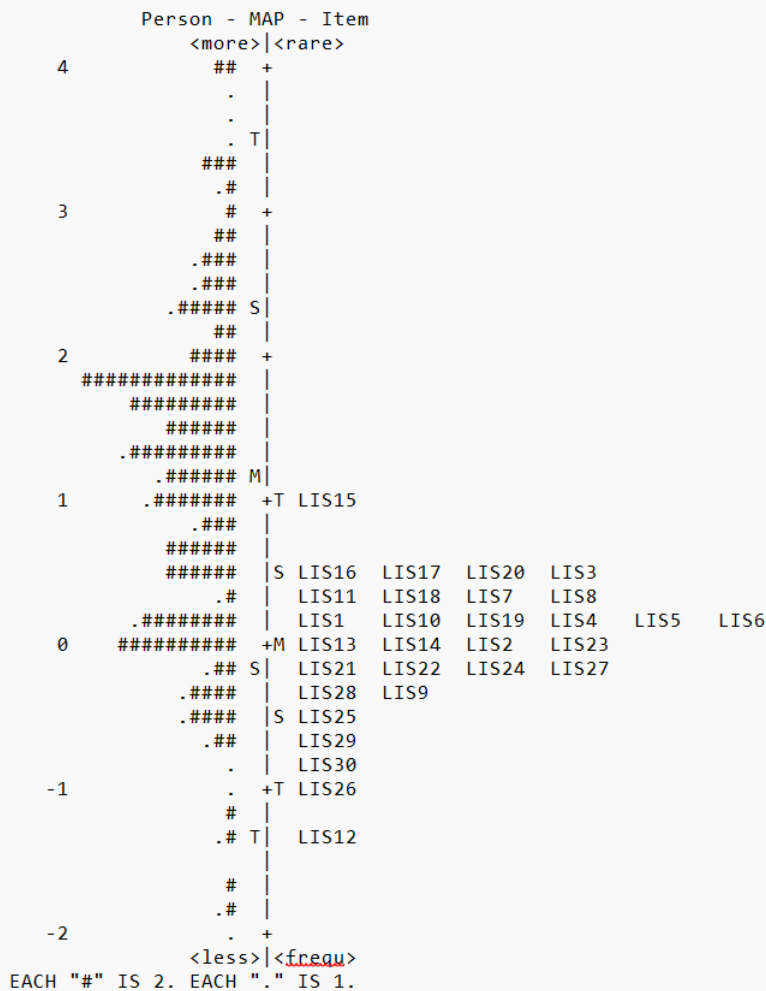
CATEGORY LABEL	OBSERVED SCORE	OBSVD COUNT	SAMPLE %	INFBV AVRG	OUTFIT EXPECT	ANDRICH THRESHOLD	CATEGORY MEASURE			
1	1	123	1	-.31	-1.17	1.71	1.72	NONE	(-3.95)	1
2	2	913	11	-.44*	-.33	.95	.98	-2.75	-1.89	2
3	3	2512	31	.47	.56	.84	.84	-.90	-.07	3
4	4	3373	41	1.58	1.49	.79	.81	.73	1.88	4
5	5	1299	16	2.38	2.45	1.16	1.11	2.92	(4.10)	5

OBSERVED AVERAGE is mean of measures in category. It is not a parameter estimate.



2.6. Item Map of LIS

TABLE 12.2 C:\Users\maula\OneDrive\Desktop\Main ZOU819WS.TXT Jun 21 16:57 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73



2.7. Person Map of LIS

TABLE 16.3 C:\Users\maula\OneDrive\Desktop\Main ZOU020WS.TXT Jul 28 14:49 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73

```

Item - MAP - Person
<rare>|<more>
4      + 104FA3 152FB2 250FD4 251MD4
      | 038FA3
      | 051FA3
      | T 209FB1
      | 042FA3 084MA3 088MA3 114FA3 178MB2 228FC2
      | 100MA3 177FB2 253FD1
3      + 026FA3 194FB1
      | 011MA1 079FA3 133MB1 227FC2
      | 035FA3 056FA3 069FA3 101MA3 147FB2 162MB2 165FB2
      | 002FA1 031FA3 039FA3 109MA3 220FC2 260FE3 265FE3
      | S 006MA2 037FA3 049MA3 083FA3 094FA3 153FB2 166FB1
      | 181FB4 183FB2 188MB1 232FC1
      | 060FA3 093FA3 263FE3 264ME3
2      + 033FA3 043MA3 095FA3 115FA3 118FA3 200FB1 255FD3
      | 270FE1
      | 005FA2 015MA3 016FA3 022MA3 040FA3 041FA3 085FA3
      | 098FA3 106FA3 116MA3 119FA3 120FA3 124MA3 127FA3
      | 139MB1 151FB2 161FB2 175FB2 203FB1 210MB1 224MC3
      | 229FC1 230FC1 246FD2 249MD4 272FE3
      | 008MA1 020MA3 023FA3 028FA3 030FA3 034FA3 075MA3
      | 087FA3 123FA3 129FB1 156MB2 160FB2 197FB1 206MB1
      | 214MB1 242FD2 257FD1 258FE3
      | 003FA2 057FA3 068MA3 086MA3 131FB1 141FB1 171FB2
      | 172FB2 174FB2 191FB1 244FD1 271ME3
      | 004FA2 055FA3 070MA3 076MA3 080MA3 137MB1 143FB2
      | 146FB2 182MB4 187FB2 198FB1 208FB1 225FC2 231MC3
      | 243FD2 245MD1 254FD1 267FE3 274FE3
      | M 009FA1 012MA1 105MA3 107MA3 135MB1 136FB1 150FB2
      | 159FB2 189MB2 205FB1 234MC1 259ME3 269FE3
1      X T+ 021FA3 045FA3 050FA3 053FA3 066FA3 090FA3 091FA3
      | 149FB2 185FB4 190FB1 201FB1 216FB1 236FD2 237FD2
      | 261ME3
      | 048FA3 081MA3 103MA3 167MB2 196FB1 226FC2 256MD3
      | 007MA1 024FA3 052FA3 059FA3 062MA3 072FA3 110FA3
      | 142FB2 157FB2 218MB1 219FB1 266FE3
XXXX S| 001FA1 029FA3 036FA3 065MA3 073MA3 097FA3 112FA3
      | 122FA3 126MA3 128FA3 235MD1 252FD4
XXXX | 058FA3 064FA3 204FB1
XXXXXX | 018FA3 019FA3 027MA3 071FA3 089FA3 111MA4 113FA3
      | 148FB2 158FB2 169FB2 173FB2 179MB2 192MB1 211MB1
      | 212MB1 213FB1 221FC2
0      XXXX M+ 010MA1 014FA1 032FA3 067FA3 074FA3 077FA3 082MA3
      | 102FA3 121FA3 144FB2 163FB2 170FB2 180FB1 186FB4
      | 222MC2 233FC1 238FD1 248FD1 262ME3 273ME3
XXXX S| 096FA3 125FA3 132FB1 154FB2 199FB1
XX | 013MA1 061FA3 063MA3 092FA3 145FB2 155FB2 168MB2
      | 184MB3 202FB1
X S| 044FA3 078FA3 099MA3 138MB1 176MB2 215FB1 217MB1
      | 223MC1 268FE3
X | 108FA3 140FB1 164MB2 240FD2 241FD2
X | 239FD2
-1    X T+ 193FB1
      | 134FB1 247MD1
X | T 054MA3 117FA3 195MB1
      | 025MA3 046FA3
      | 047FA3 130FB1 207MB1
-2    + 017FA3
      <freq>|<less>
  
```

2.8. Item Fit Statistics of Subdimensional LIS

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU314WS.TXT Jun 30 9:16 2025
 INPUT: 274 Person 9 Item REPORTED: 274 Person 9 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 2.73 REL.: .88 ... Item: REAL SEP.: 3.18 REL.: .91

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL		INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		Item
				S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
9	1036	274	-.80	.11	1.20	2.2	1.25	2.7	A	.68	.73	61.6	62.1	CTPS9
4	968	274	-.05	.10	1.20	2.2	1.18	2.0	B	.72	.75	59.0	60.9	CTPS4
8	932	274	.33	.10	1.14	1.6	1.11	1.3	C	.71	.76	55.2	60.0	CTPS8
3	912	274	.54	.10	1.07	.8	1.06	.7	D	.73	.76	65.3	59.4	CTPS3
5	965	274	-.02	.10	1.02	.3	1.01	.1	E	.75	.75	63.8	60.9	CTPS5
7	938	274	.27	.10	.93	-.8	.92	-.9	d	.80	.75	64.9	60.1	CTPS7
6	970	274	-.07	.10	.91	-1.1	.89	-1.3	c	.78	.75	67.9	60.9	CTPS6
1	967	274	-.04	.10	.80	-2.5	.79	-2.6	b	.78	.75	68.7	60.9	CTPS1
2	978	274	-.16	.10	.68	-4.2	.67	-4.2	a	.81	.75	71.6	61.1	CTPS2
MEAN	962.9	274.0	.00	.10	.99	-.2	.99	-.3				64.2	60.7	
S.D.	33.1	.0	.36	.00	.17	2.1	.18	2.1				4.8	.7	

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU623WS.TXT Jun 30 9:17 2025
 INPUT: 274 Person 7 Item REPORTED: 274 Person 7 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 2.07 REL.: .81 ... Item: REAL SEP.: 7.35 REL.: .98

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL		INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		Item
				S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
3	1137	274	-1.65	.11	1.77	7.4	1.64	5.8	A	.58	.67	43.6	61.0	CIS3
6	854	274	1.02	.09	1.06	.7	1.06	.8	B	.67	.72	65.2	54.7	CIS6
7	921	274	.43	.09	.94	-.7	.92	-.9	C	.69	.72	63.7	55.7	CIS7
1	957	274	.11	.10	.91	-1.1	.89	-1.3	D	.74	.71	60.8	56.9	CIS1
4	980	274	-.10	.10	.87	-1.5	.85	-1.8	c	.76	.71	67.0	57.1	CIS4
2	937	274	.29	.09	.84	-2.0	.83	-2.1	b	.77	.72	61.5	56.2	CIS2
5	980	274	-.10	.10	.71	-3.8	.70	-4.0	a	.77	.71	71.8	57.1	CIS5
MEAN	966.6	274.0	.00	.10	1.01	-.2	.98	-.5				62.0	56.9	
S.D.	80.3	.0	.76	.00	.32	3.3	.28	2.9				8.2	1.8	

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU806WS.TXT Jun 30 9:19 2025
 INPUT: 274 Person 8 Item REPORTED: 274 Person 8 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 2.33 REL.: .85 ... Item: REAL SEP.: 2.97 REL.: .90

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL		INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		Item
				S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
2	941	274	.25	.09	1.15	1.7	1.12	1.4	A	.67	.72	59.9	57.1	CS2
7	979	274	-.10	.10	1.06	.7	1.06	.7	B	.73	.71	59.2	58.5	CS7
3	971	274	-.02	.10	1.06	.7	1.04	.5	C	.74	.72	62.1	58.3	CS3
4	924	274	.39	.09	1.04	.4	1.05	.6	D	.70	.73	64.7	56.2	CS4
1	918	274	.45	.09	1.03	.3	1.04	.5	d	.68	.73	60.3	56.1	CS1
5	1003	274	-.32	.10	.93	-.7	.97	-.3	c	.72	.71	61.0	59.0	CS5
8	1009	274	-.38	.10	.92	-.9	.88	-1.4	b	.74	.71	67.6	59.1	CS8
6	998	274	-.27	.10	.79	-2.6	.76	-2.9	a	.77	.71	69.1	58.6	CS6
MEAN	967.9	274.0	.00	.10	1.00	-.1	.99	-.1				63.0	57.8	
S.D.	33.7	.0	.30	.00	.10	1.2	.11	1.3				3.5	1.1	

TABLE 10.1 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU593WS.TXT Jun 30 9:21 2025
 INPUT: 274 Person 6 Item REPORTED: 274 Person 6 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 2.10 REL.: .82 ... Item: REAL SEP.: 3.15 REL.: .91

Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL		INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		Item
				S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
3	1000	274	.59	.10	1.14	1.6	1.17	2.0	A	.71	.77	63.3	59.7	CSW3
5	1063	274	-.09	.11	1.07	.8	1.00	.0	B	.76	.76	70.4	62.6	CSW5
2	1101	274	-.52	.11	1.00	.0	.92	-.9	C	.77	.75	72.7	63.2	CSW2
4	1033	274	.24	.10	.99	-.1	.99	-.1	c	.76	.77	65.2	61.4	CSW4
1	1053	274	.02	.10	.94	-.7	.98	-.2	b	.76	.76	62.5	61.6	CSW1
6	1078	274	-.25	.11	.86	-1.6	.82	-2.1	a	.81	.76	71.2	63.0	CSW6
MEAN	1054.7	274.0	.00	.11	1.00	.0	.98	-.2				67.5	61.9	
S.D.	32.2	.0	.35	.00	.09	1.0	.11	1.2				4.0	1.2	

2.9. Wright Map of Subdimensional LIS

TABLE 12.2 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU314WS.TXT Jun 30 9:16 2025
 INPUT: 274 Person 9 Item REPORTED: 274 Person 9 Item 5 CATS WINSTEPS 3.73

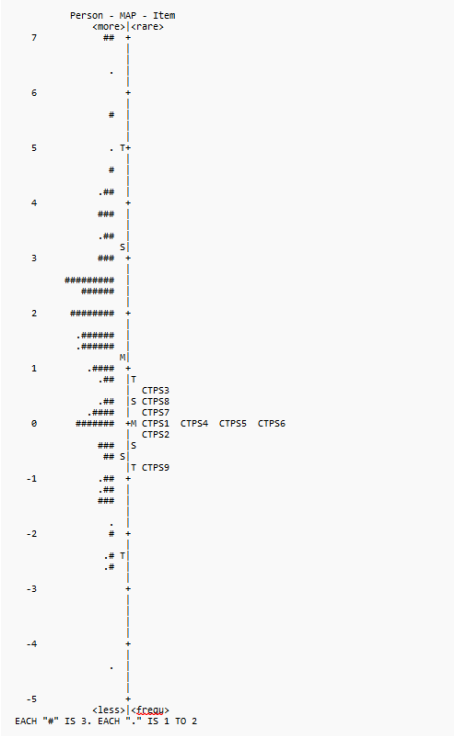


TABLE 12.2 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU623WS.TXT Jun 30 9:17 2025
 INPUT: 274 Person 7 Item REPORTED: 274 Person 7 Item 5 CATS WINSTEPS 3.73

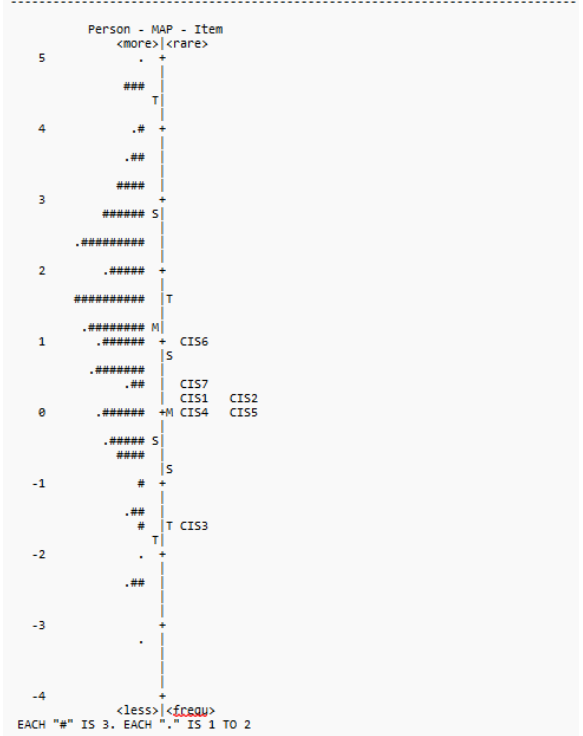


TABLE 12.2 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU806WS.TXT Jun 30 9:19 2025
 INPUT: 274 Person 8 Item REPORTED: 274 Person 8 Item 5 CATS WINSTEPS 3.73

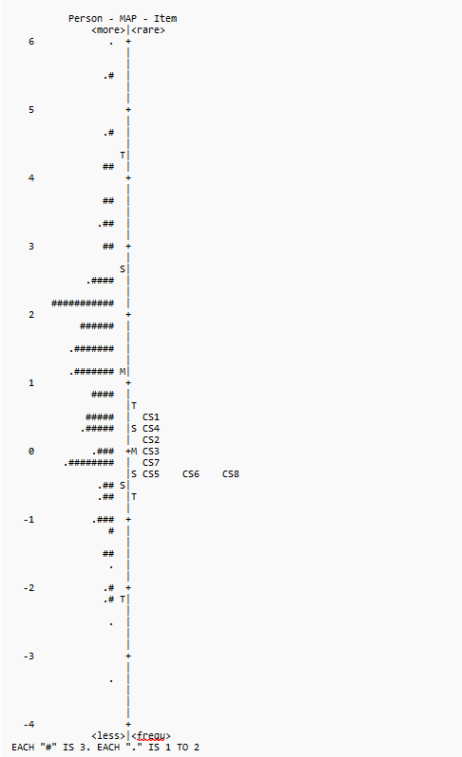
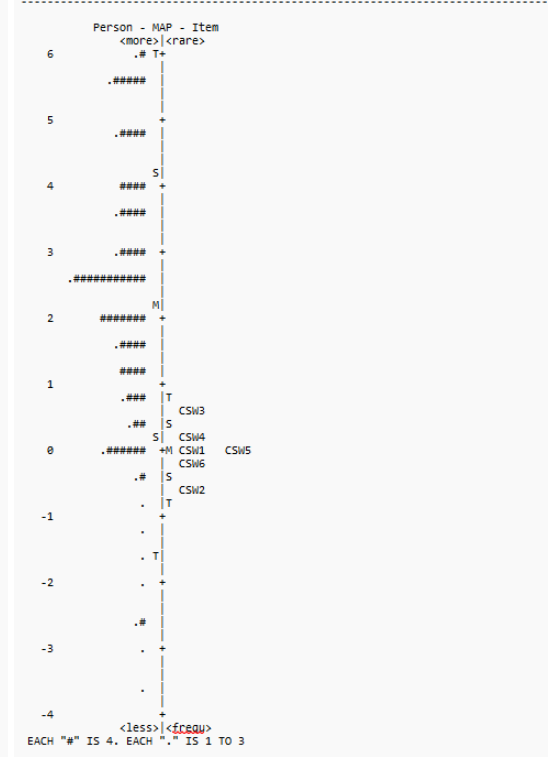


TABLE 12.2 C:\Users\maula\OneDrive\Desktop\LIS_C ZOU593WS.TXT Jun 30 9:21 2025
 INPUT: 274 Person 6 Item REPORTED: 274 Person 6 Item 5 CATS WINSTEPS 3.73



Note: Dimension 1 (CTPS), Dimension 2 (CIS), Dimension 3 (CS), and Dimension 4 (CWS)

2.10. Person Level Analysis of LIS

Person Level Distribution of LIS based on Gender

Gender	Basic	Intermediate	Advanced	Highly Advance	Total
Male	7	28	40	9	84
Female	12	73	82	23	190
Total	19	101	122	32	274

Person Level Distribution of LIS based on Phase of Study

Phase of Study	Low	Medium	High	Higly Advanced	Total
Early Phase	10	49	58	12	129
Final Phase	9	52	64	20	145
Total	19	101	122	32	274

Person Level Distribution of LIS based on it's dimensions

Phase of Study	Low	Medium	High	Higly Advanced	Total
Critical Thinking & Problem Solving	45	59	94	76	274
Creativity & Innovation	35	85	101	53	274
Communication	40	86	97	51	274
Collaboration	15	55	61	143	274

2.11. Differential Item Functioning Analysis of LIS Instrument

2.11.1. Differential Item Functioning Analysis of LIS based on Gender

TABLE 30.4 C:\Users\maula\OneDrive\Desktop\Main ZOU900WS.TXT Jul 29 9:29 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73

DIF class specification is: DIF=\$S4W1

Person CLASSES	SUMMARY DIF CHI-SQUARE	D.F.	PROB.	BETWEEN-CLASS MEAN-SQUARE	Item t=ZSTD	Item Number	Name
2	2.0848	1	.1488	.9098	.4056	1	LIS1
2	.0300	1	.8625	.0228	-1.0483	2	LIS2
2	1.4359	1	.2308	.6141	.1532	3	LIS3
2	.0383	1	.8448	.0283	-1.0038	4	LIS4
2	1.7345	1	.1878	.7569	.2833	5	LIS5
2	.0000	1	1.0000	.0022	-1.3724	6	LIS6
2	.1708	1	.6794	.0713	-.7703	7	LIS7
2	.3733	1	.5412	.1576	-.5041	8	LIS8
2	.6152	1	.4328	.2730	-.2738	9	LIS9
2	1.0000	1	.7518	.0566	-.8353	10	LIS10
2	1.0059	1	.3159	.4376	-.0394	11	LIS11
2	2.6601	1	.1029	1.1814	.5926	12	LIS12
2	.9704	1	.3246	.4110	-.0727	13	LIS13
2	.9416	1	.3319	.3988	-.0885	14	LIS14
2	2.0898	1	.1483	.8999	.3981	15	LIS15
2	.4327	1	.5107	.1882	-.4342	16	LIS16
2	.0000	1	1.0000	.0001	-1.5691	17	LIS17
2	1.0427	1	.3072	.4438	-.0319	18	LIS18
2	.7814	1	.3767	.3304	-.1834	19	LIS19
2	.8992	1	.3430	.3828	-.1097	20	LIS20
2	.1227	1	.7261	.0557	-.8396	21	LIS21
2	1.1188	1	.2902	.4910	.0236	22	LIS22
2	1.4103	1	.2350	.6169	.1559	23	LIS23
2	1.2998	1	.2542	.5708	.1097	24	LIS24
2	1.8214	1	.1771	.7743	.2980	25	LIS25
2	.0000	1	1.0000	.0007	-1.4618	26	LIS26
2	.8910	1	.3452	.3764	-.1183	27	LIS27
2	.0628	1	.8021	.0322	-.9748	28	LIS28
2	.1299	1	.7185	.0600	-.8193	29	LIS29
2	.0817	1	.7751	.0387	-.9324	30	LIS30

2.11.2. Differential Item Functioning Analysis of LIS based on Phase of Study

TABLE 30.4 C:\Users\maula\OneDrive\Desktop\Main ZOU900WS.TXT Jul 29 9:29 2025
 INPUT: 274 Person 30 Item REPORTED: 274 Person 30 Item 5 CATS WINSTEPS 3.73

DIF class specification is: DIF=\$S6W1

Person CLASSES	SUMMARY DIF			BETWEEN-CLASS		Item Number Name
	CHI-SQUARE	D.F.	PROB.	MEAN-SQUARE	t=ZSTD	
2	.5788	1	.4468	.2898	-.2462	1 LIS1
2	.5129	1	.4739	.2567	-.3017	2 LIS2
2	.0000	1	1.0000	.0006	-1.4665	3 LIS3
2	.0000	1	1.0000	.0002	-1.5307	4 LIS4
2	.2566	1	.6124	.1283	-.5800	5 LIS5
2	1.0623	1	.3027	.5341	.0712	6 LIS6
2	3.5726	1	.0587	1.8032	.9321	7 LIS7
2	1.2821	1	.2575	.6432	.1813	8 LIS8
2	.0000	1	1.0000	.0103	-1.1883	9 LIS9
2	.4108	1	.5216	.2055	-.3980	10 LIS10
2	.3281	1	.5668	.1641	-.4884	11 LIS11
2	.0000	1	1.0000	.0031	-1.3422	12 LIS12
2	.6747	1	.4114	.3379	-.1725	13 LIS13
2	1.9982	1	.1575	1.0040	.4742	14 LIS14
2	1.1488	1	.2838	.5765	.1156	15 LIS15
2	.5940	1	.4409	.2983	-.2326	16 LIS16
2	.1929	1	.6605	.0969	-.6757	17 LIS17
2	.2028	1	.6524	.1019	-.6591	18 LIS18
2	.3489	1	.5548	.1754	-.4625	19 LIS19
2	.1746	1	.6760	.0877	-.7074	20 LIS20
2	.3372	1	.5615	.1696	-.4757	21 LIS21
2	2.6818	1	.1015	1.3522	.6959	22 LIS22
2	.5357	1	.4642	.2693	-.2800	23 LIS23
2	.0000	1	1.0000	.0076	-1.2329	24 LIS24
2	2.1075	1	.1466	1.0592	.5125	25 LIS25
2	.5142	1	.4733	.2573	-.3006	26 LIS26
2	1.2581	1	.2620	.6329	.1714	27 LIS27
2	.2478	1	.6186	.1248	-.5899	28 LIS28
2	.0000	1	1.0000	.0090	-1.2088	29 LIS29
2	.0248	1	.8749	.0178	-1.0959	30 LIS30

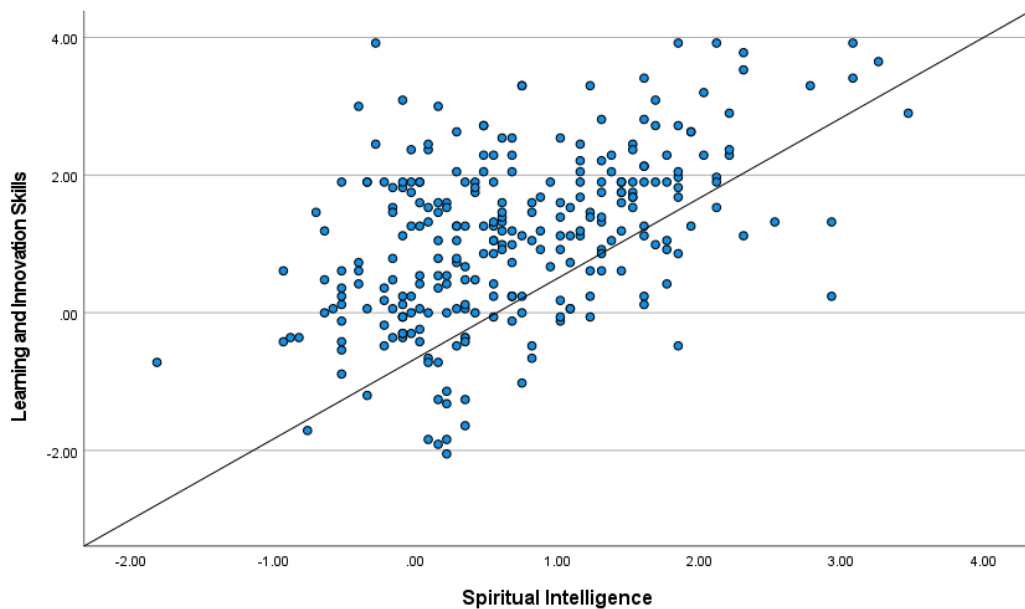
Appendix 3: SPSS Analysis Result

This part provides the results of the statistical analyses conducted using SPSS, which includes key outputs relevant to the study's objectives.

3.1. Descriptive Statistics Result

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
CET_PM	274	6.99	-1.86	5.13	.6343	.99922	.998
PMM_PM	274	8.09	-2.19	5.90	1.8059	1.57406	2.478
TA_PM	274	6.60	-2.21	4.39	.6244	1.25609	1.578
CSE_PM	274	7.54	-2.95	4.59	.9153	1.49012	2.220
Spiritual Intelligence	274	5.29	-1.82	3.47	.7062	.87566	.767
CTPS_PM	274	12.05	-4.40	7.65	1.4146	2.04386	4.177
CIS_PM	274	10.01	-3.12	6.89	1.2761	1.61152	2.597
CS_PM	274	10.26	-3.39	6.87	1.1377	1.71801	2.952
CWS_PM	274	10.47	-3.54	6.93	2.3258	2.04428	4.179
Learning and Innovation Skills	274	5.97	-2.05	3.92	1.1147	1.20486	1.452
Valid N (listwise)	274						

3.2. Linearity Test



ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Learning and Innovation Skills * Spiritual Intelligence	Between Groups	(Combined)	170.263	53	3.213	3.127	<,.001
		Linearity	94.591	1	94.591	92.061	<,.001
		Deviation from Linearity	75.672	52	1.455	1.416	.045
	Within Groups		226.045	220	1.027		
	Total		396.308	273			

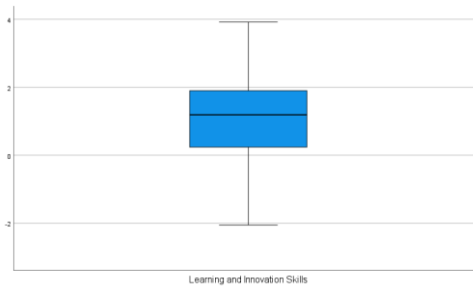
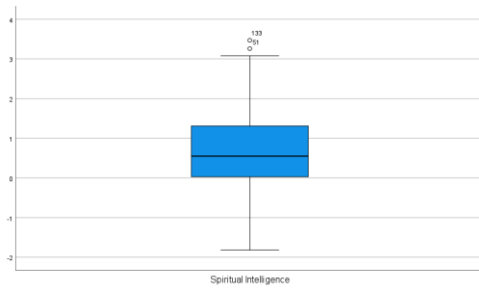
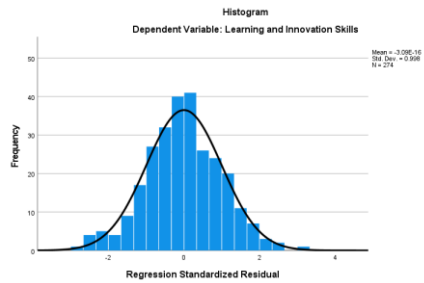
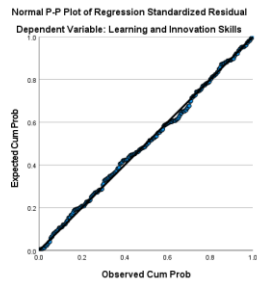
3.3. Normality Test

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Unstandardized Residual	.034	274	.200 [*]	.996	274	.770

*. This is a lower bound of the true significance.

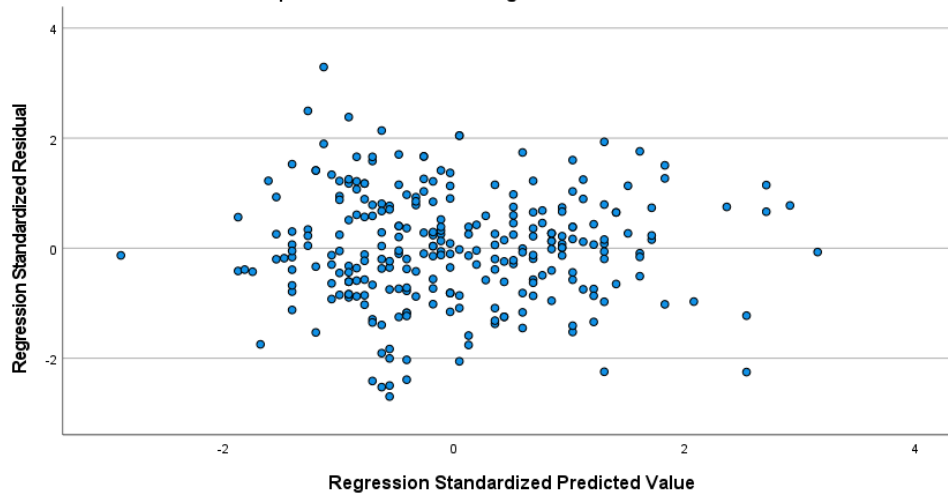
a. Lilliefors Significance Correction



3.4. Homoscedasticity Test

Scatterplot

Dependent Variable: Learning and Innovation Skills



3.5. Pearson Correlation Test

Correlations

		Spiritual Intelligence	Learning and Innovation Skills
Spiritual Intelligence	Pearson Correlation	1	.489**
	Sig. (2-tailed)		<,001
	N	274	274
Learning and Innovation Skills	Pearson Correlation	.489**	1
	Sig. (2-tailed)	<,001	
	N	274	274

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

3.6. Linear Regression Result

3.6.1. Model Summary of Regression

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.489 ^a	.239	.236	1.05321

a. Predictors: (Constant), Spiritual Intelligence

b. Dependent Variable: Learning and Innovation Skills

3.6.2. Anova Table of Regression

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.591	1	94.591	85.274	<,001 ^b
	Residual	301.717	272	1.109		
	Total	396.308	273			

a. Dependent Variable: Learning and Innovation Skills

b. Predictors: (Constant), Spiritual Intelligence

3.6.3. Coefficient Table of Regression

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.640	.082		7.823	<,001
	Spiritual Intelligence	.672	.073	.489	9.234	<,001

a. Dependent Variable: Learning and Innovation Skills

3.7. Process Macro Hayes for Moderation Test

***** PROCESS Procedure for SPSS Version 5.0 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
 Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model: 2
 Y: LIS
 X: SI
 W: Gender
 Z: PoS

Sample
 Size: 274

Variable descriptive statistics

	LIS	SI	Gender	PoS
Mean	1,1147	,7062	1,6934	1,5292
SD	1,2049	,8757	,4619	,5001
Min	-2,0500	-1,8200	1,0000	1,0000
Max	3,9200	3,4700	2,0000	2,0000

Variable intercorrelations (Pearson r)

	LIS	SI	Gender	PoS
LIS	1,0000	,4885	-,0124	,1043
SI	,4885	1,0000	-,0066	-,0201
Gender	-,0124	-,0066	1,0000	-,0245
PoS	,1043	-,0201	-,0245	1,0000

OUTCOME VARIABLE:
 LIS

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,5097	,2598	1,0946	18,8122	5,0000	268,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,1155	,0632	17,6457	,0000	,9911	1,2400
SI	,6744	,0732	9,2089	,0000	,5302	,8186
Gender	-,0243	,1374	-,1771	,8596	-,2948	,2461
Int_1	-,1993	,1511	-1,3185	,1885	-,4968	,0983
PoS	,2839	,1269	2,2375	,0261	,0341	,5337
Int_2	,1556	,1452	1,0716	,2849	-,1303	,4414

Product terms key:
 Int_1 : SI x Gender
 Int_2 : SI x PoS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	,0048	1,7384	1,0000	268,0000	,1885
X*Z	,0032	1,1482	1,0000	268,0000	,2849
BOTH	,0080	1,4554	2,0000	268,0000	,2351

 Focal predict: SI (X)
 Mod var: Gender (W)
 Mod var: PoS (Z)

Data for visualizing the conditional effect of the focal predictor:
 Paste text below into a SPSS syntax window and execute to produce plot.

```
DATA LIST FREE/
  SI      Gender  PoS      LIS      .
BEGIN DATA.
  -,7962  -,6934  -,5292  ,4007
  -,1562  -,6934  -,5292  ,8681
  ,9038   -,6934  -,5292  1,6421
  -,7962  -,6934  ,4708  ,5608
  -,1562  -,6934  ,4708  1,1277
  ,9038   -,6934  ,4708  2,0667
  -,7962  ,3066   -,5292  ,5350
  -,1562  ,3066   -,5292  ,8749
  ,9038   ,3066   -,5292  1,4377
  -,7962  ,3066   ,4708  ,6951
  -,1562  ,3066   ,4708  1,1345
  ,9038   ,3066   ,4708  1,8622
END DATA.
GRAPH/SCATTERPLOT=
  SI      WITH  LIS      BY      Gender  /PANEL  ROWVAR=  PoS      .
```

 Some regression diagnostics

	Min.	Max.
fitted	-,8627	3,3688
residual	-2,9579	3,3554
t-resid	-2,8826	3,3015

Shape of residuals

	Skewness	Kurtosis
Value	-,0058	,2464
se	,1472	,2933

Bonferroni-corrected p for largest t-residual

t-resid	p-value	casenum
3,3015	,2994	251,0000

Most influential observations

	casenum	dfbeta
constant	251,0000	,0121
SI	211,0000	-,0208
Gender	47,0000	,0317
Int_1	211,0000	-,0345
PoS	251,0000	,0248
Int_2	211,0000	,0410

Variable tolerance and VIF

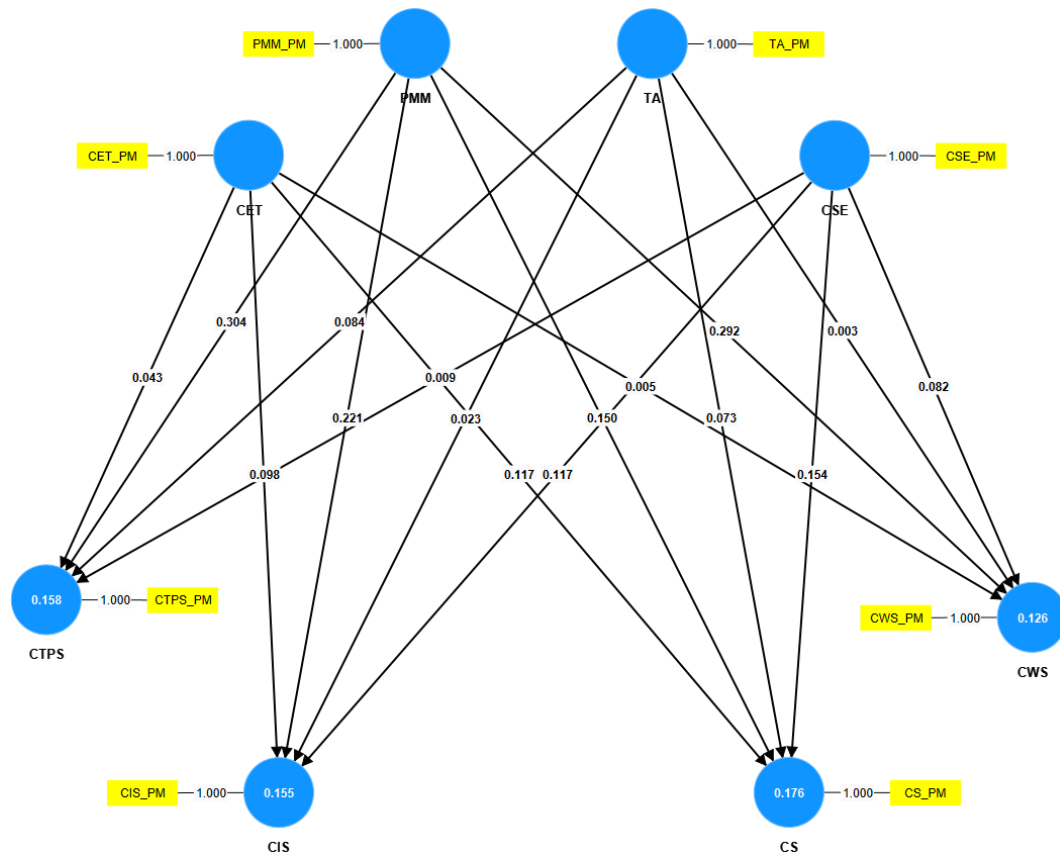
	Tol.	VIF
SI	,9749	1,0257
Gender	,9958	1,0043
Int_1	,9856	1,0146
PoS	,9958	1,0042
Int_2	,9826	1,0177

Breusch-Pagan test of heteroskedasticity

	Chi-sq	df	p
Normal	7,8560	5,0000	,1644
Robust	7,0771	5,0000	,2150

Appendix 4: SmartPLS Analysis Result

4.1. Measurement Model Analysis



4.2. Path Coefficients Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
CET → CIS	0,098	0,101	0,080	1,219	0,223
CET → CS	0,117	0,121	0,078	1,497	0,134
CET → CTPS	0,043	0,047	0,069	0,616	0,538
CET → CWS	0,005	0,009	0,090	0,058	0,954
CSE → CIS	0,117	0,116	0,087	1,339	0,181
CSE → CS	0,154	0,152	0,081	1,889	0,059
CSE → CTPS	0,009	0,009	0,091	0,099	0,921
CSE → CWS	0,082	0,082	0,084	0,979	0,327
PMM → CIS	0,221	0,219	0,088	2,499	0,012
PMM → CS	0,150	0,148	0,074	2,034	0,042
PMM → CTPS	0,304	0,302	0,081	3,740	0,000

PMM -> CWS	0,292	0,291	0,085	3,443	0,001
TA -> CIS	0,023	0,022	0,095	0,238	0,812
TA -> CS	0,073	0,072	0,094	0,777	0,437
TA -> CTPS	0,084	0,084	0,105	0,801	0,423
TA -> CWS	0,003	0,001	0,102	0,031	0,975

4.3. Construct Cross-Validated Redundancy Result

	SSO	SSE	Q² (=1-SSE/SSO)
CET	274,000	274,000	0,000
CIS	274,000	238,135	0,131
CS	274,000	235,208	0,142
CSE	274,000	274,000	0,000
CTPS	274,000	235,850	0,139
CWS	274,000	245,366	0,105
PMM	274,000	274,000	0,000
TA	274,000	274,000	0,000

Appendix 5: Interview

The following is a list of questions asked to research respondents to collect qualitative data both interview orally and reflective written answers.

No.	Theme	Questions in English	Translated Bahasa Indonesia
1	Understanding 21st Century Skills	What do you understand about the term "21st-century skills"?	<i>Apa yang Anda pahami dengan istilah "keterampilan abad ke-21"?</i>
		How do you think these skills are integrated into your academic program?	<i>Menurut Anda, bagaimana keterampilan ini diintegrasikan ke dalam program akademik Anda?</i>
		In your opinion, how important are communication, collaboration, critical thinking, and creativity in your field of study?	<i>Menurut Anda, seberapa pentingkah komunikasi, kolaborasi, pemikiran kritis, dan kreativitas dalam bidang studi Anda?</i>
2	Exploring Spiritual Intelligence	How would you define spiritual intelligence?	<i>Bagaimana Anda mendefinisikan kecerdasan spiritual?</i>
		Can you describe any practices or activities you engage in that help develop your spiritual intelligence?	<i>Dapatkah Anda menjelaskan praktik atau kegiatan apa pun yang Anda lakukan yang membantu mengembangkan kecerdasan spiritual Anda?</i>
		In what ways do you believe spiritual intelligence contributes to your personal and professional growth?	<i>Menurut Anda, dengan cara apa kecerdasan spiritual berkontribusi pada pertumbuhan pribadi dan profesional Anda?</i>
3	Interrelationship Between 21st-Century Skills and Spiritual Intelligence	Do you see any connections between the development of 21st-century skills and your spiritual intelligence?	<i>Apakah Anda melihat adanya hubungan antara pengembangan keterampilan abad ke-21 dan kecerdasan spiritual Anda?</i>
		How has your understanding of spiritual intelligence affected your approach to learning and collaboration with peers?	<i>Bagaimana pemahaman Anda tentang kecerdasan spiritual mempengaruhi pendekatan Anda dalam belajar dan berkolaborasi dengan teman?</i>

4	Relevance and Challenges	<p>What challenges have you faced in balancing the development of your 21st-century skills with your spiritual intelligence?</p> <p>Overall, what do you think is the importance of developing spiritual intelligence and Learning and Innovation Skills in facing the challenges of 21st century education?</p>	<p><i>Tantangan apa yang Anda hadapi dalam menyeimbangkan pengembangan keterampilan abad ke-21 dengan kecerdasan spiritual Anda?</i></p> <p><i>Secara keseluruhan, bagaimana menurut Anda pentingnya mengembangkan kecerdasan spiritual dan Learning and Innovation Skills dalam menghadapi tantangan pendidikan abad ke-21?</i></p>
---	--------------------------	--	--

Bagian 5 dari 5

HALAMAN PENUTUP

✕
⋮

🎉 Terima Kasih atas Partisipasi Anda! 🎉

Kami sangat menghargai waktu dan kontribusi Anda dalam mengisi kuesioner ini. Data yang Anda berikan akan sangat bermanfaat dalam mendukung keberhasilan penelitian ini.

Sebagai bagian dari proses penelitian, kami berencana melakukan wawancara lanjutan dengan beberapa responden setelah seluruh data kuantitatif terkumpul. Jika Anda bersedia untuk dihubungi lebih lanjut dan berpartisipasi dalam sesi wawancara tersebut, silakan centang kotak persetujuan di bawah ini dan tinggalkan nomor WhatsApp Anda di bagian akhir kuesioner.

Seluruh informasi pribadi akan dijaga kerahasiaannya dan hanya digunakan untuk kepentingan akademik. Sekali lagi, terima kasih atas partisipasi Anda! 🙏

Apakah Anda bersedia untuk dihubungi untuk wawancara lebih lanjut? *

Ya

Tidak

Nomor HP (WA) yang dapat dihubungi.

Teks jawaban singkat

.....

The consent form for the interview available at the end of the questionnaire

Appendix 6: Faculty Research Permit

Below is an example of the research permit granted by the faculty to conduct data collection at the research site.



Kementerian Agama Republik Indonesia
Universitas Islam Internasional Indonesia
Jalan Raya Bogor KM. 33.5
Cisalak, Sukmajaya, Depok, Jawa Barat 1641E
secretariat@uiii.ac.id
www.uiii.ac.id

Ref. No : 147/Dek.FIP/UIII/UM.02/4/2025
Attachment :-
Subject : Request for Research Permit

Depok, April 24, 2025

Dear Dean of the Faculty of Islamic Studies,
Universitas Muhammadiyah Prof. Dr. Hamka (UHAMKA)

Assalamu'alaikum Wr. Wb.

We hereby certify the following student:

Name : Muhamad Maulana
Student ID Number : 04212310007
Faculty : Faculty of Education
Study Program : MA in Education

is conducting research for his thesis with the following details:

Thesis Title : Exploring the Relationship of Spiritual Intelligence and Learning and Innovation Skills among Undergraduate Students for 21st Century Education
Research Location : Faculty of Islamic Studies, Universitas Muhammadiyah Prof. Dr. Hamka
Research Duration : ± 1 month

We respectfully request your assistance in granting research permission to the student. Thank you for your kind attention and cooperation.

Wassalamu'alaikum Wr. Wb.,

Kind Regards,
Dean of the Faculty of Education



Faculty of
Education

Prof. Nina Nurmila, PhD

Appendix 7: Research Approval Letter

Below is an example of the approval letter from the research site granting permission to conduct data collection.



 **Uhamka**
FAKULTAS AGAMA ISLAM

*Integrity
Trusty
Compassion*
A leading university that produces
graduates excelling in Spiritual, Intellectual,
Emotional and Social Intelligences

SURAT KETERANGAN
Nomor: 477/FAI/LT/2025

Assalamualaikum Warahmatullahi wabaraktuh

Pimpinan Fakultas Agama Islam (FAI) Muhammadiyah Prof. DR. HAMKA dengan ini menerangkan bahwa:

Nama : **Muhamad Maulana**
NIM : 04212310007
Program Studi : Pendidikan
Jenjang Pendidikan : Magister (S2)
Alamat : Dusun 3 RT 03 RW 05 Desa Kertawangun Kecamatan Sedong
Kabupaten Cirebon
No Hp : 0838-2002-3723

Nama tersebut di atas adalah benar telah melakukan penelitian di Fakultas Agama Islam Universitas Muhammadiyah Prof. DR. HAMKA Jakarta dalam rangka penyusunan Tesis dengan judul **"Exploring The Relationship of Spiritual Intelligence and Learning and Innovation Skills among Undergraduate Students for 21st Century Education"**, yang dilakukan pada 15 s.d. 26 Mei 2025.

Demikian keterangan ini dibuat dengan sebenarnya agar digunakan sebagaimana mestinya.

***Nasrun Minnallah wa Fathun Qarib,
Wassalamu'alaikum warahmatullahi wabarakatuh.***

Jakarta, 06 Dzulhijjah 1446 H
02 Juni 2025 M


Dekan
Prof. Ai Fatimah Nur Fuad, MA., Ph.D.

Jl. Limau II, Kebayoran Baru,
Jakarta Selatan

T : 021-7234356, F : 021-7202291
E : fai@uhamka.ac.id

FAI | UHAMKA
<http://fai.uhamka.ac.id>



Appendix 8: Research Documentations

Below are several photographs documenting the research process during data collection.



Socialization of filling out the survey in an Islamic University in Tasikmalaya, West Java



Online oral interview with research respondents

saya sedang menempuh pendidikan s1 di Universitas Prof. Dr. Hamka, dan mengambil jurusan Pendidikan Agama Islam, kenapa saya mengambil jurusan itu karena saya ingin menjadi seorang guru, serta saya Alhamdulillah saya aktif di beberapa organisasi keagamaan yaitu diantaranya Ikatan Mahasiswa Muhammadiyah, serta Ikatan Remaja Masjid dan aktif di beberapa organisasi keagamaan lainnya 🙏

6.34 PM

1. Keterampilan abad ke-21 adalah kemampuan yang dibutuhkan untuk sukses di era modern ini. Ini mencakup beberapa aspek penting, salah satunya adalah Learning and Innovation Skills. Diantaranya adalah :

- Kritis (Critical Thinking) : Kemampuan untuk menganalisis informasi, mengidentifikasi pola, dan membuat keputusan yang tepat berdasarkan bukti dan logika. Ini melibatkan kemampuan untuk mengevaluasi informasi, mengidentifikasi bias, dan membuat kesimpulan yang masuk akal.
- Kreatif (Creativity) : Kemampuan untuk menghasilkan ide-ide baru dan inovatif. Ini melibatkan kemampuan untuk berpikir di luar kotak, menghasilkan solusi yang unik, dan mengembangkan konsep baru.
- Komunikasi (Communication) : Kemampuan untuk menyampaikan informasi dan ide dengan efektif kepada orang lain. Ini melibatkan kemampuan

• Pemahaman tentang Learning and Innovation Skills (LIS)

1. Apa yang kamu pahami dengan istilah keterampilan abad ke-21, khususnya Learning and Innovation Skills (kritis, kreatif, komunikasi, dan kolaborasi)? Menurutku, keterampilan abad ke-21 itu kayak bekal wajib yang kita butuhkan buat "survive" dan berhasil di zaman sekarang yang serba cepat ini. Khususnya yang Learning and Innovation Skills (LIS), ini penting banget karena fokusnya ke gimana kita bisa terus belajar hal baru dan berinovasi.

- * Berpikir kritis itu intinya kita enggak cuma nerima info mentah-mentah, tapi bisa menganalisis, ngecek kebenarannya, dan ngevaluasi ide-ide. Jadi, kita bisa memecahin masalah dengan mikir logis dan mendalam.
- * Kreatif itu kemampuan kita buat ngeluarin ide-ide yang "out of the box", ngelihat masalah dari sudut pandang beda, dan nemuin solusi yang enggak biasa. Ini tentang gimana kita bisa bikin sesuatu yang baru atau punya cara pandang segar.
- * Komunikasi itu gimana kita bisa nyampein ide, informasi, atau perasaan kita dengan jelas, baik ngomong langsung, nulis, atau lewat media lain. Penting juga buat jadi pendengar yang baik biar bisa nyambung sama orang lain.
- * Kolaborasi ini soal kerja sama tim. Gimana kita bisa nyatuin ide, bagi-bagi tugas, dan saling dukung buat mencapai tujuan bareng-bareng. Ini penting banget karena sekarang jarang banget kerjaan yang bisa dikerjain sendirian.

2. Menurut kamu, bagaimana keterampilan

A. Learning and Innovation Skills

1. Kritis, Kreatif, Komunikasi & Kolaborasi
 - menurut saya kritis merupakan cara kita dan berfikir lebih mendalam, berfikir dengan panjang mengenai ide, diambil & yg dicari di hasilkan dari ide kritis.
 - kreatif itu cara kita menerapkan ide / mengembangkan ide.
 - komunikasi, cara kita dalam menyampaikan ide.
 - kolaborasi tindakan / langkah yang kita lakukan dalam menjalankan ide yang sudah kita rangkai.
2. Lis ini sudah lumayan di kuasai banyak di terapkan dalam dunia pendidikan. Contoh memecahkan masalah pada siswa yang "Bandel" ----- Jawaban Selengkapannya.
3. dalam dunia pendidikan ini keterampilan kritis kreatif komunikasi dan kolaborasi sangat penting karena jika tidak ada 4 hal tersebut pendidikan yang ada ya maju komunikasi 2 arah itu sangat perlu terutama guru dan orang tua murid, karena pendidikan di buai dari keduanya.

B. Kecerdasan Spiritual

1. kecerdasan spiritual menurut saya merupakan kemampuan seseorang untuk bisa memahami makna bukan hidup dia sebagai manusia. Memiliki rasa empati, prinsip yang kuat tidak hanya bisa menasihati orang lain tapi dia bisa menerapkan untuk diri sendiri terlebih dahulu. Mengembangkan emosi. Contoh : kesedihan si A.. marah nya pada si C. P. E. F.

2. Saya punya kegiatan hobi. Setiap mau tidur saya baca buku atau sendiri. Terimakasih untuk hari ini. Tetap semangat. Tetap jadi orang baik. Pa kenangan & orang-orang baik itu lebih baik dari orang-orang jahil. Jadi jadi baik itu yg kemarin dan di versi kamu sendiri. Belajar itu sederhana dari yang simple, menantang untuk baca buku, diskusi dalam organisasi.

3. Kecerdasan Spiritual sangat memiliki peran dalam kehidupan saya terutama sebagai mahasiswa, guru, dan orang tua. Karena membantu saya untuk memahami berbagai tantangan, belajar dari orang lain, menunjukkan empati pada teman, saudara, menginspirasi dan belajar membuat saya tetap pada tujuan saya (memaksimalkan diri).

C. Hubungan Antara Si (Spiritual) dan Lis.

1. Si & Lis sangat berkaitan karena jika kita tidak bisa mengembangkan spiritualitas dan tetap kita bakal bisa mendapatkan solusi dari masalah tersebut.
2. Si sangat berpengaruh bagi cara kita belajar karena sebagai mahasiswa kita banyak terbantu dengan si. Membuat saya bisa untuk menemukan makna di balik materi yang saya pelajari, tetap positif di tengah-tengahnya. Rasa humor dalam kegiatan kita drama ngomong dan hal-hal lain. Seseorang menimbulkan rasa untuk bergairah dan bisa lebih semangat.

Written Reflective as as a substitute for oral interviews