

Final Project 2

PMG 497

Project Template

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Evaluating the Effectiveness of online learning for Students with Learning Difficulties in Higher Education: A Moodle platform at Midocean University

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Acknowledgment

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Dedication

This research is dedicated to:

- **All parents** for their unwavering support and encouragement, which empowers students like myself to pursue academic endeavors.
- **The dedicated faculty members at Midocean University (especially Dr. Mona Elashry)** for their tireless efforts in providing quality education. Their responsiveness to student needs has been instrumental in creating a positive learning environment.
- **My supervising colleagues**, whose exceptional work in translating lectures and recording discussion sessions has significantly benefitted students, particularly those facing learning difficulties. Their commitment to fostering inclusive learning is truly inspiring.

Abstract

Background: Students with learning difficulties (LDs) often face challenges in traditional higher education settings. Online learning platforms (OLPs) like Moodle offer potential benefits, but research on their effectiveness specifically for LD students in Gulf universities remains limited.

Objectives: This study investigates the effectiveness of Moodle in addressing the academic needs and engagement of LD students at Midocean University.

Methods: Utilizing a quantitative approach, we analyze data from standardized tests, course assignments, platform usage logs, and surveys to:

- Compare academic performance of LD students using Moodle vs. traditional instruction.
- Analyze the influence of specific Moodle features on student engagement and learning outcomes.
- Identify challenges and opportunities associated with Moodle implementation for LD students.

Expected Outcomes: This study aims to provide valuable insights into:

- The effectiveness of Moodle as a tool for supporting LD students in higher education.
- Evidence-based recommendations for optimizing Moodle features to promote accessibility and inclusivity.
- Contributions to future research and development of OLPs tailored for LD students.

Keywords: Learning difficulties, online learning platforms, Moodle, higher education, quantitative research, accessibility, inclusivity.

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1. Chapter 1: Introduction

1.1. Research Background

Midocean University, in line with the growing adoption of online learning platforms (OLPs) in higher education, utilizes Moodle to offer its students flexibility and additional learning resources. This study investigates the effectiveness of Moodle for students with learning difficulties (LDs) within the specific context of Midocean University.

Moodle offers several features potentially beneficial for LD students, including:

- **Recorded lectures:** LD students can revisit course content at their own pace and with preferred methods, like closed captioning or repeated viewings.
- **Platform flexibility:** Moodle's adaptable interface allows for customizable layouts and personalized settings, potentially enhancing accessibility and focus for students with LDs.
- **Reminder system:** Automated reminders for assignments, quizzes, and deadlines can help students with organizational challenges stay on track.
- **Online quizzes:** Moodle's quiz module offers features like adjustable time limits and customized question formats, potentially reducing test anxiety and promoting accessibility for LD students.

Employing a quantitative approach, this research aims to:

- **Compare the academic performance of LD students using Moodle versus traditional classroom instruction.**
- **Analyze the influence of specific Moodle features (e.g., recorded lectures, reminders) on student engagement and learning outcomes.**

- **Identify potential challenges and opportunities associated with Moodle implementation for LD students at Midocean University.**

By analyzing data from university records, Moodle platform usage logs, and surveys, this study seeks to provide valuable insights into the effectiveness of Moodle for LD students at Midocean University.

The findings will contribute to informed recommendations for utilizing Moodle's features to optimize learning experiences and academic success for this population within the university's community.

1.2. Research Problem

Some students face diverse challenges that impede their engagement in traditional classroom instruction, including work schedules, family commitments, and limited time flexibility. While online learning platforms (OLPs) like Moodle offer potential solutions by providing asynchronous access and personalized learning, limited research exists on their effectiveness for students with learning difficulties (LDs), particularly within the context of Gulf universities. This study investigates the **effectiveness of Moodle in addressing the specific needs and engagement of LD students at Midocean University who struggle with inflexible schedules or balancing study with personal responsibilities.**

Furthermore, although Moodle offers features like recorded lectures and flexible access, concerns exist regarding usability on mobile phones compared to laptops. This study examines how **platform accessibility and usability on different devices affects the learning experience and engagement of LD students at Midocean University.**

1.2.1. Theoretical Gaps

- **Limited Focus on Specific Learning Difficulties:** While research suggests OLPs can benefit diverse learners, existing theoretical frameworks often lack a nuanced understanding of how OLP features can cater to the unique needs of students with specific learning difficulties like dyslexia, ADHD, or executive function challenges.
- **Integration with Existing Theories of Learning:** There is a need for further exploration of how OLPs can be utilized within existing learning theories to create a more comprehensive framework for supporting LD students. Theories of social constructivism, for example, could be explored to understand how OLPs facilitate collaborative learning and knowledge construction for LD students.

1.2.2. Practical Gaps

- **Longitudinal Studies:** Most existing research focuses on short-term outcomes like student satisfaction or immediate performance. Longitudinal studies are needed to investigate the long-term impact of OLPs on LD student retention, graduation rates, and overall academic success.
- **Blended Learning Models:** Limited research explores blended learning models that combine online and in-person instruction for LD students. Further investigation is needed to determine the optimal combination of online and face-to-face elements for this population.
- **Accessibility and Usability for Diverse Learners:** While accessibility features are being developed, research is needed to evaluate their effectiveness for LD students with different learning needs and across various devices (laptops, tablets, and smartphones). Additionally, usability testing with LD student populations is crucial to ensure features are user-friendly and promote engagement.

Addressing these gaps will contribute to a more comprehensive understanding of how OLPs can be effectively designed and implemented to support students with learning difficulties in higher education.

1.3. Research Significance

Addressing LD Needs in Higher Education:

- This study contributes to the limited research on OLPs specifically for LD students in higher education, particularly in the Gulf region.
- It helps understand how technology can improve accessibility and inclusivity for LD students often facing barriers in traditional learning environments.
- The findings will inform evidence-based practices for utilizing OLPs to support LD students' academic success and promote equal opportunities in higher education.

Addressing Specific Challenges at Midocean University:

- This study directly addresses the challenges faced by Midocean University students, including students with LDs who struggle with inflexible schedules, balancing studies with personal responsibilities, and limited accessibility.
- It provides valuable insights into how Moodle can be best utilized to cater to these diverse student needs and enhance learning experiences within the university's specific context.
- The findings can inform Midocean University's educational development policies and initiatives to promote effective use of Moodle for supporting all students, particularly those with LDs.

Impact on Moodle Implementation:

- By examining the usability and effectiveness of Moodle features for LD students, this study provides valuable feedback for Moodle developers and platform administrators.
- The findings can contribute to improving the accessibility and user-friendliness of Moodle for diverse student populations, including those with LDs.
- This can inform strategies for optimizing Moodle implementation across various educational institutions and promote its effectiveness in supporting inclusive learning environments.

References List:

- 1-El-Bahsh, R., & Daoud, M. (2016, April). Evaluating the use of Moodle to achieve effective and interactive learning: A case study at the German Jordanian University. In *Proceedings of the 35th annual IEEE international conference on computer communications* (pp. 1-5).
- 2-Damnjanovic, V., Jednak, S., & Mijatovic, I. (2015). Factors affecting the effectiveness and use of Moodle: students' perception. *Interactive learning environments*, 23(4), 496-514.
- 3-Morze, N., Varchenko-Trotsenko, L., Terletska, T., & Smyrnova-Trybulska, E. (2021, March). Implementation of adaptive learning at higher education institutions by means of Moodle LMS. In *Journal of physics: Conference series* (Vol. 1840, No. 1, p. 012062). IOP Publishing..
- 4- Vaganova, O. I., Smirnova, Z. V., Vezetiu, E. V., Kutepov, M. M., & Chelnokova, E. A. (2020). Assessment tools in e-learning Moodle. *International Journal*, 9(3), 2488-2492.

1.3.1. At the theoretical level

□ **Limited Research Focus:** The study addresses the gap in research on Online Learning Platforms (OLPs) specifically designed to support LD students in higher education. By analyzing the impact of Moodle, it contributes to a more comprehensive understanding of how OLP features can cater to the unique learning needs of this population. This knowledge can inform the development of theoretical frameworks for designing OLPs that promote inclusive learning environments.

□ **Bridging Theory and Practice:** The research explores how Moodle's features connect with existing learning theories. For example, the study might investigate how collaborative learning tools within Moodle align with social constructivism theory. This integration can lead to a more nuanced understanding of how OLPs can be utilized to support various learning styles and enhance educational effectiveness for LD students.

1.3.2. At the practical level

□ **Promoting Inclusive Learning:** The findings on Moodle's effectiveness can inform strategies for increasing inclusivity in higher education. By demonstrating the positive impact of OLP features for LD students, the research can encourage universities to adopt or optimize OLPs like Moodle to create more accessible and effective learning environments for students with diverse needs.

□ **Informing OLP Design and Development:** This research provides valuable insights for OLP developers and educators on how to improve accessibility features and personalize learning options within platforms. The findings can directly contribute to the development of features that address the specific challenges faced by LD students, ultimately enhancing their engagement and learning outcomes.

□ **Data-Driven Decision Making:** Evidence-based data on the effectiveness of Moodle for LD students empowers institutions to make informed decisions about resource allocation and technology adoption. This can lead to increased investment in OLPs and support services that facilitate successful learning experiences for LD students at the university level.

1.4. Research Questions

- **Main Question:** How effective is Moodle in addressing the academic needs and engagement of students with learning difficulties (LDs) at Midocean University?

Sub-questions:

- How does the academic performance of LD students using Moodle compare to traditional classroom instruction?
- What influence do specific Moodle features have on student engagement and learning outcomes for LD students?
- What are the challenges and opportunities associated with Moodle implementation for LD students at Midocean University?

- How does platform accessibility and usability on different devices affect the learning experience and engagement of LD students?

1.5. Research Objectives

- **Overall Objective:** To investigate the effectiveness of Moodle in supporting LD students at Midocean University.

Specific Objectives:

- Compare academic performance using Moodle vs. traditional instruction.
- Analyze the influence of specific Moodle features on engagement and learning outcomes.
- Identify challenges and opportunities with Moodle implementation for LD students.

1.6. Research Hypotheses

Hypothesis 1 (Academic Performance):

- **Null Hypothesis (H1.1):** There is no significant difference in the academic performance (e.g., grades, test scores) of LD students using Moodle compared to traditional classroom instruction.
- **Alternative Hypothesis (H1.2):** LD students using Moodle will have significantly higher academic performance compared to traditional classroom instruction.

Hypothesis 2 (Engagement and Specific Moodle Features):

- **Null Hypothesis (H2.1):** The use of specific Moodle features (e.g., recorded lectures, reminders, and interactive quizzes) has no significant impact on student engagement and learning outcomes for LD students.
- **Alternative Hypothesis (H2.2):** The use of specific Moodle features will have a significant positive impact on student engagement and learning outcomes for LD students.

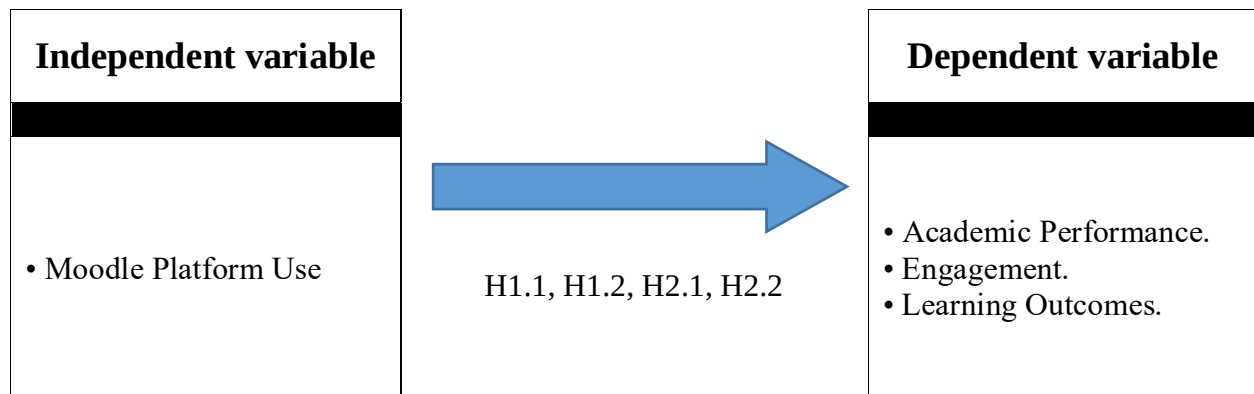
1.7. Research Model

Independent Variable:

- Moodle Platform Use.

Dependent Variables:

- Academic Performance.
- Engagement.
- Learning Outcomes.



1.8. Scope of The Study

This research investigates the effectiveness of Moodle, a popular online learning platform (OLP), in supporting students with learning difficulties (LDs) enrolled at Midocean

University. The study employs a quantitative approach to analyze the impact of Moodle on academic performance, student engagement, and accessibility for LD students.

Focus:

- The research focuses specifically on students with learning difficulties (LDs) attending Midocean University.
- The primary area of investigation is the effectiveness of Moodle, a specific online learning platform.

Parameters:

- **Academic Performance:** The study will analyze the impact of Moodle on academic performance compared to traditional classroom instruction for LD students. This may involve comparing grades, test scores, or course completion rates.
- **Student Engagement:** The research will explore how Moodle features influence student engagement by analyzing platform usage logs, survey data on student perceptions, or self-reported learning behaviors.
- **Accessibility:** The study will examine the accessibility features offered by Moodle and assess their effectiveness in supporting LD students with different learning needs. This may involve user-testing, surveys on student experiences, or analysis of platform functionalities.

Limitations:

- The research employs a quantitative approach, focusing on measurable data. Qualitative aspects of the learning experience, such as student perceptions or social interactions, might require additional research methods.

- The study focuses on students with LDs at Midocean University. Generalizability of findings to other universities or student populations with different learning difficulties may be limited.

Future Research Directions:

Building on this research, future studies could explore:

- The long-term impact of Moodle use on LD student retention and graduation rates.
- The effectiveness of blended learning models that combine online and in-person instruction for LD students.
- The development of OLP features specifically designed to address the unique needs of diverse learners with learning difficulties.

1.9. The Project Structure

Chapter 1: Introduction

- Challenges Faced by Students with Learning Difficulties
- Potential Benefits of Online Learning Platforms
- Limited Research on OLP Effectiveness for LD Students
- Moodle: A Potential Solution for LD Students at Midocean University
- Research Objectives

Chapter 2: Literature Review

- Challenges for LD Students in Higher Education
- Effectiveness of OLPs for Diverse Learners
- Moodle Features and Benefits for LD Students
- Accessibility and Usability of OLPs on Different Devices

Chapter 3: Research Methodology

- Quantitative Research Approach
- Data Collection Methods
 - Sources of Data
 - Sampling Techniques
 - Survey Instrument

Chapter 4: Statistical Analysis

- Performance Data Analysis
 - Statistical software used
 - Specific tests employed
- Platform Usage Log Analysis
 - Quantitative techniques used

- Survey Data Analysis
 - Specific statistical software used

Chapter 5: Findings, Discussion, and Conclusion

Findings:

- Present the findings from the data analysis in a clear and organized manner.
- Analyze the impact of Moodle on academic performance compared to traditional instruction.
- Discuss the influence of specific Moodle features on student engagement and learning outcomes.
- Explore challenges and opportunities identified regarding Moodle implementation for LD students at Midocean University.
- Analyze findings related to accessibility and usability of Moodle on different devices.

Discussion:

- Interpret the findings in the context of existing research on OLPs and LD students.
- Discuss the limitations of the study.
- Highlight the implications of the research for:
 - Optimizing Moodle features to better support LD students.
 - Informing future research on OLP effectiveness for diverse learners.
 - Promoting inclusive online learning practices at Midocean University and beyond.

- Suggest recommendations for future research directions.

Conclusion:

- Restate the research importance and the contribution to addressing LD student needs in higher education.
- Emphasize the value of Moodle as a tool for enhancing accessibility and inclusivity in online learning environments.

2.Chapter 2: Literature Review

2.1. Introduction

Students with learning difficulties (LDs) face unique challenges in traditional classroom settings. These challenges can hinder their academic performance, engagement, and overall learning experience, especially for the students that cannot attend the classroom in its specific time, and the ones that suffer from travelling long distances.

Online Learning Platforms (OLPs) offer a range of features that may address some of these challenges. However, limited research specifically investigates the impact of OLPs on students with learning difficulties in higher education.

This literature review explores the potential benefits and limitations of OLPs for LD students. It examines how specific OLP features can cater to their unique learning needs. Furthermore, the review explores existing research on the effectiveness of OLPs for student learning outcomes and engagement, highlighting the gap in knowledge regarding the impact on LD students specifically.

This research aims to contribute to this gap by investigating the overall effectiveness of Moodle, a popular OLP, for students with learning difficulties at Midocean University. The review provides a foundation for understanding how Moodle can be utilized to promote inclusive learning environments and enhance the educational experiences of LD students in higher education.

2.2. The independent variable

- **Moodle Platform Use:**

- This variable measures the extent to which students with learning difficulties (LDs) utilize the Moodle platform for their coursework at Midocean University.

2.3. The dependent variables

1. Academic Performance:

- This variable measures the academic achievement of LD students using Moodle compared to traditional classroom instruction or a benchmark standard.

2. Engagement:

- This variable measures the level of active participation and involvement of LD students within the Moodle learning environment.

3. Learning Outcomes:

- This variable measures the overall knowledge, skills, and abilities acquired by LD students using Moodle.

2.4. The relationship between the independent and the dependent variables

This research investigates the relationship between the independent variable, **Moodle Platform Use**, and the dependent variables: **Academic Performance, Engagement, and Learning Outcomes**.

- **Moodle Platform Use** is hypothesized to have a **positive** relationship with the dependent variables. This means that the greater the extent to which LD students utilize Moodle features (e.g., accessing materials, participating in discussions), the higher their academic performance, engagement, and learning outcomes are expected to be.
- **Academic Performance:** Increased use of Moodle features like online lectures, quizzes, and feedback mechanisms might lead to improved knowledge acquisition and skill development, resulting in higher grades or test scores.
- **Engagement:** Interactive features like discussion forums, collaborative activities, and personalized learning tools within Moodle may foster deeper engagement with the course material and increase student participation.
- **Learning Outcomes:** Effective utilization of Moodle could lead to a deeper understanding of the course content, improved critical thinking skills, and a broader range of knowledge and skills acquired by LD students.

2.5. Conclusion

This research addresses the limited understanding of how OLPs affects students with learning difficulties in higher education. By investigating the overall effectiveness of Moodle for LD students at Midocean University, the study aims to:

- Analyze the relationship between Moodle platform use and academic performance, engagement, and learning outcomes.
- Identify the specific Moodle features that can be most beneficial for LD students.
- Provide valuable insights for educators and OLP developers on promoting inclusive learning environments that cater to the unique needs of LD students.

The findings of this research can contribute to evidence-based practices for utilizing OLPs like Moodle to support the academic success of LD students and promote equal opportunities in higher education.

3. Chapter 3: Research Methodology

3.1. Introduction

This study investigates the effectiveness of Moodle as a learning platform for students with learning difficulties (LDs) at Midocean University. Employing a quantitative approach, we analyze data from various sources to assess the impact of Moodle on academic performance and engagement:

Data Sources:

- Standardized tests and course assignments (academic performance)
- Moodle platform usage logs (engagement)
- Surveys administered to LD students (perceptions and experiences)

3.2. Operational definitions for research variables

Independent Variable:

- **Moodle Platform Use:**

- This variable measures the extent to which students with learning difficulties (LDs) utilize the Moodle platform for their coursework at Midocean University.

Operationalization:

- Data collection methods can include:
 - **Server log analysis:** Track login frequency, time spent on specific materials (e.g., lectures, assignments), and platform features utilized (e.g., discussion forums, quizzes).
 - **Student surveys:** Surveys can assess self-reported frequency of Moodle use; specific features utilized for learning activities, and perceived usefulness of the platform.

Dependent Variables:

1. Academic Performance:

- This variable measures the academic achievement of LD students using Moodle compared to traditional classroom instruction or a benchmark standard.

Operationalization:

- Data collection methods can include:
 - **Standardized tests:** If relevant to the course content, standardized tests can be used to assess knowledge acquisition.
 - **Course grades:** Analyze grades on assignments, quizzes, and exams completed within the Moodle platform or traditional classroom setting.
 - **Course completion rates:** Track the percentage of LD students who successfully complete the course using Moodle compared to traditional methods (if applicable).

2. Engagement:

- This variable measures the level of active participation and involvement of LD students within the Moodle learning environment.

Operationalization:

- Data collection methods can include:
 - **Server log analysis:** Track activity logs to measure frequency of accessing course materials, participating in discussions, and completing online activities.
 - **Surveys:** Surveys can assess student perceptions of their own engagement with Moodle, including interaction with course content, participation in discussions, and collaboration with peers.

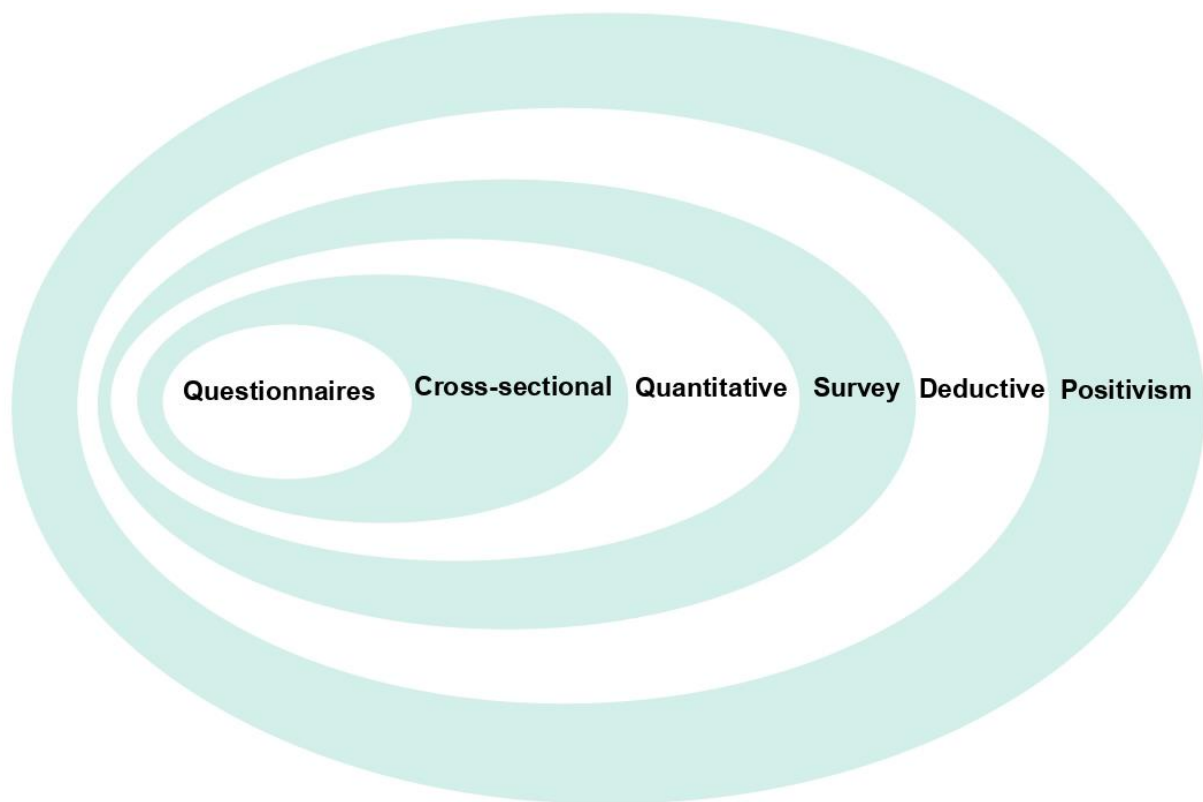
3. Learning Outcomes:

- This variable measures the overall knowledge, skills, and abilities acquired by LD students through the use of Moodle.

Operationalization:

- Data collection methods can include:
 - **Pre- and post-tests:** Administer tests before and after the course to measure knowledge gains and skill development specific to the course content.
 - **Course assignments and projects:** Analyze the quality and complexity of student work completed within the Moodle platform, considering the specific learning objectives of the course.

3.3. Research design (research onion)



3.4. Research population & Sampling methods and technique

3.5. Data collection method

3.6. Types of data

3.7. Statistical analysis procedures

3.8. Conclusion

4. Chapter 4: Statistical Analysis & Findings discussion

4.1. Introduction

4.2. Sample profile (descriptive statistics for research sample)

4.3. Validity & reliability tests for the questionnaires

4.4. Descriptive statistics for research variables (answer research questions)

4.5. Testing Hypotheses & Findings Discussion

4.6. Conclusion

5. Chapter five: Research limitations, Recommendations & Conclusion

5.1. Research Limitations & Future Research

5.2. Research Recommendations

5.3. Conclusion

References

Appendix