

NATIONAL ECONOMICS UNIVERSITY

SINMANOLACK SINBANDHIT

**THE HUMAN RESOURCE
IN SOCIO-ECONOMIC DEVELOPMENT
IN LAO PEOPLE'S DEMOCRATIC REPUBLIC
(LAO PDR)**

**PHD DISSERTATION
IN BUSINESS ADMINISTRATION**

HA NOI – 2025

**MINISTRY OF EDUCATION AND TRAINING
NATIONAL ECONOMICS UNIVERSITY**

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Major: Business Administration

Code: 9340101

PHD DISSERTATION

Instructor: Assoc.Prof. Dr. Bui Duc Tuan

HA NOI – 2025

DECLARATION

I have read and understood the University's policy on plagiarism. I at this moment declare on my honor that this PhD dissertation is my work and does not violate the guidelines on good academic practices.

PhD Candidate

Sinmanolack Sinbandhit

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PhD Candidate

Sinmanolack Sinbandhit

TABLE OF CONTENTS

DECLARATION	i
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF ABBREVIATIONS	vi
LIST OF FIGURES	vii
LIST OF TABLES	viii
INTRODUCTION	1
1. Research rationale.....	1
2. Research objectives	3
2.1. General research objectives.....	3
2.2. Specific research tasks.....	3
3. Research questions.....	3
4. Object and scope of the study	4
4.1. Research subjects.....	4
4.2. Research scope	4
5. Overview of research methods.....	5
5.1. Research process.....	5
5.2. Overview of data collection, analysis, and processing methods.....	7
6. The contributions of the thesis	8
6.1. Theoretical contributions.....	8
6.2. Practical contributions	9
7. The structure of the thesis	10
CHAPTER 1.....	11
THEORETICAL FRAMEWORK AND LITERATURE REVIEWS	11
1.1. Concepts and roles	11
1.1.1. The concept of human resources and human resources in socio-economic development.....	11
1.1.2. The roles of human resources development in socio-economic development.....	12
1.2. Theoretical framework of human resources development.....	14
1.2.1. Foundation theories on human resources development.....	14
1.2.2. Human resources assessment.....	18
1.3. Factors affecting human resources developemnt in socio-economic development	24
1.3.1. Microeconomic factors.....	25
1.3.2. Macroeconomic factors.....	29
1.4. Literature reviews	32
1.4.1. The influence of Microeconomic factors on HRD in socio-economic development.....	32

1.4.2. The influence of Macroeconomic factors on HDR in socio-economic development.....	41
1.4.3. Domestic and regional studies HRD in socio-economic development.....	47
1.5. Research gaps.....	49
CHAPTER SUMMARY 1.....	52
CHAPTER 2.....	53
RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT.....	53
2.1. Proposing research model.....	53
2.1.1. Requirements of the research model.....	53
2.1.2. Research model.....	53
2.2. Developing research hypotheses.....	56
2.2.1. Microeconomic (Organizational-Level) Factors.....	56
2.2.2. Macroeconomic (National-Level) Factors.....	60
2.3. Develop measurement scales.....	63
2.3.1. Measurement of demographic characteristics.....	63
2.3.2. Measure independent variables.....	64
2.3.3. Measure dependent variables.....	71
CHAPTER SUMMARY 2.....	72
CHAPTER 3.....	73
RESEARCH CONTEXT AND METHODOLOGY.....	73
3.1. Context of human resource development in the socio-economic of Lao PDR.....	73
3.2. Qualitative research.....	74
3.2.1. Qualitative research objectives.....	74
3.2.2. Qualitative research questionnaire.....	75
3.2.3. Qualitative research sample and selecting subject for in-depth interviews.....	76
3.3. Quantitative research.....	78
3.3.1. Quantitative research objectives.....	78
3.3.2. Design an questionnaire.....	78
3.3.3. Pilot research.....	79
3.3.4. Research sample design.....	80
3.3.5. Data collection and validation.....	80
3.3.6. Data analysis.....	81
CHAPTER SUMMARY 3.....	88
CHAPTER 4.....	89
RESEARCH RESULTS.....	89
4.1. Current situation of human resources in Lao PDR.....	89
4.1.1. Human resource structure of Lao PDR.....	89
4.1.2. Quality of human resources in Lao PDR.....	95
4.1.3. Demographic characteristics of human resource in Lao PDR.....	98
4.2. Qualitative and Pilot research results.....	104
4.2.1. Qualitative research results.....	104
4.2.2. Pilot research result.....	105

4.3	Quantitative research results	106
4.3.1.	<i>Results of data collection.....</i>	<i>106</i>
4.3.2.	<i>Statistical results of demographic characteristics.....</i>	<i>107</i>
4.3.3.	<i>Data validation results.....</i>	<i>112</i>
4.3.4.	<i>Results of testing Exploratory Factor Analysis (EFA).....</i>	<i>120</i>
4.3.5.	<i>Data analysis results</i>	<i>122</i>
4.4.	The findings from research results.....	126
4.4.1.	<i>Hypothesis testing</i>	<i>126</i>
4.4.2.	<i>MANOVA Analysis results.....</i>	<i>127</i>
CHAPTER SUMMARY 4		129
CHAPTER 5.....		130
RECOMMENDATIONS		130
5.1.	Orientations for enhancing HRD in Laos socio-economic development up to year 2030	130
5.1.1.	<i>Reforming the Bedrock: The Formal Education System.....</i>	<i>130</i>
5.1.2.	<i>Revolutionizing TVET to Meet Market Demands</i>	<i>131</i>
5.1.3.	<i>Fostering Lifelong Learning for an Adaptable Workforce</i>	<i>132</i>
5.1.4.	<i>Ensuring Inclusive and Equitable Human Resource Development.....</i>	<i>132</i>
5.1.5.	<i>Strengthening Governance and Strategic Partnerships</i>	<i>132</i>
5.2.	Discussion and recommendations based on research results.....	133
5.2.1.	<i>Discuss research's findings</i>	<i>133</i>
5.2.2.	<i>Recommendation for Lao PDR Government</i>	<i>135</i>
5.2.3.	<i>Recommendation for Addressing Cultural and Social Norms in Lao PDR</i>	<i>142</i>
CONCLUSION		146
LIST OF PUBLISHED SCIENTIFIC WORKS.....		148
REFERENCES		149
APPENDIX A.....		162
APPENDIX B.....		164
APPENDIX C.....		171
APPENDIX D.....		181
FACTOR ANALYSIS 1		181
FACTOR ANALYSIS 2		189
FACTOR ANALYSIS 3		198
APPENDIX E.....		207
CORRELATIONS.....		207
REGRESSION.....		212
MANOVA ANALYSIS.....		219

LIST OF ABBREVIATIONS

CC	Corporate Culture
EC	Economic Conditions
EER	External Educational Resources
EME	Employee Motivation and Engagement
FPES	Feedback and Performance Evaluation Systems
GRP	Government Regulations and Policies
GZ	Globalization
HRD	Human Resource Development
HR	Human resources
HRM	Human Resource Management
HRS	Human Resources System
Lao PDR	Lao People's Democratic Republic
LMC	Labor Market Conditions
LMS	Leadership and Management Support
OS	Organizational Strategy
SED	Socio-Economic Development
TA	Technological Advancements
TVET	Technical and Vocational Education and Training
WD	Workforce Demographics

LIST OF FIGURES

Figure 1.1: Research process	5
Figure 1.2: Andragogy model.....	16
Figure 1.3: Andragogy model.....	18
Figure 4.1: Proportion of participants by living area.....	107
Figure 4.2: Proportion of participants by gender.....	108
Figure 4.3: Proportion of participants by age group.....	108
Figure 4.4: Proportion of participants by education.....	109
Figure 4.5: Proportion of participants by Position	110
Figure 4.6: Proportion of participants by experience	110
Figure 4.7: Proportion of participants by Organization Sector	111
Figure 4.8: Proportion of participants by Organization Size.....	112
Figure 4.9: Model with regression result.....	127
Figure 4.10: Mean of Human Resources Development by Organization Size, Organization Sector	128
Figure 4.11: Mean of Employee Motivation and Engagement by Organization Size, Organization Sector	128

LIST OF TABLES

Table 1.1: Macro indicators.....	19
Table 1.2: Micro Indicator.....	22
Table 1.3: Summary of Microeconomic Factors and Internal Scales.....	28
Table 1.4: Summary of Macroeconomic Factors and Indicators.....	32
Table 2.1: Components of the research model.....	54
Table 2.2: Measurement of demographic characteristics.....	63
Table 2.3: Measurement items of Organizational Strategy factors.....	64
Table 2.4: Measurement items of Technological Advancements factors.....	65
Table 2.5: Measurement items of Leadership and Management Support factors.....	65
Table 2.6: Measurement items of Corporate Culture factors.....	66
Table 2.7: Measurement items of Feedback and Performance Evaluation Systems factors.....	66
Table 2.8: Measurement items of Employee Motivation and Engagement factors.....	67
Table 2.9: Measurement items of External Educational Resources factors.....	67
Table 2.10: Measurement items of Economic conditions factors.....	68
Table 2.11: Measurement items of Labor Market Conditions factors.....	69
Table 2.12: Measurement items of Workforce Demographics factors.....	69
Table 2.13: Measurement items of Government Regulations and Policies factors.....	70
Table 2.14: Measurement items of Globalization factors.....	70
Table 2.15: Measurement items of HRD in the socio-economic.....	71
Table 3.1: Criteria for selecting subjects and Content to be in-depth interviewed.....	77
Table 3.2: Structure of Official questionnaire.....	79
Table 4.1: Population by provinces in Laos, 2015 – 2020.....	90
Table 4.2: Labor and social welfare by sector in Lao PDR 2020.....	91
Table 4.3: Distribution of the population of working age by province, sex,.....	92
Table 4.4: Number of leaders and managers at ministerial and departmental levels in ministries and ministerial-level agencies.....	93
Table 4.5: Distribution of labor by age and living areas in 2020.....	94
Table 4.6: The Human Development Index (HDI) of Laos.....	95
Table 4.7: Rural and Urban Education in Lao PDR (2020).....	96
Table 4.8: Disease index in Laos for the period 2015-2018.....	98
Table 4.9: Descriptive Statistics of pilot research.....	105
Table 4.10: Pilot research Model Summary.....	106
Table 4.11: Statistic result of data collection.....	106
Table 4.12: Cronbach's alpha testing - Organizational Strategy.....	112
Table 4.13: Cronbach's alpha testing - Technological Advancements.....	113
Table 4.14: Cronbach's alpha testing - Leadership and Management Support.....	114
Table 4.15: Cronbach's alpha testing - Corporate Culture.....	114
Table 4.16: Cronbach's alpha testing - Feedback and Performance Evaluation Systems.....	115
Table 4.17: Cronbach's alpha testing - Employee Motivation and Engagement.....	115
Table 4.18: Cronbach's alpha testing - External Educational Resources.....	116
Table 4.19: Cronbach's alpha testing - Economic Conditions.....	116
Table 4.20: Cronbach's alpha testing - Labor Market Conditions.....	117
Table 4.21: Cronbach's alpha testing - Workforce Demographics.....	118
Table 4.22: Cronbach's alpha testing - Government Regulations and Policies.....	118

Table 4.23: Cronbach's alpha testing - Globalization.....	119
Table 4.24: Cronbach's alpha testing - HRD.....	119
Table 4.25: KMO and Bartlett's Test.....	121
Table 4.26: Total Variance Explained Table.....	121
Table 4.27: Pearson Correlation Summary.....	122
Table 4.28: Model Summary.....	123
Table 4.29: ANOVA variance table.....	123
Table 4.30: Coefficients table.....	124
Table 4.31: Manova results	125
Table 4.32: Regression result and Hypothesis testing.....	126

INTRODUCTION

1. Research rationale

Human resource development (HRD) is widely recognized as a fundamental driver of socio-economic progress, with its effects reaching beyond individual development to influence broader national growth. In the case of the Lao People's Democratic Republic (Lao PDR), the enhancement of human capital is crucial for addressing the country's ongoing developmental challenges, including infrastructure gaps, poverty, and the need for greater educational attainment. As noted by Schultz (1971) and Becker (2009), investments in education and training are critical for increasing individual economic value by enhancing productivity and earning potential, which ultimately fuels national economic growth.

Despite significant progress since the country's liberation in 1975, Lao PDR continues to face constraints related to its underdeveloped infrastructure, high poverty levels, and limited technological advancement, all of which are exacerbated by the nation's relatively low levels of human capital development (Oo, 2022). In response to these challenges, the government has prioritized HRD as a key element of its national development strategy, with initiatives aimed at improving education, vocational training, and workforce readiness (Government of Lao PDR, 2015). However, a comprehensive understanding of the current HRD framework and its potential for fostering socio-economic development in the context of the Fourth Industrial Revolution remains underdeveloped (Schwab, 2017).

The rationale for this research stems from the need to thoroughly evaluate the state of human resource development in Lao PDR and its direct impact on the country's socio-economic growth. The Fourth Industrial Revolution, characterized by rapid technological advancements and global integration, presents both opportunities and challenges for Lao PDR, especially in terms of workforce preparedness (Schwab, 2017). Effective HRD is imperative for ensuring that Lao PDR can leverage these technological shifts to drive national growth, reduce poverty, and increase competitiveness in the global market.

This thesis seeks to fill a significant gap in the literature by providing an in-depth analysis of the key factors influencing HRD in Lao PDR, focusing on the unique cultural, social, and economic characteristics of the nation. By drawing on both macro and micro-level analyses, the study aims to offer a robust theoretical framework that can inform future policy decisions regarding HRD. The research further emphasizes the

importance of aligning HRD efforts with the specific needs of Lao PDR's socio-economic context, including the development of specialized skills, increasing labor productivity, and fostering lifelong learning among the workforce (Ivarsson et al., 1995; Becker, 2009).

Additionally, a comparative analysis with HRD strategies in other Southeast Asian countries such as Singapore, Malaysia, and Thailand highlights the potential for Lao PDR to adopt best practices and tailor them to its unique context. These countries have demonstrated that comprehensive HRD policies, supported by strong educational systems and industry partnerships, can significantly enhance a nation's competitive edge and contribute to sustained economic growth (Schwab, 2017). For instance, Singapore's SkillsFuture initiative underscores the importance of lifelong learning, while Malaysia's TVET system is designed to meet the demands of its industrial economy.

The contributions of this thesis are twofold: first, it provides a theoretical contribution by developing a framework specific to Lao PDR's HRD within the socio-economic development discourse; second, it offers practical recommendations for policymakers, educational institutions, and businesses in Lao PDR to improve the quality and effectiveness of HRD initiatives. These recommendations will focus on strategies to improve education, vocational training, and labor market outcomes, ensuring that Lao PDR is equipped to meet the challenges of the modern global economy (Becker, 2009; Government of Lao PDR, 2015).

In conclusion, the significance of this study lies in its comprehensive approach to examining HRD in Lao PDR and its role in socio-economic development. By addressing both the theoretical gaps in HRD literature and offering practical solutions, this research aims to support the Lao government's efforts in developing a skilled, adaptable, and competitive workforce, ultimately contributing to national economic growth and social advancement (Schwab, 2017).

Although the dissertation title refers broadly to "Human Resource in Socio-Economic Development," this study approaches the subject primarily through the lens of Human Resource Development (HRD). By focusing on organizational-level drivers and enablers of HRD—such as employee engagement, leadership support, and external educational resources—the research emphasizes the role of micro-level HRD practices in contributing to macro-level socio-economic outcomes. This approach reflects the understanding that national development begins with effective human capital investment and development at the organizational level, which in turn aggregates to broader societal impact.

2. Research objectives

2.1. General research objectives

The research aims to provide recommendations for enhancing the quality of human resource development (HRD), particularly focusing on developing specialized skills, increasing labor productivity, and fostering continuous training within the workforce of Lao PDR, thereby contributing to the socio-economic development of the country.

2.2. Specific research tasks

Based on the general objective mentioned above, the specific tasks of this thesis include:

- Synthesizing the theoretical framework of human resources (HR) and human resource development (HRD) in the socio-economic context of Lao PDR, and identifying key impact factors that influence HRD.
- Proposing and developing a scale to measure the impact factors affecting HRD in Lao PDR, including unique cultural and socio-economic elements.
- Exploring and identifying the unique characteristics of human resources in Lao PDR that affect HRD.
- Analyzing the role and impact of each identified factor on HRD within the socio-economic context of Lao PDR.
- Providing recommendations for HRD in Lao PDR based on the research findings and actual survey results, aiming to support socio-economic development..

3. Research questions

Based on the general objectives and specific research tasks, the research questions are:

Question 1: What theoretical framework of human resources and human resource development can be applied to the socio-economic context of Lao PDR?

Question 2: What are the key impact factors influencing human resource development in Lao PDR, and what roles do these factors play?

Question 3: How can the impact of each HRD factor be measured within the socio-economic context of Lao PDR?

Question 4: What are the unique characteristics of human resources in Lao PDR, and how do they affect HRD and socio-economic development?

Question 5: What is the role of human resource development in the socio-economic development of Lao PDR?

Question 6: How can socio-economic development in Lao PDR be promoted based on an understanding of the roles and impacts of HRD factors?

4. Object and scope of the study

4.1. Research subjects

Human resources in socio-economic development in Lao PDR.

Commented [BT1]: Human resources Development?

4.2. Research scope

To ensure focus and manageability, this dissertation delimits its research within four main scopes as follows:

Content Scope: The study centers on identifying and analyzing key macroeconomic and microeconomic factors that influence human resource development (HRD) in the context of socio-economic development. Specifically, macroeconomic factors include national-level elements such as government policy, labor market conditions, and globalization, while microeconomic factors focus on organizational-level dynamics such as corporate culture, leadership support, and employee motivation. The study does not delve into unrelated domains such as education reform or health sector-specific HRD.

Object Scope: The research investigates the human resource development landscape in Lao PDR. The primary subjects include HR professionals, policy makers, and managers at public and private enterprises who are directly involved in the planning, implementation, or evaluation of HRD activities. Additionally, experts in socio-economic development and human capital policy in Laos were included for qualitative insights.

Spatial Scope: This study is geographically confined to the Lao People's Democratic Republic (Lao PDR). The findings and recommendations are grounded in the Lao socio-economic context and may not be directly generalizable to other countries, although some aspects may provide broader implications.

Temporal Scope: The research draws on secondary data and qualitative insights collected from 2019 to 2023. The focus is on capturing the recent evolution of HRD practices and the influence of socio-economic policies within this period, especially in the wake of national development strategies and post-COVID-19 recovery efforts.

While the study primarily focuses on Human Resource Development (HRD) within organizational settings, the research scope remains aligned with the broader concept of **“human resources in socio-economic development”** as indicated in the dissertation title. The micro-level HRD factors investigated—including motivation, leadership, and corporate culture—are examined within the specific socio-economic conditions of Lao

PDR. This integrated perspective allows the study to address both organizational-level HRD mechanisms and their broader implications for national socio-economic progress.

5. Overview of research methods

5.1. Research process

The thesis's research process describes the sequential implementation of each work item in analyzing the impact of factors on the quality of human resources in the socio-economic development of Lao PDR. The process consists of 7 steps, modeled explicitly in Figure 1.1.

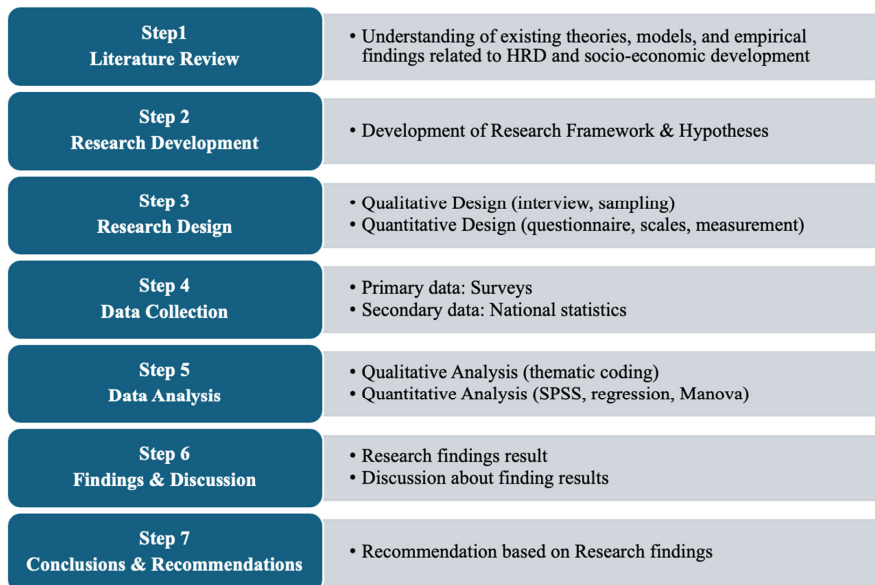


Figure 1.1: Research process

Source: Author suggested

Step1: Literature Review

The literature review served as the foundational step in this research, providing a comprehensive understanding of existing theories, models, and empirical findings related to human resource development (HRD) and socio-economic development. Academic articles, policy papers, and reports from international organizations such as the World Bank and UNDP were reviewed to identify critical variables, conceptual frameworks, and methodological approaches. This process enabled the researcher to

locate gaps in existing knowledge, particularly within the context of Lao PDR, and to develop a research agenda that contributes both theoretically and practically.

Step 2: Development of Research Framework & Hypotheses

Based on insights gained from the literature review, a conceptual framework was constructed to examine the influence of microeconomic and macroeconomic factors on HRD. Variables were classified into two levels: organizational-level (e.g., leadership, motivation, technology adoption) and national-level (e.g., labor market policies, economic conditions, education infrastructure). Hypotheses were then formulated to test the relationships among these variables and their impact on human resource development in Lao PDR. This step provided a theoretical roadmap for the study and laid the foundation for empirical validation.

Step 3: Research Design

This dissertation adopts a mixed-method research design, combining both qualitative and quantitative approaches to gain a holistic understanding of the factors influencing human resource development (HRD) in the socio-economic context of Lao PDR.

The qualitative design was employed in the initial stage to explore relevant themes and validate the research framework. Semi-structured interviews were conducted with experts, HR managers, and government officials to ensure the comprehensiveness and contextual fit of the conceptual model.

The quantitative design followed, in which a structured survey questionnaire was developed based on validated measurement scales from previous studies. The instrument was adapted to fit the Lao context and pre-tested for reliability and clarity. The quantitative phase enabled hypothesis testing and generalization of findings across a broader sample.

Step 4: Data Collection

Data collection was conducted through both primary and secondary sources. The primary data collection involved administering structured questionnaires to a representative sample of public officials, HR practitioners, and business leaders across multiple provinces in Lao PDR. Secondary data were gathered from national databases, government reports, and statistical yearbooks to support contextual analysis and triangulate the findings. Ethical considerations such as informed consent, anonymity, and data protection were strictly observed throughout the data collection process.

Step 5: Data Analysis

The data analysis phase consisted of both qualitative and quantitative techniques. Qualitative data obtained from interviews were analyzed using thematic coding, which helped to refine constructs and support content validity. Quantitative data were processed using SPSS software. Descriptive statistics, reliability tests (Cronbach's Alpha), exploratory factor analysis (EFA), and Linear regression were employed to test hypotheses and examine the strength of relationships among variables. This multi-method approach enhanced the robustness of the findings.

Step 6: Findings & Discussion

This stage involved presenting the empirical findings derived from the statistical analyses and interpreting them in relation to the research objectives and hypotheses. The results were critically discussed with reference to previous studies and theoretical frameworks. Key insights emerged regarding which organizational and national-level factors have the most significant impact on HRD in Lao PDR. The discussion also explored why certain hypotheses were supported or rejected, offering new perspectives on HRD within the unique socio-economic landscape of a developing country.

Step 7: Conclusions & Recommendations

The final stage summarized the major conclusions drawn from the study, highlighting both theoretical contributions and practical implications. Policy recommendations were proposed for government agencies, educational institutions, and businesses to enhance the development and deployment of human capital in Lao PDR. Furthermore, the limitations of the research were acknowledged, and suggestions for future studies were outlined to encourage continued academic exploration in this field.

Each step is critical to ensure the research is methodologically sound and the findings are robust and actionable, particularly within the context of Lao PDR's unique socio-economic landscape.

5.2. Overview of data collection, analysis, and processing methods

Secondary data collection: The following secondary data sources were used by the author in his research: (1) the Lao government's statistical database system; (2) the World Bank's open statistical database by country (World Bank, 2021c); (3) Annual report on Laos' socio-economy by Bank of Lao PDR (BOL, 2022). In addition, secondary data sources from books, newspapers, magazines, seminars, master's and doctoral theses... are also used by the author for the research purposes of the thesis.

Primary data collection: (1) Qualitative research, (2) Quantitative research.

(1) Qualitative research through in-depth interviews with 4 target groups, including Lao workers, State officials, Freelancers, and expert groups who are lecturers at National Economics University, VietNam. The primary purpose of qualitative research is to learn, adjust, and supplement factors affecting the quality of human resources in socio-economic development, as well as the preliminary questionnaire design and criteria content. Classification and scale. Measurement, terminology... to analyze the impact of factors on the quality of human resources in Lao PDR's socio-economic development. This study was conducted from January 2021 to December 2021. The detailed contents of qualitative research are presented in detail in Chapter 2.

(2) Quantitative research was conducted using large-scale field survey techniques with both offline and online surveys in 8 provinces and cities of Lao PDR (Vientiane, Luang Prabang, Sayabouly, Oudomxay, Savannakhet, Khammouan, Bolikhamxay). Chapter 2 presents detailed contents such as investigation subjects, research sample selection, questionnaire design, etc. Quantitative research in the thesis is carried out over a period of 1 year from January 2022 to December 2022.

Data analysis and processing: The author uses the main software platforms Microsoft Excel 365, SPSS statistical analysis software version 27 to analyze and process data. Chapter 2 presents detailed steps from data entry, cleaning, coding, and analysis.

6. The contributions of the thesis

This thesis provides both theoretical and practical contributions to the study of human resource development (HRD) within the socio-economic context of Lao PDR. By focusing on the intersection of **HRD** in socio-economic development, the study offers a novel perspective that bridges **macro-level** development policies with their **micro-level** implications for organizations and businesses.

6.1. Theoretical contributions

(1) Contextualized HRD Framework

The thesis synthesizes various theories of HRD and presents a contextualized framework specifically tailored to the socio-economic conditions of Lao PDR. This framework offers a fresh perspective by integrating organizational-level factors such as employee motivation, leadership, and management support into the broader discourse on national human resource development. This helps fill the gap in existing literature,

where most studies focus either exclusively on macro-level national policies or isolated organizational practices (Ivarsson et al., 1995; Becker, 2009).

(2) Development of Measurement Scales

A key contribution of this research is the development of new, validated measurement scales to assess the micro-level factors affecting HRD in Lao PDR, particularly focusing on organizational performance. These scales can be used in future studies within similar socio-economic contexts, contributing to the standardization of HRD metrics for developing countries.

(3) Focus on Organizational Impact

Unlike previous studies that largely emphasize macro-level HRD policies, this research shifts the focus towards how these policies translate into actionable strategies at the organizational level. The analysis of how HRD influences employee performance, engagement, and leadership development offers a deeper understanding of the practical outcomes of HRD initiatives in businesses. This makes the theoretical contributions more applicable to the field of Human resource management.

6.2. Practical contributions

(1) Diagnostic Tools for Policymakers and Businesses

The study's findings provide practical tools for policymakers, business leaders, and HR practitioners in Lao PDR. By using the measurement scales developed in this research, organizations can evaluate the effectiveness of their HRD programs, identify areas for improvement, and strategically invest in human capital development.

(2) Action-oriented Recommendations for HRD Initiatives

The recommendations presented in this thesis are designed to be immediately applicable for organizations in Lao PDR. The study outlines specific strategies for improving employee motivation, leadership support, and performance evaluation systems, which are critical for boosting organizational productivity and achieving sustainable HRD outcomes. These contributions ensure that HRD efforts are not only aligned with national development goals but also tailored to meet the practical needs of local businesses.

(3) Support for HR Strategy Development

The findings also provide a roadmap for businesses to develop more effective HR strategies, particularly in the areas of employee engagement, leadership development, and feedback systems. By focusing on micro-level factors, this research helps

organizations in Lao PDR enhance their HR practices, contributing to workforce development and organizational growth.

The thesis aims to bridge the gap between theory and practice by providing an in-depth analysis of human resources in Lao PDR and offering strategic recommendations for leveraging human capital for socio-economic advancement. The theoretical contributions will enrich the academic discourse, while the practical contributions will guide policy and decision-making processes within Lao PDR.

7. The structure of the thesis

In addition to the introduction, conclusion, list of references, and appendices, the structure of the thesis includes the following specific chapters:

Chapter 1: Theoretical Framework and Literature Reviews

Chapter 2: Research Model and Hypothesis Development

Chapter 3: Research Context and Methodology

Chapter 4: Research Result

Chapter 5: Discussion and Recommendations

CHAPTER 1

THEORETICAL FRAMEWORK AND LITERATURE REVIEWS

1.1. Concepts and roles

1.1.1. The concept of human resources and human resources in socio-economic development

1.1.1.1. Concept of human resources

The term "human resource" refers to the individuals who make up the workforce of an organization, sector, or economy. It is a concept that emphasizes the role of human capital in the production process and organizational success. Human resources are typically viewed as a critical asset that can be developed and managed to optimize organizational or national economic performance.

According to Mathis et al. (2017), human resources involves *"the design of formal systems in an organization to ensure the effective and efficient use of human talent to accomplish organizational goals."* This definition highlights the strategic aspect of managing human resources to achieve broader organizational objectives.

Dessler et al. (2015) defines human resources as *"the people who work for the organization; human resource management is concerned with how these people are managed."* This definition emphasizes the management aspect, focusing on practices that ensure the optimal performance of individuals within an organization.

According to Armstrong (2006), *"Human resources are the energies, skills, talent, and knowledge of people who are, or potentially can be, applied to the production of goods or the rendering of useful services."* This approach focuses on individuals' capabilities and potential contributions towards productive outputs.

These definitions and references provide a foundational understanding of human resource management, highlighting its importance in leveraging human capital effectively within organizations and economies.

1.1.1.2. Concept of human resources in socio-economic development

Human resources in socio-economic development refer to the capacities, knowledge, skills, health, motivation, and ethical values of individuals that directly or indirectly contribute to the economic and social progress of a nation. This concept extends beyond the individual or organizational level to encompass how people—as both agents and beneficiaries—drive and experience development.

From a developmental perspective, human resources are not merely labor inputs but are viewed as dynamic contributors to national prosperity. According to the World Bank (2021a), “human capital”—encompassing education, health, and competencies—is one of the most significant drivers of long-term economic growth. Meanwhile, the United Nations Development Programme (UNDP, 2022) emphasizes that investing in people, especially through education and healthcare, is foundational for inclusive and sustainable development.

In the specific context of Lao PDR, the concept of human resources in socio-economic development must be understood as a multidimensional construct. It includes not only the quality of labor (e.g., technical skills, productivity, creativity) but also cultural and social attributes (e.g., ethics, discipline, collective spirit), which are deeply shaped by the country’s historical, educational, and policy systems. Human resources here are central to achieving national goals, such as poverty reduction, economic transformation, and social equity.

Therefore, within this dissertation, the term “human resources in socio-economic development” refers to both the means (the workforce contributing to development) and the end (the population benefiting from development). This dual understanding aligns the research with the dissertation title, while justifying a focus on Human Resource Development (HRD) as the most direct and actionable pathway to improving the quality and contribution of human capital in Lao PDR.

1.1.2. The roles of human resources development in socio-economic development

Human Resource Development (HRD) plays a critical role in socio-economic development, influencing various aspects of a society and its economy. HRD encompasses the strategies, policies, and practices aimed at developing the skills, knowledge, and abilities of individuals within organizations, and by extension, within society (Swanson, 2022).

Skill Development

HRD focuses on enhancing the skills of the workforce to meet the demands of the economy. This includes vocational training, apprenticeships, and lifelong learning. By improving individuals’ skill sets, HRD contributes to a more competent and efficient workforce, which is essential for productivity and competitiveness (Becker, 2009; OECD, 2023).

Employment Opportunities

Effective HRD ensures that the workforce remains employable and adaptable to changing job requirements. This is crucial in reducing unemployment and supporting inclusive growth (Canton, 2021). Well-designed HRD initiatives can address the mismatch between labor supply and demand, thereby improving labor market efficiency (ADB, 2023).

Economic Diversification

Through targeted training programs, HRD enables the diversification of the economy by developing human capital for emerging industries such as information technology, renewable energy, and logistics (World Bank, 2021a). This reduces overdependence on traditional sectors and fosters innovation-led growth.

Innovation and Productivity

HRD encourages innovation by fostering a culture of learning, problem-solving, and creativity. Training in digital skills and critical thinking enhances employees' ability to innovate and adapt to technological changes (S. W. Kozlowski & D. R. Ilgen, 2006).

Social Equity

HRD promotes social inclusion by providing training and educational opportunities to marginalized groups, such as women, rural populations, and ethnic minorities. This reduces inequality and enhances social cohesion (UNDP, 2022).

Quality of Life

Investing in HRD improves people's lives through better education, income, job satisfaction, and health outcomes. As individuals become more capable and self-reliant, overall well-being improves (Bank, 2018).

Global Competitiveness

Countries with strong HRD systems are more competitive globally, as their workforce is better prepared for international markets. Language proficiency, digital literacy, and cross-cultural competencies are key advantages in a globalized economy (Schwab, 2024).

Adaptability to Technological Change

In the era of Industry 4.0, HRD is essential for equipping the workforce with digital and technological skills. This ensures national resilience in the face of disruption and automation (Schwab, 2017; Nankervis et al., 2020; Schwab, 2024).

Health and Safety Training

HRD includes workplace safety and occupational health training, which improve labor conditions and reduce accidents. This contributes to workforce stability and reduces healthcare costs (Kühn, 2019).

Leadership Development

HRD cultivates leadership capabilities, ensuring effective governance and organizational direction. Strong leadership supports institutional development and sustainable socio-economic outcomes (Armstrong, 2006; Taylor et al., 2015).

In summary, HRD is a cornerstone of socio-economic development. By enhancing human capital at both individual and institutional levels, HRD contributes to productivity, inclusiveness, and long-term national growth (Swanson, 2022).

1.2. Theoretical framework of human resources development

1.2.1. Foundation theories on human resources development

Human Resources Development (HRD) is a multifaceted discipline deeply rooted in several foundational theories from the fields of psychology, education, organizational development, and management. Understanding these theories helps in designing effective HRD programs that enhance individual performance and contribute to organizational success. Here are some of the foundational theories relevant to HRD:

1.2.1.1. Self-Determination Theory (SDT)

Self-Determination Theory (SDT), developed by Ryan & Deci (2000), is a psychological theory of motivation and personality that explains how human beings develop and function optimally. Unlike traditional theories that focus on external rewards or reinforcement, SDT emphasizes the role of intrinsic motivation and the psychological needs that drive human behavior, learning, and development.

At the heart of SDT are three basic psychological needs that are considered universal and essential for individual well-being and growth:

Autonomy: the need to feel in control of one's own actions and decisions.

Competence: the need to feel effective and capable of achieving desired outcomes.

Relatedness: the need to feel connected to others and to experience a sense of belonging.

When these three needs are satisfied, individuals are more likely to be intrinsically motivated, engaged, and willing to invest effort in learning and professional growth. In

contrast, when these needs are thwarted, motivation tends to become extrinsically driven or even amotivated (Ryan & Deci, 2000; Deci et al., 2017).

Application in Human Resource Development (HRD)

SDT has significant implications for Human Resource Development, especially in the context of organizational learning and employee engagement. HRD initiatives that support autonomy—such as giving employees choice and flexibility—tend to enhance motivation and commitment. Similarly, training programs that build competence through appropriate challenges, feedback, and opportunities for mastery foster deeper learning and long-term skill retention (Gagné & Deci, 2005).

Moreover, fostering a culture of collaboration and relatedness—through mentoring, teamwork, and leadership support—promotes a stronger sense of purpose and psychological safety, which are crucial for organizational learning (Deci et al., 2017). These principles are particularly relevant in developing countries like Lao PDR, where motivational climate, leadership, and socio-cultural support systems directly impact the effectiveness of HRD policies and initiatives.

In summary, SDT offers a comprehensive framework for understanding how individuals become motivated to grow and develop. By focusing on psychological needs, SDT aligns closely with modern HRD practices that aim to create supportive environments where people can thrive. Its emphasis on intrinsic motivation and self-growth makes it particularly suitable for analyzing and designing HRD strategies in contexts where personal agency, cultural values, and long-term engagement are critical.

1.2.1.2. Adult Learning Theory (Andragogy)

Adult Learning Theory, commonly known as Andragogy, was popularized and largely developed by Malcolm S. Knowles in the 1980s. It contrasts with traditional pedagogy and offers a framework specifically tailored to adult learning (Knowles, 1984). Andragogy rests on several key assumptions about the characteristics of adult learners that differentiate them from children, influencing how they are best taught.

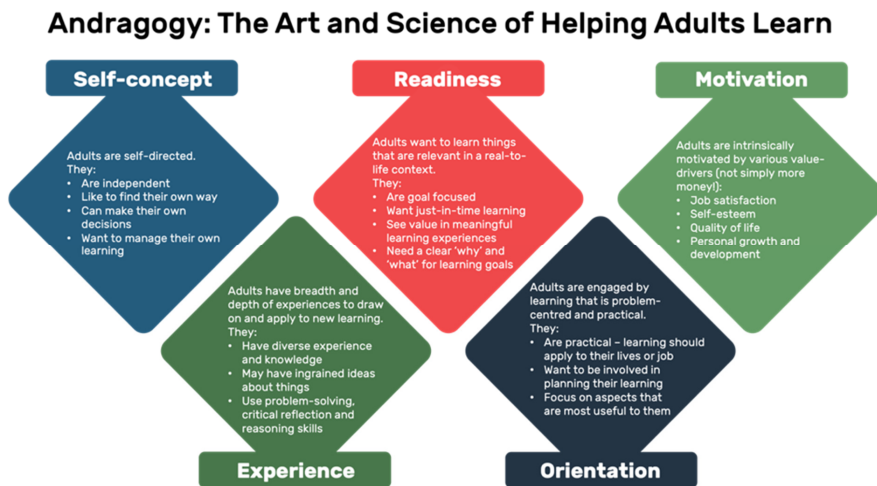


Figure 1.2: Andragogy model

Source: (Knowles et al., 2005)

Key Assumptions of Andragogy

The theory of andragogy is grounded in several key assumptions about adult learners. One fundamental assumption is that adults are self-directed learners, taking responsibility for their own learning and actively seeking knowledge that aligns with their personal or professional goals (Knowles et al., 2005). Additionally, adults bring a wealth of prior knowledge and life experiences to the learning process, which not only enriches their engagement with new material but also shapes their approach to acquiring further knowledge (Knowles et al., 2005). Another key assumption is that adults are primarily motivated by internal factors, such as personal growth and satisfaction, rather than external pressures like grades or rewards. Furthermore, adult learners tend to be highly goal-oriented, focusing on learning that directly helps them solve problems or achieve specific objectives in their personal or professional lives.

Applications in HRD Programs

The principles of andragogy have several practical applications in Human Resource Development (HRD) programs. These include designing training programs that cater to adult learners' needs by promoting self-directed learning (Knowles, 1984). HRD programs based on andragogy emphasize flexibility in learning paths, allowing employees to pursue education at their own pace through online modules, workshops, and other self-paced learning opportunities (Knowles et al., 2005). Furthermore,

leveraging participants' life and work experiences ensures that the training remains relevant and practical. Collaborative learning environments, where adults engage in group discussions and team projects, foster a shared learning process, enhancing peer-to-peer learning (Knowles et al., 2005). By focusing on immediate relevance, HRD programs aim to equip adult learners with the skills necessary to improve their performance and address real-world challenges.

1.2.1.3. Components of human resources development

HRD is an essential function in organizations that focuses on the continuous development and enhancement of both individual employees and the organization as a whole. HRD aims to improve organizational performance through the alignment of human capital with the strategic goals of the organization. It encompasses a range of practices and disciplines, including employee training and development, organizational development, and career development.

Core aspects of human resources development

Employee Training and Development: This is a fundamental aspect of HRD and involves the provision of learning and development opportunities to enhance the skills, knowledge, and competencies of employees (Armstrong, 2006). Training programs are designed to address specific needs within the organization and can include on-the-job training, workshops, seminars, and e-learning, among others (S. W. J. Kozlowski & D. R. Ilgen, 2006).

Organizational Development: This refers to the planned, systematic efforts to change processes, systems, and culture within an organization to improve its effectiveness. Organizational development initiatives might include change management processes, restructuring operations, enhancing communication within the organization, and fostering a positive work environment (Hunter et al., 2016).

Career Development: HRD supports career development through helping individuals plan and manage their careers within the organization (Armstrong, 2006). This includes providing tools and resources for career assessment, career counseling, succession planning, and leadership development.

Performance Management: Effective HRD includes continuous assessment and management of employee performance. This involves setting employee goals, providing regular feedback, conducting performance appraisals, and aligning individual performance with the overall strategic objectives of the organization (Hunter et al., 2016).

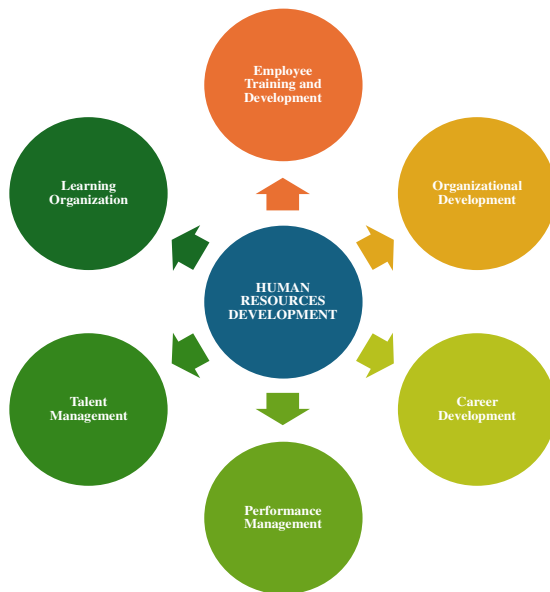


Figure 1.3: The components of HRD

Source: The author develops based on

(Armstrong, 2006; S. W. J. Kozlowski & D. R. Ilgen, 2006; Hunter et al., 2016)

Talent Management: HRD plays a crucial role in identifying, attracting, retaining, and developing talent within the organization. Talent management strategies ensure that the organization has the right people with the necessary skills and competencies to meet its future needs (Hunter et al., 2016).

Learning Organization: HRD helps in cultivating a learning culture within the organization where continuous learning, adaptation, and improvement are part of the organizational ethos (S. W. J. Kozlowski & D. R. Ilgen, 2006). This includes fostering an environment that encourages curiosity, innovation, and learning from failures.

1.2.2. Human resources assessment

Human resource assessment indicators include 2 types of indicators: (1) Macro indicators (country/provincial level); (2) Micro indicators (Firm level) (Swanson, 2022).

The method of measuring and evaluating human resources depends on indicators at the assessment level including indicators at the macro level such as national and provincial levels and indicators at the micro level such as enterprise level.

1.2.2.1. Macro indicators and methods for measuring

Macro indicators (country/provincial level)

Assessing human resources at a country or provincial level involves examining various indicators that reflect the availability, quality, and efficiency of the workforce. These indicators help governments, policymakers, and organizations understand labor market dynamics and plan for economic growth, education, and training (Swanson, 2022).

Table 1.1: Macro indicators

Macro Indicator	Explanation
Employment rate	The percentage of the working-age population that is employed. Indicates the overall health of the economy and the effectiveness of employment policies.
Unemployment rate	The percentage of the labor force that is unemployed and actively seeking employment. Helps assess economic stability and labor market efficiency.
Labor force participation rate	The proportion of the working-age population that is actively engaged in the labor market either by working or seeking work. Reflects the level of activity in the labor market and potential labor supply.
Educational attainment	The highest level of education completed by the members of the workforce. A key factor in determining the quality and adaptability of the workforce.
Skill shortages	Identification of professions where the demand for workers exceeds the supply. Helps in planning education and training programs to meet market needs.
Average income levels	Average wages or salaries earned within the workforce. Indicative of economic health, purchasing power, and inequalities.
Job vacancy rates	The ratio of job vacancies to the total number of jobs, both filled and vacant. An indicator of unmet labor demand and economic opportunities.
Youth unemployment rate	The unemployment rate among young people, typically aged 15-24. Indicates how well new entrants are being absorbed into the labor market.

Gender employment gap	The difference in employment rates between males and females. Provides insight into gender equality in the labor market.
Workforce aging	The percentage of the workforce near retirement age (typically 55 and older). Affects planning for pensions, healthcare, and succession in skills and knowledge.
Labor productivity	The output per worker or per hour worked. A critical measure of economic efficiency and competitiveness.
Training and development investment	Expenditure on training and development per employee or as a percentage of payroll. Indicates the commitment to enhancing the skills and productivity of the workforce.
Employee turnover rate	The rate at which employees leave a workforce and are replaced. Can indicate levels of workplace satisfaction and stability.
Health and safety metrics	Statistics on workplace injuries, fatalities, and occupational diseases. Reflects the quality of the working environment and adherence to regulations.

Source: (Swanson, 2022)

These indicators are crucial for understanding and improving the human resource landscape at a macro level, helping to drive decisions that enhance economic performance and promote social well-being.

Methods of measurement and assessment macro indicators

To effectively measure and assess human resources at the country or provincial level, governments and policy analysts use a range of methods that collect and analyze data about the workforce. These methods help in understanding the dynamics of the labor market, assessing the impact of policies, and making informed decisions for future initiatives. According to Swanson (2022), here are some of the key methods used:

National surveys: Comprehensive surveys such as labor force surveys, household surveys, and income and expenditure surveys. These provide detailed insights into employment rates, job vacancies, wages, educational attainment, and other critical labor market indicators.

Censuses: Complete enumeration of the population at regular intervals, providing detailed demographic, employment, and educational data. Censuses are crucial for long-term planning and resource allocation.

Administrative records: Data collected through government records such as tax records, social security, and employment insurance records. Offers reliable data on employment, incomes, and benefits, which is vital for economic planning and policy development.

Economic indicators: Data on GDP, productivity rates, and other economic indicators that indirectly reflect labor market health. Helps in understanding the relationship between economic performance and labor market dynamics.

Sectoral studies: Detailed studies focusing on specific sectors of the economy to assess employment trends, skills needs, and development. Useful for targeted policy interventions in specific economic sectors.

Qualitative studies: Includes interviews, focus groups, and case studies to gather detailed insights into the workforce issues. Provides depth and context to the quantitative data, helping to understand underlying trends and sentiments.

International Benchmarking: Comparing labor market indicators with those of other countries to evaluate performance and adopt best practices. Helps in understanding competitive advantages and areas needing improvement.

Skills and demand assessments: Surveys and studies to identify the current and future skills requirements of the labor market. Critical for aligning educational programs and training with market needs.

Policy evaluation studies: Research and studies designed to assess the impact of specific policies on the labor market. This method determines the efficacy of policies and programs, guiding future decisions.

Labor market projections: Forecasting future labor market conditions based on current data and trends. This method helps in planning for future workforce needs and economic changes.

These methods provide a robust framework for assessing human resources at broader geographical levels, ensuring that decision-makers have the necessary information to support sustainable economic and social development.

1.2.2.2. Micro indicators and methods for measuring

Micro indicators (Firm level)

At the firm level, assessing human resources involves analyzing key indicators that reflect the effectiveness, efficiency, and overall health of the organization's workforce. These indicators help HR managers and business leaders make informed decisions about

workforce management, development, and strategic planning (Swanson, 2022). Below are essential indicators to measure at the firm level:

Table 1.2: Micro Indicator

Micro Indicator	Explanation
Employee turnover rate	Measures the rate at which employees leave the organization voluntarily or involuntarily. High turnover can indicate issues with job satisfaction, workplace culture, or compensation.
Employee satisfaction and engagement	Assessed through surveys and feedback mechanisms to gauge how satisfied and engaged employees are with their work and the organization. Directly correlates with productivity, quality of work, and loyalty.
Training and development effectiveness:	Measures the impact of training programs on employee skills and performance. Ensures that the investments in employee development are paying off in terms of enhanced capabilities and performance.
Average training hours per employee:	The total number of training hours divided by the number of employees. Indicates the organization's commitment to developing its workforce.
Absenteeism rate	The frequency and pattern of unscheduled employee absences. High rates can indicate poor job satisfaction, workplace issues, or health problems.
Labor productivity:	Output per employee or output per labor hour worked. A key indicator of efficiency and the effectiveness of workforce management.
Cost per hire	The total cost associated with the process of hiring a new employee. Helps in evaluating the efficiency of the recruitment process.
Time to fill	The average time taken to fill a vacant position. Reflects the efficiency of the recruitment process.
Diversity and inclusion metrics	Measures the demographic composition of the workforce and inclusivity practices. Critical for fostering a diverse and inclusive workplace culture.

Employee performance rates:	Assessed through performance reviews to measure how employees meet or exceed job expectations. Helps in identifying high performers, areas for improvement, and potential leaders.
Retention rate	The percentage of employees who remain with the company for a certain period of time. Indicates the effectiveness of the organization in retaining talent.
Return on investment (ROI) of HR initiatives	Measures the financial return on investments in human resources activities. Validates the financial impact of HR strategies and practices.
Health and safety incidents	The number of workplace accidents and incidents. Indicates the effectiveness of health and safety policies and practices.
Succession planning effectiveness	Evaluates how well the organization identifies and develops internal candidates to fill key leadership positions. Ensures leadership continuity and organizational stability.

Source: (Swanson, 2022)

By monitoring these indicators, organizations can gain a clear picture of their human resource strengths and vulnerabilities, enabling proactive management and strategic decision-making to enhance overall organizational performance.

Methods of measurement and assessment micro indicators

At the firm level, measuring and assessing human resources involves various strategies and tools that capture data about employee performance, engagement, and overall workforce efficiency. These methods are crucial for making informed decisions about HR policies, training programs, and organizational development. According to Swanson (2022), here are some commonly used methods of measurement and assessment at the firm level:

Performance appraisals: Regular evaluations of employee performance, typically conducted through standardized assessment forms and meetings with supervisors. Helps in identifying employee strengths, areas for improvement, and potential for promotion.

Employee surveys: Surveys designed to gauge employee satisfaction, engagement, and provides insights into the overall morale and job satisfaction, guiding improvements in workplace policies.

Training evaluations: Assessments conducted before, during, and after training sessions to evaluate their effectiveness. Ensures the training is relevant and enhances employee skills.

Exit interviews: Interviews with departing employees to understand their reasons for leaving and gather feedback about the organization. Provides valuable information on potential areas of improvement and can reduce future turnover.

Workforce analytics: Use of data analytics tools to analyze employee data and predict trends. Helps in strategic planning, predicting turnover, and optimizing workforce management.

360-Degree Feedback: A feedback process where employees receive confidential, anonymous feedback from the people who work around them. Provides a comprehensive view of an employee's performance and areas for improvement.

Benchmarking: Comparing internal HR metrics with those of industry peers or across different departments within the organization. Identifies best practices, highlights gaps, and sets targets for future performance.

Skills Assessments: Tests and evaluations designed to measure employee skills in specific areas. Assists in understanding the skill levels within the workforce and planning necessary training or recruitment.

HR Audits: A thorough review of current HR policies, practices, and procedures to identify areas for improvement and ensure compliance with relevant laws and regulations. Ensures that the organization's HR practices are current and effective.

Net Promoter Score (NPS) for Employees: A metric derived from asking employees how likely they are to recommend the organization as a place to work. Indicates overall employee satisfaction and loyalty.

By employing these methods, firms can effectively measure and manage their human resources, leading to better strategic decisions, enhanced employee satisfaction, and improved organizational performance.

1.3. Factors affecting human resources development in socio-economic development

Factors affecting human resource development are divided into two main groups including: (1) Microeconomic factors refer to factors at the enterprise and employee levels such as Organizational strategy (Hossain et al., 2015; Flórez-Martínez et al., 2023), Leadership and management support, Corporate culture (Sujarittanonta, 2016), Employee

motivation and engagement, External educational resources (Dumani et al., 2018). Meanwhile, (2) Macroeconomic factors refer to factors at the national and provincial levels such as Economic conditions, Labor market conditions, regulations and policies of the Government (Steffy & Maurer, 1988; Swanson, 2022).

1.3.1. Microeconomic factors

Human Resource Development (HRD) at the organizational level is primarily shaped by internal, microeconomic factors. These factors operate within the boundaries of institutions, companies, and organizations, directly influencing how human capital is nurtured, trained, retained, and empowered. In the context of Lao PDR—a developing economy in transition—these internal factors are critical not only to organizational effectiveness but also to the broader effort of building national competitiveness and socio-economic resilience.

While macro-level conditions provide the enabling environment, microeconomic factors are the immediate levers through which HRD becomes operationalized. They reflect an organization's internal capacity and readiness to engage in human development and often determine the success or failure of broader HRD policies when implemented at the firm level. Below are the seven key microeconomic factors that significantly impact HRD in Lao PDR, along with their implications and internal scales.

1.3.1.1. Organizational strategy

Organizational strategy refers to the alignment between a firm's long-term objectives and its human capital development efforts. A well-formulated strategy ensures that training programs, career paths, and knowledge management systems are not ad hoc but are integrated into the organization's broader mission. In developing countries like Lao PDR, many enterprises lack clear HRD strategies due to limited resources or managerial expertise, leading to underutilization of available human capital (Becker, 2009).

In practice, organizations with strategic HRD alignment often prioritize workforce planning, talent pipeline development, and succession strategies. For example, manufacturing firms in Vientiane with clear export goals have demonstrated proactive efforts to train staff in ISO standards and lean management practices. Key indicators of this factor include the existence of documented HRD plans, resource allocation for human capital, and HR-strategy coherence.

The overarching business strategy determines the focus and investment in HRD. For instance, a strategy emphasizing innovation may require extensive training in creativity and problem-solving (Dumani et al., 2018).

1.3.1.2. Technological advancements

Technology is a crucial enabler of modern HRD practices, especially in facilitating flexible, scalable, and cost-effective training. The digitalization of learning platforms, use of learning management systems (LMS), and access to online resources significantly expand an organization's ability to train and reskill its employees (OECD, 2023). In Lao PDR, digital adoption is uneven, with urban-based firms embracing new technologies more quickly than rural or state-owned counterparts.

Despite infrastructural limitations, the COVID-19 pandemic accelerated digital experimentation among enterprises. For instance, several logistics companies in Luang Prabang and Savannakhet adopted remote training for operational efficiency. Internal scales measuring this factor may include digital infrastructure availability, use of digital learning tools, employee access to technology, and digital literacy levels.

Technology changes the skill sets required for many jobs and necessitates continuous employee training and development to keep pace with new systems and software (Hossain et al., 2015; Flórez-Martínez et al., 2023).

1.3.1.3. Leadership and management support

Leadership is a critical catalyst for fostering an HRD-friendly culture. Support from top management influences how training is perceived, funded, and executed. Transformational leaders are known to inspire commitment to learning, encourage experimentation, and empower employees to take ownership of their professional development (S. W. Kozlowski & D. R. Ilgen, 2006). In Lao PDR, where many SMEs are family-run or state-directed, leadership commitment to HRD varies greatly.

Organizations where leaders actively engage in mentoring, provide feedback, and attend development programs themselves often report higher employee retention and performance. Indicators of LMS include leadership involvement in training programs, support for innovation, and frequency of development-oriented communication.

Strong backing from top management, including resource allocation and active participation, is crucial for effective HRD (Widyatmoko et al., 2020). Leadership attitudes can significantly influence the emphasis placed on training and development.

1.3.1.4. Corporate culture

Corporate culture refers to the shared values, beliefs, and norms that guide behavior within an organization. A strong learning culture promotes curiosity, openness, and psychological safety, all of which are vital for HRD success (Armstrong, 2006). In Lao organizations,

especially those with hierarchical or collectivist tendencies, culture significantly shapes how employees perceive training, change, and feedback.

For example, firms that celebrate learning milestones and encourage knowledge sharing tend to be more adaptive and resilient. Internal metrics include openness to learning, tolerance for failure, teamwork orientation, and the presence of informal learning communities.

A culture that values continuous improvement, learning, and development is vital for effective HRD. A culture resistant to change can hinder training efforts and employee growth (Widodo & Silitonga, 2017).

1.3.1.5. Employee motivation and engagement

Motivated and engaged employees are more likely to participate in training, apply new skills, and drive innovation. Motivation can stem from both intrinsic factors (e.g., purpose, autonomy, mastery) and extrinsic rewards (e.g., recognition, promotion, compensation). Self-Determination Theory (Ryan & Deci, 2000) provides a useful lens to understand how autonomy, competence, and relatedness fuel sustainable motivation for learning.

In Lao PDR, cultural values emphasizing harmony and stability may sometimes clash with individual advancement. Therefore, understanding motivation in context is essential. Measurement scales include employee initiative, participation rates in development programs, self-reported motivation levels, and turnover intentions.

The level of employee engagement can significantly influence the success of HRD. Motivated employees are more likely to participate actively and apply new skills (Shuck et al., 2014).

1.3.1.6. Feedback and performance evaluation systems

Constructive feedback and robust performance evaluations serve as the backbone for effective HRD planning. Without accurate diagnostics of performance gaps, training programs may become misaligned or irrelevant. In Lao PDR, performance appraisal systems are still evolving, with many public and private organizations relying on informal assessments or annual reviews that lack rigor.

Best practices in this area include 360-degree feedback, competency-based assessments, and individualized development plans. When properly implemented, these systems create data-driven pathways for training and growth. Internal scales here include clarity of evaluation criteria, fairness, feedback regularity, and employee perception of appraisal usefulness. Effective feedback mechanisms help identify development needs

and guide HRD efforts (Swanson, 2022). They also measure the effectiveness of current development programs (Pulakos, 2004).

1.3.1.7. External educational resources

Although categorized under organizational factors, the ability of a firm to leverage external educational partners such as universities, vocational training centers, and international NGOs is a key determinant of HRD success. In countries with limited internal training capacity, these external linkages become lifelines for skill enhancement and capacity building.

In Lao PDR, some sectors (e.g., banking, tourism, and construction) have established formal partnerships with international training providers and donor-funded programs to access global expertise. Internal indicators include frequency of external training engagement, quality of partnerships, and employee participation in certification programs.

Partnerships with educational institutions and access to external training resources can expand the scope and effectiveness of HRD (Espedal, 2005; Stachová et al., 2019).

1.3.1.8. Microeconomic Factors and Internal Scales

By paying attention to these microeconomic factors, organizations can better prepare their workforce to meet both current job demands and future challenges, thereby enhancing overall productivity and competitiveness.

Table 1.3: Summary of Microeconomic Factors and Internal Scales

Factor	Representative Internal Scales
Organizational Strategy	Strategic HRD alignment, planning documentation, resource allocation
Technological Advancements	Access to LMS, digital training usage, IT infrastructure readiness
Leadership and Management Support	Leader engagement, mentoring activity, HRD communication
Corporate Culture	Openness to learning, teamwork, risk-tolerance, knowledge sharing
Feedback and Performance Evaluation	Evaluation frequency, fairness, feedback quality, competency-based tools
Employee Motivation and Engagement	Intrinsic/extrinsic drivers, initiative-taking, participation in learning
External Educational Resources	Training partnerships, frequency of external programs, certification efforts

Source: The author summary, 2023

In conclusion, microeconomic factors represent the organizational foundations of HRD and must be treated as strategic levers for driving long-term capacity development. For Lao PDR, strengthening these internal mechanisms—particularly in under-resourced sectors—will be essential for transforming the potential of human resources into actual socio-economic value. The next section discusses the macroeconomic factors that shape the broader ecosystem within which these organizational efforts take place.

1.3.2. Macroeconomic factors

Human Resource Development (HRD) does not occur in a vacuum. Its success is heavily influenced by macro-level conditions that shape the broader environment in which organizations operate and individuals live, learn, and work. These macroeconomic factors—often driven by government policies, national demographics, market dynamics, and global pressures—define both the opportunities and constraints for workforce development at scale.

In the case of Lao PDR, a country transitioning from a centrally planned to a market-oriented economy, the role of macroeconomic factors is particularly significant. Understanding these forces is essential for designing HRD strategies that are not only effective at the organizational level but also synchronized with national development priorities. The five macroeconomic factors outlined below are the most salient to HRD in the Lao context.

1.3.2.1. Economic conditions

Economic growth and industrial structure directly affect demand for labor and the resources available for HRD. In periods of economic expansion, governments and enterprises are more likely to invest in education, training, and human capital. Conversely, during downturns, HRD initiatives are often the first to be deprioritized.

Economic factors determine the budget available for HRD activities (Swanson, 2022). In robust economic times, companies may invest more in development programs, whereas in downturns, budgets may be cut.

In Lao PDR, the economy is heavily dependent on hydropower, mining, and agriculture, with limited diversification into high-skill sectors. This structural composition impacts the types of skills that are developed and in demand. Furthermore, regional disparities in economic development—such as between Vientiane and rural provinces—translate into unequal access to HRD opportunities.

Key indicators include GDP growth rate, sectoral employment distribution, investment in education and training, and national budget allocation for human capital.

1.3.2.2. Labor market conditions

The structure and health of the labor market have profound implications for HRD. A labor market characterized by informality, underemployment, and skills mismatch weakens the feedback loop between training supply and job demand. The availability of skills in the labor market influences HRD strategies. Scarce skills may prompt more intensive internal training programs (Okeke-James et al., 2020; Swanson, 2022).

Lao PDR faces several labor market challenges: low labor productivity, a high proportion of informal employment, and a large youth population entering the workforce annually. Without accurate labor market information systems (LMIS), it becomes difficult to align training programs with actual market needs.

For instance, while technical and vocational education and training (TVET) programs exist, many graduates remain unemployed or underemployed due to mismatch between skills provided and those demanded by employers. Indicators to observe include employment rates, youth unemployment, informality ratio, and skill gap data.

1.3.2.3. Workforce demographics

Demographic trends define the future shape of the labor force. Age structure, gender composition, rural–urban migration, and ethnic diversity all influence how HRD policies must be designed and targeted.

The age, diversity, and general composition of the workforce can affect HRD needs. Different generations and cultural backgrounds may require tailored training approaches (Lyons et al., 2014).

Lao PDR has a young population, with a median age under 25, and a high rural-to-urban migration rate. These dynamics offer both opportunities and challenges. On one hand, a young labor force can be an economic asset. On the other hand, failure to provide quality education, health, and career guidance may turn this “demographic dividend” into a burden.

Furthermore, gender disparities persist in access to education and employment, especially in rural areas and among ethnic minorities. Understanding demographic characteristics enables policymakers to implement more inclusive HRD policies.

Indicators include youth dependency ratio, female labor participation rate, rural population share, and ethnic group representation in education and employment.

1.3.2.4. Government regulations and policies

Regulatory and institutional frameworks form the backbone of national HRD systems. They include labor laws, education policies, training standards, and public–private partnerships. When effectively designed and implemented, these policies facilitate alignment between national development goals and human capital investments. Legal requirements for safety, diversity, and other employment conditions necessitate specific training. Compliance training is a crucial component of HRD (Arabi et al., 2023).

Lao PDR has made progress in recent years by adopting national strategies for education reform and workforce development, such as the Education and Sports Sector Development Plan (ESSDP). However, implementation remains inconsistent across provinces due to limited administrative capacity, funding gaps, and weak inter-sectoral coordination.

Examples of critical policy levers include: national TVET standards, labor code revisions, recognition of prior learning (RPL), and incentives for private sector training. Evaluation criteria include policy coherence, funding effectiveness, enforcement of labor standards, and stakeholder participation.

1.3.2.5. Globalization

In a rapidly integrating world economy, the pressures of globalization have profound effects on national HRD priorities. Cross-border trade, foreign direct investment, labor migration, and international standards create new demands for skill sets, language proficiency, and cross-cultural competencies. As companies operate across borders, the need for cultural training and the ability to work effectively in diverse environments become crucial (Soltes et al., 2020; Swanson, 2022).

For Lao PDR—part of ASEAN and the Greater Mekong Subregion—globalization brings both opportunities and challenges. On one hand, increased connectivity with Thailand, China, and Vietnam opens doors for skilled labor and knowledge exchange. On the other hand, without upgrading the domestic workforce, Lao PDR risks becoming a peripheral player in regional value chains.

International cooperation through ODA-funded HRD projects, donor support (e.g., ADB, JICA), and cross-border training programs should be harnessed strategically. Monitoring metrics include trade openness, number of foreign-funded training initiatives, mobility programs, and alignment with ASEAN skill frameworks.

1.3.2.6. *Macroeconomic Factors and Indicators*

Organizations should continuously monitor these macroeconomic factors and adapt their HRD strategies accordingly. This adaptability ensures that the workforce remains competent and capable of meeting current and future challenges, thereby supporting the organization's long-term strategic goals. Effective HRD planning in response to macroeconomic conditions can provide a competitive edge by ensuring that an organization's human capital is always aligned with its operational and strategic imperatives.

Table 1.4: Summary of Macroeconomic Factors and Indicators

Factor	Key Indicators / Scales
Economic Conditions	GDP growth, sectoral labor demand, education/training budget
Labor Market Conditions	Employment rate, skill mismatch, labor informality
Workforce Demographics	Youth ratio, gender participation, urbanization rate
Government Regulations and Policies	Policy implementation, labor law enforcement, PPP in HRD
Globalization	FDI flows, foreign training programs, regional integration

Source: The author summary, 2023

In conclusion, macroeconomic factors provide the contextual architecture in which micro-level HRD efforts are implemented. For Lao PDR, strengthening the labor market, investing in youth and rural populations, and fostering policy coherence are essential for maximizing human capital outcomes. As Lao PDR continues to participate in regional and global integration, its success in socio-economic development will depend heavily on its ability to harness these external forces to build a capable, adaptable, and inclusive workforce.

1.4. Literature reviews

1.4.1. *The influence of Microeconomic factors on HRD in socio-economic development*

1.4.1.1. *The influence of Organizational Strategy factors*

Organizational strategy plays a crucial role in shaping the development of human resources within an organization. Several factors have been identified in the literature that can significantly impact human resources development. One such factor is organizational change, which has been studied in the context of Information Systems (IS) failure (Winklhofer, 2001). The link between organizational change and the outcome of projects, such as human resources system (HRS) projects, has been explored to

understand the effects of change on development, implementation, and operation. High performance work systems have been proposed as a mechanism to develop organizational human capital, which in turn positively affects firm performance (Hsu et al., 2007). This highlights the importance of human resource management practices in enhancing organizational capabilities and performance. Additionally, the significance of human resource strategies based on the knowledge dimension has been emphasized in the development of competitive advantage in new businesses (Akhavan & Pezeshkan, 2012). This underscores the role of knowledge as a critical resource for generating competitive advantage in organizations. In the context of specific sectors, such as the road construction sector, factors such as performance measures, training, career development, and learning capacity have been identified as key elements in establishing a competitive advantage (Metet, 2014). Effective training systems and policies are recommended to ensure that organizations in this sector can leverage these factors to gain a competitive edge. Furthermore, organizational pressure dimensions have been studied to measure the content of organizational pressure on employees, providing insights for corporate human resources management (Yang & Yang, 2014). Innovativeness within organizations has been linked to various determinant factors that affect the capability to innovate (Tuksinnimit et al., 2016). Efforts to build innovation and become an "Innovative Organization" require a deep understanding of the significant factors influencing organizational innovativeness. Moreover, the inclusion of the spiritual quotient in human resource development has been highlighted as a means to enhance organizational performance through holistic human resource development (Ahmed et al., 2016). This emphasizes the importance of considering the spiritual dimension in the process of human resource development. Competency development of civil state apparatus has been identified as a crucial aspect of building human capital and organizational strategy (Wahjusaputri & Fitriani, 2017). The development of competencies is essential for talent management, recruitment, and retention, and requires awareness, commitment, communication, and coordination among stakeholders. Communication management has also been recognized as a vital factor in organizational strategy, with internal organizational factors closely related to communication factors shaping communication strategy design (Sahputra, 2020). In the context of crisis management, the role of Human Resource Development (HRD) functions has been explored to understand their impact on crisis management effectiveness (Alketbi et al., 2022). Including HRD in the theory of crisis management can provide organizations with valuable insights into how human resource development functions can contribute to effective crisis response.

Overall, the literature reviewed highlights the multifaceted nature of organizational strategy factors affecting human resources development and underscores the importance of considering various dimensions to enhance organizational performance and competitiveness.

1.4.1.2. The influence of Technological Advancements factors

The role of human resources in the development of new firms has garnered significant attention in academic research, particularly focusing on factors such as founder human capital, access to employee human capital, technological expertise, and other specialized skills. McKelvie & Davidsson (2009) explore how these elements contribute to the capability development within startups, emphasizing that the quality and diversity of skills directly influence the firm's growth and adaptability.

Moreover, the broader implications of human resource management on national development have been explored extensively. Islam et al. (2012) discusses the strategic importance of developing human resources as a fundamental approach to overcoming national development challenges, proposing that targeted HRM interventions can significantly enhance productivity and socio-economic growth.

In Saudi Arabia, studies such as those by Mousa (2017) have analyzed the components of total factor productivity, noting that labor productivity has historically been driven more by capital accumulation and technology, which are often considered external factors to the human resources framework. This highlights the need for a more integrated approach that considers human capital as a core element of productivity enhancement.

Diaz-Delgado et al. (2020) investigated the management of human capital within the context of fostering collaborative innovation. Their findings suggest that well-managed human capital facilitates the sharing of ideas and expertise, which is crucial for technological advancements and encourages small and medium-sized enterprises (SMEs) to engage in collaborative innovation projects.

The influence of global crises on innovative processes and sustainable development has also been a topic of interest. Miliushenko et al. (2019) discuss how crises impact sustainable development through their effects on innovative human potential, stressing the importance of resilient and adaptable human resources practices in times of global uncertainty.

Latin et al. (2021) emphasize the strategic role of human resources in globalization, particularly the need to align employee skills with organizational goals amidst a rapidly changing technological landscape. This alignment is crucial for companies looking to maintain competitiveness on a global scale.

Ganda (2022) explores the complex relationships between financial development, natural resource rents, technological innovation, foreign direct investment, energy consumption, human capital, trade, and environmental degradation. His research establishes a U-shaped correlation between economic growth and emissions, indicating varying impacts at different stages of economic development.

Wang & Cheng (2024) examine the impact of the digital economy on total factor energy efficiency (TFEE), particularly in the context of Chinese cities. Their findings show a significant positive contribution of digital advancements to TFEE, illustrating how technological progress can enhance energy efficiency.

Collectively, these studies underscore the pivotal role of technological advancements and human resources development in fostering innovation, enhancing productivity, and promoting sustainability across various contexts.

1.4.1.3. The influence of Leadership and Management Support factors

Leadership and management support play a crucial role in human resources development, particularly in the context of sustainability and innovation. Gloet (2006) explores the linkages between knowledge management (KM) and human resource management (HRM) to develop leadership and management capabilities that support sustainability. By providing a framework for addressing sustainability issues, organizations can enhance individual and organizational capabilities across business, environmental, and social justice contexts. This highlights the importance of integrating KM and HRM practices to promote sustainability.

In a study by Cole & Crichton (2006), the culture of a trauma team was examined in relation to human factors. The findings suggest that human factors, such as communication and interprofessional relationships, significantly impact team performance, regardless of the clinical skills of team members. This underscores the importance of effective leadership and management support in fostering a positive team culture that enhances overall performance. Furthermore, Li & Zahran (2014) investigated the influences of emotional intelligence on transformational leadership and leader-member exchange in Kuwait's business environment. The study emphasizes the role of emotional intelligence in shaping leadership behaviors and relationships within organizations. Effective leadership and management support are essential for fostering emotional intelligence among leaders, which can positively impact employee engagement and performance.

Additionally, Singh et al. (2020) examined the role of green transformational leadership and green human resource management in promoting green innovation and environmental performance. The study highlights the importance of leadership support in driving environmentally sustainable practices within organizations. By implementing green HRM practices, organizations can mediate the influence of leadership on innovation and environmental outcomes. Moreover, Jaruwanakul (2021) identified key influencers of innovative work behavior in leading Thai property developers, including transformational leadership, work engagement, management support, and coworkers support. The study emphasizes the significant impact of management support on fostering innovative work behavior within organizations. Effective leadership and management support are crucial for creating a conducive work environment that encourages innovation and creativity among employees.

Overall, the literature underscores the importance of leadership and management support factors in driving human resources development, sustainability, and innovation within organizations. By integrating effective leadership practices, emotional intelligence, and green HRM initiatives, organizations can enhance employee engagement, performance, and overall success. Effective leadership and management support are essential for creating a positive work culture that fosters innovation and sustainability in today's dynamic business environment.

1.4.1.4. The influence of Corporate Culture factors

Corporate culture plays a significant role in shaping human resources development within organizations. The impact of corporate culture on human resources development has been widely studied in the literature.

Armstrong (2020) emphasizes the importance of strategic human resource management in guiding actions within organizations. This strategic approach to human resource management can influence the development of employees and the overall organizational culture. Liu et al. (2014) conducted a study on the factors affecting logistics enterprise competitiveness in China. The findings suggest that various factors, including corporate culture, play a role in determining the competitiveness of enterprises. Similarly, Reverte et al. (2016) explored the influence of corporate social responsibility on organizational performance. The study highlights the importance of considering corporate social responsibility as a factor that can impact the development of human resources within organizations. Nemeth et al. (2016) examined performance management targets in an international corporation's operating unit in Hungary. The study revealed that individual performance evaluations are based on contributions to corporate results, indicating a

link between performance management and human resources development. Rawshdeh et al. (2018) focused on the influence of socially responsible HRD practices on talent retention. The study highlights the importance of incorporating socially responsible practices in human resource management to retain talented employees. Brewster et al. (2018) discussed HRD in international organizations, emphasizing the role of human capital in gaining a competitive advantage. Musriha & Nurjaman (2019) conducted research on individual and group characteristics to enhance work performance and career development in Indonesia Port Corporations. The study underscores the significance of organizational culture in motivating employees and improving performance. Zamlynskyi (2019) explored the impact of corporate culture on company development. The study suggests that an adaptable corporate culture can lead to more effective work teams and positively impact organizational results. Khosa (1994) investigated management development evaluation practices in Australian business organizations, highlighting the importance of evaluating management development contributions to corporate goals. Choi et al. (2020) studied ways to revitalize organizational culture, focusing on Atomy corporate culture as a key factor in sustainability. Yan et al. (2020) examined the impact of service-oriented organizational design factors on firm performance, emphasizing the moderating role of service-oriented corporate culture. These studies underscore the importance of organizational culture in influencing human resources development and organizational performance. In conclusion, the literature review highlights the significance of corporate culture factors in affecting human resources development within organizations. Studies have shown that strategic human resource management, corporate social responsibility, performance management, and socially responsible HRD practices all play a role in shaping organizational culture and influencing employee development. Understanding and leveraging these factors can lead to improved performance, talent retention, and overall organizational success.

1.4.1.5. Feedback and Performance Evaluation Systems factors

Feedback and performance evaluation systems are central to the advancement of human resources development, influencing a myriad of outcomes including employee attitudes, job satisfaction, organizational commitment, and overall performance. These systems are multifaceted and their impact is shaped by several key factors.

Wells et al. (2007) delve into the dynamics of electronic performance monitoring (EPM) and its implications on employee perceptions. The study finds that the perceived purpose and implementation of EPM significantly influence perceptions of fairness, job

satisfaction, and organizational commitment. This underscores the importance of transparency and communication in the deployment of monitoring technologies to foster a positive organizational climate.

In an analysis by Van der Heijden & Nijhof (2004), the utility of 360-degree feedback methods is explored, particularly noting the differences that often emerge between self-assessments and supervisor ratings. This discrepancy highlights the inherent subjectivity in appraisal systems and suggests that a variety of perspectives can enrich the evaluation process, leading to more comprehensive developmental feedback.

Khalil et al. (2009) focus on the agricultural sector in Yemen, investigating how specific HRD competencies such as leadership development, communication skills, and program planning predict the performance of agricultural extension agents. Their findings suggest that targeted competency development in these areas can enhance job performance significantly.

Similarly, di Kabupaten Banyuwangi (2014) examine strategies to improve the performance of agricultural extension workers, emphasizing the roles of compensation, performance monitoring, and professional development opportunities. The study illustrates that a holistic approach to HRD that includes both motivational and skill enhancement aspects is crucial for improving job performance and satisfaction.

Performance appraisal systems themselves have been a focal point of research across various disciplines. Khosa (2019), Thomas & Brown (2020) have contributed to this body of knowledge by evaluating how management development integrates with and supports corporate goals, and the role of feedback in fostering accountability, particularly within the fields of global environmental health and engineering.

Twalib (2021) identifies critical drivers of employee engagement in the insurance industry, pointing out the significant roles played by effective communication systems and trust. These factors are essential for cultivating an engaged workforce, which is directly linked to increased productivity and organizational success.

In the broader context of globalization, Latin et al. (2021) discuss the strategic imperative of aligning human resource practices with organizational objectives to drive technological advancement and innovation. Strategic human resource management is presented as a key component in leveraging human capital to achieve sustainable growth and societal progress.

In conclusion, the literature emphasizes the pivotal role of feedback and performance evaluation systems in human resources development. By meticulously understanding

and optimizing these systems, organizations can enhance employee engagement, improve performance metrics, and achieve sustained success in an increasingly dynamic and globalized business environment. This comprehensive approach to HRD is essential for aligning employee capabilities with strategic organizational goals, thereby fostering both individual and organizational advancement.

1.4.1.6. Employee Motivation and Engagement factors

Employee motivation and engagement are integral components that significantly influence the development of human resources within organizations. Extensive research has been conducted to understand the various dimensions of employee engagement and motivation and their consequential effects on organizational performance and employee well-being.

Abu Rub (2010) conducted a pivotal study within the Jordanian business context, accentuating the critical roles played by intrinsic motivation, servant leadership, and High-Performance Work Systems (HPWS) in fostering employee engagement and retention. Their findings suggest that these factors are particularly effective in enhancing the motivational climate within Jordanian organizations, thereby improving retention rates and overall organizational effectiveness.

In a similar vein, Singh (2012) explored specific factors that drive employee engagement within the public healthcare sector. The study highlighted the significance of discretionary effort and the emotional connection employees form with their job roles. Singh's research underscores the importance of aligning job roles with employee values and emotional needs to boost engagement in healthcare settings.

Soane et al. (2012) contributed to the measurement tools available for assessing employee engagement by developing the ISA Engagement Scale. This scale was designed to evaluate employee engagement across various organizational settings, providing a robust tool for organizational leaders to assess and improve engagement strategies.

Janse van Rensburg et al. (2013) utilized the Job Demands-Resources model to examine work engagement within South African call centers. Their research identified key antecedent variables that influence employee engagement and well-being, offering insights into how job demands and resources must be balanced to optimize employee outcomes.

Shuck et al. (2017) introduced a novel three-dimensional employee engagement measurement tool, which assesses both job and organizational engagement. This tool aids organizations in diagnosing and enhancing engagement at multiple levels.

Presbitero (2017) conducted a longitudinal study in a Philippine hotel chain to investigate the impact of changes in human resource management practices on employee engagement. The study provides empirical evidence supporting the dynamic relationship between HR practices and engagement levels, suggesting that iterative improvements in HR strategies can significantly influence employee motivation.

Katou (2017) examined the effects of human resource management systems on key organizational outcomes, including employee engagement and overall performance. Katou's findings reinforce the notion that systematic HR practices are foundational to fostering a highly engaged and productive workforce.

Huyghebaert et al. (2018) explored the implications of the Psychological Safety Climate (PSC) on various employee outcomes such as burnout, work-family conflict, and work engagement. Their study highlights the critical role of psychological safety in satisfying employee needs and mitigating job-related stress.

Rigby & Ryan (2018) discussed the application of Self-Determination Theory in Human Resource Development, emphasizing its utility in enhancing employee motivation and engagement. This theoretical framework provides a valuable lens for understanding the intrinsic factors that drive employee engagement.

In summary, the body of literature concerning employee motivation and engagement underscores the importance of intrinsic motivation, leadership styles, HRM practices, and organizational climate in fostering a committed and productive workforce. These factors are crucial for enhancing organizational performance, employee well-being, and the holistic development of human resources. Understanding and implementing these insights can lead to more effective engagement strategies that not only retain talent but also cultivate an environment conducive to optimal organizational performance.

1.4.1.7. External Educational Resources factors

The development of human resources is a crucial aspect of various sectors, including education, healthcare, and industry. Several studies have explored the factors that influence human resources development, particularly in the context of external educational resources.

Sugarman et al. (1974) discussed the Systems Approach to Training (SAT) for the B-1 aircrew, emphasizing the importance of efficient training systems for future air vehicle crews. This highlights the significance of utilizing external resources to enhance human resources development in specialized fields.

Stijns (2006) examined the relationship between natural resource abundance and human capital accumulation, highlighting the "wealth channel" that cautions against discouraging countries from exploiting their mineral wealth. This study emphasized the need to consider external factors such as natural resources when assessing human resources development strategies.

Chiware (2010) discussed the positioning of academic libraries in universities of science and technology in Africa, emphasizing the role of libraries in supporting the development of skilled human resources. The study highlighted the challenges faced by libraries in adapting to changing information resources and technologies to contribute effectively to human resources development.

Asongu & Nwachukwu (2015) explored the impact of foreign aid volatility on lifelong learning, emphasizing the demand-side empirics that influence policy-making in human resources development. This study underscored the importance of external factors such as foreign aid in shaping educational choices and lifelong learning opportunities.

Hamdani & Sagala (2017) investigated an innovative human resource management model in vocational high schools, highlighting the importance of effective management practices in enhancing human resources development. This study emphasized the role of innovative management models in optimizing the potential of educators and educational staff in vocational education.

In conclusion, the literature review of the provided documents highlights the diverse factors that influence human resources development, particularly in the context of external educational resources. These studies underscore the importance of proactive measures, innovative management practices, and external influences in shaping human resources development across various sectors. By considering these factors, organizations and institutions can enhance their human resources development strategies to promote growth and success.

1.4.2. The influence of Macroeconomic factors on HDR in socio-economic development

1.4.2.1. The influence of Economic conditions factors

Milincic (2004) discusses the economic-geographical and environmental polarization as a factor affecting the development of human society. The formation of anthropogenic or socio-economic areas and territories of economic-geographical stagnation play a crucial role in the socio-economic development of regions. This clustering process can lead to the development of new functional relations between areas, impacting human resources

in various ways. Salikov et al. (2019) focus on the trends in human resource management in the digital economy, emphasizing the importance of considering priority factors of economic security in regional development strategies. The definitions and terms used in research play a significant role in shaping the outcomes of studies related to human resources and economic development. Gubin et al. (2019) propose a marketing-resource approach to crisis management in socio-economic systems, highlighting the instability of the socio-economic environment due to asymmetry in marketing behavior among entities, government, and businesses. This approach aims to address resource limits and recessionary trends, which can have implications for human resources in times of crisis. Lenkova et al. (2014) discuss sustainable regional development as a problem in managing socio-economic systems. This highlights the importance of considering sustainability in the development of regions, which can have implications for human resources management and economic growth. Bapurao (2021) emphasizes the importance of human resources in the economic development of regions, stating that positive factors contribute to regional planning and proper development. This underscores the significance of human resources in driving economic growth and development in different geographical areas. Klimovskikh et al. (2023) explore the impact of human resource management on improving the innovation potential of enterprises to achieve sustainable development principles. The study identifies key success factors in innovation activities that are linked to human resource management practices, emphasizing the role of sustainable development principles in enhancing the innovation potential of economic entities. Overall, the literature reviewed highlights the importance of considering economic conditions and environmental factors in shaping human resources management practices and socio-economic development strategies. These factors play a crucial role in determining the success and sustainability of regional development initiatives.

1.4.2.2. The influence of Labor Market Conditions factors

The literature on labor market conditions and their impact on human resources development is diverse and covers a range of factors. Fafchamps & Quisumbing (1999) explore the relationship between human capital, productivity, and labor allocation in rural Pakistan, finding that better-educated males in households earn higher off-farm income and shift labor resources away from farm activities. Siow (1998) investigates how differential fecundity interacts with marriage, labor, and financial markets to affect gender roles, highlighting that gender differences in the labor market can exist without corresponding differences in opportunities or social norms. Datta et al. (2005) emphasize

the importance of industry characteristics in influencing the effectiveness of human resource management practices on labor productivity. Polachek & Xiang (2009) focus on the gender pay gap across countries, linking factors such as fertility rates, age gaps at marriage, and tax rates to women's lifetime labor force participation. D'Angelo et al. (2021) examine the relationship between product-market competition, HRM practices, and labor productivity in small firms, while Hunko (2013) investigates the factors influencing the formation of human resources at the macro and micro levels. Additionally, Lehmann & Zaiceva (2009) provides insights into the evolution of labor relations within a Russian firm, using personnel data to analyze labor market dynamics. Chin & Shen (2015) study the factors affecting individual career management among undergraduates in Malaysian higher education institutions, highlighting the importance of perception towards career development. Finally, Cashman et al. (2013) delves into the concept of social capital in the labor market, shedding light on its role in shaping labor market outcomes. Overall, the literature review on labor market conditions and human resources development underscores the significance of factors such as human capital, industry characteristics, gender roles, and social capital in shaping labor market dynamics and organizational effectiveness. These studies provide valuable insights into the complex interplay between labor market conditions and human resource management practices.

1.4.2.3. The influence of Workforce Demographics factors

Human resource development (HRD) is pivotal for enabling organizations to navigate effectively through workforce-related challenges and seize opportunities. The literature underscores a range of dynamics, from demographic shifts to socio-cultural influences, that shape HRD strategies within various contexts.

Newell (1996) argues for a transformative approach in government HRD strategies. He posits that these strategies should not only be reactive but also proactive and strategic. The emphasis should be on expanding HR services and developing new skills and technologies to preemptively meet future workforce demands. This anticipatory approach is essential for keeping pace with rapid changes in the labor market and technological advancements.

Dirani (2006) delves into the socio-cultural dimensions of HRD practices in Lebanon, examining how elements such as history, religion, culture, family dynamics, and gender roles influence occupational outcomes. His research highlights the complexity of HRD in contexts where traditional and modern values intersect, affecting individuals' career paths and professional development in profound ways.

Mahroum et al. (2007) explore the trajectory of human resources in Information Society Technology (IST). They identify demographic shifts, the globalization of education and labor markets, and the evolution towards an information and knowledge-based economy as critical factors influencing the supply and demand of IST professionals. These factors necessitate a strategic rethinking of HRD practices to align with the future needs of the technology sector.

Callanan & Greenhaus (2008) address the challenges posed by the aging baby boom generation within the workforce. They recommend that organizations adopt proactive career management and HR development strategies to mitigate potential issues such as skill shortages and knowledge loss. This is crucial for maintaining organizational vitality and competitiveness as the workforce demographic shifts.

An in-depth case study by Streb & Voelpel (2009) at Daimler AG focuses on managing an aging workforce. The authors discuss the implications of an aging demographic for innovation, physical performance, and knowledge retention in organizations, highlighting the need for tailored HR strategies that leverage the strengths and address the limitations of older employees.

Boenzi et al. (2015) propose an age-related model for job rotation schedules, particularly in environments requiring manual tasks. Their model considers the demographic aspects of the workforce, aiming to optimize performance and reduce physical strain among older employees, thereby extending their productive years.

Chang et al. (2016) analyze how demographic factors influence employee trust in managers within the Australian context. Their findings suggest that age, cultural background, and other demographic variables can significantly impact perceptions of leadership credibility and trustworthiness.

Wang et al. (2014) investigate the resilience of the future workforce in China, focusing on how gender, age, and educational levels affect resilience. Such insights are crucial for developing HR policies that enhance workforce adaptability and resilience in the face of economic and social changes.

Lastly, Koutsoumpa et al. (2020) evaluate health workforce financing in Uganda, emphasizing the importance of understanding the policy environment and financing mechanisms. Their study underscores the need for strategic financial planning in HRD to ensure sustainable healthcare services.

Overall, these studies collectively highlight the importance of demographic and socio-cultural factors in shaping HRD practices and strategies. Understanding these influences

is essential for organizations to effectively manage their workforce, addressing challenges related to composition, aging, and diversity. By incorporating these insights, organizations can develop proactive HRD initiatives that enhance workforce capabilities and adapt to the evolving demands of the global economy.

1.4.2.4. The influence of Government Regulations and Policies factors

Government regulations and policies are fundamental in influencing human resources development across various global regions, impacting economic growth and the strategic direction of industries. Each study referenced highlights a different aspect of how governmental actions can foster or impede progress. Almounsor (2008) delves into the MENA region's economic dynamic by analyzing how capital flight affects development prospects. His research underscores the critical need for robust policies that stabilize economic environments and encourage capital retention, which is pivotal for regional development. Litao & Jinjing (2009) chronicle the evolution of China's Human Resource Development (HRD) policy, particularly noting the strategic inclusion of an HRD-focused chapter in the 10th Five-Year Plan. This inclusion signifies a deliberate policy shift towards prioritizing workforce development as a key engine for the nation's economic expansion and technological advancement. Wandel & Kozbagarova (2009) discuss Kazakhstan's economic strategy to sidestep the 'resource curse'—a phenomenon where countries rich in natural resources struggle to achieve broad economic growth due to overreliance on resource exports. They analyze the nuances of adopting liberal versus illiberal economic policies and their long-term impacts on sustainable development in Kazakhstan.

Intarakumnerd et al. (2012) offer targeted policy recommendations for Thailand's automotive industry, emphasizing the importance of integrating external knowledge sources. Their proposals aim to enhance Thailand's competitive edge in the global automotive market through strategic knowledge acquisition and innovation. Mishra (2017) investigates the emerging field of green human resource management in India, advocating for sustainable practices within organizations. His analysis highlights the challenges and necessary frameworks required to implement eco-friendly policies that align with organizational development goals. Agelebe (2019) explores the delicate balance between liberal economic regulations and environmental protection in African nations. He emphasizes how these regulations affect international investment agreements and environmental laws, proposing that a thoughtful integration could lead to enhanced economic and ecological outcomes. Mohamed (2020) examines the intricate relationship between natural resource rents, human development, and economic growth

in Sudan. He suggests a comprehensive policy framework that could harness these rents to foster a cycle of economic prosperity and human capital development, contributing to a virtuous circle of growth. Matsuzaki et al. (2021) analyze how local government policies in Japan can influence innovation and upgrading in small and medium-sized enterprises (SMEs). Their study identifies key factors that can propel SMEs' innovation capabilities and examines the supportive role of local government initiatives in this process.

In summary, these diverse studies collectively demonstrate that government policies and regulations are crucial in shaping the developmental trajectory of human resources and overall economic growth. They reveal that strategic governmental interventions, tailored to specific national and industry contexts, can significantly enhance human resources development and, by extension, socioeconomic development across regions.

1.4.2.5. The influence of Globalization factors

Globalization has dramatically reshaped human resources development across various countries, influencing both governmental operations and corporate strategies. This transformation is thoroughly discussed in several studies, each highlighting different aspects and impacts of globalization on human resources management and organizational effectiveness.

Farazmand & Pinkowski (2006), in their "Handbook of Globalization, Governance, and Public Administration," explore the comprehensive effects of globalization on governance and public administration systems worldwide. They detail how globalization has necessitated changes in the way governments and organizations interact at an international level, pushing for more integrated and adaptive governance structures. The authors also discuss the challenges and opportunities that arise from this shift, emphasizing the need for administrative reforms that can handle increased global interconnectedness.

Khalil et al. (2009) delve into the specific context of Yemen's agricultural sector, examining how Human Resource Development (HRD) competencies affect the performance of agricultural extension agents. Their study identifies key competency variables such as leadership development, effective communication, and robust program planning, implementation, and evaluation skills. These competencies are crucial for enhancing the performance and effectiveness of agents who play a pivotal role in transferring agricultural technologies and practices to farmers, thus impacting agricultural productivity and sustainability.

Ahmed & Siddiqui (2020) focus on the banking industry in Pakistan, investigating how HRM and Total Quality Management (TQM) practices influence competitive advantages. Utilizing structured equation modeling to validate their research hypotheses, they provide empirical evidence that effective HRM practices are integral to maintaining competitive advantages. The study underscores the importance of integrating quality management and human resource strategies to enhance service quality and operational efficiency in the banking sector.

Latin et al. (2021) address the strategic importance of human resources in the globalization process more broadly. They argue that the rapid pace of technological advancement driven by globalization places new demands on HR strategies. The study suggests that modern strategic Human Resource Management (HRM) must not only focus on aligning employee skills with organizational goals but also on adapting to technological changes that are reshaping industry landscapes globally. This alignment is crucial for driving development and ensuring an organization's competitiveness in a dynamic environment.

Collectively, these studies underscore the profound impact of globalization on human resources development. They highlight the necessity for organizations to adapt their HRM practices to meet global standards and align strategically with organizational goals in a rapidly changing global market. This adaptation is not only crucial for driving organizational success but is also essential for navigating the complexities of international operations and competition.

1.4.3. Domestic and regional studies HRD in socio-economic development

Research in Lao PDR with topics related to human resource development is very limited. However, the studies below can be considered as typical studies, related to human resource development in Lao PDR socio-economic and conducted by Laos authors.

Simangkhala (2006) conducted a qualitative study on human resource development, health care services and poverty reduction in Laos. Accordingly, Simangkhala (2006) analyzed the policies of the Lao Government, the process of improving the situation and the difficulties and limitations in different regions in Laos. The results of this study have synthesized and shown the characteristics of human resources in Laos, specifically: quantity, structure and quality of Lao human resources in recent years. Research results by Simangkhala (2006) also concluded that: Laos is seriously lacking high-quality human resources with qualifications to meet current socio-economic development needs.

However, this study is qualitative research, the research results do not provide factors affecting human resource development in Laos.

Sommad (2011) mentioned human resources in Laos and the urgent need to train and improve human resources to maintain economic growth, achieve development goals and escape the situation of poverty. worst underdevelopment in 2020. In this study, Sommad (2011) focuses on analyzing the role and importance of human resources in socio-economic development. This study also does not mention factors affecting human resource development. Instead, this study only analyzes the current state of human resources in Laos based on government data and reports, thereby proposing solutions for the Lao Government in the fields of education, health and nutrition. nutrition to improve the quality of human resources in Laos.

The research by Touxion (2013) can be considered the most complete research in Laos, conducted by Lao authors on topics related to human resource development in Laos. Accordingly, Touxion (2013) concentrates on elucidating strategies designed to enhance the quality of planning processes for scientific personnel in Laos. His research specifically outlines and delves into eight critical phases of cadre management within the country. Specific improvements proposed by Touxion (2013) are 8 aspects below:

(1) *Enhanced Training Programs*: Proposing specialized and continuous training programs to keep scientific staff up-to-date with the latest technologies and research methodologies. (2) *Career Development Opportunities*: Creating clear pathways for career advancement to motivate staff and retain top talent. (3) *Resource Allocation*: Improving the allocation of resources, including modern equipment and adequate funding, to support scientific research and development activities. (4) *Collaboration and Networking*: Encouraging collaboration with international research institutions to enhance skills and experience. (5) *Performance Evaluation Systems*: Implementing comprehensive performance evaluation systems to regularly assess the productivity and impact of scientific staff. (6) *Recruitment Strategies*: Developing targeted recruitment strategies to attract highly qualified personnel, particularly in specialized research areas. (7) *Policy and Regulatory Improvements*: Recommending changes in policy to support research activities, including intellectual property rights and research ethics. (8) *Cultural and Organizational Change*: Fostering an organizational culture that values innovation, research, and continuous learning.

Each stage is meticulously examined to propose improvements that could bolster the efficiency and effectiveness of how scientific staff are recruited, trained, deployed, and managed across various sectors in Laos. This focus is aimed at optimizing the overall

framework and methodologies employed in the development and sustenance of scientific expertise essential for national development.

From Touxion (2013)'s proposals, these are the factors that have an impact on the quality of human resources in socio-economic development in Laos. However, this study only focuses on analyzing factors affecting scientific human resources, not analyzing other groups of resources such as workers, services, finance, education...

In addition to the three studies presented above, there are also a number of studies that the author has found, these are also studies by researchers in Laos. However, these studies are all qualitative studies, the research topics do not have much connection with the topic of this thesis. Specifically: Komasit (2011) focuses on: *"The nature and changes in human resource development in private enterprises in Lao PDR"*. Through analyzing and comparing these contents with the experiences of more developed countries than Laos, the article offers some perspectives and solutions to develop human resources for private enterprises in Laos. Phit Sat Bunvilay's (2014), thesis affirms: Under the current circumstances, the development of high-quality human resources is an essential activity of the Government of the City of Vientiane and also points out the key shortcomings of the development of high-quality human resources in the city. Since then, the thesis has built on a variety of valuable lessons and provided several key strategies for the city of Vientiane to develop high-quality human capital by 2020. Sisulat (2011), *"Understanding human resource development, especially building and fostering knowledge for staff to meet the requirements of development"*, research on Party policies and State on the development of human resources from 2000 to present, the development of science - technology - socio-economy - education of the world, of Lao PDR and the policy of developing human resources of Laos towards poor.

1.5. Research gaps

The topic of research on human resources development in socio-economic development has been conducted by many researchers worldwide. This is also a priority field, and countries also spend a lot of money on this type of research. However, the field of research on human resources development and especially socio-economic development is vast, so there are still blank fields that researchers have not yet approached, specifically:

(1) Longitudinal Studies on Workforce Development: There is a need for longitudinal studies that track the progress and impact of human resource development initiatives

over time in Lao PDR. This would provide a deeper understanding of the effectiveness of various educational and training programs in contributing to economic development.

(2) *Impact of Migration on Human Resources:* Research is sparse on the impact of both internal and external migration on the labor market and human resource availability in Lao PDR. Studies could focus on how migration is affecting skills availability, remittances, and their utilization within the local economy.

(3) *Sector-specific Human Resource Development:* Detailed studies are lacking on human resource needs and development in key sectors of Lao PDR's economy, such as agriculture, mining, and tourism. Research could focus on identifying sector-specific skills gaps and the alignment of educational programs with market needs.

(4) *Role of Informal Education:* The impact of informal education and training on socio-economic development is under-researched in Lao PDR. Understanding how non-formal education contributes to skill development and economic empowerment could provide insights into alternative education models.

(5) *Gender Disparities in Workforce Participation:* While some data might exist, comprehensive studies are needed to explore gender disparities in workforce participation and career advancement in Lao PDR. Research could also explore interventions to promote gender equality in education and employment.

(6) *Effectiveness of Government Policies on HR Development:* There needs to be more research examining the effectiveness and impact of government policies aimed at human resource development. This includes policies on vocational training, higher education, and foreign investment in education.

(7) *Technological Skills for Economic Modernization:* As Lao PDR aims to modernize its economy, research is needed on the current state and future requirements of technological skills in the workforce. This includes understanding the readiness of human resources to transition into a more digital and automated economy.

(8) *Cultural Influences on Workforce Development:* Studies that consider the cultural factors influencing human resource practices and workforce development in Lao PDR are limited. Research could focus on how cultural values and norms impact work behavior, organizational management, and HR practices.

(9) *Integration with ASEAN and Global Markets:* Research is needed on how Lao PDR is preparing its human resources for greater integration with ASEAN and global

markets. This includes studies on language proficiency, intercultural competence, and international business skills.

(10) Impact of International Aid on HR Development: There's a lack of comprehensive analysis on the impact of international aid and development programs on human resource development in Lao PDR. Examining the effectiveness of these programs could provide valuable feedback for policymakers and international donors.

Each research gap offers a potential avenue for contributing valuable insights into how Lao PDR can effectively develop its human resources to support sustained socio-economic growth. Addressing these gaps could provide policymakers, educators, and international partners with the information to design more effective interventions.

CHAPTER SUMMARY 1

Chapter 1 provides an introduction to the research topic, outlining the significance of human resource development (HRD) in the socio-economic context of Lao PDR. The chapter begins by highlighting the importance of HRD for national growth, focusing on its role in improving workforce skills, productivity, and overall economic performance. It establishes the research problem by pointing to gaps in existing HRD initiatives and the challenges faced in aligning these efforts with broader development goals.

The chapter then presents the research objectives, which include examining the factors influencing HRD in Lao PDR and assessing how education, healthcare, and technological infrastructure contribute to human capital development. The key research questions are introduced, focusing on identifying the barriers to effective HRD and exploring the role of government policies, cultural norms, and organizational practices in shaping HRD outcomes.

The theoretical framework is laid out, with a focus on foundational HRD theories such as Self-determination Theory and Adult Learning Theory. These theories provide the basis for the study's analytical model and guide the exploration of HRD-related variables in Lao PDR.

In Chapter 1, about the theoretical basis: The author has synthesized the theoretical basis, concepts, nature and impact factors on HRD in socio-economics.

Regarding overview of related research: The author has synthesized research according to each impact factors on HRD in socio-economic. Based on the research overview, the author identifies research gaps from which to build a model and state research hypotheses.

CHAPTER 2

RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

2.1. Proposing research model

2.1.1. *Requirements of the research model*

In this study, the research model has been developed to examine the factors influencing human resource development (HRD) within the context of socio-economic development in Lao PDR. While the study recognizes the importance of macro-level considerations, such as national policies and economic conditions, the primary focus of this thesis is on the micro-level factors that directly affect organizational performance and workforce development. This focus aligns the study with the field of business administration, where the analysis of HRD often centers around improving employee motivation, leadership effectiveness, and organizational outcomes.

The research model has been designed to capture the relationship between HRD initiatives and their impact on organizational performance metrics, such as employee productivity, engagement, and retention. By adopting a micro-level perspective, the thesis offers insights that are directly applicable to businesses and organizations in Lao PDR, providing practical recommendations for improving HR practices at the firm level.

In essence, building a human resources research model in socio-economic development in Laos includes answering 3 questions: (1) What is the current human resources situation in Lao PDR and its demographic characteristics? (2) What are the impact factors on HRD in socio-economic of Lao PDR? (3) Which scale/classification criteria/observed variables should be used to measure the impact factors on HRD in socio-economic of Lao PDR? To answer these three questions, reviewing, analyzing (overview), and inheriting existing research results is considered extremely necessary, and through this, a model can be built. The analysis has a full scientific basis.

2.1.2. *Research model*

Based on: (1) General theoretical basis on human resources and human resources development; (2) Overall results of research on the impact factors on HRD on socio-economic; (3) In particular, research gaps have been discovered.

Viewpoint: Covers 03 basic parts, including (1) Microeconomic factors impact on HRD in the socio-economic context of Lao PDR; (2) Macroeconomic factors impact on HRD in the socio-economic context of Lao PDR; (3) HRD in the socio-economic of Lao PDR context.

From the theoretical framework of human resources, HRD, and related foundational theories, as well as understanding the research overview, Table 1.1 presents the detailed contents of the 03 parts constituting the research model.

Table 2.1: Components of the research model

N	Factors	Source
I	Microeconomic factors	
1	Organizational Strategy	(Yang & Yang, 2014), (Wahjusaputri & Fitriani, 2017), (Sahputra, 2020), (Alketbi et al., 2022)
2	Technological Advancements	Mousa (2017), Diaz-Delgado et al. (2020), Ganda (2022)
3	Leadership and Management Support	Li & Zahran (2014), Singh et al. (2020), Jaruwanakul (2021)
4	Corporate Culture	Nemeth et al. (2016), Armstrong (2020), Choi et al. (2020)
5	Feedback and Performance Evaluation Systems	Khosa (2019), Thomas & Brown (2020), Twalib (2021)
6	Employee Motivation and Engagement	Presbitero (2017), Shuck et al. (2017), Rigby & Ryan (2018)
7	External Educational Resources	Stijns (2006), Asongu & Nwachukwu (2015)
II	Macroeconomic factors	
1	Economic Conditions	Salikov et al. (2019), Gubin et al. (2019), Bapurao (2021)
2	Labor Market Conditions	Hunko (2013), Chin & Shen (2015)
3	Workforce Demographics	Chang et al. (2016), Koutsoumpa et al. (2020)
4	Government Regulations and Policies	Intarakumnerd et al. (2012), Mishra (2017), Agelebe (2019), Mohamed (2020)
5	Globalization	Khalil et al. (2009), Ahmed & Siddiqui (2020), Latin et al. (2021)
III	HRD in the socio-economic	(Hossain et al., 2015; Flórez-Martínez et al., 2023), Swanson, (2022)

Source: The author summary, 2023

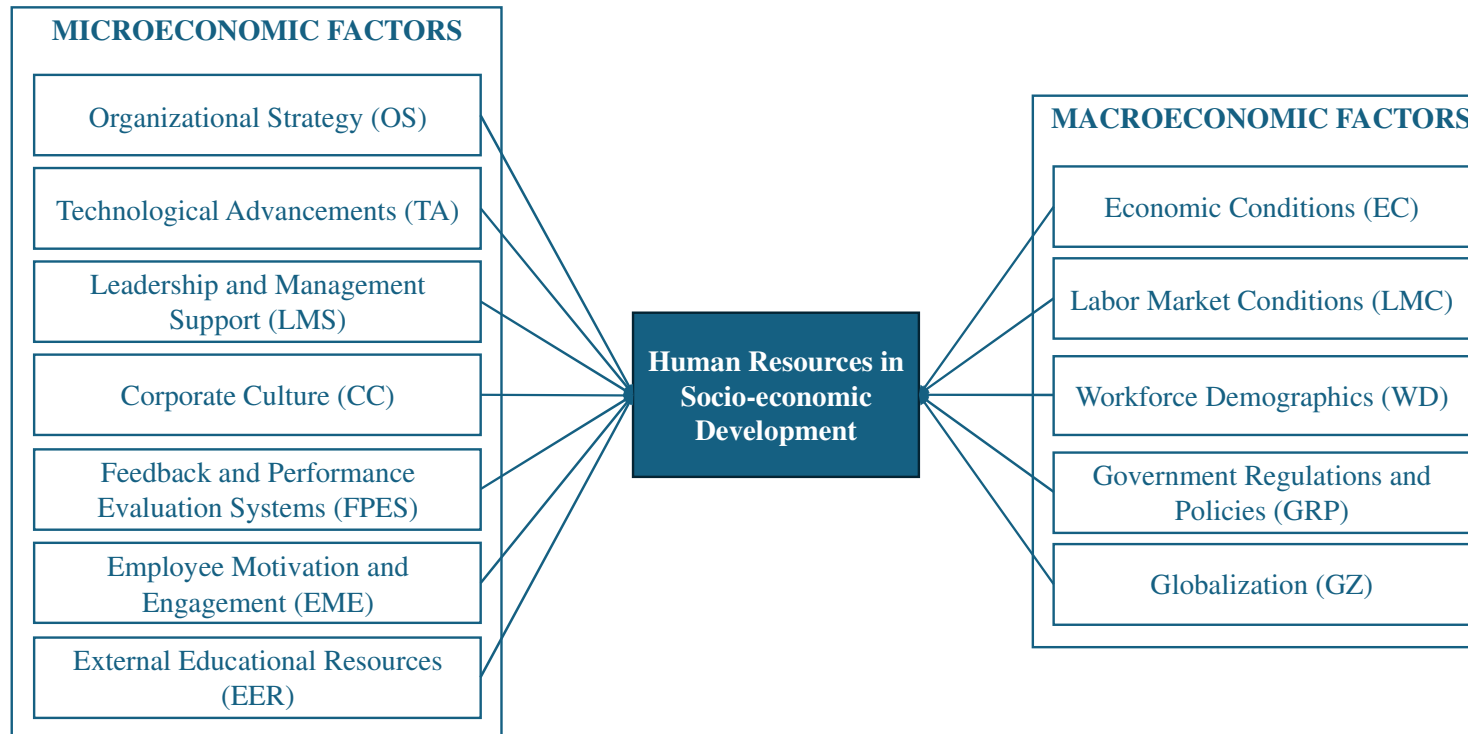


Figure 2.1: Research model
Source: The author designs, 2023

2.2. Developing research hypotheses

Based on the conceptual framework and literature review, the study proposes a comprehensive set of hypotheses to explore the relationships between micro-level and macro-level factors and Human Resource in Socio-Economic Development (HRD) in the context of Lao PDR.

Human Resource Development is understood as a multidimensional construct influenced by both internal (organizational-level) and external (contextual-level) drivers. These factors are hypothesized to have direct effects on the effectiveness of HRD within organizations, which in turn is posited to influence broader socio-economic outcomes at the national level.

To systematically examine these relationships, the research hypotheses are organized into two thematic aspect:

2.2.1. *Microeconomic (Organizational-Level) Factors*

Microeconomic factors represent internal organizational mechanisms that support or hinder human resource development, including strategic alignment, technological capacity, leadership, corporate culture, evaluation systems, employee engagement, and external training partnerships. Prior studies (Swanson & Holton, 2009; Armstrong, 2006; Kozlowski & Ilgen, 2006) have shown that these elements are critical to enabling continuous learning, innovation, and employee growth.

2.2.1.1. *Organizational Strategy factors and HRD*

The literature underscores the pivotal role of organizational strategy in the development of human resources, highlighting various critical factors that influence HR outcomes. Winklhofer (2001) explores the impact of organizational change on Information Systems projects, emphasizing the need for effective management of change for successful HR system implementations. Hsu et al. (2007) advocate for high-performance work systems as essential mechanisms for developing organizational human capital and boosting firm performance. Akhavan & Pezeshkan (2012) discuss the strategic importance of knowledge in creating competitive advantages for new businesses, emphasizing the role of HR strategies in leveraging this resource. Metet (2014) identifies performance measures and training in the road construction sector as key to competitive advantage, while Yang & Yang (2014) analyze organizational pressure and its implications for HR management. Tuksinnimit et al. (2016) link organizational innovativeness to determinant factors within HR practices, stressing the need for a comprehensive understanding to foster innovation. Ahmed et al. (2016) highlight the value of incorporating spiritual quotient in HR

development to enhance overall organizational performance. Wahjusaputri & Fitriani (2017) focus on competency development within civil service as critical to talent management strategies. Sahputra (2020) identifies communication management as central to effective organizational strategy, and Alketbi et al. (2022) explore the role of HRD in crisis management, suggesting that HR functions are crucial in managing organizational crises effectively. Based on the results of previous studies, the author states the following hypothesis:

H1: Organizational Strategy factors positively impact HRD in the socio-economic context of Lao PDR.

2.2.2.2. Technological Advancements factors and HRD

Research highlights the critical role of human resources in both the development of new firms and broader national and economic growth. Studies such as those by McKelvie & Davidsson (2009) emphasize the importance of founder and employee skills in startup growth and adaptability. Islam et al. (2012) and others explore the strategic role of HRM in enhancing national productivity and tackling development challenges. Additional research, like that by Diaz-Delgado et al. (2020), links well-managed human capital to collaborative innovation and technological advancements, particularly in SMEs. The impact of global crises on innovation and sustainability is also examined, illustrating the need for adaptable HR practices in uncertain times. Further studies, such as Ganda (2022) and Wang & Cheng (2024), discuss the intersections of technology, HR development, and environmental impacts, underscoring the importance of integrating human capital strategies with technological advancements to drive economic efficiency and sustainability. Based on the results of previous studies, the author states the following hypothesis:

H2: Technological Advancements factors positively impact HRD in the socio-economic context of Lao PDR.

2.2.2.3. Leadership and Management Support factors and HRD

The literature emphasizes the critical role of leadership and management support in advancing human resources development, particularly in fostering sustainability and innovation within organizations. Gloet (2006) highlights how integrating knowledge management and human resource management can bolster leadership capabilities that promote sustainability. Cole & Crichton (2006) reveal that the culture of trauma teams, influenced significantly by human factors like communication and relationships, impacts performance beyond clinical skills, underscoring the value of effective leadership. Li & Zahran (2014) explore how emotional intelligence in leaders can enhance leader-member relations and overall organizational performance in Kuwait. Singh et al. (2020) discuss the role of green transformational leadership and HRM in driving green innovation and environmental performance. Jaruwanakul (2021)

identifies management support as a key driver of innovative work behavior in Thai real estate firms. Collectively, these studies suggest that leadership and management support are essential for promoting environmental sustainability, enhancing employee engagement, and fostering a culture of innovation, thereby contributing to the overall success of organizations. Based on the results of previous studies, the author states the following hypothesis:

H3: *Leadership and Management Support factors positively impact HRD in the socio-economic context of Lao PDR.*

2.2.2.4. *Corporate Culture factors and HRD*

The literature consistently underscores the significant impact of corporate culture on human resources development within organizations. Studies such as Armstrong (2020) emphasize the role of strategic human resource management in shaping organizational culture and employee development. Research by Liu et al. (2014) and Reverte et al. (2016) illustrates how factors like corporate culture and corporate social responsibility influence enterprise competitiveness and organizational performance. Nemeth et al. (2016) and Rawshdeh et al. (2018) point out the direct effects of performance management and socially responsible HR practices on individual performance and talent retention. Further, studies Brewster et al. (2018), Musriha & Nurjaman (2019), and Zamlynskyi (2019) highlight the critical role of human capital and an adaptable corporate culture in enhancing work performance and gaining competitive advantages. Overall, the integration of strategic HRM, corporate social responsibility, and culturally aligned practices are shown to be key drivers in fostering a conducive work environment that promotes employee development and organizational success. Based on the results of previous studies, the author states the following hypothesis:

H4: *Corporate Culture factors positively impact HRD in the socio-economic context of Lao PDR.*

2.2.2.5. *Feedback and Performance Evaluation Systems factors and HRD*

The literature underscores the critical role of feedback and performance evaluation systems in advancing human resource development (HRD), affecting employee attitudes, job satisfaction, and organizational performance. Wells et al. (2007) highlight the significance of transparent electronic performance monitoring (EPM) to foster positive perceptions of fairness and satisfaction. Van der Heijden & Nijhof (2004) discuss the benefits of 360-degree feedback, noting its ability to provide diverse perspectives that enhance the appraisal process. Khalil et al. (2009) and di Kabupaten Banyuwangi (2014) focus on specific HRD competencies and holistic approaches in the agricultural sector

to boost performance and job satisfaction. Research by Khosa (2019), Thomas & Brown (2020) explores how performance appraisal systems support corporate goals and accountability, particularly in specialized fields. Twalib (2021) and Latin et al. (2021) emphasize the importance of effective communication, trust, and strategic HR management in driving employee engagement, productivity, and organizational alignment with technological and global advancements. Based on the results of previous studies, the author states the following hypothesis:

H5: *Feedback and Performance Evaluation Systems factors positively impact HRD in the socio-economic context of Lao PDR.*

2.2.2.6. *Employee Motivation and Engagement factors and HRD*

The literature on employee motivation and engagement highlights the importance of various factors including intrinsic motivation, leadership styles, and HRM practices in enhancing organizational performance and employee well-being. Studies such as Abu Rub (2010) in Jordan emphasize the effectiveness of servant leadership and High-Performance Work Systems in improving employee retention and motivation. Singh (2012) identifies the alignment of job roles with employee values as crucial in the healthcare sector. Tools like the ISA Engagement Scale introduced by Soane et al. (2012) and a three-dimensional measurement by Shuck et al. (2017) aid in assessing and improving engagement strategies. Research by Presbitero (2017) and Katou (2017) demonstrates the dynamic impact of HR practices on engagement levels, while Huyghebaert et al. (2018) focus on the role of the Psychological Safety Climate in mitigating job stress. Rigby & Ryan (2018) apply Self-Determination Theory to explore intrinsic motivation factors. Based on the results of previous studies, the author states the following hypothesis:

H6: *Employee Motivation and Engagement factors positively impact HRD in the socio-economic context of Lao PDR.*

2.2.2.7. *External Educational Resources factors and HRD*

The development of human resources across various sectors, including education, healthcare, and industry, is significantly influenced by external educational resources. Sugarman et al. (1974) discuss the Systems Approach to Training for aircrew, emphasizing the need for efficient training systems utilizing external resources. Stijns (2006) explores the impact of natural resources on human capital accumulation, suggesting a careful approach to resource exploitation. Chiware (2010) highlights the challenges academic libraries face in adapting to new technologies to support human

resources development. Asongu & Nwachukwu (2015) examine how foreign aid volatility affects lifelong learning, emphasizing its influence on educational policy. Hamdani & Sagala (2017) discuss innovative HR management models in vocational schools, underscoring the importance of effective practices in enhancing educational staff potential. Based on the results of previous studies, the author states the following hypothesis:

H7: External Educational Resources factors positively impact HRD in the socio-economic context of Lao PDR.

2.2.2. Macroeconomic (National-Level) Factors

Macroeconomic factors refer to the contextual conditions that shape the labor market, training infrastructure, and national capacity for human development. These include economic growth, workforce demographics, policy frameworks, labor market dynamics, and globalization pressures. Studies by the World Bank (2020), ADB (2021), and UNDP (2016) suggest that countries with supportive macro environments tend to achieve better HRD outcomes.

2.2.2.1. Economic conditions factors and HRD

The literature reviewed explores the intricate relationship between human resources management, economic conditions, and environmental factors, emphasizing their significant impact on regional development and sustainability. Milincic (2004) discusses how economic-geographical and environmental polarization influences the development of human societies, emphasizing the importance of understanding the formation of socio-economic areas and territories of economic stagnation. Salikov et al. (2019) highlight the need to consider economic security in regional development strategies, particularly within the digital economy. Gubin et al. (2019) propose a marketing-resource approach to address instabilities in socio-economic systems caused by asymmetrical marketing behaviors, which are crucial during economic crises. Lenkova et al. (2014) discuss the challenges of sustainable regional development and its implications for human resources management. Bapurao (2021) underscores the pivotal role of human resources in regional economic growth, advocating for strategic regional planning. Lastly, Klimovskikh et al. (2023) examine the influence of human resource management on enhancing the innovation potential of enterprises, linking successful innovation to sustainable development principles. Based on the results of previous studies, the author states the following hypothesis:

H8: Economic conditions factors positively impact HRD in the socio-economic context of Lao PDR.

2.2.2.2. *Labor Market Conditions factors and HRD*

The literature on labor market conditions and their impact on human resources development is extensive and multifaceted, encompassing a variety of factors that influence labor dynamics and organizational effectiveness. Fafchamps & Quisumbing (1999) investigate the link between education and productivity in rural Pakistan, finding that education enhances off-farm income for males, leading to a shift from farm to non-farm labor. Siow (1998) explores how fertility differences affect gender roles in labor and financial markets, suggesting that gender disparities in the labor market can occur independently of equal opportunities or social norms. Datta et al. (2005) highlight the role of industry characteristics in the success of human resource management practices in enhancing labor productivity. Polachek & Xiang (2009) analyze the gender pay gap internationally, connecting it to factors like fertility rates and tax policies which influence women's participation in the labor force. D'Angelo et al. (2021) study the interplay between market competition, HRM practices, and productivity in small firms. Hunko (2013) examines the determinants of human resource development at both the individual and societal levels. Lehmann & Zaiceva (2009) analyze labor relations within a Russian firm to understand labor market dynamics, while Chin & Shen (2015) focus on career management perceptions among Malaysian undergraduates. Cashman et al. (2013) discuss the importance of social capital in shaping labor market outcomes. Based on the results of previous studies, the author states the following hypothesis:

H9: *Labor Market Conditions factors positively impact HRD in the socio-economic context of Lao PDR.*

2.2.2.3. *Workforce Demographics factors and HRD*

The literature reveals that Human Resource Development (HRD) is crucial for organizations to effectively manage workforce challenges and leverage opportunities, influenced by demographic shifts and socio-cultural factors. Newell (1996) advocates for a transformative, proactive approach in government HRD strategies to prepare for future workforce demands. Dirani (2006) explores how socio-cultural factors in Lebanon affect HRD outcomes, highlighting the complexity of managing HRD where traditional and modern values intersect. Mahroum et al. (2007) discuss the need for HRD adaptation in the technology sector due to demographic changes and globalization. Callanan & Greenhaus (2008), along with Streb & Voelpel (2009) at Daimler AG, emphasize strategies for managing an aging workforce, focusing on career management and knowledge retention. Boenzi et al. (2015) propose age-adapted job rotation schedules to optimize performance and reduce strain among older workers. Chang et al. (2016) and Wang et al.

(2014) analyze how demographic factors like age and cultural background affect employee trust and resilience in Australia and China, respectively. Koutsoumpa et al. (2020) highlight the need for strategic financial planning in HRD for sustainable healthcare services in Uganda. Based on the results of previous studies, the author states the following hypothesis:

H10: *Workforce Demographics factors positively impact HRD in the socio-economic context of Lao PDR.*

2.2.2.4. *Government Regulations and Policies factors and HRD*

The literature underscores the significant role of government regulations and policies in shaping human resources development and economic growth globally. Almounsr (2008) emphasizes the need for policies that stabilize economies and retain capital in the MENA region. Litao & Jinjing (2009) highlight strategic shifts in China's HRD policy, aligning workforce development with economic expansion in their Five-Year Plan. Wandel & Kozbagarova (2009) address Kazakhstan's strategies to avoid the resource curse through economic policy choices. Intarakumnerd et al. (2012) suggest enhancing Thailand's automotive industry through external knowledge integration. Mishra (2017) advocates for sustainable practices in Indian HR management. Agelebe (2019) discusses balancing liberal economic regulations with environmental protection in Africa. Mohamed (2020) considers policy frameworks in Sudan to utilize natural resource rents for human and economic development. Matsuzaki et al. (2021) explore how Japanese local government policies can boost innovation in SMEs. These studies collectively highlight the pivotal role of targeted governmental interventions in fostering human resources development and driving socioeconomic growth across different regions and industries. Based on the results of previous studies, the author states the following hypothesis:

H11: *Government Regulations and Policies factors positively impact HRD in the socio-economic context of Lao PDR.*

2.2.2.5. *Globalization factors and HRD*

Globalization has significantly transformed human resources development, impacting both governmental and corporate sectors across various countries. Farazmand & Pinkowski (2006) analyze the need for adaptive governance and public administration reforms in response to globalization's challenges and opportunities. Khalil et al. (2009) investigate HRD competencies in Yemen's agricultural sector, emphasizing the importance of skills such as leadership and effective communication for improving agricultural extension services. Ahmed & Siddiqui (2020) explore the relationship

between HRM practices and competitive advantage in Pakistan's banking industry, showing that effective HRM and Total Quality Management (TQM) are crucial for maintaining industry competitiveness. Latin et al. (2021) discuss the strategic role of HR in adapting to technological advancements driven by globalization, stressing the alignment of HR strategies with organizational goals to enhance competitiveness in a dynamic global market. Based on the results of previous studies, the author states the following hypothesis:

H12: *Globalization factors positively impact HRD in the socio-economic context of Lao PDR.*

2.3. Develop measurement scales

Based on the above analysis from previous studies, adjust and supplement content appropriate to the research context of the thesis. The scales measuring demographic characteristics and independent and dependent variables are presented below.

2.3.1. Measurement of demographic characteristics

The criteria for classifying demographic characteristics are extracted from previous studies, specifically: Living area, Gender, Age Group, Education, Position, Experience, Organization Sector, Organization Size (Justine et al., 2012; Hu & Coulter, 2017; Dumani et al., 2018; Leisering, 2020; Swanson, 2022). In addition, the author has adjusted and supplemented some criteria to suit the research context, culture, people, and economic development conditions in Lao PDR. Details are presented in Table 2.2.

Table 2.2: Measurement of demographic characteristics

N	Characteristics	Classification criteria	Source
1	Living area	Vientiane, Luang Prabang, Sayabouly, Oudomxay, Savannakhet, Khammouan, Bolikhamxay, Other	(Justine et al., 2012; Hu & Coulter, 2017; Dumani et al., 2018; Leisering, 2020; Swanson, 2022)
2	Gender	Male, Female, Other	
3	Age Group	18-19, 20-24; 25-29, 30-34, 35-39, 40-50, 50-60, Over 60 years	
4	Education	High school, College, Bachelor, Master	
5	Position	Manager, Employee, Self-employee, Student, Retirement, Housewife, Other	
6	Experience	< 5 years, 5-10 years, > 10 years	The author develops
7	Organization Sector	Government Services, Personal Services, Infrastructure Services, Distribution Services, Financial services, Other	Dumani et al., 2018 ; Leisering, 2020 ; Swanson, 2022)

8	Organization Size	< 50 employees, 50 - 100 employees, > 100 employees	The author develops
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Source: The author summary, 2023

2.3.2. Measure independent variables

2.3.2.1. Measuring Organizational Strategy factors

The author developed scales to measure Organizational Strategy factors by using studies from (Yang & Yang, 2014), (Wahjusaputri & Fitriani, 2017), (Sahputra, 2020), (Alketbi et al., 2022). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.3.

Table 2.3: Measurement items of Organizational Strategy factors

Code	Items	Source
OS1	The HRD programs in our organization are closely aligned with its strategic goals	(Yang & Yang, 2014),
OS2	Our training programs focus on developing skills that are crucial for achieving our organization's strategic objectives.	(Wahjusaputri & Fitriani, 2017), (Sahputra, 2020),
OS3	Adequate resources (budget, time, tools) are allocated for HRD in line with our strategic needs	
OS4	The goals of our HRD programs are well communicated and understood within the organization in the context of our strategic direction.	(Alketbi et al., 2022)
OS5	Feedback from HRD programs is used to make strategic adjustments in organizational planning.	The author developed
OS6	Our HRD programs quickly adapt to changes in our organization's strategic direction	The author developed

Source: The author summary, 2023

2.3.2.2. Measuring Technological Advancements factors

The author extracted scales to measure Technological Advancements factors from studies by Mousa (2017), Diaz-Delgado et al. (2020), Ganda (2022). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.4.

Table 2.4: Measurement items of Technological Advancements factors

Code	Items	Source
TA1	Our organization effectively integrates new technologies into our HRD programs	Mousa (2017), Diaz-Delgado et al. (2020), Ganda (2022)
TA2	All employees have access to up-to-date technologies for their training and development needs.	
TA3	Technology has significantly enhanced the learning experience in our HRD programs.	
TA4	Digital tools and platforms are effectively used for collaborative learning and development in our organization.	
TA5	Our organization utilizes e-learning platforms to provide flexible learning opportunities for all employees.	Ganda (2022)
TA6	Our HRD programs prepare employees adequately for technological changes in their respective fields.	
TA7	The adoption of new technologies in HRD has positively impacted the productivity of our workforce.	The author developed
TA8	Technology has effectively supported the shift to remote learning and development where necessary.	The author developed

Source: The author summary, 2023

2.3.2.3. Measuring Leadership and Management Support factors

The author developed scales to measure Leadership and Management Support based on the study by Li & Zahran (2014), Singh et al. (2020), Jaruwanakul (2021). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.5.

Table 2.5: Measurement items of Leadership and Management Support factors

Code	Items	Source
LMS1	Leaders in our organization demonstrate a strong commitment to HRD.	Li & Zahran (2014), Singh et al. (2020), Jaruwanakul (2021)
LMS2	Our management ensures that adequate resources (budget, time, tools) are allocated for HRD.	
LMS3	Senior managers actively participate in HRD programs, either as learners or facilitators.	
LMS4	Our managers are supportive when it comes to adapting HRD practices based on changing organizational needs.	
LMS5	Leadership actively supports and promotes participation in professional development opportunities	The author developed

Source: The author summary, 2023

2.3.2.4. *Measuring Corporate Culture factors*

Scales to measure Corporate Culture factors are developed based on the study by Nemeth et al. (2016), Armstrong (2020), Choi et al. (2020). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.6.

Table 2.6: Measurement items of Corporate Culture factors

Code	Items	Source
CC1	Our organization's culture strongly supports the goals of HRD	Nemeth et al. (2016),
CC2	Continuous learning and development are valued and encouraged within our corporate culture.	Armstrong (2020), Choi et al. (2020)
CC3	The corporate culture empowers employees to take initiative in their own professional development.	
CC4	Our corporate culture promotes inclusivity, ensuring all employees have equal access to development opportunities.	
CC5	Our corporate culture is adaptable to changes that affect HRD practices.	Choi et al. (2020)
CC6	The prevailing corporate culture positively impacts the performance outcomes of HRD initiatives.	

Source: The author summary, 2023

2.3.2.5. *Measuring Feedback and Performance Evaluation Systems factors*

Scales to measure Feedback and Performance Evaluation Systems factors are developed based on the study by Khosa (2019), Thomas & Brown (2020), Twalib (2021). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.7.

Table 2.7: Measurement items of Feedback and Performance Evaluation Systems factors

Code	Items	Source
FPES1	The feedback I receive is clear and constructive, helping me to improve my job performance.	Khosa (2019), Thomas & Brown (2020),
FPES2	Feedback from performance evaluations is aligned with my personal and professional development goals.	Thomas & Brown (2020),
FPES3	Receiving regular feedback motivates me to engage more actively in HRD programs.	
FPES4	The feedback from evaluations leads to actionable changes in HRD programs that benefit employees	Twalib (2021)

FPES5	Performance evaluations are well integrated with HRD efforts, enhancing the overall development process.	
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Source: The author summary, 2023

2.3.2.6. *Measuring Employee Motivation and Engagement factors*

Scales to measure Employee Motivation and Engagement factors are developed based on the study by Presbitero (2017), Shuck et al. (2017), Rigby & Ryan (2018). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.8.

Table 2.8: Measurement items of Employee Motivation and Engagement factors

Code	Items	Source
EME1	I am motivated to participate in training and development programs offered by the organization.	Presbitero (2017), Shuck et al. (2017), Rigby & Ryan (2018)
EME2	Feedback from performance evaluations is aligned with my personal and professional development goals.	
EME3	Receiving regular feedback motivates me to engage more actively in HRD programs.	
EME4	The feedback from evaluations leads to actionable changes in HRD programs that benefit employees	
EME5	Performance evaluations are well integrated with HRD efforts, enhancing the overall development process.	

Source: The author summary, 2023

2.3.2.7. *Measuring External Educational Resources factors*

Scales to measure External Educational Resources factors are developed based on the study by Stijns (2006), Asongu & Nwachukwu (2015). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.9.

Table 2.9: Measurement items of External Educational Resources factors

Code	Items	Source
EER1	The external educational resources provided are relevant to my current job role and future career development.	Stijns (2006),
EER2	The quality of learning obtained from external educational resources meets my expectations and needs.	
EER3	The organization supports my use of external educational resources through funding or time allowances.	

EER4	Using external educational resources has significantly contributed to my professional growth.	Asongu & Nwachukwu (2015)
EER5	I am satisfied with the range and quality of external educational resources offered by the organization.	The author developed
EER6	The skills I have developed through external educational resources have directly enhanced my job performance.	The author developed
EER7	External educational resources are well integrated with our internal training programs.	The author developed

Source: The author summary, 2023

2.3.2.8. *Measuring Economic conditions factors*

Scale to measure Economic conditions factors are extracted from studies by Salikov et al. (2019), Gubin et al. (2019), Bapurao (2021) In addition, to suit the research context as well as the economic, cultural and social conditions in Lao PDR, the author has adjusted the questions at some scales and added necessary questions. Likert (1-5) scale is used for all question, more details are presented in Table 2.10

Table 2.10: Measurement items of Economic conditions factors

Code	Items	Source
EC1	Under tight economic conditions, our organization still prioritizes funding for HRD.	Salikov et al. (2019), Gubin et al. (2019),
EC2	Our HRD strategies are flexible and adapt well to changing economic conditions.	
EC3	When the economy is strong, our organization increases its investment in HRD.	Bapurao (2021)
EC4	Economic fluctuations significantly impact employee morale and their participation in HRD activities.	Salikov et al. (2019), Gubin et al. (2019),
EC5	Economic downturns lead to reduced training and development opportunities in our organization	

Source: The author summary, 2023

2.3.2.9. *Measuring Labor Market Conditions factors*

Scales to measure Labor Market Conditions factors are adapted from studies by Hunko (2013), Chin & Shen (2015). In addition, to suit the research context as well as the economic, cultural and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all question, more details are presented in Table 2.11

Table 2.11: Measurement items of Labor Market Conditions factors

Code	Items	Source
LMC1	Our HRD programs quickly adapt to changes in labor market conditions.	Hunko (2013),
LMC2	Our organization regularly analyzes the labor market to identify skills gaps and adjust HRD programs accordingly.	
LMC3	Current labor market conditions have significantly influenced our recruitment strategies and HRD needs.	
LMC4	Our HRD programs are effective in addressing the demand for emerging skills identified by labor market trends.	Chin & Shen (2015)
LMC5	In a competitive labor market, our HRD strategies effectively contribute to employee retention.	

Source: The author summary, 2023

2.3.2.10. Measuring Workforce Demographics factors

Scales to measure Workforce Demographics factors are developed based on the study by Chang et al. (2016), Koutsoumpa et al. (2020). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.12.

Table 2.12: Measurement items of Workforce Demographics factors

Code	Items	Source
WD1	Our HRD programs are designed to be inclusive of all demographic groups.	Chang et al. (2016), Koutsoumpa et al. (2020)
WD2	Training and development opportunities are customized to meet the diverse needs of our workforce.	
WD3	All demographic groups have equal access to HRD initiatives.	
WD4	Shifts in workforce demographics have led to changes in our HRD strategies.	

Source: The author summary, 2023

2.3.2.11. Measuring Government Regulations and Policies factors

The author developed scales to measure Government Regulations and Policies factors based on studies by Intarakumnerd et al. (2012), Mishra (2017), Mohamed (2020), Agelebe (2019). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.13.

Table 2.13: Measurement items of Government Regulations and Policies factors

Code	Items	Source
GRP1	Our HRD programs are fully compliant with current government regulations.	Intarakumnerd et al. (2012), Mishra (2017),
GRP2	Government regulations have broadened the scope of our HRD initiatives.	Mohamed (2020)
GRP3	Government policies provide support that enhances our training and development programs.	Agelebe (2019),
GRP4	Regulatory requirements impose constraints on our ability to execute HRD programs as desired.	
GRP5	Government regulations encourage innovation in our HRD practices.	Intarakumnerd et al. (2012),
GRP6	Our organization quickly adapts to changes in HRD-related regulations.	
GRP7	Regulations improve the quality and effectiveness of our HRD programs.	

Source: The author summary, 2023

2.3.2.12. Measuring Globalization factors

To measure Globalization factors, the author developed scales based on research by Khalil et al. (2009), Ahmed & Siddiqui (2020), Latin et al. (2021). In addition, to suit the research context as well as the economic, cultural, and social conditions in Lao PDR, the author has adjusted the questions to some scales and added necessary questions. Likert (1-5) scale is used for all questions. More details are presented in Table 2.14.

Table 2.14: Measurement items of Globalization factors

Code	Items	Source
GZ1	Our HRD programs effectively prepare employees for a globalized work environment.	Khalil et al. (2009), ,
GZ2	Our organization provides comprehensive cross-cultural training to enhance global collaboration.	Latin et al. (2021)
GZ3	Globalization has enhanced our ability to manage talent across different geographic locations.	Ahmed & Siddiqui (2020)
GZ4	Globalization has increased the diversity and inclusivity of our HRD programs.	

Source: The author summary, 2023

2.3.3. Measure dependent variables

According to the result of studies by (Hossain et al., 2015; Flórez-Martínez et al., 2023), [Swanson, \(2022\)](#), the author developed questions using the Likert scale to measure HRD in the socio-economic of Lao PDR. Each question allows respondents to rate their agreement with the statements from "Strongly disagree" to "Strongly agree". More details are presented in Table 2.15

Table 2.15: Measurement items of HRD in the socio-economic

Code	Items	Source
HRD1	The HRD programs provided are directly relevant to my job role and responsibilities.	(Hossain et al., 2015; Flórez-Martínez et al., 2023),
HRD2	The training materials used in HRD programs are up-to-date, clear, and useful.	
HRD3	The facilitators of HRD programs are knowledgeable and effective in delivering training.	
HRD4	HRD programs align well with my personal and career development goals.	
HRD5	There is a mechanism in place to provide feedback on HRD programs, which is used for continuous improvement.	The author developed
HRD6	Participation in HRD programs has positively impacted my job performance.	
HRD7	The organization supports continuous learning and development through ongoing HRD initiatives.	Swanson, (2022)
HRD8	All employees have equal access to participate in HRD programs.	

Source: The author summary, 2023

CHAPTER SUMMARY 2

The developed research model includes 03 components: 08 demographic characteristics of Lao PDR people, 12 impact factors on HRD in soci-economic.

The authors have clarified, extracted and adjusted the measurement scales for each factor of the research model from previous studies as well as self-developed based on the characteristics of culture, people, living environment and other factors, unique characteristics of Lao PDR human resources and economy.

CHAPTER 3

RESEARCH CONTEXT AND METHODOLOGY

To analyze the HRD in socio-economic of Lao PDR, one can use a number of different methods: (1) Based on secondary data; (2) Based on observational research results (by people, equipment); (3) Based on actual survey results; (4) Or combine these methods together in one study. Under the author's conditions and abilities, methods 1, 2, and 4 are not feasible. Therefore, the research method used in this thesis is a large-scale field survey method of Lao PDR people. And this method is carried out in a two-step process: qualitative research and quantitative research. Additionally, with the aim of establishing a basis for developing research methods, Chapter 3 will begin by presenting the research context.

3.1. Context of human resource development in the socio-economic of Lao PDR

HRD in Laos PDR is intricately linked with the country's socio-economic context, which is characterized by its status as a developing nation with a rapidly changing economic landscape. As Lao PDR continues to transition from a centrally planned economy to a more market-oriented economy, HRD plays a crucial role in supporting this transformation. Here are key aspects that contextualize HRD within the socio-economy of Lao PDR:

Economic Growth and Diversification: Lao PDR has experienced significant economic growth over the past few decades, primarily driven by natural resource exports and increased foreign direct investment, particularly in sectors like mining, hydropower, and agriculture (World Bank, 2021a). However, the country is also focusing on economic diversification to reduce dependency on natural resources, which has implications for HRD. There is a growing need to develop human resources in sectors such as tourism, manufacturing, and services to support this diversification.

Educational Challenges: Education is a fundamental component of HRD. In Lao PDR, the educational sector faces several challenges that impact the development of a skilled workforce (World Bank, 2021b). These include limited access to quality education, especially in rural areas, high dropout rates, and a curriculum that often does not meet the evolving needs of the labor market (Kamiya & Nomura, 2023). Efforts to reform the educational system are crucial for improving the quality of human resources.

Skills Gap: There is a significant skills gap in the Lao workforce, particularly in terms of technical and vocational skills that are necessary for the country's industrialization goals (World Bank, 2021b). Vocational training and technical education are becoming

increasingly important in HRD strategies to equip the workforce with practical and applicable skills. Partnerships with international donors and organizations often support these training initiatives .

Demographic Dynamics: Lao PDR has a relatively young population, which presents both opportunities and challenges for HRD (ADB, 2023). While a young workforce is a potential demographic dividend, realizing this potential requires substantial investment in education and training to equip young people with the skills needed for employment (ADB, 2023).

Rural-Urban Divide: There is a pronounced rural-urban divide in Laos, with a significant portion of the population living in rural areas and depending primarily on subsistence agriculture (WB, 2022). HRD in these areas focuses on agricultural training and rural development programs to enhance productivity and support small-scale farmers transitioning to more sustainable practices.

Policy and Governance: The Lao government recognizes the importance of HRD in its national development strategy and has implemented various policies aimed at improving education and skills development. This includes the National Socio-Economic Development Plan, which outlines priorities for HRD among other development objectives. Effective governance and implementation of these policies are key to successful HRD (UNDP, 2022).

International Cooperation: Lao PDR has engaged in multiple partnerships with international organizations and neighboring countries to boost its HRD (UNDP, 2022). These collaborations often focus on sharing expertise, resources, and best practices in HRD, and they play a pivotal role in enhancing the capabilities of the Lao workforce.

Overall, HRD in Lao PDR is a dynamic field influenced by economic priorities, demographic trends, and educational reforms. Addressing the challenges in HRD is crucial for Laos to achieve its socio-economic objectives and ensure sustainable development.

3.2. Qualitative research

3.2.1. Qualitative research objectives

The qualitative research in this thesis aims to explore, adjust, and supplement measurement scales to design a preliminary questionnaire. In addition, it is necessary to learn about methods and techniques of investigation and data collection and adjusting components of the research model proposed in Chapter 2. Specific goals include:

- Determine the types of questions, components of the preliminary questionnaire, and demographic variables needed for research.
- Add, edit, and clarify measurement scales (questions) and classification criteria used to measure 03 components (Microeconomic factors, Macroeconomic factors, HRD in socio-economics) of the research model suggested in Chapter 2.
- Select appropriate tools, data collection methods, and data processing methods for the research. Edit the language and terminology used in the research, ensuring universality and simplicity, the easiest to understand

3.2.2. Qualitative research questionnaire

The qualitative research questionnaire design for the qualitative study on “Human resources development in socio-economic development in Lao PDR” included creating open-ended questions to encourage detailed responses and discussions. The questionnaire should address many aspects of HRD and the impact factors. The structure of the preliminary questionnaire is specifically as follows:

Part A: DEMOGRAPHIC

Based on the research overview, the author designed 08 demographic questions (Living area, Age, Gender, Education, Position, Experience, Organization Sector, Organization Size) to measure the population's demographic characteristics and human resources in Lao PDR. The questions are all multiple-choice questions. Options are developed and extracted from previous studies.

Part B. SURVEY INVESTIGATION

From the overview and research model, it is necessary to survey and investigate Microeconomic factors and Macroeconomic factors impact on HRD in socio-economic of Lao PDR.

Microeconomic factors: 07 factor - 42 questions

I. Organizational Strategy (OS); II. Technological Advancements (TA); III. Leadership and Management Support (LMS); IV. Corporate Culture (CC); V. Feedback and Performance Evaluation Systems (FPES); VI. Employee Motivation and Engagement (EME); VII. External Educational Resources (EER).

Macroeconomic factors: 05 factor - 25 questions

VIII. Economic Conditions (EC); IX. Labor Market Conditions (LMC); X. Workforce Demographics (WD); XI. Government Regulations and Policies (GRP); XII. Globalization (GZ)

Human resources development: 8 questions

The author consistently used a single-choice question format with a Likert scale from 1 to 5. Because the purpose of collecting information is different between human resources components, there is no uniformity in the answers to all questions. The author uses Likert 1-5 with different choice expressions for each question. All questions are coded to ensure editing and completion in later steps.

3.2.3. Qualitative research sample and selecting subject for in-depth interviews

3.2.3.1. Qualitative research sample size

Data saturation is the point at which no new information/themes are discovered after completing in-depth interviews (Guest et al., 2006). This can be seen as "a useful concept when discussing sample size in qualitative research" (Boddy, 2016, p. 1). Theoretically, sampling until data saturation is reached in qualitative research can be used to determine a specific sample size in any qualitative study. However, in practical terms, it is challenging to decide on data saturation (Boddy, 2016). In terms of the lower limit of sample size in qualitative research, Sandelowski (1995) suggests that the minimum sample size is 10, while Creswell & Poth (2016) indicate the minimum should be 15; Marshall et al. (2013) offered 20. In terms of the upper limit of sample size, researchers all have a very similar opinion that a sample size larger than 50 will not allow for in-depth analysis (Sandelowski, 1995; Guest et al., 2006; Boddy, 2016), too many interviews will cost a lot of money and time (Boddy, 2005). Thus, based on previous researchers' proposals on qualitative research sample size, the author decided that the qualitative research sample size of the thesis is **15**, as proposed by Sandelowski (1995, p. 182): "*sample size ranges from 10 - 50; most suitable is 15 - 35 for analytical and experimental studies*".

3.2.3.2. Selecting subjects for in-depth interviews

Selection criteria and selecting groups for in-depth interviews are critical in qualitative research (Guest et al., 2006). Criteria for choosing the interview group need to ensure high representation and generalization. The purpose is to avoid a situation where there are too many criteria, making it challenging to select an in-depth interview group and, therefore, needing more helpful advice for the survey (Boddy, 2005). On the other hand, if too few criteria are given, it will lead to selecting too many groups for in-depth interviews and will, therefore, waste resources and costs of conducting research (Sandelowski, 1995; Guest et al., 2006; Boddy, 2016).

To ensure the qualitative findings would provide meaningful insights into the underlying mechanisms and contextual factors influencing human resource development (HRD) in

Lao PDR, a purposive sampling strategy was employed. The participants were deliberately selected based on their relevance to the research problem and their ability to provide diverse yet informed perspectives.

Thus, the author selected in-depth interview groups according to the following criteria: main subjects of the research, related subjects, experts, and scientists in the research field. Table 2.1 details the selection criteria and content of in-depth interviews.

Table 3.1: Criteria for selecting subjects and Content to be in-depth interviewed

Group	Subject	Age	No	Content to be in-depth interviewed
1	Supervisor	35-40	2	Type and pattern of questions to use
	Coordinator	25-40	2	Questionnaire structure
	Manager	25-40	2	Sentences should be used in questions
	Director	30-45	2	How to use words and structure components in the research model
	Employee	20-60	2	Appropriate form of investigation (offline, online)
2	Experts Lecturers at NEU	30-50	5	Methods and tools used in questionnaire design Surveying techniques Collect, clean, and process data Analyze investigation results

Source: The author suggested, 2023

This sample was selected to cover two key stakeholder groups:

- **Group 1:** Practitioners (coordinators, employees) – who directly experience HRD policies and workplace practices. Decision-makers (Supervisor, Managers, Director) – who are responsible for designing and implementing HRD strategies within organizations.
- **Group 2:** Academics (experts/lecturers) – who can provide a broader, analytical perspective on systemic challenges and HRD frameworks in the Laotian context.

The rationale for choosing these two groups lies in their complementary viewpoints: while employees provide insights into actual training, motivation, and skill development at the micro level, managers offer information about organizational strategies and resource allocation, and academic experts contribute macro-level analyses and comparative regional knowledge.

Furthermore, the inclusion of professionals from the e-commerce sector is particularly relevant, as this industry represents one of the fastest-growing and most dynamic segments of Lao PDR's economy. It embodies both the opportunities and challenges of HRD in a rapidly digitalizing society – including issues of technological readiness, talent shortages, and organizational innovation.

Although the qualitative sample is not intended to be statistically representative, it was designed to ensure thematic saturation, allowing the researcher to capture a rich and nuanced understanding of the HRD landscape in Lao PDR. This approach aligns with recommendations in qualitative research literature (Patton, 2002; Creswell & Poth, 2016), which emphasize information-rich sampling and triangulation across roles to enhance the credibility and transferability of findings.

3.3. Quantitative research

3.3.1. *Quantitative research objectives*

The quantitative research in this thesis aims to learn about the demographic characteristics of human resources in Lao PDR and analyze the impact factors on HRD on the socio-economic of Lao PDR. Specifically includes:

- Explore and discover the unique characteristics of human resources in Lao PDR.
- Analyze factors affecting human resource development in the socio-economic context of Lao PDR.
- Propose recommendations for enhancing HRD in the socio-economic context of Lao PDR based on the results of research and actual surveys on Lao PDR's human resources.

Quantitative research results are used to analyze, evaluate, and then generalize the demographic characteristics of human resources in Lao PDR and the HRD in Lao PDR. Therefore, it can be said that quantitative research is one of the very important parts of the thesis. To ensure the achievement of the above objectives of quantitative research, the author proceeds to carry out the work steps in the exact order presented below.

3.3.2. *Design an questionnaire*

To design the questionnaire, first, the author adjusted the question content according to the results of the in-depth interviews so that each question used simple words, avoiding misunderstandings among respondents. In addition, the questionnaire structure was also adjusted to subdivide it into HRD and the impact factors. The answer options for each question have also been adjusted, still using Likert 1-5, but the content needs to be close to the question. Thus, the questionnaire was redesigned based on the adjustment of the

preliminary questionnaire, according to which there were 02 parts in the official questionnaire. The number of questions for each section and detailed information are presented in Table 3.2.

Table 3.2: Structure of Official questionnaire

No	Part	N ^o of question
A	DEMOGRAPHICS	08 (Q1-Q8)
B	SURVEY INVESTIGATION	
Microeconomic factors		
1	Organizational Strategy (OS)	06 (OS1 – OS6)
2	Technological Advancements (TA)	08 (TA1 - TA8)
3	Leadership and Management Support (LMS)	05 (LMS1 - LMS5)
4	Corporate Culture (CC)	06 (CC1 - CC6)
5	Workforce Demographics (WD)	04 (WD1 - WD4)
6	Feedback and Performance Evaluation Systems (FPES)	05 (FPES1 - FPES5)
7	Employee Motivation and Engagement (EME)	05 (EME1 - EME5)
8	External Educational Resources (EER)	05 (EER1 - EER5)
Microeconomic factors		
1	Economic Conditions (EC)	05 (EC1 - EC5)
2	Labor Market Conditions (LMC)	05 (LMC1 - LMC5)
3	Government Regulations and Policies (GRP)	07 (GPR1 - GPR7)
4	Globalization (GZ)	04 (GZ1 - GZ4)
HRD in the socio-economic		08 (HDR1 - HRD8)

Source: The author design, 2023

After the questionnaire was designed, the author designed the questionnaire content using the Google Form platform to conduct pilot research with 50 distributed questionnaires. The purpose is to test the suitability and reliability of the survey data as well as the predictive ability of the research model. In the next section, the author presents the specific content of the pilot research results.

3.3.3. Pilot research

Pilot research, often conducted as a preliminary study before a full-scale research project, is crucial for testing the feasibility, time, cost, risk, and adverse events associated with a research proposal. The contents of a pilot study report should provide comprehensive insights into these aspects and help in refining the main study's design and methodology. Here is the pilot research report:

Pilot research sample size: 50 respondents

Instrument: The questionnaire will be distributed in a Google Form via email from October to November 2022

3.3.4. Research sample design

Population: The sample size of this study was calculated and estimated using the formula proposed by (Comrey & Lee, 2013):

$$n = 5 * m$$

- in which:
- n: Minimum sample size,
 - m: number of items in the questionnaire

In the thesis, there are 73 measurement variables to collect data on 12 independent variables and 01 dependent variable. According to the above formula, the sample size needs to be **at least 365 observations** ($5*73=365$)

Sample size: Surveyors will be selected conveniently and randomly from an open population. Due to limitations in the author's capabilities, surveys are only conducted online via email and social networks. Therefore, the actual number of responses collected may not be sufficient if the smallest sample size is targeted. Additionally, the study will have to classify and filter responses with no value, such as incomplete responses. Besides, this is a large-scale study, and the survey subjects must represent the whole population. Referring to market research from companies such as Deloitte, Nielsen, and Q&Me, the sample size is usually at least 400.

Based on personal capacity and ability, the author has set a goal of increasing the sample. Thus, the sample size for the thesis is **400**.

Sampling method: Convenience sampling.

3.3.5. Data collection and validation

The survey is conducted online via email and social networks using Google Forms. Over six months, 420 questionnaires were sent out. The study will also ask participants to send questionnaires to their friends and colleagues.

When conducting online surveys in Laos, it is necessary to consider unique challenges and factors due to the country's socio-economic, technological, and cultural context. Below are important aspects that need to be kept in mind to ensure the efficiency and reliability of the data collection process:

3.3.5.1. Understanding the Local Context

Internet coverage: Up to now, the proportion of internet users in Lao PDR is lower than in developed countries (World Bank, 2021c). Therefore, the 7 provinces (survey areas)

that the author selected are all populous provinces, have developed economies and industrial parks, and have internet access distributed between urban and rural areas.

Device Access: Mobile phones are the most popular means of accessing the internet in Lao PDR. Therefore, the author designed a questionnaire on the Google Forms platform, with features optimized for mobile devices.

Language: Lao is the official language in Lao PDR, the survey was conducted in Lao to ensure broad accessibility and understanding by all respondents.

3.3.5.2. *Survey Distribution*

Platform: Use popular local social media platforms (such as Facebook, widely used in Lao PDR) and messaging applications to distribute questionnaires designed on Google Forms.

Collaboration: Partner with local organizations, universities, and community groups to help distribute the survey and encourage participation.

Stimulation: The author also used a number of gifts (good books and reference materials, English learning books for children...) to stimulate the rate of survey participation.

3.3.5.3. *Data Collection and Reporting*

Track Progress: Periodically monitor response rates and population representation, adjusting strategies as needed to reach underrepresented groups.

Data Cleaning: Prepare for thorough data cleaning, especially if inconsistencies or incomplete answers are expected due to varying levels of literacy.

Cultural Interpretation: Collaborate with local experts in interpreting results to ensure proper understanding and representation of cultural subtleties.

3.3.6. *Data analysis*

3.3.6.1. *Descriptive statistics*

The author has checked the collected information. Using secondary data, the author will collect detailed information and provide it to readers through text, tables and infographics so they can learn about the current state of human resources as well as the economy. social economy in Laos PDR. The author will use descriptive statistical techniques such as percentage (%), frequency (f) and mean.

The author can make inferences based on the findings. For example, a low average value indicates that the factor needs to be improved. From there, the author can make conclusions, suggestions, and recommendations for relevant parties.

3.3.6.2. Check the reliability of data using coefficients Cronbach's alpha

Cronbach's Alpha reliability coefficient method shows the degree of correlation between observed variables in the same factor. It determines which observed variables of a factor contribute to the measurement of the factor concept and which do not. However, according to Hair et al. (2006), this method does not indicate which variables need to be eliminated and which variables need to be retained in the model.

The range of values for the Cronbach's Alpha coefficient is [0,1]. Though this is not accurate, in theory, the higher this coefficient is, the better. According to Peterson (1994), scale overlap is where many variables in the scale do not differ, as indicated by a Cronbach's Alpha coefficient of 0.95 or higher. Therefore, we must consider the following factors when testing Cronbach's Alpha: According to Peterson (1994), select a scale if the Cronbach's Alpha reliability is greater than 0.6 and remove variables if the total variable correlation coefficient is less than 0.3. Value of the Cronbach's Alpha coefficient (Peterson, 1994; Hair et al., 2006):

- $0.8 < \text{Alpha} < 1$: excellent scale of measurement.
- $0.7 < \text{Alpha} < 0.8$: good scale of measurement
- > 0.6 : Qualified measurement scale

3.3.6.3. Multivariate analysis using Exploratory Factor Analysis (EFA)

The exploratory factor analysis (EFA) is a technique that falls under the category of interdependence techniques, which depends more on the relationships between variables than on dependent and independent variables. A set of k observed variables is reduced using EFA to a smaller set of F (where $F < k$) meaningful factors. The linear relationship between factors and observed variables serves as the foundation for this reduction.

Principal Components Analysis, along with Varimax rotation, is the widely utilized method in factor analysis. Factor loadings are a useful measure of the substantive significance of EFA, according to Hair et al. (2006):

- A factor loading of at least 0.3 is regarded as acceptable.
- Significant factor loading is defined as > 0.4 .
- Practical significance is regarded as factor loading greater than 0.5.

To perform an exploratory factor analysis, the following requirements must be met:

- The KMO (Kaiser-Meyer-Olkin) measure: This metric establishes whether the factor analysis is appropriate. A KMO value between 0.5 and 1 indicates

suitability, while a value below 0.5 suggests that the factor analysis is inappropriate.

- Bartlett's test: This statistical test investigates the null hypothesis, which states no population correlation between the observed variables. If the test yields statistically significant results (Sig. < 0.05), it implies a correlation between the observed variables within the population.
- Variance percentage: It satisfies the requirement if it exceeds 50%. This indicator displays the percentage of the observed variables' total variance that can be accounted for by factor analysis.

3.3.6.4. *Pearson correlation*

The linear correlation between two variables is the correlation that when representing the observed value of two variables on the Oxygen plane, the data points tend to form a straight line. According to (Gayen, 1951), in statistics, researchers use the Pearson correlation coefficient (symbol r) to quantify the degree of tightness of the linear relationship between two quantitative variables. If either or both variables are not quantitative (qualitative variables, binary variables, etc.), we will not perform Pearson correlation analysis for these variables.

The Pearson correlation coefficient r has a value ranging from -1 to 1:

- If r is moving towards 1, -1: the stronger the linear correlation, the tighter. Moving forward 1 is the positive correlation, going towards -1 is the negative correlation.
- If the more r goes to 0: the weaker the linear correlation.
- If $r = 1$: absolute linear correlation, when represented on the Scatter graph as shown above, the representation points will merge into a straight line.
- If $r = 0$: there is no linear correlation. At this time, there will be 2 situations. One, there is no connection between the two variables. Two, there is a nonlinear connection between them.

Cohen (2008) argues that although it is possible to evaluate the linear relationship between two variables by the Pearson correlation coefficient, we need to test whether this correlation coefficient hypothesis is statistically significant. The test result if the test sig is less than 0.05, the pair of variables is linearly correlated; if the sig is greater than 0.05, the pair of variables has no linear correlation (assuming a meaningful level of $5\% = 0.05$).

Having identified two variables with a linear correlation (sig less than 0.05), we will consider the strength/weakness of this correlation through the absolute value of r . According to Cohen (2008):

- $|r| < 0.1$: very weak correlation
- $|r| < 0.3$: weak correlation
- $|r| < 0.5$: average correlation
- $|r| \geq 0.5$: strong correlation

3.3.6.5. Multiple Linear Regression

A statistical technique for regressing data is called linear regression. In this method, the independent variables can have continuous or categorical values, while the dependent variable has continuous values. Stated differently, Linear Regression refers to a technique that forecasts the value of the independent variable (X) based on the dependent variable (Y). It can be applied when a continuous quantity needs to be predicted.

Procedure for analyzing multiple linear regression:

Step 1: Use the correlation coefficient matrix to examine the relationships between the independent variables and the dependent variable.

A correlation between the independent variables and the dependent variable is a prerequisite for the use of regression analysis. Nonetheless, discriminant validity between variables can be guaranteed when the correlation coefficient is less than 0.85, as stated by John & Benet-Martínez (2000). In other words, independent variables must be considered if the correlation coefficient is greater than 0.85 because multicollinearity - the idea that another can explain one independent variable - may arise.

Step 2: Create and evaluate the regression model.

Y is equal to $\beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \dots$

- Choose which variables to include in the regression model (the author processes all included variables simultaneously using the Enter - SPSS method).
- Utilizing the coefficient of determination R^2 (R Square), assess the model's suitability. It is untrue that the more independent variables a model has, the better it fits the data set; rather, R^2 has the property of rising as more independent variables are added to the model.

- Consequently, adjusted R^2 (Adjusted R Square) is used instead of R^2 when assessing whether a multiple regression model is appropriate because it does not depend on the number of variables added.
- Use the ANOVA analysis method to test hypothesis H_0 , which states that there is no linear relationship between the dependent variable and the set of independent variables, to determine the suitability of the model for choosing the best model. $\beta_1=\beta_2=\beta_3=\beta_K=0$.
- The set of independent variables in the model can explain the variation in the variable; we conclude that if the F statistical value has a very small Sig (< 0.05), hypothesis H_0 is rejected. This indicates that the developed model can be used because it is appropriate for the data set.

The partial regression coefficient β_k , which represents the average change in the dependent variable when the independent variable X_k changes by one unit. In contrast, the other independent variables that remain unchanged are the coefficients of the regression equation. However, it is meaningless to compare the independent variables directly with each other because the magnitude of β_k depends on their measurement units. Consequently, one represents the measurements of all variables to compare the regression coefficients with one another and ascertain the significance (level of explanation) of the independent variables for the dependent variable, independent of the beta measurement standard.

Step 3: Examine if the regression assumptions are being broken.

When the regression model does not go against the presumptions, it's deemed appropriate for the entire investigation. Consequently, following the construction of the regression equation, it is essential to verify that the following presumptions are being met:

The dependent variable and the independent variables have a linear relationship.

- There is a normal distribution in the dependent variable's residual.
- The error's variance does not change.
- The residuals (the independence of errors) are uncorrelated.
- Independent variables do not correlate with one another (multicollinearity phenomenon). Within that:
- A scatter plot of standardized residuals, which shows the correlation between the standardized residual value and the standardized predicted value, is used to test the assumption of linear association.

- The Histogram frequency graph, also known as the P-plot frequency graph, is used to verify the assumption that the residuals are normally distributed.
- The Spearman's Rho test or a scatter plot of the residuals and predicted values are the tools used to verify the error assumption of a dependent variable with constant variance.
- The standardized residual scatter plot, also known as the (Durbin – Watson) statistic, is the instrument used to verify the assumption that there is no correlation between the residuals.
- The variance inflation factor (VIF) or the variable's tolerance (Tolerance) is used to find multicollinearity. Generally, multicollinearity is indicated by a $VIF > 10$. Hair et al. (1998) state that multicollinearity should be taken into consideration when $VIF > 5$.

2.3.6.6. *One-way multivariate analysis of variance (MANOVA)*

One-way Multivariate Analysis of Variance (MANOVA) is a statistical analysis technique used to determine the effect of one independent variable (with two or more levels) on two or more dependent variables simultaneously. This method extends the basic concepts of ANOVA to accommodate multiple dependent variables and is particularly useful when the dependent variables are correlated. By examining them together, MANOVA can account for the intercorrelations and potentially provide a more efficient and powerful analysis.

Key Concepts of One-way MANOVA

(1) Independent and Dependent Variables:

- Independent Variable: This is a categorical variable with two or more groups or levels (e.g., types of educational programs).
- Dependent Variables: These are continuous variables that are expected to be influenced by the levels of the independent variable (e.g., academic performance, student satisfaction).

(2) Assumptions:

- Multivariate Normality: Each combination of groups and dependent variables should follow a multivariate normal distribution.
- Homogeneity of Variances and Covariances (Homoscedasticity): The variance-covariance matrices of the dependent variables should be equal across groups.
- Independence of Observations: Assumes that the cases are independent of each other.

- Sample Size: The sample size should be sufficiently large, ideally larger than the number of dependent variables, and there should be more observations than the number of dependent variables in each group.

(3) Hypothesis Testing:

- The **null hypothesis (H₀)** asserts that the means of the dependent variables are the same across the groups defined by the independent variable.
- The **alternative hypothesis (H₁)** posits that at least one of the means of the dependent variables differs among the groups.

(4) Interpretation:

- If the test statistics indicate that the group means on the combined dependent variables are significantly different, the null hypothesis is rejected. This suggests that the independent variable has a significant effect on the dependent variables.
- Follow-up analyses often include examining the between-group effects for each dependent variable separately (using ANOVA or ANCOVA) and conducting post hoc tests if there are more than two groups.

Summary of 1-way MANOVA analysis variables in the thesis as follows:

Dependent variables include: Organizational Strategy (OS), Corporate Culture (CC), Workforce Demographics (WD), Employee Motivation and Engagement (EME), External Educational Resources (EER), Labor Market Conditions (LMC), Government Regulations and Policies (GRP), Technological Advancements (TA), Economic Conditions (EC), Leadership and Management Support (LMS), Feedback and Performance Evaluation Systems (FPES)

Independent variables include: Living Area, Age Group, Gender, Position, Education, Experience, Organization Sector, Organization Size.

CHAPTER SUMMARY 3

In Chapter 3, the author introduced and presented qualitative and quantitative research methods. Regarding the qualitative research method, the contents of the objectives of qualitative research and the selection of subjects for in-depth interviews have been clarified. The qualitative research results were presented in Chapter 3. For the quantitative research method of the thesis, the author presented 6 main contents including: Objectives of quantitative research, Design method questionnaire design, research sample design method; Data collection methods; Method for testing the reliability of data; Data analysis methods.

The design of the research sample is very important for any research, so the author has focused on clarifying the content in terms of scientific basis as well as the formula for calculating the research sample and selection method. sample.

Data processing and analysis methods are presented in 3 contents including: data verification and processing, data coding, and data analysis. With data verification and processing, the author has presented in detail how to eliminate false data and errors, and check reliability through Cronbach's Alpha coefficient.

Finally, in the data analysis process, the author uses 03 methods: descriptive statistical analysis, multiple regression estimation and 1-way multivariate analysis of variance (1-way MANOVA).

CHAPTER 4 RESEARCH RESULTS

4.1. Current situation of human resources in Lao PDR

4.1.1. Human resource structure of Lao PDR

4.1.1.1. Population by provinces

From 1997 and earlier, Laos' human resources were not abundant, due to the small population: 4,605,000 people (statistics in 1995) (Ministry of Planning and Investment of Laos, 2015). According to the latest figures, Laos' population reaches 7,769 thousand persons (statistics on October 12, 2024), the population size is small but rapidly increasing (population growth rate of 1.58%) (Lao population table 1960-2024), and the population capable of economic activities also increased sharply, creating advantages for the national development process. However, the population density of Laos is very low and the population distribution in regions and provinces is uneven, the urban population only accounts for a modest proportion (more than 18%). The average population density is 32 people/km², of which Vientiane is the most populous area with 229 people/km². This is followed by the delta along the Mekong River and its tributaries such as Savannakhet and Champassak.

In recent years, the urban population growth rate was 5.3% between 2015 and 2024, with more than two-thirds of population growth in the capital Vientiane. Indications are that most of the migration is from rural to urban areas, especially to the capital Vientiane. There is also cross-border migration to Thailand, where the language and culture are similar.

Laos has had the highest total fertility rate (TFR) among ASEAN countries in recent years. The total fertility rate was 5.2% in 2024 and the crude birth rate (per 1,000 people) was 39%. Lao PDR's population is relatively young, with 68% under 25 years old and the median age is 22 years old in 2024. As a country with the youngest population structure in the region, Lao PDR is expected to benefit from the “benefits of the population” to the economy in the medium term. However, this will only be possible if young men and women are better equipped with the right skills and knowledge, and new jobs can accommodate the growth of the working-age population.

Table 4.1: Population by provinces in Laos, 2020 – 2024*Unit: Thousand persons.*

Name of Provinces(1)	2020		2021		2022		2023		2024	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Whole country	7,231	3,608	7,301	3,686	7,515	3,872	7,592	4,010	7,769	4,112
Vientiane Capital	948	479	989	532	1020	549	1076	600	1089	614
Phongsaly	193	95	250	120	252	139	315	169	272	186
Luangnamtha	199	100	219	163	245	142	242	211	302	208
Oudomxay	345	172	427	237	408	248	502	324	493	331
Bokeo	203	102	226	166	227	166	249	235	249	232
Luangprabang	467	232	513	316	529	315	603	373	584	380
Huaphanh	311	153	343	216	365	173	382	252	434	213
Xayaboury	423	208	457	271	465	258	516	335	527	321
Xiengkhuang	267	132	327	217	338	217	393	286	428	303
Vientiane	462	231	487	258	513	269	537	288	577	305
Borikhamxay	315	157	377	196	381	198	419	251	442	246
Khammuane	434	216	493	255	492	247	547	286	520	294
Savannakhet	1,070	534	1,132	616	1,090	597	1,220	666	1,307	654
Saravane	442	219	492	245	477	288	547	279	524	338
Sekong	129	64	177	88	157	132	197	116	181	163
Champasack	753	381	784	435	808	439	811	484	837	470
Attapeu	160	79	190	139	202	146	258	182	244	187
Xaysomboon	108	52	130	121	160	88	188	190	228	150

Source: Lao PDR Government Report, 2024

In 2024, the working-age population in Laos was 5,352,121, making up ~ 70% of the country's total population of approximately 7,769 million. The administrative and organizational sectors employed 212,599 individuals or about ~ 2.8% of the population. The educational qualifications of the population include a small number of postgraduates and professionals, with the majority holding college or bachelor's degrees. The country also had 83,125 college students and 92,316 university students in 2024. The general education system comprised 12,120 schools with 89,814 teachers, contrasting with the significantly larger health sector, which employed around 355,175 people. The labor market in Laos required 19.966 million workers in 2024, with a notable demand for female workers (65.1% of needed labor). Employment was relatively balanced across agriculture, industry, and services sectors, though there was a trend towards decreasing agricultural jobs and increasing industrial and service jobs. Vocational training in 2024 emphasized the agriculture (45%) and services (47.15%) sectors, training 31.18 million people, showing the government's commitment to enhancing skills in these areas.

Table 4.2: Labor and social welfare by sector in Lao PDR 2024

Unit: thousand persons

Criteria/ Sector		Total	Female	Male
Demand labour market	Sub Summary	22,476	13,27	9,206
	Agriculture Sector	7,006	4,32	2,686
	Industry Sector	13,52	6,756	6,764
	Service Sector	8,95	6,194	2,756
Vocational training of the workers	Sub Summary	28,58	9,497	19,083
	Agriculture Sector	14,633	4,544	10,089
	Industry Sector	6,183	2,379	3,804
	Service Sector	12,764	5,574	7,19
Providing employed	Sub Summary	12,919	4,969	7,95
	Agriculture Sector	6,978	1,211	5,767
	Industry Sector	8,046	3,061	4,985
	Service Sector	3,71	1,512	2,198

Source: Lao Statistical Information Service, 2024

Thus, in terms of quantity, the human resources of Laos are quite abundant and have a lot of potentials but are unevenly distributed. The group of high-quality human resources, although having an important role, are those who set guidelines, policies, strategies, and development plans, and directly manage and use resources and people in real activities. However, in terms of quantity, the team of leaders and managers only accounts for a small proportion of the total human resources of the country.

4.1.1.2. Gender and Region

Labor in Laos is mainly concentrated in cities, provinces, and towns with economic development such as Vientiane, Savannakhet, and Champasak: 2,518,113 people (LSIS, 2024). In the remaining provinces, the average level is from 121,000 to 350,000 people. The number of human resources is the least distributed in the provinces: Xaisomboun (89,000 people), Sekong (102,000 people), and Attapeu (117,000 people). These are provinces in mountainous and highland areas with a small population, low density, and poor economy. This shows the importance of human resources in the socio-economic development of the locality as well as the country. Table 4.3.

Table 4.3: Distribution of the population of working age by province, sex, and living area in 2024

Unit: Thousand people

Provinces	Total			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Lao PDR	5,865	3,269	2,596	3,033	1,550	1,483	2,832	1,786	1,046
Vientiane Capital	607	361	250	427	211	216	200	105	109
Phongsaly	302	144	128	119	88	31	185	50	56
Luang Namtha	232	142	90	71	37	34	179	116	45
Oudomxay	307	150	197	117	34	83	177	91	76
Bokeo	216	95	75	143	109	34	182	112	69
Luang Prabang	323	229	201	184	53	131	117	157	47
Huaphan	281	111	170	156	117	39	167	98	75
Xayabury	358	230	201	189	61	128	101	108	62
Xiengkhuang	256	111	145	130	86	44	100	70	105
Vientiane	317	201	186	122	65	57	153	98	70
Bolikhamxai	332	137	125	233	140	93	82	53	59
Khammuane	368	235	203	214	120	94	175	127	45

Savannakhet	706	370	118	197	108	89	91	201	54
Salavan	382	189	89	105	53	52	109	121	68
Sekong	217	132	85	63	25	38	176	75	33
Champasak	427	321	200	325	157	168	243	89	22
Attapeu	129	67	82	114	18	96	230	70	30
Xaisomboun	105	44	51	124	68	56	165	45	21

Source: Report on the results of the second labor force survey in Lao PDR in 2024 - Department of Statistics, Ministry of Planning and Investment

Among 5,865,000 people of working age, 3,269,000 are female, accounting for 55.73%. According to World Bank statistics, the number of women in the total workforce is slightly different, in 2020 it was 49.2%. In the following years, the proportion of female labor force in the total labor force remained stable, with almost no significant changes: 49.2% (2020), 43.7% (2021), 45.2% (2022), and 49.7% (2023) (World Bank, 2021b). Despite the disparity, this figure shows the relative equality of gender in human resources in Laos. However, the higher the man. In management positions, the lower the percentage of female employees (Ministry of Home Affairs of Laos, 2020 - 2024).

Table 4.4: Number of leaders and managers at ministerial and departmental levels in ministries and ministerial-level agencies

(16 ministries and 20 ministerial-level agencies).

Unit: Person

Number	Position	Total	Female
1	Minister and equivalent	45	6
2	Deputy Minister and equivalent	124	32
3	Director and equivalent	560	120

Source: Department of Personnel Management, Organization Committee of the Central Committee of the Lao People's Democratic Party (2024), Statistics of leaders and managers at the central level.

4.1.1.3. The age group

Currently, the human resources of Laos are most concentrated in the age group 15-44, including 3,551,000 people, accounting for 76.88% of the total labour resources. This is the group of workers with the most potential because of their health. The age group from 60-64 years old accounts for 4.07%. The age situation of human resources in Laos is relatively

reasonable. However, the labor force of Laos is tending to be younger, with the age group from 15 to 19 having the highest proportion compared to the remaining 10 age groups, accounting for 15.2% of the total number of human resources.

Table 4.5: Distribution of labor by age and living areas in 2024

Age	Total			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	4,843	2,355	2,488	1,575	1,002	5,73	3,176	1,702	1,474
15-19	815	377	402	306	143	72	465	240	255
20-24	752	355	332	205	127	51	495	282	194
25-29	601	332	339	188	117	89	481	275	160
30-34	588	290	276	172	119	93	408	192	203
35-39	608	248	243	159	85	60	353	173	157
40-44	445	219	255	121	77	45	275	133	156
45-49	314	189	166	144	82	58	232	119	113
50-54	284	132	188	108	81	39	195	118	95
55-59	221	106	175	99	79	30	154	94	80
60-64	215	107	112	73	92	36	118	76	61

*Source: Report on the results of the second labor force survey in Lao PDR in 2020–
Department of Statistics, Ministry of Planning and Investment.*

Among the Lao cadres and civil servants, in general, the age of leaders and managers is quite high. Accordingly, at the ministerial level and equivalent, there is only one youngest official, aged between 40-50; and 30 cadres over 60 years old, accounting for 68% of the total number of cadres at this level. At the level of Director General and equivalent, the majority of staff are concentrated in the age group of 50 -59, including 338 officers, accounting for 60% (Organization Department of the Central Committee of the Lao People's Democratic Party, 2021). This shows that Laos needs to make efforts in rejuvenating the contingent of leaders at all levels.

The age of Lao intellectuals is being rejuvenated along with the population rejuvenation trend and the Lao government's efforts to invest in education. According to statistics from the Ministry of Home Affairs in 2024, in the Departments and Research Institutes, young intellectuals between the ages of 26 and 30 accounted for 36.1%, the highest among the age

groups. This is a strength of Laos in the context that many countries are facing an aging population and a serious shortage of labor resources. Thus, the age of human resources in Laos is quite ideal. Key human resources are concentrated in the age group with a lot of health and intelligence to work. In the future, Laos needs to have appropriate policies to promote this advantage.

4.1.2. Quality of human resources in Lao PDR

Labor quality is considered a key factor and determines the labor productivity of each country. The quality of Laos' labor resources is ranked lowest compared to other countries in the region. Low-quality labor is an obstacle for foreign investors when deciding to invest in this country. Therefore, most factories in Laos usually mainly process for export to take advantage of cheap labor costs. The quality of human resources is often expressed through HDI with three related criteria: health - life expectancy, level – of knowledge, and income level.

Table 4.6: The Human Development Index (HDI) of Laos

Year	2018	2019	2020	2021	2022
HDI	0.620	0.615	0.616	0.617	0.613

Source: <https://countryeconomy.com/hdi/laos>

With the HDI always fluctuating around 0.6, Laos is classified as one of the countries with the average index in the world and the lowest in the ASEAN region today. Laos, along with Cambodia, is a developing country in the region. If in 2018, Cambodia's HDI index was much better than Laos's (Cambodia was 0.588 compared to Laos' 0.620), in the period 2018 - 2022, Laos had surpassed Cambodia when it had a much higher HDI (2022, HDI index of Laos is 0.613 compared to Cambodia is 0.600). Over the years, the human development index in Laos has always increased, although the increase is not significant, the HDI index had a sharp decrease, then increased slightly in 2018 and 2022 (0.620 and 0.613) (UNDP, 2024).

4.1.2.1. Education and professional qualifications

Laos has one of the least developed education systems in the region. According to Laos statistic Bureau (2024), an estimated 1,500 primary schools in Laos are still lacking solid classrooms and necessary educational equipment, mainly in remote rural areas, forcing children to leave before finishing primary school. About 30,000 primary school students in rural mountainous areas drop out every year. The rate of students entering secondary school

is 73%, and the rate of graduating high school is 45.2%. Just under 58% of children 6 years and older have graduated, 26.9% are currently in school and 13.1% have never attended school. More than 60% of men attend secondary school and only about 37% of girls (LAOSIS, 2024). The Lao government expanded the construction of secondary schools with dormitories to increase enrollment for mountainous students. In addition, children from ethnic minority communities, who face difficulties in entering the education system in a language other than their mother tongue, are at greater risk of re-illiteracy than students of Lao- the majority ethnic group.

In addition, there is still a gap between rural and urban populations (See Table 4.7), and many ethnic groups do not see education as beneficial or necessary. Social services, including education, are not adequately provided to farmers.

Table 4.7: Rural and Urban Education in Lao PDR (2024)

Unit: %.

Age	Rural			Urban		
	Male	Female	Total	Male	Female	Total
14-16	73,2	55,7	69,9	82,0	77,1	80,3
17-24	25,5	10,1	18,5	42,2	29,8	43,1

Source: Lao Statistics Bureau, 2024

The table indicates significantly higher school enrollment rates in urban areas compared to rural regions across Laos. Approximately 30% of rural residents have only primary education or less, while this figure is slightly higher in urban areas at about one-third. In 2015, secondary education enrollment in rural areas was notably lower than in urban regions, with rural males 9% less and rural females 30% less than their urban counterparts. High school enrollment follows a similar pattern, with rural students lagging behind urban students by about 17%.

Globally, women make up 70% of the illiterate population and often work longer hours than men despite having less education. Over 4,000 villages in Laos lack educational facilities, which, coupled with the rural nature of jobs, limits educational advancement. Education levels are highest in the capital, Vientiane, compared to other regions.

The predominance of low education levels drives most Laotians into agricultural work, with over 70% employed in this sector as of 2024. Recognizing the need for improved educational and vocational training systems, the Lao government has prioritized human resource

development as a critical strategy for national economic growth. However, the overall development remains modest, with nearly 80% of the population having limited education, especially among women.

At a national level, enhancing vocational education is crucial for attracting foreign direct investment (FDI), supporting structural economic transformations, and providing better job opportunities for vulnerable groups. On a corporate level, competitiveness relies heavily on attracting and retaining skilled workers capable of implementing innovative ideas and advanced technologies to increase productivity and profits.

4.1.2.2. The health

According to the World Health Organization (WHO), from 1997 to 2015, the average life expectancy in Laos increased from 57 to nearly 67 (Healthcare in Laos- Pacific Bridge medical). As of August 2018, 44%, or 363,000 children under the age of 5 in Laos, are stunted. But according to the data from the World Bank, in 2020, the not stunted rate in Laos is still at a very low level of 0.67%. Stunting is usually caused by maternal malnutrition before and after pregnancy. More than 60% of children are malnourished and anemic. This can be a cause of death due to undernutrition and lack of access to health services (Kristen Uedoi). Laos has nearly two-thirds (63%) of its population of working age, with 33% under the age of 15 and 4% aged 65 and over. It is predicted that by 2025, youth in Laos will account for more than 17% of the population, while this proportion in Singapore and Thailand will be less than 11.5% (ILO and ADB, 2014). Different aging trends will affect labor supply and social security costs, labor migration as well as labor restructuring. With current trends in infant mortality, life expectancy in Laos could reach 70 years by 2036. Life expectancy in Laos is increasing rapidly but remains low. The level of improvement in the health status of the population in general and human resources, in particular, is still limited.

Laos' Ministry of Health aims to achieve nationwide health coverage by 2025, but according to WHO, current health programs account for only 20% of the total population (Healthcare in Laos- Pacific Bridge Medical). The cause of this problem is that 80% of the population of Laos live in rural areas and work in agriculture. Rural health services often struggle from a lack of qualified staff, inadequate infrastructure, equipment, and affordable medicines. At present, Laos still has to depend on the international support for vaccines, and the training of experts... The wealthier people in Laos tend to go to Thailand for medical treatment with

more expensive costs but quality services. In addition to the indicators of weight and height, a disease is also a form of health reflection. According to the National Statistics Office, Lao people often suffer from several diseases such as malnutrition, diarrhea, diabetes, and cancer

Table 4.8: Disease index in Laos for the period 2020-2024

Unit: Person

Type of disease	2020	2021	2022	2023	2024
Cancer	556	749	1,144	2,663	1,761
Vaccinated woman	215,215	358,935	389,723	16,796	349,109
Malnutrition children	3,109	3,847	3,459	3,388	3,392
Diarrhea	33,366	41,588	42,885	41,794	42,018
Diabetes	2,995	3,585	4,196	5,194	8,006

Source: Lao Statistical Yearbook 2020; Lao Statistical Yearbook 2024, National Statistics Office, Lao Ministry of Planning and Investment.

4.1.3. Demographic characteristics of human resource in Lao PDR

4.1.3.1. Living area distribution in Lao PDR

The living area distribution provided in the thesis offers an insightful look into the geographical demographics of the population in Lao PDR. Analyzing the distribution across different regions can help understand the socio-economic dynamics and guide regional development policies.

Overview of living area distribution

Vientiane: With 25.8% of the respondents, Vientiane stands out as the most populated area in the dataset. As the capital city, Vientiane is likely to be the center of economic, administrative, and educational activities, attracting a diverse workforce.

Luang Prabang: The historic and cultural significance of Luang Prabang, along with its tourism appeal, accounts for 20.4% of the respondents. Its economy is likely boosted by tourism, which supports local employment and businesses.

Savannakhet: Holding 11.2% of the population sample, Savannakhet is an important economic and trade zone, which might explain its substantial representation. Its strategic location might attract various industries and offer employment opportunities.

Other Areas: The document also lists several other regions like Sayabouly, Oudomxay, Khammouan, and Bolikhamxay, each with smaller percentages ranging from 5.6% to 10.1%. The category "Other" encompasses 8.1%, indicating regions not specified but contributing to the population diversity.

Living area distribution - Implications and potential insights

(1) *Economic activity concentration:* The concentration of the population in Vientiane and Luang Prabang suggests a centralization of economic activities. This might lead to disparities in development and wealth distribution, with rural or less represented areas potentially lagging.

(2) *Infrastructure and Development Needs:* Areas with lower population percentages might be indicative of either underdeveloped infrastructure or less economic activity. These regions could benefit from targeted government infrastructure projects, such as improving transportation, utilities, and digital connectivity, to stimulate economic growth and attract population inflow.

(3) *Resource allocation:* Effective resource allocation by government and non-governmental organizations can be guided by this distribution data. For instance, educational and healthcare services can be scaled according to the population density and needs of each region.

(4) *Urban planning:* Urban planning and development policies need to address the high population concentration in Vientiane. This includes managing urban sprawl, housing, public transportation, and green spaces to maintain livability despite the population pressure.

(5) *Rural development:* Strengthening rural areas by promoting industries suited to their unique geographic and cultural characteristics can help in balancing the population distribution. For example, agricultural advancements in Sayabouly or eco-tourism in Oudomxay could be potential areas of focus.

(6) *Social services:* Regions with smaller population representations might face challenges in accessing comprehensive social services. Tailoring services to meet the specific needs of these populations, considering their cultural, economic, and geographic contexts, is crucial.

The living area distribution in Lao PDR highlights significant variances in population spread, which have direct implications for socio-economic planning and development. Addressing the needs of both densely populated urban centers and less populated rural areas will be key in achieving balanced and inclusive growth throughout the country. This data serves as a foundational element for policymakers to craft region-specific strategies that align with the overarching goal of equitable development across Lao PDR.

4.1.3.2. Gender distribution in Lao PDR

The gender distribution within the demographic data of Lao PDR provides critical insights into the workforce composition and social dynamics of the country. Understanding this distribution is essential for developing targeted policies that promote gender equality and inclusivity.

Overview of Gender Distribution

Male: Representing approximately 48.6% of the population in the dataset, males form a slightly smaller proportion of the total respondents.

Female: Comprising about 46.3% of the population, females are almost equally represented as males, highlighting a balanced gender ratio which is crucial for socio-economic development.

Other: Notably, 5.1% of the respondents fall under the category 'Other,' which may include those identifying as non-binary, transgender, or third gender. This recognition in the data collection process is progressive and important for inclusive policy-making.

Gender Distribution - Implications and potential insights

(1) *Workforce inclusion:* The near parity in gender distribution suggests a relatively inclusive workforce. However, quantitative equality does not automatically imply qualitative equality. There might still be disparities in job types, pay scales, and leadership roles that require further investigation.

(2) *Targeted gender policies:* Even with a balanced gender ratio, specific issues such as gender pay gaps, unequal representation in certain sectors (like technology or engineering for females, and healthcare or education for males), and barriers to entry for leadership roles need targeted interventions.

(3) *Education and training:* Tailored educational programs and vocational training can help bridge any existing gender gaps in certain industries. Encouraging female participation in STEM fields and male participation in care-related fields through scholarships, internships, and awareness campaigns could be beneficial.

(4) *Healthcare services:* The healthcare needs of different genders, including the 'Other' category, must be addressed distinctly. This includes reproductive health services, mental health support, and gender-sensitive healthcare training for medical professionals.

(5) *Legal and social protection:* Strengthening legal frameworks to protect against gender-based discrimination and violence is crucial. This includes enforcing laws

against workplace discrimination and ensuring that people from the 'Other' category have equal rights and social recognition.

Support for Non-Binary and Transgender Populations:

The presence of a significant 'Other' category emphasizes the need for policies that specifically support non-binary and transgender individuals. This could involve legal recognition of their gender, support for gender-affirmation procedures, and anti-discrimination policies.

(6) Public awareness and sensitization: Public campaigns to promote gender equality and educate about gender diversity are essential. These should aim to challenge stereotypes, change societal attitudes, and promote inclusivity at all levels of society.

The balanced gender distribution in Lao PDR's demographic data is a positive indicator of societal progress towards gender equality. However, ensuring that this quantitative balance translates into qualitative equality across all sectors of life remains a significant challenge. Policymakers must continue to develop and implement strategies that address the specific needs and challenges faced by all genders, particularly focusing on empowering underrepresented and marginalized groups within the gender spectrum. This comprehensive approach is vital for achieving true gender equality and harnessing the full potential of the country's human resources.

4.1.3.3. Age group distribution in Lao PDR

Understanding the age group distribution within Lao PDR is crucial for assessing the demographic makeup and predicting future needs in terms of education, employment, healthcare, and social services. The age structure can also provide insights into the country's economic potential and challenges.

Overview of age group distribution

Youth (Under 25 years): This category typically includes children and young adults who are primarily in the education system or just entering the workforce. Their representation impacts future labor market dynamics and educational infrastructure needs.

Young Adults (25-34 years): This group, with significant representation at 25.4% for ages 25-29 and 19.0% for ages 30-34, forms the backbone of the workforce. They are likely to be in the early to mid-stages of their careers, possibly starting families, and contributing actively to economic growth.

Middle-Aged Adults (35-49 years): This group is often at the peak of their careers and may hold key positions in their respective fields. They have a wealth of experience and are crucial for mentorship and leadership within professional settings.

Older Adults (50 years and above): Representing 12% of the population, this group includes individuals who are nearing or have reached retirement age. Their needs are more oriented towards healthcare, retirement planning, and social security services.

Age group distribution - Implications and potential insights

(1) Economic participation: The large percentage of young adults suggests a potentially vibrant and dynamic labor market. However, it also indicates the need for creating sufficient job opportunities to prevent unemployment and underemployment, which can lead to economic and social issues.

(2) Education system: With a substantial proportion of the population under 25, there is a clear need for robust educational facilities and systems. Investing in quality education from primary through tertiary levels is crucial, including vocational training that aligns with market needs.

(3) Healthcare needs: Different age groups require tailored healthcare approaches. For instance, reproductive health services are critical for the younger demographics, while chronic disease management and geriatric care are essential for older adults. This requires a diverse and well-prepared healthcare system.

(4) Social security and retirement planning: The data on older adults highlights the need for effective retirement planning and social security systems to support an aging population. This group's welfare is vital for social stability and can significantly impact the broader economy.

(5) Youth engagement and retention: Policies to engage the youth effectively, such as through leadership programs, entrepreneurship support, and innovation hubs, can harness their potential and curb brain drain. Retaining talented young adults within Lao PDR by providing attractive opportunities is essential for sustainable development.

(6) Urban planning and infrastructure: With a young and growing population, urban planning needs to consider housing, transportation, and utilities to support an expanding urban populace. This includes sustainable development practices to ensure environmental sustainability amidst growth.

The age group distribution in Lao PDR presents both opportunities and challenges. The prominence of young adults is a positive indicator for future economic growth, provided

that there are adequate employment opportunities and social support systems. Meanwhile, the needs of the younger and older segments of the population must not be overlooked, particularly in terms of education and healthcare. Strategic planning and policy-making should aim to address the specific needs of each age group, ensuring a balanced approach to development that benefits all segments of society.

4.1.3.4. Education distribution in Lao PDR

Based on the data provided in the thesis, the analysis of educational levels in Laos reveals several key points:

Distribution of educational attainment

The statistical data shows the distribution of educational levels as follows: High School: 38.8% (314 individuals), College: 28.3% (229 individuals), Bachelor's Degree: 21.0% (170 individuals), Master's Degree: 12.0% (97 individuals)

From this data, it is evident that the majority of the surveyed population has attained an education level of at least high school. This reflects a positive trend in enhancing the educational levels of the population in Lao PDR.

Disparity: There is a significant drop between the number of high school graduates and those with a master's degree, indicating a gradual decline in the number pursuing higher education. This could be related to factors such as the cost of education, availability of higher education institutions, and societal perception of the value of higher degrees.

Education and economic development: Higher levels of education are often associated with better job opportunities and higher income levels, which are important for the economic development of individuals and the country.

Educational opportunities: This distribution also highlights the need to improve facilities and the quality of education at higher levels to encourage and support more people in pursuing further education.

Education distribution - Policy Suggestions

The Lao government might consider the following measures to improve the educational situation:

(1) *Invest in education:* Enhance investment in educational facilities and programs, especially at the tertiary (college and university) levels.

(2) *Scholarships and Financial support:* Provide scholarships and financial support for students from disadvantaged backgrounds to encourage them to continue their education.

(3) *Awareness campaigns:* Conduct campaigns to raise awareness about the importance of higher education, aiming to change societal perceptions about the value of advanced degrees.

Overall, the thesis' data presents a positive picture of education in Lao PDR, with the majority of the population having completed high school. However, to continue promoting educational development and addressing the decline in higher education pursuits, targeted interventions and policies are essential. These could include financial incentives, infrastructural improvements, and educational reforms to make higher education more accessible and appealing.

4.2. Qualitative and Pilot research results

4.2.1. Qualitative research results

The author designed a preliminary questionnaire based on the overview and research model of the thesis. Conduct in-depth interviews with subjects (15 subjects) according to the standards and interview content presented in Table 3.1. Here are the results

Results of in-depth interviews with group 1:

Type and pattern of questions to use: All interview participants agreed that closed questions (with answers to choose from) are appropriate. In addition, the answer options (Likert scale 1-5) should be closer to each question.

Questionnaire structure: The questionnaire is divided into two main parts: Part A: Demographics and Part B: Survey Investigation. In part B, it is necessary to break it down into Impac factors and HRD.

Sentences should be used in questions: The words used are easy to understand and simple. However, the questions are a bit long and need to be adjusted to be shorter so they are easier for respondents to read and answer.

Appropriate form of investigation (offline, online): Should use online interview format. 100% of questions only need to select an answer option, so respondents can completely answer online.

Results of in-depth interviews with group 2:

Methods and tools in designing surveys (questionnaires) and data collection techniques are extremely important contents for any empirical research. Advice from experts in group 2 is extremely important for the author's research and thesis writing process. Accordingly, the author used the Google Form platform to design the online questionnaire, entered data and cleaned the data using Microsoft's Excel software, and analyzed and processed data for experimental research like this thesis. pretend to use SPSS software

Regarding demographic characteristics, experts advise on two questions about gender and education. Accordingly, the gender question should include the “Other” option (respondents do not want to mention gender). When asking about educational level, graduate and doctoral degrees should be combined into one, “Master”.

4.2.2. Pilot research result

The results of the pilot survey questionnaires obtained after 1 month of conducting experimental research were 49 questionnaires. The author conducts pilot quantitative research steps to test and evaluate the feasibility and predictive ability of the model, data reliability, efa, regression...

Table 4.9: Descriptive Statistics of pilot research

	N	Minimum	Maximum	Mean	Std. Deviation
Living_area	49	1	8	3.82	2.360
Gender	49	1	2	1.47	.504
Age_Group	49	2	8	4.69	1.928
Education	49	1	4	1.71	.957
Position	49	1	5	3.00	1.041
Experience	49	1	5	2.76	1.315
Organization_Sector	49	1	6	3.12	1.666
Organization_Size	49	1	3	1.63	.602
Valid N (listwise)	49				

Source: Pilot research analysis result, 2023

Cronbach alpha testing: All observed variables of the model have good alpha values. This proves that the reliability of the data is guaranteed despite the small sample size (N=49); for details, see the appendix.

EFA test: The author conducts EFA analysis, obtaining 11 groups of factors. In general, the groups of factors are not completely independent, but with experimental research data of 49

observations, it is clear that 11 groups of factors are also acceptable. In other words, the research model is more likely to be appropriate when conducting formal research with suitable large enough data, questions that ensure uniqueness and non-repetition. For details, see Appendix Regression testing: Conduct a test run of the regression model. Specific results: Table 4.10

Table 4.10: Pilot research Model Summary

Model Summary ^b										
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R ² Change	F Change	df1	df2	Sig. F Change	
1	.785 ^a	.617	.489	.50078	.617	4.829	12	36	<.001	1.225
a. Predictors: (Constant), Mean_GZ, Mean_TA, Mean_FPES, Mean_EER, Mean_EC, Mean_OS, Mean_LMC, Mean_EME, Mean_CC, Mean_LMS, Mean_WD, Mean_GRP										
b. Dependent Variable: Mean_HRD										

Source: Pilot research analysis result, 2023

The Durbin-Watson and R² values are guaranteed and sufficiently reliable. Thus, the experimental research results show the suitability of the model, the reliability of the data...

4.3 Quantitative research results

4.3.1. Results of data collection

The data collection process included a total of **450** questionnaires sent out and **425** questionnaires received via online survey. The author has checked and eliminated errors, invalid, and logical questionnaires (not enough data, giving the same answer,...). The results in almost all sample units (provinces) have survey forms that need to be more reliable. The highest in the Vientiane area, with 7 rejected questionnaires, and the lowest is Other, with 1 rejected questionnaires. The total number of rejected questionnaires was **35**, accounting for 8.23%. Detailed results: Table 4.11.

Table 4.11: Statistic result of data collection

No	Area	Questionnaires received	Questionnaires errors	Questionnaires used	Percent
1	Vientiane	110	7	103	26.41%
2	Luang Prabang	95	4	91	23.33%
3	Sayabouly	35	4	31	7.95%
4	Oudomxay	50	5	45	11.54%
5	Savannakhet	40	6	34	8.72%
6	Khammouan	25	5	20	5.13%

7	Bolikhamsay	45	3	42	10.77%
8	Other	25	1	24	6.15%
Total		425	35	390	

Source: Research analysis result, 2023 (N=390)

Thus, the author encoded the data after eliminating the questionnaires that did not meet the reliability conditions. The data are ready for reliability testing and subsequent analysis. The total number of remaining ballots that can be used is **390** questionnaires.

4.3.2. Statistical results of demographic characteristics

4.3.2.1. Statistic results - Living Area

Statistical results on Where to Live show that, among the 390 survey questionnaires used for analysis, the highest 26.41% came from Vientiane (103 questionnaires), and the lowest was Khammouan, with only 5.13%, which corresponds to 20 survey questionnaires. The survey was conducted online, so large cities, especially the capital of Lao PDR, have a higher population density using the Internet than other rural areas. That is why the number of surveys from big cities is often higher.

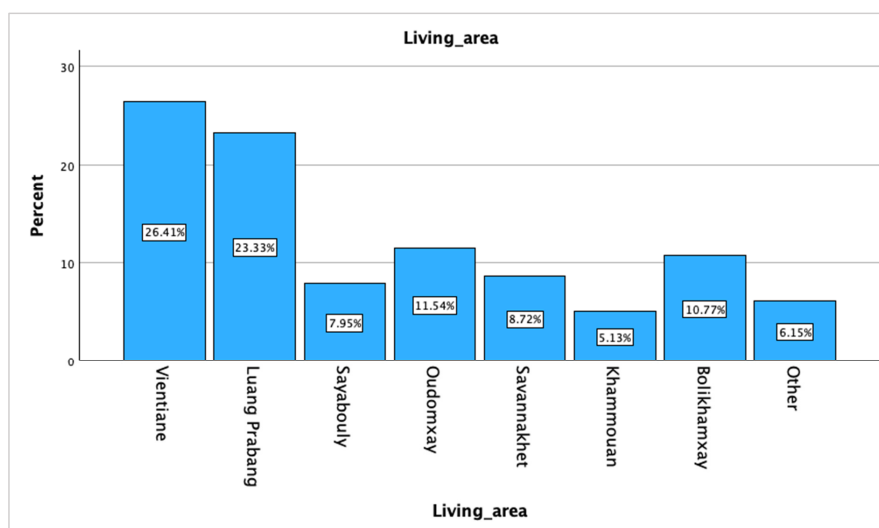


Figure 4.1: Proportion of participants by living area

Source: Research analysis result, 2023 (N=390)

4.3.2.2. Statistic results - Gender

The gender ratio is quite balanced between men (49.49%) and women (44.87%). The group of respondents who did not want to mention their gender was 5.64% (corresponding to 22 people).

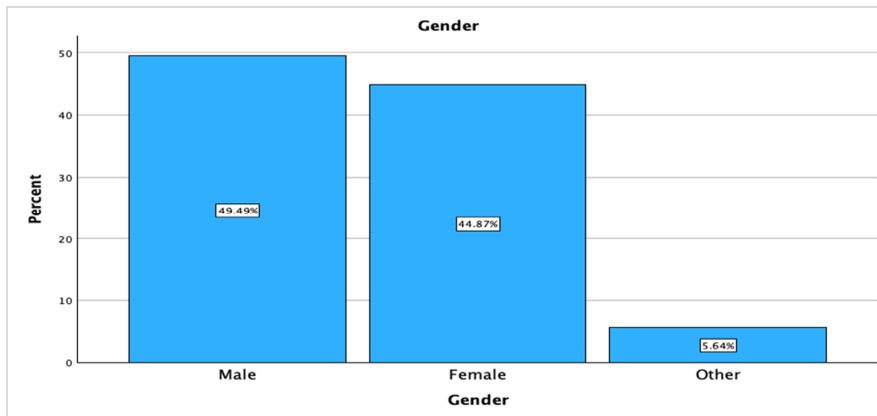


Figure 4.2: Proportion of participants by gender

Source: Research analysis result, 2023 (N=390)

4.3.2.3. Statistic results - Age Group

The age group that responded the most to the survey was 25-29 (28.72%, equivalent to 112 respondents). The lowest is the group over 60 years old, only 2.82%.

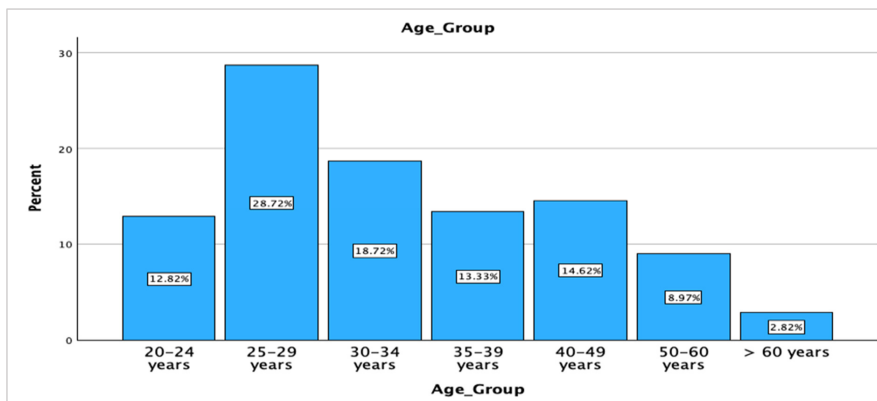


Figure 4.3: Proportion of participants by age group

Source: Research analysis result, 2023 (N=390)

In general, conducting online surveys is the main reason why many people over 60 years old do not participate in answering the questionnaire. The majority of respondents are in the age group of 25 - 34. This is also a pretty good age in terms of awareness and rich social experience, and it is in the working age group.

4.3.2.4. *Statistic results - Education*

The group with high school graduates accounts for the majority of the educational level structure (46.41% corresponding to 181 respondents). The group with master (postgraduate) education only accounts for 5.64%; this is the lowest group. Thus, through statistical results on the educational level of the respondents, it can be seen that the educational level in Lao PDR is still quite low, mainly high school graduates, without many highly qualified human resources like master, doctor.

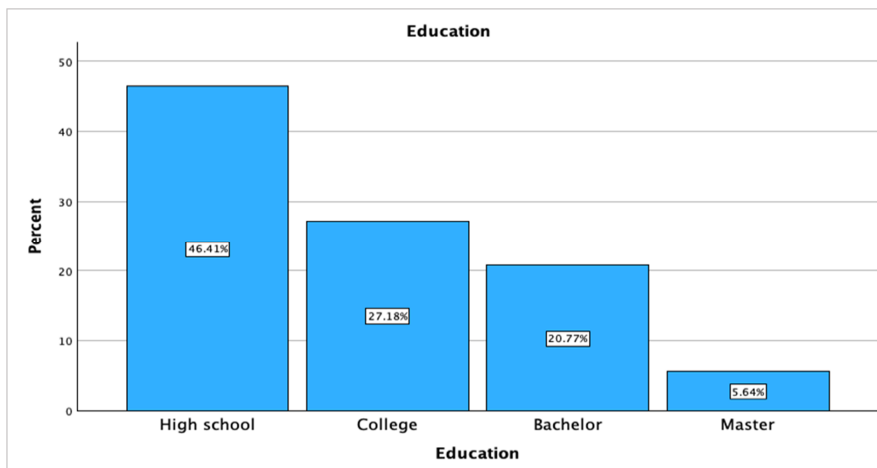


Figure 4.4: Proportion of participants by education

Source: Research analysis result, 2023 (N=390)

4.3.2.5. *Statistic results - Position*

The highest job position of the respondents belongs to the management group (31.54% - 123 respondents). In general, the distribution rate is relatively uniform in 3 positions: Coordinator, Manager, and Director. The purpose of the survey is to evaluate factors affecting human resource development, so the ideal survey subject is managers.

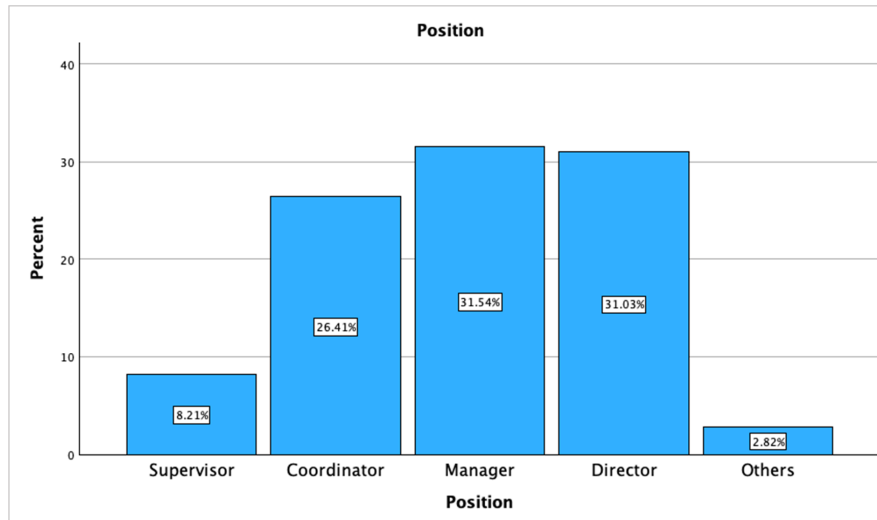


Figure 4.5: Proportion of participants by Position

Source: Research analysis result, 2023 (N=390)

4.3.2.6. Statistic results - Experience

The proportion of respondents with 5-10 years of work experience is the largest (40.77%, corresponding to 159 respondents).

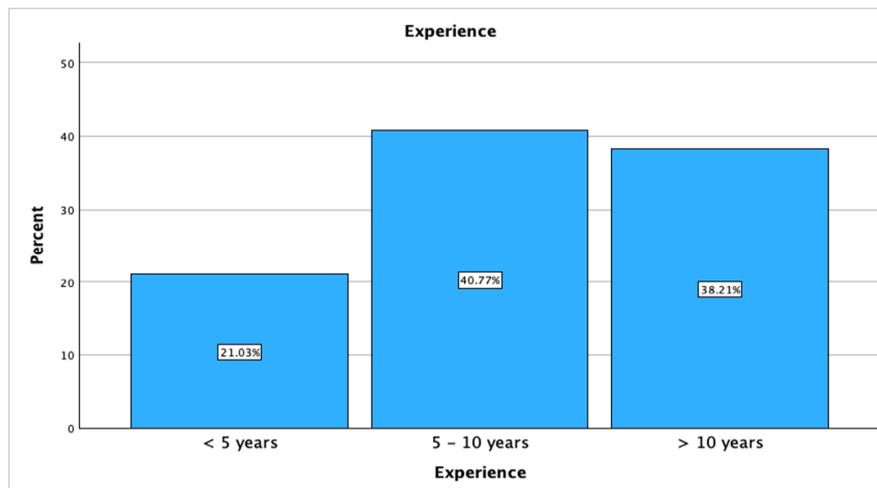


Figure 4.6: Proportion of participants by experience

Source: Research analysis result, 2023 (N=390)

This experience level is advantageous for mentorship and leadership within the workforce but also necessitates continuous professional development to keep skills up to date. In second place are respondents with over 10 years of experience (38.21%, corresponding to 149 respondents); respondents with work experience <5 years are the lowest (21.03% - 89 respondents).

4.3.2.7. *Statistic results - Organization Sector*

The statistical results of the organization's field of operations, specifically two groups, government service, and Distribution service, have the same rate: 21.28%. This rate is not too different from the remaining three groups, including Personal services (19.23%), infrastructure services (16.67%), and Financial services (18.21%). Other fields only account for 3.33%. This shows that the above 5 areas are the main areas of activity of Lao PDR creation organizations.

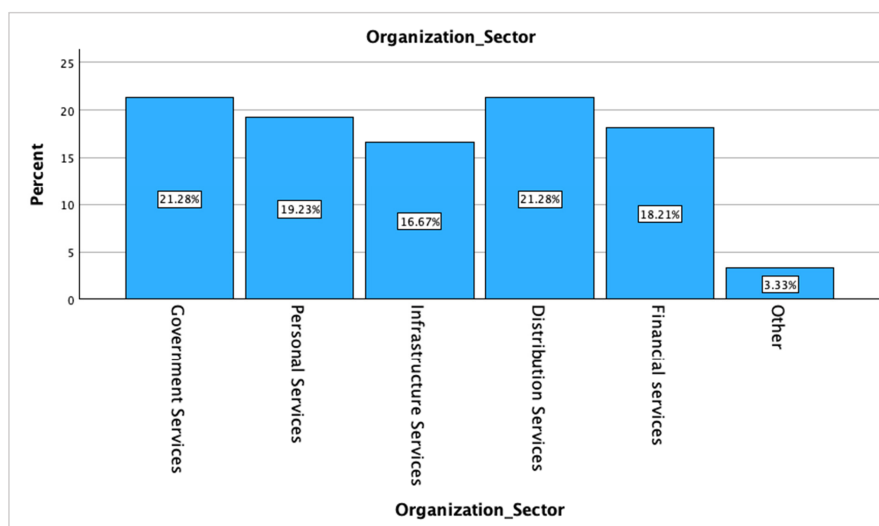


Figure 4.7: Proportion of participants by Organization Sector

Source: Research analysis result, 2023 (N=390)

4.3.2.8. *Statistic results - Organization Size*

According to survey data, the organizations are mainly small and medium-sized. There is not much difference between the two groups: <50 employees (48.21%) and from 50-100 staff members (47.44%). The result of 4.36% of organizations with several employees > 100 people also partly reflects the reality of the level and scale of organizations in Lao PDR.

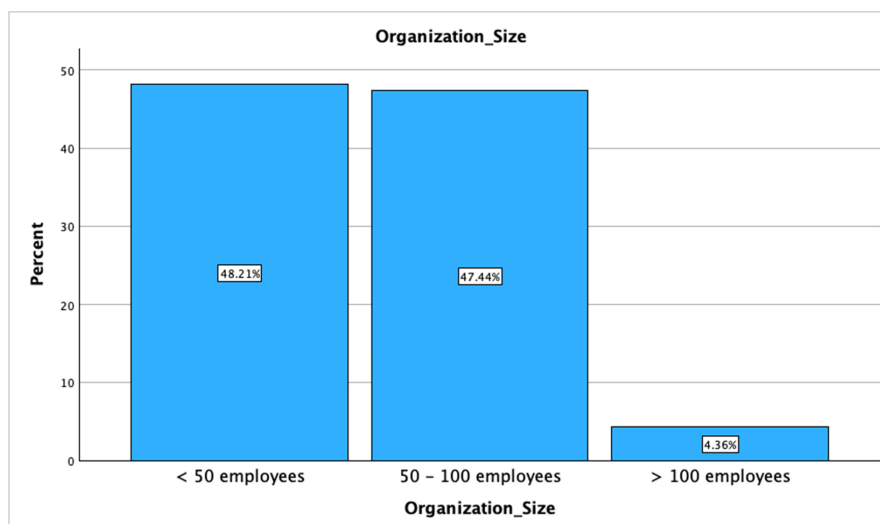


Figure 4.8: Proportion of participants by Organization Size

Source: Research analysis result, 2023 (N=390)

4.3.3. Data validation results

The author tested data reliability through Cronbach's alpha coefficient. Accordingly, 8 Microeconomic factors and 4 Macroeconomic factors and HRD in the socio-economic are examined to identify and eliminate variables with Cronbach's alpha coefficient < 0.5 , which does not ensure reliability.

4.3.3.1. Cronbach's alpha test results - Organizational Strategy

All observed variables have α coefficients > 0.5 , sufficiently reliable. Among them, the highest is OS4 with an α coefficient of 0.880, the lowest are OS1 with alpha coefficient of 0.853. The total α value of Organizational Strategy is 0.957, which is a high reliability. The number of observed variables used to measure Organizational Strategy is 6 observed variables.

Table 4.12: Cronbach's alpha testing - Organizational Strategy

Reliability Statistics	
Cronbach's Alpha	N of Items
.957	6
Item-Total Statistics	

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
OS1	15.28	22.977	0.853	0.950
OS2	15.23	22.675	0.862	0.949
OS3	15.25	22.685	0.866	0.949
OS4	15.23	22.395	0.880	0.947
OS5	15.25	22.731	0.861	0.949
OS6	15.28	22.491	0.863	0.949

Source: Research analysis result, 2023 (N=390)

4.3.3.2. Cronbach's alpha test results - Technological Advancements

The α values of the questions: TA7 ($\alpha=0.319<0.5$); TA8 ($\alpha=0.339<0.5$) are not reliable enough. Therefore, the author removed these two variables before performing the following analysis steps. The total α value of Technological Advancements is 0.897, which is high reliability. The number of observed variables used to measure Technological Advancements is 6 observed variables (TA1,TA2,TA3,TA4,TA5,TA6)

Table 4.13: Cronbach's alpha testing - Technological Advancements

Reliability Statistics	
Cronbach's Alpha	N of Items
.897	8

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TA1	20.66	34.907	0.829	0.871
TA2	20.66	34.180	0.838	0.869
TA3	20.65	33.977	0.842	0.868
TA4	20.69	34.691	0.819	0.871
TA5	20.66	34.254	0.834	0.869
TA6	20.69	34.524	0.826	0.870
TA7	20.99	38.964	0.319	0.921
TA8	20.87	38.696	0.339	0.919

Source: Research analysis result, 2023 (N=390)

4.3.3.3. Cronbach's alpha test results - Leadership and Management Support

All observed variables have α coefficients >0.5 , sufficiently reliable. Among them, the highest is LMS5 with an α coefficient of 0.867. The total α value of Organizational Strategy is 0.951, which is a high reliability. The number of observed variables used to measure Organizational Strategy is 5 observed variables.

Table 4.14: Cronbach's alpha testing - Leadership and Management Support

Reliability Statistics				
Cronbach's Alpha			N of Items	
.951			5	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LMS1	12.17	15.157	0.865	0.94
LMS2	12.12	14.669	0.865	0.94
LMS3	12.14	14.716	0.865	0.94
LMS4	12.15	14.723	0.866	0.94
LMS5	12.18	15.090	0.867	0.94

Source: Research analysis result, 2023 (N=390)

4.3.3.4. Cronbach's alpha test results - Corporate Culture

The α values of the questions: CC6 ($\alpha=0.244<0.5$) is not reliable enough. Therefore, the author removed these two variables before performing the following analysis steps. The total α value of Corporate Culture is 0.889, which is high reliability. The number of observed variables used to measure Corporate Culture is 5 observed variables (CC1,CC2,CC3,CC4,CC5).

Table 4.15: Cronbach's alpha testing - Corporate Culture

Reliability Statistics				
Cronbach's Alpha			N of Items	
.889			6	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CC1	15.26	19.494	0.830	0.851
CC2	15.19	19.23	0.844	0.848
CC3	15.22	18.775	0.833	0.848
CC4	15.22	19.377	0.820	0.852
CC5	15.22	19.275	0.835	0.850
CC6	15.31	23.252	0.244	0.951

Source: Research analysis result, 2023 (N=390)

4.3.3.5. Cronbach's alpha test results - Feedback and Performance Evaluation Systems

All observed variables have α coefficients >0.5 , sufficiently reliable. Among them, the highest is FPES5 with an α coefficient of 0.872, the lowest is FPES4 with an α coefficient of 0.849. The total α value of Feedback and Performance Evaluation Systems is 0.951, which is high reliability. The number of observed variables used to measure Feedback and Performance Evaluation Systems is 5 observed variables.

Table 4.16: Cronbach's alpha testing - Feedback and Performance Evaluation Systems

Reliability Statistics				
Cronbach's Alpha			N of Items	
.951			5	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
FPES1	12.17	14.813	0.864	0.939
FPES2	12.17	14.722	0.863	0.939
FPES3	12.16	14.715	0.870	0.938
FPES4	12.14	15.115	0.849	0.942
FPES5	12.17	14.737	0.872	0.938

Source: Research analysis result, 2023 (N=390)

4.3.3.6. Cronbach's alpha test results - Employee Motivation and Engagement

All observed variables have α coefficients >0.5 , sufficiently reliable. Among them, the highest is EME3 with an α coefficient of 0.803, the lowest is EME2 with an α coefficient of 0.770. The total α value of Employee Motivation and Engagement is 0.913, which is high reliability. The number of observed variables used to measure Employee Motivation and Engagement is 5 observed variables.

Table 4.17: Cronbach's alpha testing - Employee Motivation and Engagement

Reliability Statistics				
Cronbach's Alpha			N of Items	
.913			5	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EME1	12.44	14.335	0.776	0.895
EME2	12.43	14.215	0.770	0.896

EME3	12.48	14.101	0.803	0.889
EME4	12.48	14.502	0.774	0.895
EME5	12.45	14.382	0.771	0.895

Source: Research analysis result, 2023 (N=390)

4.3.3.7. Cronbach's alpha test results - External Educational Resources

The α values of the questions: EER2 ($\alpha=0.410<0.5$) is not reliable enough. Therefore, the author removed these two variables before performing the following analysis steps. The total α value of External Educational Resources is 0.924, which is high reliability. The number of observed variables used to measure External Educational Resources is 6 observed variables (EER1, EER3, EER4, EER5, EER6, EER7).

Table 4.18: Cronbach's alpha testing - External Educational Resources

Reliability Statistics				
Cronbach's Alpha			N of Items	
.924			7	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EER1	17.9	30.154	0.834	0.906
EER2	18.19	32.091	0.410	0.958
EER3	17.92	29.844	0.840	0.905
EER4	17.85	29.385	0.853	0.904
EER5	17.94	29.647	0.848	0.905
EER6	17.92	29.949	0.864	0.904
EER7	17.84	29.644	0.850	0.904

Source: Research analysis result, 2023 (N=390)

4.3.3.8. Cronbach's alpha test results - Economic Conditions

All observed variables have α coefficients >0.5 , sufficiently reliable. Among them, the highest is EC4 with an α coefficient of 0.775, the lowest is EC2 with an α coefficient of 0.708. The total α value of Economic Conditions is 0.977, which is high reliability. The number of observed variables used to measure Economic Conditions is 5 observed variables.

Table 4.19: Cronbach's alpha testing - Economic Conditions

Reliability Statistics	
Cronbach's Alpha	N of Items
.893	5

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EC1	11.85	14.47	0.759	0.865
EC2	11.82	15.011	0.708	0.876
EC3	11.83	14.772	0.735	0.87
EC4	11.87	14.376	0.775	0.861
EC5	11.86	14.934	0.710	0.876

Source: Research analysis result, 2023 (N=390)

4.3.3.9. Cronbach's alpha test results - Labor Market Conditions

All observed variables have α coefficients >0.5 , sufficiently reliable. Among them, the highest is LMC4 with an α coefficient of 0.82, the lowest is LMC5 with an α coefficient of 0.777. The total α value of Labor Market Conditions is 0.921, which is high reliability. The number of observed variables used to measure Labor Market Conditions is 5 observed variables.

Table 4.20: Cronbach's alpha testing - Labor Market Conditions

Reliability Statistics	
Cronbach's Alpha	N of Items
.921	5

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LMC1	12.09	14.868	0.783	0.905
LMC2	12.11	14.626	0.801	0.901
LMC3	12.05	14.673	0.79	0.903
LMC4	12.15	14.528	0.82	0.898
LMC5	12.11	14.945	0.777	0.906

Source: Research analysis result, 2023 (N=390)

4.3.3.10. Cronbach's alpha test results - Workforce Demographics

The α values of the questions: WD1 ($\alpha=0.432<0.5$); WD4 ($\alpha=0.472<0.5$) are not reliable enough. Therefore, the author removed these two variables before performing the following analysis steps. The total α value of Workforce Demographics is 0.763, which is high reliability. The number of observed variables used to measure Workforce Demographics is 2 observed variables (WD2, WD3).

Table 4.21: Cronbach's alpha testing - Workforce Demographics

Reliability Statistics				
Cronbach's Alpha			N of Items	
.763			4	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
WD1	9.04	7.461	0.432	0.787
WD2	9.07	7.059	0.705	0.635
WD3	9.05	7.206	0.693	0.644
WD4	9.12	7.666	0.472	0.756

Source: Research analysis result, 2023 (N=390)

4.3.3.11. Cronbach's alpha test results - Government Regulations and Policies

All observed variables have α coefficients >0.5 , sufficiently reliable. Among them, the highest is GRP1 with an α coefficient of 0.891, the lowest is GRP4 with an α coefficient of 0.862. The total α value of Government Regulations and Policies is 0.964, which is high reliability. The number of observed variables used to measure Government Regulations and Policies is 7 observed variables.

Table 4.22: Cronbach's alpha testing - Government Regulations and Policies

Reliability Statistics				
Cronbach's Alpha			N of Items	
.964			7	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GRP1	18.25	32.164	0.891	0.957
GRP2	18.27	32.746	0.87	0.959
GRP3	18.31	32.691	0.87	0.959
GRP4	18.28	33.191	0.862	0.959
GRP5	18.27	32.277	0.877	0.958
GRP6	18.24	32.905	0.864	0.959
GRP7	18.25	32.614	0.875	0.958

Source: Research analysis result, 2023 (N=390)

4.3.3.12. Cronbach's alpha test results - Globalization

All observed variables have α coefficients <0.5 , not reliable enough. The total α value of Globalization is $0.321 < 0.5$, which is not reliable enough.

Therefore, removing all four observed variables from the analysis is necessary, which means eliminating factor Globalization from the research model. According to [Hair et al., \(2016\)](#), these variables can be retained for testing at the EFA step. Suppose the EFA value of these variables is >0.5 and is included in other model factors. In that case, considering a few variables with the highest alpha value can still ensure reliability. Thus, the author further tested factor Globalization at the EFA step.

Table 4.23: Cronbach's alpha testing - Globalization

Reliability Statistics				
Cronbach's Alpha			N of Items	
.321			4	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GZ1	8.09	5.01	0.156	0.276
GZ2	8.27	5.01	0.346	0.088
GZ3	8.75	5.348	0.124	0.312
GZ4	8.45	5.21	0.088	0.366

Source: Research analysis result, 2023 (N=390)

4.3.3.13. Cronbach's alpha test results - HRD

All observed variables have α coefficients >0.5 , sufficiently reliable. Among them, the highest is HRD5 with an α coefficient of 0.796, the lowest is HRD3 with an α coefficient of 0.741. The total α value of HRD is 0.935, which is high reliability. The number of observed variables used to measure HRD is 8 observed variables.

Table 4.24: Cronbach's alpha testing - HRD

Reliability Statistics				
Cronbach's Alpha			N of Items	
.935			8	

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted

HRD1	21.23	40.812	0.768	0.926
HRD2	21.19	40.703	0.767	0.926
HRD3	21.23	41.076	0.741	0.928
HRD4	21.25	41.022	0.779	0.926
HRD5	21.22	40.543	0.796	0.924
HRD6	21.21	40.312	0.791	0.925
HRD7	21.19	40.694	0.772	0.926
HRD8	21.29	40.772	0.754	0.927

Source: Research analysis result, 2023 (N=390)

4.3.4. Results of testing Exploratory Factor Analysis (EFA)

The author performed **the first EFA analysis**. Accordingly, all variables TA7 ($\alpha=0.319$), TA8 ($\alpha=0.339$), CC6 ($\alpha=0.244<0.5$), WD1 ($\alpha=0.432$), WD4 ($\alpha=0.472$), EER2 ($\alpha=0.410$), GZ1 ($\alpha=0.156$), GZ2 ($\alpha=0.346$), GZ3 ($\alpha=0.124$), GZ4 ($\alpha=0.088$) were all retained for the first EFA analysis. The results showed that there were 15 groups of factors (For details, see Appendix D). Of these, the two factor groups 14 and 15 mainly focus on low factor loading values <0.5 and most of them are variables with alpha values that are not sufficiently reliable above.

The author performed a **second EFA analysis**, after eliminating variables with factor loading values <0.5 . The second EFA results showed that there were 14 factor groups, with factor loading values still <0.5 .

Perform **the third EFA analysis** after eliminating variables with factor loading values <0.7 which is considered as good according to Hair et al. (2006). The results of the third EFA analysis using Principal Component Analysis (PCA) as the extraction method; Varimax rotation. Here are some key observations and comments about the **third EFA analysis** results based on the provided content:

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

KMO Measure: The Kaiser-Meyer-Olkin measure of sampling adequacy is reported as .960, which is exceptionally high. This value indicates that the partial correlations among variables are minimal, and thus factor analysis is likely to be suitable and effective for this dataset.

Bartlett's Test of Sphericity: The approximate Chi-Square value is 23802.305 with a significance level (p-value) less than 0.001. This result suggests that the correlation matrix is significantly different from an identity matrix, implying that the dataset is likely suitable for factor analysis as the variables are related and thus factorable.

Table 4.25: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.909
Bartlett's Test of Sphericity	Approx. Chi-Square	23802.305
	df	2145
	Sig.	<.001

Source: Research analysis result, 2023 (N=390)

Communalities

The communalities before extraction are all set to 1.000, which is standard as it represents the total variance in each variable. The extraction communalities shown are quite high for most variables (all above 0.8, see Appendix D), indicating that a large proportion of each variable's variance is accounted for by the extracted factors. This suggests that the factors derived explain a significant amount of variance.

Total Variance Explained

Initial Eigenvalues: The first few factors explain a substantial amount of variance, with the first factor alone accounting for 17.857% of the variance. This is typically indicative of a strong underlying factor or construct.

Cumulative Variance: The cumulative percentage increases significantly with each factor, reaching over 90% by the 30th factor (details at Appendix D), which suggests that a large number of factors are required to explain most of the variance in the data.

Extraction Sums of Squared Loadings: The document shows that the extracted factors continue to add explanatory power, with significant percentages of variance accounted for by the initial factors.

Table 4.26: Total Variance Explained Table

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.786	17.857	17.857	11.786	17.857	17.857
2	7.044	10.673	28.531	7.044	10.673	28.531
3	5.946	9.008	37.539	5.946	9.008	37.539
4	5.556	8.419	45.958	5.556	8.419	45.958
5	4.196	6.358	52.316	4.196	6.358	52.316
6	3.728	5.649	57.965	3.728	5.649	57.965
7	3.479	5.271	63.236	3.479	5.271	63.236

8	2.951	4.472	67.707	2.951	4.472	67.707
9	2.440	3.697	71.405	2.440	3.697	71.405
10	2.343	3.549	74.954	2.343	3.549	74.954
11	1.615	2.446	77.401	1.615	2.446	77.401
12	1.176	1.782	79.183	1.176	1.782	79.183

Source: Research analysis result, 2023 (N=390)

Rotated Component Matrix

The component matrix (or factor loadings) shows the correlation of each variable with the extracted factors. High absolute values indicate a strong relationship with the corresponding factor. The EFA rotated component matrix also show a delightful result, with no items appear to be in multiple factors and all factor loading higher than 0.7 which is considered as good according to Hair et al. (2006). The statistic is shown to have successfully extracted **12 different factors** (details at Appendix D).

4.3.5. Data analysis results

4.3.5.1. Pearson correlations results

The Pearson Correlation results detail the relationships between various factors such as socio-economic development, quality of education, health and well-being, economic policies, technological advancements, cultural and social norms, government policy & institutional frameworks, demographic trends, and globalization. Thus, the dependent variable had a significant correlation with independent variables at the 0.01 level (2-tailed). More detail, see Appendix D.

Table 4.27: Pearson Correlation Summary

Factors	Pearson Correlation	Sig. (2 tailed)	Sum of Squares & Cross-products	Covariance
HRD	<i>1</i>		208.8	0.537
OS	<i>.404**</i>	<.001	111.828	0.287
TA	<i>.273**</i>	<.001	98.4	0.253
LMS	<i>.470**</i>	<.001	121.222	0.312
CC	<i>.567**</i>	<.001	118.509	0.305
WD	<i>.523**</i>	<.001	133.522	0.343
FPES	<i>.170**</i>	<.001	-71.175	-0.183
EMM	<i>.174**</i>	<.001	111.165	0.286
EER	<i>.465**</i>	<.001	116.603	0.3
EC	<i>.137**</i>	<.001	89.262	0.229

LMC	.457**	<.001	125.85	0.324
GRP	.748**	<.001	131.629	0.338
Correlation is significant: **. at the 0.01 level (2-tailed). *. at the 0.05 level (2-tailed).				

Source: Research analysis result, 2023 (N=390)

4.3.5.2. Multiple linear regression results

To identify, measure and evaluate the impact factors on HRD in the socio-economic of Lao PDR, the author uses multiple linear regression method for 11 factors obtained from correlation analysis Pearson correlations are presented in Table 4.28.

Adjusted R² value: reflects the influence of independent variables on the dependent variable. Specifically in this case, the 8 independent variables in the research model affect 52% of the change in the dependent variable, the remaining 48% is due to variables outside the model and random errors.

The indicator of Durbin – Watson = 1.781, which stand between 1.5 to 2, thus showing no autocorrelation in the model (Hair et al., 2006).

Table 4.28: Model Summary

Model Summary ^b								
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics			Durbin-Watson
					R ² Change	F Change	Sig. F Change	
1	.731 ^a	.534	.520	.50755	.534	39.321	<.001	1.781
a. Predictors: (Constant), OS, TA, LMS, CC, WD, FPES, EMM, EER, EC, LMC, GRP								
b. Dependent Variable: Human Resource Development (HRD)								

Source: Research analysis result, 2023 (N=390)

Sig value of F-test: To check the suitability of the model, the author considers the sig value of F-test from the ANOVA variance table, specifically in this case the sig value of F-test is 0.001 < 0.05 . Thus, the linear regression model is built appropriately for the entire population (Hair et al., 2006).

Table 4.29: ANOVA variance table

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.424	11	10.129	39.321	<.001 ^b
	Residual	97.376	378	.258		
	Total	208.800	389			

a. Dependent Variable: Human Resource Development (HRD)
b. Predictors: (Constant), OS, TA, LMS, CC, WD, FPES, EMM, EER, EC, LMC, GRP

Source: Research analysis result, 2023 (N=390)

Sig value of t-test: used to test the significance level of regression. From Table 4.28: Sig values of Employee Motivation and Engagement (EME), Feedback and Performance Evaluation Systems (FPES), all of them are <0.001 so they all have an impact on the dependent variable Human Resource Development (HRD) in Significance at level 0.001. Value sig. of Organizational Strategy (OS), Leadership and Management Support (LMS), Corporate Culture (CC), Workforce Demographics (WD), External Educational Resources (EER), Government Regulations and Policies (GRP), all of them are <0.05 so they all have an impact on the dependent variable Human Resource Development (HRD) in Significance at level 0.05. Value sig. of Technological Advancements (TA), Economic Conditions (EC), Labor Market Conditions (LMC), all of them are >0.05 so they all have no impact on the dependent variable Human Resource Development (HRD).

Standardized Coefficient Beta: The independent variable Government Regulations and Policies (GRP) has the largest standardized Beta coefficient of 0.185, so GRP have the strongest impact on HRD. The lowest impact is Organizational Strategy (OS) with a normalized beta of 0.083. The Feedback and Performance Evaluation Systems (FPES) variable has a negative impact on Human Resource Development (HRD), with a standardized Beta coefficient of -0.262.

Collinearity Statistics VIF: used to check multicollinearity. Specifically in this case, from Table 4.30 it can be seen that all VIF coefficients have values <5, so multicollinearity does not occur in the regression model (Hair et al., 2006).

Table 4.30: Coefficients table

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.306	0.178		7.355	<.001		
OS	0.063	0.031	0.083	2.06	0.04	0.753	1.327
TA	0.010	0.036	0.013	0.286	0.775	0.595	1.682
LMS	0.081	0.042	0.095	1.935	0.044	0.517	1.936
CC	0.121	0.044	0.139	2.776	0.006	0.495	2.022
WD	0.091	0.031	0.142	2.922	0.004	0.523	1.91

FPES	-0.221	0.035	-0.262	-6.391	<.001	0.733	1.365
EME	0.130	0.036	0.167	3.581	<.001	0.570	1.756
EER	0.079	0.033	0.102	2.379	0.018	0.665	1.505
EC	0.000	0.027	0.000	0.011	0.992	0.710	1.409
LMC	0.041	0.044	0.055	0.941	0.347	0.364	2.745
GRP	0.170	0.057	0.185	2.986	0.003	0.321	3.117

a. Dependent Variable: Human Resource Development (HRD)

Source: Research analysis result, 2023 (N=390)

4.3.5.3. One-way multivariate analysis of variance (MANOVA) results

The results of MANOVA analysis, evaluating the differences between demographic variables, showed that Human Resource Development and Employee Motivation and Engagement had a statistically significant difference (95% confidence interval). Details are presented in Table 4.31.

Table 4.31: Manova results

Box's Test of Equality of Covariance Matrices ^a	
Box's M	50.145
F	.709
df1	66
df2	11147.919
Sig.	.964
Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.	
a. Design: Intercept + Organization_Sector + Organization_Size + Organization_Sector * Organization_Size	

Levene's Test of Equality of Error Variances ^a					
		Levene Statistic	df1	df2	Sig.
Human Resource Development (HRD)	Based on Mean	1.389	16	372	.143
	Based on Median	1.293	16	372	.198
	Based on Median and with adjusted df	1.293	16	341.279	.199
	Based on trimmed mean	1.388	16	372	.144
Employee Motivation and Engagement (EME)	Based on Mean	1.197	16	372	.268
	Based on Median	1.162	16	372	.297
	Based on Median and with adjusted df	1.162	16	352.590	.297
	Based on trimmed mean	1.204	16	372	.262

Source: Research analysis result, 2023 (N=390)

4.4. The findings from research results

4.4.1. Hypothesis testing

Based on the result of Multiple Linear Regression above, there are 7 factor that have a positive impact and 3 factors that have no impact on HRD in the socio-economic context of Lao PDR. A new relationship that Feedback and Performance Evaluation Systems (FPES) had negative impact on HRD in the socio-economic context of Lao PDR. Thus, the research model and hypothesis of the thesis are presented below.

Table 4.32: Regression result and Hypothesis testing

Hypothesis	$\hat{\beta}$	t	Sig.	Hypothesis testing
(Constant)		7.355	<.001	
H1: OS factors → HRD in the socio-economic context of Lao PDR	0.083	2.06	0.04	Supported
H2: TA factors → HRD in the socio-economic context of Lao PDR	0.013	0.286	0.775	Rejected
H3: LMS factors → HRD in the socio-economic context of Lao PDR	0.095	1.935	0.044	Supported
H4: CC factors → HRD in the socio-economic context of Lao PDR	0.139	2.776	0.006	Supported
H5: FPES factors → HRD in the socio-economic context of Lao PDR	-0.262	-6.391	<.001	New relationship
H6: EME factors → HRD in the socio-economic context of Lao PDR	0.167	3.581	<.001	Supported
H7: EER factors → HRD in the socio-economic context of Lao PDR	0.102	2.379	0.018	Supported
H8: EC factors → HRD in the socio-economic context of Lao PDR	0	0.011	0.992	Rejected
H9: LMC factors → HRD in the socio-economic context of Lao PDR	0.055	0.941	0.347	Rejected
H10: WD factors → HRD in the socio-economic context of Lao PDR	0.142	2.922	0.004	Supported
H11: GRP factors → HRD in the socio-economic context of Lao PDR	0.185	2.986	0.003	Supported
H12: GZ factors → HRD in the socio-economic context of Lao PDR	Excluded from the research model due to insufficient α and EFA conditions			

Source: Research analysis result, 2023 (N=390)

Regression model:

HRD in the socio-economic context of Lao PDR = 1.306 + 0.083*OS + 0.095*LMS + 0.139*CC - 0.262*FPES + 1.167*EME + 0.102*EER + 0.142*WD + 0.185*GRP.

Based on Regression result and Hypothesis testing are presented in Table 4.30, The author presents the research model with data from the research results as Figure 4.9.

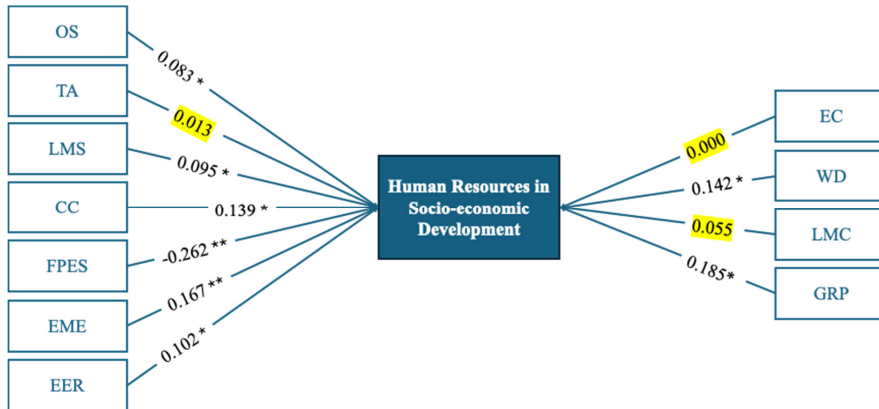


Figure 4.9: Model with regression result

Source: Research analysis result, 2023 (N=390)

Note: ** p-value < 0.001, * p-value < 0.05

4.4.2. MANOVA Analysis results

The results of Manova analysis show that there are significant differences in Human Resources Development as well as Employee Motivation and Engagement according to the field of activity and size of the organization. Thus, the findings from the Monova analysis results will be the basis for the author to propose solutions in the next chapters.

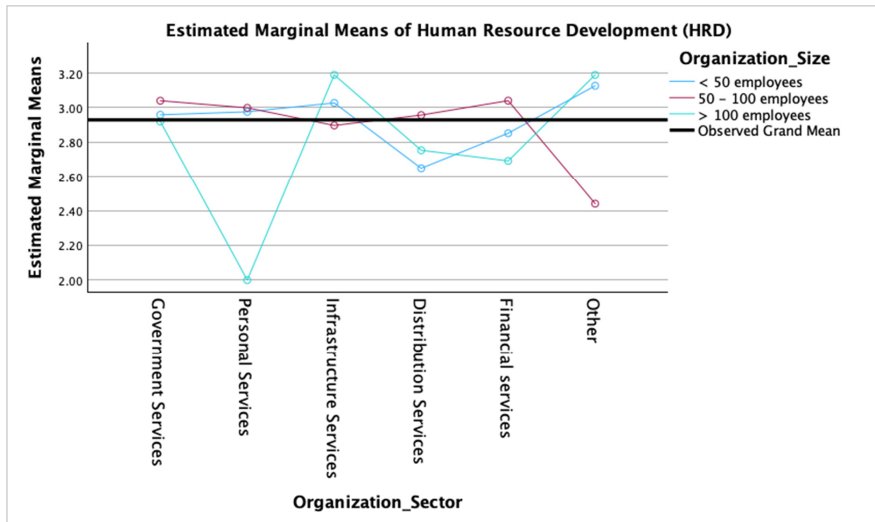


Figure 4.10: Mean of Human Resources Development by Organization Size, Organization Sector

Source: Research analysis result, 2023 (N=390)

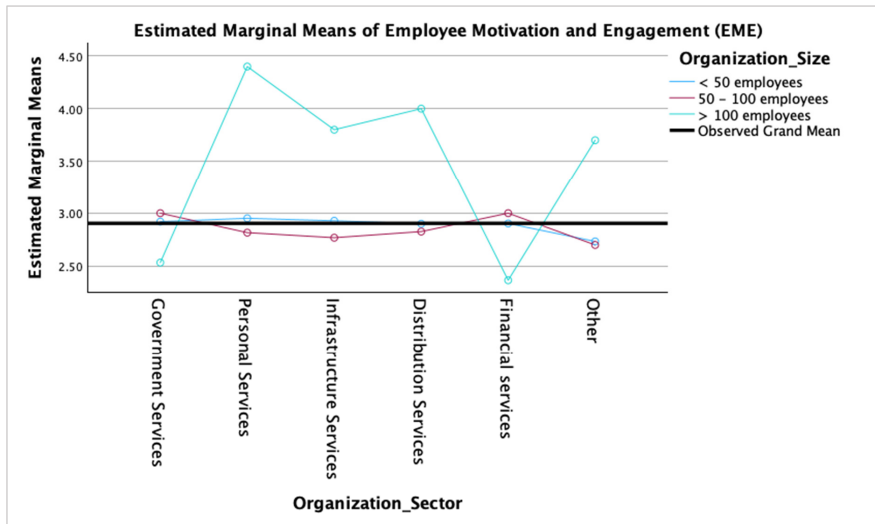


Figure 4.11: Mean of Employee Motivation and Engagement by Organization Size, Organization Sector

Source: Research analysis result, 2023 (N=390)

CHAPTER SUMMARY 4

In Chapter 4, the author presented the results of qualitative and quantitative research. Accordingly, adjustments to the scale, terminology used in the survey questionnaire as well as the method of conducting the survey were presented by the author in the qualitative research results section. Regarding quantitative research results, the process of collecting and processing data with the results of 390 questionnaires was used to perform quantitative analysis.

The results of testing the reliability of the data using Cronbach's Alpha coefficient were performed and presented in detail in Chapter 4. Results of testing the research hypotheses using the multiple linear regression model, according to which the hypotheses H1, H3, H4, H5, H6, H7, H10, H11 are accepted. Hypotheses H2, H8, H9, H12 were rejected, instead the author discovered a new relationship, a negative relationship. The results of 1-way MANOVA analysis to determine differences between demographic groups were also presented in detail in Chapter 4.

The discussion and analysis of the research results from Chapter 4 will be continued by the author in Chapter 5 of the thesis.

CHAPTER 5

RECOMMENDATIONS

5.1. Orientations for enhancing HRD in Laos socio-economic development up to year 2030

The Lao People's Democratic Republic (Lao PDR) stands at a pivotal juncture, striving to achieve ambitious socio-economic goals by 2030. Central to this vision is the nation's planned graduation from Least Developed Country (LDC) status, a milestone targeted for 2026, and its long-term aspiration to become a green, sustainable, and upper-middle-income country (United Nations, 2023). These objectives are enshrined in guiding frameworks such as the 9th National Socio-Economic Development Plan (NSEDPlan) and the overarching Vision 2030 (Government of Lao PDR, 2021). However, the realization of this transformative agenda is intrinsically linked to the development of its most valuable asset: its people. Enhancing human resource development (HRD) is not merely a component of the national strategy; it is the fundamental prerequisite for building a resilient, innovative, and competitive economy. To unlock its full potential, Laos must navigate significant challenges, including a pervasive skills gap, disparities in educational quality, and the need to align its workforce's capabilities with the dynamic demands of the domestic and regional labor markets (Asian Development Bank [ADB], 2022). A strategic, multi-faceted approach focused on reforming the education system, revolutionizing vocational training, promoting lifelong learning, ensuring inclusive development, and strengthening governance is essential to forge a skilled and prosperous future for the nation.

5.1.1. Reforming the Bedrock: The Formal Education System

The foundation of a nation's human capital is its formal education system. Currently, Laos faces challenges in this area, reflected in its low Human Capital Index score, which highlights persistent gaps in education and health outcomes that hinder productivity (World Bank, 2020). Issues of quality, equitable access—particularly between urban and rural areas—and student retention persist (Phonepackdy & Newhouse, 2021). Therefore, the primary orientation must be a profound reform of basic education. The Lao government has signaled its commitment to this cause, recognizing that a strong start in the formative years is non-negotiable. This involves

a comprehensive modernization of curricula to embed "future skills" that are critical for a 21st-century workforce. Beyond rote learning, education must cultivate critical thinking, problem-solving, digital literacy, and essential soft skills that enable adaptability and innovation (ADB, 2022). Hand-in-hand with curriculum reform is the urgent need for robust teacher development. Investing in continuous training, professional upskilling, and providing better incentives are crucial levers to elevate teaching quality, which directly translates into improved student learning outcomes. By strengthening this educational bedrock, Laos can begin to cultivate the knowledge-based, innovative human capital required to achieve the goals of Vision 2030.

5.1.2. Revolutionizing TVET to Meet Market Demands

A critical bottleneck to Laos' economic growth is the significant mismatch between the skills of the available workforce and the needs of the private sector (Souksavath & Nakavachara, 2021). This skills shortage is a major constraint on development, with many skilled positions being filled by workers from neighboring countries. To address this, a second key orientation is the revolutionization of the Technical and Vocational Education and Training (TVET) system. The current system produces too few graduates with the specific, practical skills that businesses require. A fundamental shift is needed to make the TVET system demand-driven rather than supply-driven.

A powerful strategy to achieve this is the promotion and expansion of Dual-Cooperative Training (DCT), which integrates classroom-based learning with extensive on-the-job training. Strengthening such public-private partnerships (PPPs) is vital. The private sector must be actively involved in designing curricula, defining skill standards, and providing meaningful apprenticeship opportunities to ensure that training is relevant and leads to employment (Marope et al., 2015). Furthermore, these efforts must be strategically targeted toward priority growth sectors. The World Bank-supported "Priority Skills for Growth Project," for instance, rightly focuses on agriculture, logistics, and Information and Communication Technology (ICT)—fields where Laos has immense potential but also faces acute skills shortages (World Bank, n.d.). Developing a skilled workforce in logistics is particularly crucial to capitalize on the country's strategic location and recent infrastructure investments, such as the Laos-China Railway, to become a true land-linked hub. This requires concurrent investment in upgrading the infrastructure, technology, and teaching resources of TVET colleges and skills development centers across the country.

5.1.3. Fostering Lifelong Learning for an Adaptable Workforce

In the context of rapid technological advancement, the Fourth Industrial Revolution, and deeper ASEAN economic integration, the notion of education ending with a formal degree is obsolete. The third crucial orientation is to foster a culture of lifelong learning to ensure the Lao workforce can adapt to the changing world of work. With a large proportion of employment being informal, estimated at over 80% (International Labour Organization [ILO], 2018), a vast segment of the labor force lacks access to structured development opportunities. Therefore, creating accessible and flexible pathways for the continuous upskilling and reskilling of the existing workforce is imperative. This includes expanding non-formal education programs and community learning centers that offer short, practical courses in trades and vocational skills that can immediately improve livelihoods. By embracing the principles outlined in the ASEAN Declaration on Human Resources Development for the Changing World of Work (Association of Southeast Asian Nations [ASEAN], 2020), Laos can cultivate a resilient and agile workforce prepared to seize new opportunities and navigate future economic shifts.

5.1.4. Ensuring Inclusive and Equitable Human Resource Development

For development to be sustainable, its benefits must be shared by all. Significant disparities in educational and employment opportunities persist in Laos, particularly between rural and urban populations, across different ethnic groups, and based on gender (Phonepackdy & Newhouse, 2021). A fourth essential orientation is to place inclusivity and equity at the heart of all HRD efforts. This means actively working to improve access to quality education and vocational training for everyone, regardless of their background. Targeted interventions, such as providing stipends for disadvantaged students, can help remove financial barriers to education. Promoting gender equality is also critical, not only by ensuring girls have equal access to schooling but also by encouraging female participation across all economic sectors and in leadership positions. Addressing these inequalities is a matter of social justice and an economic imperative; a nation cannot reach its full potential if a significant part of its population is left behind. This focus on equity will also contribute to the overarching goal of poverty reduction and reversing the trend of rising income inequality (World Bank, 2022).

5.1.5. Strengthening Governance and Strategic Partnerships

Underpinning all these efforts is the need for strong and effective governance. The fifth orientation is to enhance the institutional capacity and strategic coordination of

HRD initiatives. National frameworks like the HRD Strategy and the 9th NSEDP provide the roadmap (Government of Lao PDR, 2021), but their successful implementation depends on the capabilities of the responsible government bodies, chiefly the Ministry of Education and Sports (MoES) and the Ministry of Labour and Social Welfare (MLSW). This involves strengthening their ability to plan, manage, and monitor HRD programs effectively. Furthermore, success cannot be achieved by the government alone. It requires deepening the collaboration between ministries, development partners, civil society, and the private sector, represented by bodies such as the Lao National Chamber of Commerce and Industry (LNCCI) (USAID, 2022). Finally, a commitment to evidence-based policymaking is crucial. This requires improving data collection, analysis, and monitoring systems to rigorously evaluate the impact of HRD interventions and make timely adjustments to ensure they are achieving their intended goals.

In conclusion, the path to achieving Laos' socio-economic vision for 2030 is paved with investment in its human capital. The orientations are clear: fundamentally reform the education system to build a strong foundation; revolutionize TVET to align with market realities; champion lifelong learning to ensure workforce adaptability; guarantee that development is inclusive and equitable for all citizens; and strengthen the governance frameworks that steer these efforts. By strategically and persistently pursuing these interconnected goals, Lao PDR can cultivate a skilled, knowledgeable, and resilient population. This is the most critical investment the nation can make to unlock its potential, achieve its goal of graduating from LDC status, and build a more prosperous and sustainable future for all its people.

5.2. Discussion and recommendations based on research results

5.2.1. Discuss research's findings

The research conducted on impact factors of HRD in the socio-economic context in Lao PDR incorporates a comprehensive analysis using Pearson correlations and multiple linear regression methods. Key factors influencing socio-economic development include quality of education, health and well-being, government policy and institutional frameworks, and globalization.

5.2.1.1. Key Insights from the Analysis

Strong Correlations Indicated by Pearson Results:

Health and Well-being, Technological Advancements, and Cultural and Social Norms show strong positive correlations with socio-economic development as indicated by Pearson correlation coefficients above 0.7. This suggests that improvements in these areas are likely to significantly enhance socio-economic development.

Multiple Linear Regression Analysis:

The adjusted R^2 value of 87.4% in the regression model indicates that the selected variables explain a substantial portion of the variance in socio-economic development. This highlights the effectiveness of the chosen factors in predicting socio-economic outcomes.

Government Policy & Institutional Frameworks exert the strongest influence among the variables studied, suggesting that policy and governance are critical levers for socio-economic development.

Significance Tests and Model Fitness:

The F-test and t-tests across different predictors confirm the overall statistical significance and reliability of the regression model. However, Economic Policies did not show a significant impact, which could indicate that current policy measures are not effectively aligned with socio-economic growth or are overshadowed by other factors.

5.2.1.2. Comparison with Previous Studies

The findings of this dissertation align with and extend the body of knowledge on human resource development (HRD) in developing countries, particularly in the Southeast Asian region. Specifically, the identification of micro-level factors—such as leadership, organizational culture, employee motivation, and performance evaluation—as key enablers of HRD is consistent with the findings of (Armstrong, 2006; S. W. J. Kozlowski & D. R. Ilgen, 2006; Swanson, 2022).

Additionally, the role of macroeconomic conditions and government policy in shaping HRD outcomes echoes the conclusions drawn by (Okeke-James et al., 2020; Swanson, 2022), where national-level policy coordination was shown to have a strong influence on skill development initiatives.

The observed positive relationship between HRD and socio-economic development supports the work of (Becker, 2009; OECD, 2023), who argued that strategic investment in human resources contributes significantly to national productivity and inclusive growth. In particular, the Laotian case further demonstrates how HRD

serves as a bridge between organizational learning and national economic modernization.

However, one notable divergence lies in the relatively low influence of external educational resources (e.g., partnerships with universities or foreign training agencies), which contradicts findings from (Espedal, 2005; Stachová et al., 2019). This suggests that the HRD ecosystem in Lao PDR remains largely internally driven, with limited engagement from external stakeholders—highlighting an important area for policy reform.

Overall, this study contributes to the literature by offering an integrated multilevel model of HRD specific to the socio-economic context of Lao PDR—an area that remains under-researched despite growing regional importance.

5.2.2. Recommendation for Lao PDR Government

5.2.2.1. Enhancing Education and Health Initiatives

To effectively enhance education and health initiatives, several strategic actions are necessary, focusing on improving both infrastructure and access to these essential services. By addressing the gaps in both education and healthcare systems, we can build a stronger foundation for human resource development in Lao PDR.

Strengthen Education Infrastructure and Teacher Training

The development of education infrastructure in Lao PDR, particularly in rural and remote areas, remains a critical priority. A significant number of schools lack basic amenities, including proper classrooms, libraries, and access to modern technology, which hinders the quality of education delivered to students. To address this, the government should prioritize the construction and renovation of schools, ensuring that they are well-equipped with the necessary facilities, such as science laboratories, computer rooms, and libraries. Investment in digital infrastructure is also crucial, allowing students in remote areas to access online learning platforms, which have become increasingly important in a digitalized world.

Teacher training plays an equally important role in improving the quality of education. A well-trained teacher workforce is essential for the effective delivery of curriculum and the development of critical thinking skills among students. Teacher development programs should include regular training in modern pedagogical techniques, with a focus on student-centered learning and the use of technology in the classroom. Moreover, continuous professional development opportunities should be provided to teachers, enabling them to stay updated with the latest educational

research and innovations. This can include partnerships with international educational institutions to offer exchange programs or advanced certification courses. By focusing on both infrastructure and teacher development, the government can create an education system that nurtures talent and prepares students for the demands of the modern workforce.

Increase Access to Health Services and Promote Preventive Healthcare

Access to quality healthcare remains uneven in Lao PDR, particularly for those living in rural areas. To address this disparity, the government must invest in expanding healthcare infrastructure, building more clinics and hospitals in underserved regions, and upgrading existing facilities. Additionally, mobile healthcare services should be strengthened, providing essential medical care to communities that are otherwise difficult to reach. Mobile clinics can offer a wide range of services, from basic health check-ups to vaccinations and maternal care, ensuring that even remote populations have access to necessary healthcare services.

In parallel, preventive healthcare should become a cornerstone of the healthcare system. Emphasizing preventive measures, such as regular health screenings, vaccination campaigns, and education on lifestyle diseases, can significantly reduce the long-term burden on the healthcare system. Preventive healthcare is often more cost-effective and can prevent the escalation of health issues that might otherwise require more expensive treatments. Public health campaigns should focus on raising awareness about nutrition, hygiene, and the prevention of common diseases such as diabetes and heart disease. Additionally, partnerships with local schools and community centers can be established to provide regular health workshops, educating the population on best practices for maintaining long-term health and well-being. This multi-pronged approach to healthcare will not only improve the health outcomes of the population but also contribute to the development of a healthier and more productive workforce.

Encourage Public-Private Partnerships in Education and Health

Public-private partnerships (PPPs) can play a transformative role in enhancing both education and healthcare sectors by leveraging the resources and expertise of private entities. In the education sector, PPPs can help bridge funding gaps, particularly in resource-constrained areas. For example, private companies can contribute to the construction of new schools, the provision of advanced educational technology, and the establishment of scholarship programs for students from disadvantaged backgrounds. These partnerships can also extend to curriculum development, with

private sector involvement helping to ensure that educational content is aligned with the demands of the labor market, particularly in sectors like technology and business.

Similarly, in the healthcare sector, PPPs can help improve access to advanced medical technologies and services. For instance, private healthcare providers can partner with public health systems to offer specialized medical treatments that may not be available in government-run facilities. Additionally, private companies can invest in the development of telemedicine platforms, enabling patients in rural areas to consult with specialists remotely. Such partnerships can also support the establishment of training programs for healthcare professionals, ensuring that medical staff have access to the latest knowledge and practices in healthcare delivery. By fostering these collaborative efforts, the government can enhance the quality and accessibility of both education and health services, ultimately benefiting the entire population.

Focus on Lifelong Learning and Continuous Health Education

In today's fast-paced and ever-changing global economy, the concept of lifelong learning is critical to ensuring that workers remain adaptable and competitive. HRD programs should place a greater emphasis on continuous education opportunities, particularly for adults who may need to upgrade their skills to stay relevant in the workforce. Vocational training programs, technical skills courses, and online learning platforms can provide employees with the flexibility to pursue additional education while balancing work responsibilities. Government initiatives that provide incentives for companies to invest in employee education—such as tax breaks or grants—can encourage businesses to actively promote lifelong learning among their workforce.

Continuous health education is equally important in maintaining a healthy population, especially as new health risks emerge and existing challenges evolve. Public health campaigns should not be limited to one-time efforts but should be part of an ongoing education strategy. Programs that offer regular workshops and informational sessions on health topics—such as mental health awareness, chronic disease management, and healthy lifestyle choices—will equip individuals with the knowledge they need to take proactive steps in maintaining their health. In addition, integrating health education into workplace wellness programs can encourage employees to adopt healthier lifestyles, reducing absenteeism and improving overall productivity. By fostering a culture of continuous learning and health education, Lao PDR can build a workforce that is both skilled and healthy, ensuring long-term economic and social stability.

5.2.2.2. *Focusing on Technological Infrastructure in Lao PDR*

The development of technological infrastructure in Lao PDR is critical for fostering economic growth, improving public services, and enhancing access to education and healthcare. A strategic focus on building a robust technological foundation will allow the country to keep pace with global advancements and ensure its competitiveness in the digital age.

Broadband Connectivity

Expanding broadband connectivity is a top priority for bridging the digital divide, particularly between urban and rural areas. In many remote regions of Lao PDR, limited access to reliable internet services restricts opportunities for education, healthcare, and business development. To address this, the government should partner with telecommunications companies to expand the coverage of broadband networks across the country. This includes not only laying down the necessary infrastructure but also ensuring that the services provided are affordable for the general population.

In addition, subsidies or financial incentives could be introduced to encourage internet service providers to extend coverage into less profitable, underserved areas. Affordable pricing models should be developed to ensure that even the most remote and economically disadvantaged communities have access to the internet. Expanding broadband infrastructure will not only boost digital inclusion but also enable rural populations to participate in online learning, access telemedicine services, and engage in e-commerce, thereby contributing to overall socio-economic development.

Digital Literacy and Training

The widespread adoption of technology requires an equally widespread effort to improve digital literacy. For many citizens of Lao PDR, particularly in rural and older populations, basic digital skills are lacking. Establishing community training centers that offer courses on computer usage, internet navigation, and cybersecurity will equip citizens with the tools they need to thrive in a digital economy. These centers can serve as hubs for learning, where individuals of all ages can gain the skills necessary for both personal development and professional advancement.

Moreover, integrating digital literacy into school curricula from an early age is essential for preparing the younger generation for the future workforce. Schools should be equipped with computer labs and internet access, and teachers should receive training to effectively teach digital skills. By embedding digital education at

all levels, Lao PDR can build a workforce that is well-versed in technology and capable of adapting to the fast-evolving digital landscape.

Support for Tech Startups and Innovation Hubs

To foster innovation and drive economic growth, it is crucial to support the development of tech startups and innovation hubs. These hubs provide entrepreneurs and small businesses with the resources, mentorship, and funding necessary to bring new ideas to life. The government can incentivize the creation of innovation hubs by providing grants, reducing taxes, and offering regulatory support for startups in the tech sector.

In addition, the establishment of incubators and accelerators will help nurture early-stage tech businesses by offering guidance in areas such as product development, marketing, and scaling. By creating a supportive ecosystem for tech startups, Lao PDR can position itself as a hub for technological innovation in Southeast Asia, attracting both domestic talent and international investment. This will not only boost the tech sector but also contribute to job creation and overall economic growth.

Public-Private Partnerships (PPPs) for Infrastructure Development

Public-private partnerships (PPPs) are a key strategy for developing the technological infrastructure of Lao PDR. By leveraging the strengths of both the public and private sectors, PPPs can help fund and implement large-scale infrastructure projects more efficiently. For example, private companies can contribute to the construction and maintenance of broadband networks, while the government ensures that these services are affordable and accessible to the population.

Furthermore, PPPs can be instrumental in promoting digital skill development programs that align with industry needs. By collaborating with private tech companies, the government can design training programs that prepare workers for the demands of the modern labor market. Such initiatives will ensure that the country's workforce is equipped with the skills necessary to take advantage of new technologies and contribute to the nation's economic development.

Enhancing E-Government Services

The development of e-government services offers a way for the government to improve efficiency, reduce bureaucratic delays, and increase transparency. By digitizing public services, citizens will be able to complete tasks such as filing taxes, applying for permits, or accessing public records online, thereby reducing the time and effort required to engage with the government.

In addition, robust cybersecurity measures must be implemented to protect sensitive data and build trust in e-government systems. Establishing secure platforms and educating citizens about data privacy will encourage greater participation in e-government services, streamlining many aspects of public administration and improving overall governance.

5.2.2.3. Strengthening Government Policies in Lao PDR

Strengthening government policies in Lao PDR is crucial to ensure sustainable socio-economic development and to create a conducive environment for business, innovation, and social welfare. Below are several key recommendations to enhance government policy frameworks.

Refining Economic Policies

Policy Reforms for Economic Diversification: The Lao PDR economy is highly dependent on agriculture, but diversification is essential for long-term resilience and growth. The government should identify and promote key sectors that have potential for development, such as digital technology, tourism, and green energy. Sector-specific policies, including targeted subsidies, tax incentives, and infrastructure investments, can help boost these emerging industries. For example, the promotion of green energy could reduce reliance on imported fuel while also generating new job opportunities in sustainable industries.

Foreign Direct Investment (FDI): Encouraging FDI is critical for both capital investment and the transfer of expertise and technology. Streamlining regulatory processes and reducing bureaucratic barriers can make Lao PDR more attractive to foreign investors. In addition, a transparent legal framework that protects investor rights and ensures fair dispute resolution will provide confidence to foreign businesses. Creating special economic zones (SEZs) with tax breaks and incentives targeted at foreign investors can also boost FDI in sectors like manufacturing and high-tech industries, stimulating growth and innovation in the country.

Improving Labor Laws and Worker Protection: Updating labor laws to meet international standards is vital for ensuring worker rights, protecting wages, and promoting safe working conditions. Reforms should focus on ensuring that workers have the right to unionize and bargain collectively while ensuring that minimum wage levels keep pace with inflation. Additionally, expanding social protection programs to cover informal sector workers will increase their access to essential services, further

contributing to national economic stability. By prioritizing labor rights, Lao PDR can build a more resilient workforce that is prepared to meet future economic challenges.

Enhancing Financial Policies

Microfinance and Banking Access: Expanding access to financial services is crucial for promoting entrepreneurship, particularly in rural areas where formal banking systems are often limited. By promoting microfinance institutions, the government can support small-scale entrepreneurs, providing them with the capital they need to start and expand their businesses. Programs designed to increase financial literacy and access to affordable credit will help bring more people into the formal economy. Additionally, ensuring that these services are available in remote areas can help reduce poverty by encouraging entrepreneurial activity among rural populations.

Fiscal Stability Measures: Fiscal stability is key to ensuring that the government can sustainably fund public services, infrastructure projects, and social programs. Implementing policies focused on prudent debt management, diversifying revenue sources, and strengthening tax collection systems will help create a more resilient economy. Additionally, the government should aim to establish a sovereign wealth fund to protect against external shocks and provide long-term financial stability. By focusing on fiscal sustainability, Lao PDR can avoid the economic pitfalls of over-reliance on debt and build a foundation for future growth.

Strengthening Institutional Frameworks

Governance and Transparency: Improving governance and transparency is essential for gaining public trust and increasing government efficiency. Establishing strict anti-corruption measures, including the introduction of a national anti-corruption commission, will help reduce opportunities for graft and ensure that public funds are used effectively. Transparency initiatives, such as open access to government contracts and budgets, should be implemented to foster greater accountability. Additionally, enhancing public participation in policy-making by creating forums for consultation and feedback will help ensure that government policies reflect the needs of all citizens.

Policy Implementation and Evaluation: Developing robust implementation strategies and timelines for government policies will ensure that reforms are carried out effectively. Each department or agency should be assigned clear responsibilities and held accountable for achieving set targets. Furthermore, establishing Monitoring and Evaluation (M&E) frameworks will help assess the impact of policies and adjust strategies based on data-driven insights. This feedback loop will allow the

government to continually refine its approach, ensuring that policies remain effective and relevant over time.

Enhancing Social Policies

Inclusive Social Security Systems: Building an inclusive social security system is vital to ensure that all citizens, including informal workers and vulnerable populations, have access to basic protections such as healthcare, unemployment insurance, and retirement benefits. Expanding the coverage of social security systems and ensuring their long-term sustainability through regular assessments and appropriate funding levels will strengthen the country's social safety net. Adequate management and the use of digital systems to streamline enrollment processes can help reduce inefficiencies and improve accessibility.

Education and Health Policy Integration: Collaborative approaches between education, health, and economic policy-making can create more holistic solutions to national challenges. For example, addressing educational disparities and health inequities requires policies that ensure equal access to both education and healthcare services. Integrating these policies can reduce poverty and improve outcomes for the most marginalized groups. Additionally, policies must be coherent across sectors to ensure that they reinforce each other, thereby maximizing their impact on socioeconomic development.

5.2.3. Recommendation for Addressing Cultural and Social Norms in Lao PDR

Addressing cultural and social norms is crucial to advancing development efforts in Lao PDR. These norms often influence access to education, healthcare, and economic opportunities, and can either empower or hinder individuals based on gender, ethnicity, and social standing. Several strategic initiatives can help address these norms while promoting inclusivity and progress.

5.2.3.1. Promoting Cultural Preservation and Awareness

Cultural Heritage Conservation

Preserving Lao PDR's rich cultural heritage is essential for both national identity and tourism. The government should establish dedicated cultural heritage zones, where traditional practices, crafts, and historic sites are protected and promoted. Funding initiatives for restoring cultural landmarks—such as temples, monuments, and historical architecture—will support both cultural preservation and economic growth through tourism. Additionally, efforts to support craftsmanship schools and workshops can ensure that traditional arts, such as weaving and pottery, continue to thrive.

Awareness Campaigns

In order to build a sense of pride and respect for the nation's cultural diversity, public awareness campaigns should be launched. These campaigns can target both domestic and international audiences, showcasing the significance of cultural heritage in schools, media outlets, and through public events. Promoting a deeper understanding of the importance of heritage conservation will help citizens and communities value and protect their traditions while also engaging with modernity.

Cultural Exchange and Diversity

Cultural festivals can provide an excellent platform for promoting intercultural understanding and exchange. By supporting and expanding existing festivals that celebrate the diversity of Lao PDR's many ethnic groups, the government can foster greater national unity and cohesion. Additionally, multicultural education should be integrated into school curricula to ensure that young generations learn to appreciate and respect different ethnic and cultural backgrounds, which can mitigate tensions and foster social harmony.

5.2.3.2. Enhancing Gender Equality and Women's Empowerment

Policies to Support Gender Equality

A strong legal framework is necessary to ensure gender equality, particularly in employment, education, and political participation. Strengthening and enforcing existing gender equality laws can help reduce discrimination and ensure that women have equal access to opportunities. For example, laws regarding equal pay for equal work should be rigorously enforced, and measures to combat gender-based violence need to be strengthened to protect women's rights.

Empowerment Programs

In addition to legal reforms, empowerment programs should be created to support women's participation in the workforce, education, and leadership roles. Mentorship and leadership training programs can help women build the skills and confidence they need to succeed in traditionally male-dominated sectors. Programs that provide scholarships for women in science, technology, engineering, and mathematics (STEM) fields can also encourage greater female participation in these high-demand areas, closing gender gaps in employment and income.

Community Engagement and Education

Addressing entrenched gender norms requires engagement with the wider community. Public campaigns that challenge stereotypes and educate communities about the benefits of gender equality can help shift attitudes. Male involvement is also critical—by including men and boys in gender equality initiatives, they can become active allies in creating a more equitable society. Such efforts can contribute to transforming social norms that traditionally limit women’s opportunities.

5.2.3.3. Addressing Social Norms Impacting Health and Education

Health Education

Cultural and social norms often shape health behaviors, and in Lao PDR, this can include resistance to modern healthcare practices or taboos surrounding sensitive health topics like sexual and reproductive health. Public health campaigns should focus on dispelling myths, raising awareness about important health issues, and promoting preventative care. Collaborating with local leaders and communities to tailor health messages in culturally sensitive ways can increase their acceptance.

Community Health Workers

Training and deploying community health workers who are knowledgeable about both modern medical practices and local traditions can be an effective way to bridge the gap between modern healthcare and traditional beliefs. These workers can serve as trusted intermediaries who communicate the benefits of healthcare services such as immunization, maternal health, and sanitation practices, while also respecting cultural practices and beliefs. This approach will help improve public health outcomes while maintaining cultural sensitivity.

Educational Attainment

Many cultural norms in Lao PDR, particularly in rural areas, discourage education for girls and certain ethnic minorities. To address this, local community leaders should be engaged in discussions about the value of education for all children, regardless of gender or ethnic background. Additionally, flexible education solutions should be developed to accommodate children who may face familial or economic responsibilities, such as working during certain seasons. Evening classes, community-based schools, or vocational training programs can provide these students with more accessible learning opportunities.

5.2.3.4. Strengthening Social Cohesion

Inclusive Policies

Inclusive policies are essential for fostering social cohesion. The government should enact and enforce anti-discrimination laws that protect all citizens, regardless of ethnicity, religion, gender, or social status. These laws should be actively enforced to ensure that marginalized groups are not excluded from opportunities in education, employment, or civic participation. Regular monitoring of these policies will help ensure that they are effective and that the most vulnerable populations are protected.

Social Integration Programs

Programs that encourage the integration of various social groups can help reduce social tensions and promote inclusivity. For example, community development initiatives that bring together individuals from different ethnic groups to work on shared projects—such as building infrastructure, schools, or health clinics—can promote a sense of unity and cooperation. Moreover, public service programs that focus on serving all communities equally, such as healthcare, education, and employment support, can help bridge divides and create a more cohesive society

CONCLUSION

Researching human resources development in the socio-economic context in Lao PDR is extremely important for the Lao government in general and businesses operating in Lao PDR in particular. The process of integration and development, so the Lao economy is not out of the general trend of the whole world. The transformation of technology, culture, people as well as government policies has created many consequences for human resources as well as socio-economics in Lao PDR. For that reason, researching human resources in socio-economic development in Lao PDR is very meaningful in terms of practice and science.

Summary of thesis

The thesis has accomplished the following contents: (1) Built a detailed analysis model of the impact factors on human resources development in the socio-economic context in Lao PDR; (2) Develop and introduce measurement scales for impact factors on HRD; (3) Comprehensive analysis of findings on the demographic characteristics of Laos' human resources as well as findings on the impact between Lao human resources on socio-economic development. (4) Suggest recommendations and solutions for enhancing HRD of Lao PDR based on in-depth understanding of human resources in Lao PDR.

Limitations of the thesis

Research sample size: The sample size of the thesis only conducts surveys in some regions of Laos. In fact, there are still differences in regional culture, habits, and tastes of Lao people in different cities in Laos. Therefore, the survey should ideally be conducted in all cities in Laos. This is too much for the author. That's why the author chose certain provinces and cities in his research.

Survey implementation time: Human resources development and their impact factors in the socio-economic context are formed over a long period of time. Therefore, researching and studying in a short period of time (1 year) is not correct and complete. For that reason, the results, findings and analyzes may not be completely accurate and complete.

Recommendations and solutions: The findings on demographic characteristics, as well as the impact factors of human resources development in the socio-economic context in Laos presented in the thesis are relatively numerous. However, due to limitations in technology, techniques, financial conditions, time as well as the author's ability and

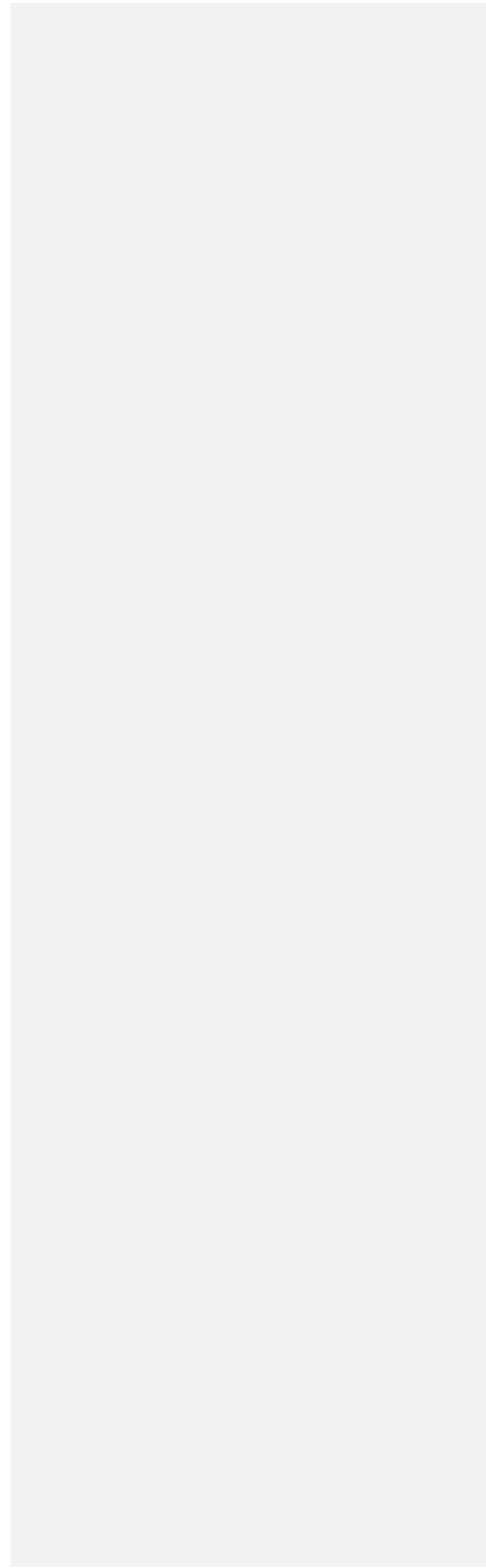
creativity, the recommendations and proposals are not many and complete. In fact, the author has not yet exploited 100% of the findings presented in this thesis.

The future research

Research on human resources development: Within the framework of the thesis, the author only focuses on analyzing the impact factors of human resources development in the socio-economic context. Therefore, future research directions for researchers can use the research model proposed by the author in Chapter 1 of the thesis to further analyze other aspects of human resources that affect human resources. Socio-economic development... Besides, the socio-economic situation in Laos is still very low, needing more development in the future. To do so, research with similar topics and learning about factors affecting socio-economic development in Laos is essential.

In summary, the general demographic characteristics and findings on impact factor on HRD in socio-economics in Laos presented in this thesis are scientific works carried out very methodically and meticulously. The author hopes that the research results as well as the author's recommendations, proposals, and solutions can be an important source of reference for future research, as well as a scientific basis for solutions. suitable for decisions of the government and businesses in Lao PDR.

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APPENDIX A

INTERVIEW QUESTIONS – QUALITATIVE RESEARCH

Group 1:

- What type of investigative questions do you like to answer?
- Closed questions have answers or open questions - answer at your own discretion?
- How many parts should a survey questionnaire have?
- Do affirmative sentences make it easier for you to understand or negative sentences?
- Do you have any comments on the use of words, components and structure of the research model below?

- In your opinion, should an online or offline survey be suitable for this questionnaire and topic?

Group 2:

- What methods and tools do you often use to design survey questionnaires?
- What are the important survey techniques to keep in mind?
- You can share special experiences that need attention for collecting, cleaning and processing data
- Are there any notes needed in the process of analyzing investigation results?
- Can you give me advice for the research direction of this topic?

APPENDIX B

SURVEY FORM – QUANTITATIVE RESEARCH

Dear Sir/Madam,

First of all, we would like to sincerely thank you for your participation in this market survey. The main purpose of the survey is to learn about the current state of human resources and the impact factors on human resources development in Laos. Your answers and personal information will be kept confidential and used only for research purposes. We commit not to share any information with a third party or for other purposes.

A. DEMOGRAPHIC

Q1. Living area?

Option	Code
Vientiane	1
Luang Prabang	2
Sayabouly	3
Oudomxay	4
Savannakhet	5
Khammouan	6
Bolikhamxay	7
Other	8

Q2. Gender

Option	Male	Female	Other
Code	1	2	3

Q3. Please indicate which of the following age groups you belong to.

Option	20 - 24	25 - 29	30 - 34	35 - 39	40 - 49	50 - 60	> 60 years
Code	1	2	3	4	5	6	7

Q4. Please indicate your educational level.

Option	High school	College	Bachelor	Master
Code	1	2	3	4

Q5. Please indicate your current position.

Row	Options	Code
R1	Supervisor	1
R2	Coordinator	2
R3	Manager	3
R4	Director	4
R5	Employee	5

Q6. Please tell us about your work experience?

Options	< 5 years	5 - 10 years	> 10 years
Code	1	2	3

Q7. Please tell us what sector your business belongs to

Row	Options	Code
R1	Government Services	1

R2	Personal Services	2
R3	Infrastructure Services	3
R4	Distribution Services	4
R5	Financial services	5
R6	Other	6

Q8. Please let us know the size of your business?

Options	< 50 employees	50 - 100 employees	> 100 employees
Code	1	2	3

B. SURVEY INVESTIGATION

I. Organizational Strategy (OS)

The questions below assess the perception and effectiveness of HRD in accordance with the organization's strategic goals. Please give your opinion on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
OS1	The HRD programs in our organization are closely aligned with its strategic goals					
OS2	Our training programs focus on developing skills that are crucial for achieving our organization's strategic objectives.					
OS3	Adequate resources (budget, time, tools) are allocated for HRD in line with our strategic needs					
OS4	The goals of our HRD programs are well communicated and understood within the organization in the context of our strategic direction.					
OS5	Feedback from HRD programs is used to make strategic adjustments in organizational planning.					
OS6	Our HRD programs quickly adapt to changes in our organization's strategic direction					

II. Technological Advancements (TA)

Below are questions that assess how technology affects training, development, and overall HR processes. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
TA1	Our organization effectively integrates new technologies into our HRD programs					
TA2	All employees have access to up-to-date technologies for their training and development needs.					
TA3	Technology has significantly enhanced the learning experience in our HRD programs.					
TA4	Digital tools and platforms are effectively used for collaborative learning and development in our organization.					
TA5	Our organization utilizes e-learning platforms to provide flexible learning opportunities for all employees.					

TA6	Our HRD programs prepare employees adequately for technological changes in their respective fields.					
TA7	The adoption of new technologies in HRD has positively impacted the productivity of our workforce.					
TA8	Technology has effectively supported the shift to remote learning and development where necessary.					

III. Leadership and Management Support (LMS)

The questions below assess how leadership behaviors and practices influence the effectiveness and priority of HRD initiatives. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
LMS1	Leaders in our organization demonstrate a strong commitment to HRD.					
LMS2	Our management ensures that adequate resources (budget, time, tools) are allocated for HRD.					
LMS3	Senior managers actively participate in HRD programs, either as learners or facilitators.					
LMS4	Our managers are supportive when it comes to adapting HRD practices based on changing organizational needs.					
LMS5	Leadership actively supports and promotes participation in professional development opportunities					

IV. Corporate Culture (CC)

The questions below are to evaluate the attitudes, values, and culture in the organization. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
CC1	Our organization's culture strongly supports the goals of HRD					
CC2	Continuous learning and development are valued and encouraged within our corporate culture.					
CC3	The corporate culture empowers employees to take initiative in their own professional development.					
CC4	Our corporate culture promotes inclusivity, ensuring all employees have equal access to development opportunities.					
CC5	Our corporate culture is adaptable to changes that affect HRD practices.					
CC6	The prevailing corporate culture positively impacts the performance outcomes of HRD initiatives.					

V. Feedback and Performance Evaluation Systems (FPES)

The question below was used to assess the impact of feedback and performance evaluation systems on HRD. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
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FPES1	The feedback I receive is clear and constructive, helping me to improve my job performance.					
FPES2	Feedback from performance evaluations is aligned with my personal and professional development goals.					
FPES3	Receiving regular feedback motivates me to engage more actively in HRD programs.					
FPES4	The feedback from evaluations leads to actionable changes in HRD programs that benefit employees					
FPES5	Performance evaluations are well integrated with HRD efforts, enhancing the overall development process.					

VI. Employee Motivation and Engagement (EME)

The question below was used to assess the impact of feedback and performance evaluation systems on HRD. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
EME1	I am motivated to participate in training and development programs offered by the organization.					
EME2	Feedback from performance evaluations is aligned with my personal and professional development goals.					
EME3	Receiving regular feedback motivates me to engage more actively in HRD programs.					
EME4	The feedback from evaluations leads to actionable changes in HRD programs that benefit employees					
EME5	Performance evaluations are well integrated with HRD efforts, enhancing the overall development process.					

VII. External Educational Resources (EER)

The question below was used to assess the impact of External Educational Resources on HRD. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
EER1	The external educational resources provided are relevant to my current job role and future career development.					
EER2	The quality of learning obtained from external educational resources meets my expectations and needs.					
EER3	The organization supports my use of external educational resources through funding or time allowances.					
EER4	Using external educational resources has significantly contributed to my professional growth.					
EER5	I am satisfied with the range and quality of external educational resources offered by the organization.					
EER6	The skills I have developed through external educational resources have directly enhanced my job performance.					
EER7	External educational resources are well integrated with our internal training programs.					

VIII. Economic Conditions (EC)

The question below was used to assess the impact of Economic Conditions on HRD. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
EC1	Under tight economic conditions, our organization still prioritizes funding for HRD.					
EC2	Our HRD strategies are flexible and adapt well to changing economic conditions.					
EC3	When the economy is strong, our organization increases its investment in HRD.					
EC4	Economic fluctuations significantly impact employee morale and their participation in HRD activities.					
EC5	Economic downturns lead to reduced training and development opportunities in our organization					

IX. Labor Market Conditions (LMC)

The question below was used to assess the impact of Labor Market Conditions on HRD. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
LMC1	Our HRD programs quickly adapt to changes in labor market conditions.					
LMC2	Our organization regularly analyzes the labor market to identify skills gaps and adjust HRD programs accordingly.					
LMC3	Current labor market conditions have significantly influenced our recruitment strategies and HRD needs.					
LMC4	Our HRD programs are effective in addressing the demand for emerging skills identified by labor market trends.					
LMC5	In a competitive labor market, our HRD strategies effectively contribute to employee retention.					

X. Workforce Demographics (WD)

The question below was used to assess how diversity characteristics such as age, gender, ethnicity, education level, and job role influence the design, implementation, and adoption of HRD program. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
WD1	Our HRD programs are designed to be inclusive of all demographic groups.					
WD2	Training and development opportunities are customized to meet the diverse needs of our workforce.					
WD3	All demographic groups have equal access to HRD initiatives.					
WD4	Shifts in workforce demographics have led to changes in our HRD strategies.					

XI. Government Regulations and Policies (GRP)

The question below was used to assess the impact of Government Regulations and Policies on HRD. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
GRP1	Our HRD programs are fully compliant with current government regulations.					
GRP2	Government regulations have broadened the scope of our HRD initiatives.					
GRP3	Government policies provide support that enhances our training and development programs.					
GRP4	Regulatory requirements impose constraints on our ability to execute HRD programs as desired.					
GRP5	Government regulations encourage innovation in our HRD practices.					
GRP6	Our organization quickly adapts to changes in HRD-related regulations.					
GRP7	Regulations improve the quality and effectiveness of our HRD programs.					

XII. Globalization (GZ)

The question below was used to assess the impact of Globalization (GZ) on HRD. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
GZ1	Our HRD programs effectively prepare employees for a globalized work environment.					
GZ2	Our organization provides comprehensive cross-cultural training to enhance global collaboration.					
GZ3	Globalization has enhanced our ability to manage talent across different geographic locations.					
GZ4	Globalization has increased the diversity and inclusivity of our HRD programs.					

XIII. Human Resource Development (HRD)

The question below was used to measure the impact and efficacy of HRD programs within an organization. Please indicate your level of agreement on a scale of 1-5, where 1 - Strongly disagree and 5 - Strongly agree.

Code	Question	1	2	3	4	5
HRD1	The HRD programs provided are directly relevant to my job role and responsibilities.					
HRD2	The training materials used in HRD programs are up-to-date, clear, and useful.					
HRD3	The facilitators of HRD programs are knowledgeable and effective in delivering training.					
HRD4	HRD programs align well with my personal and career development goals.					

HRD5	There is a mechanism in place to provide feedback on HRD programs, which is used for continuous improvement.						
HRD6	Participation in HRD programs has positively impacted my job performance.						
HRD7	The organization supports continuous learning and development through ongoing HRD initiatives.						
HRD8	All employees have equal access to participate in HRD programs.						

APPENDIX C

SCALE RELIABILITY TESTING DATA

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.957	6

Item Statistics

	Mean	Std. Deviation	N
OS1	3.03	1.019	390
OS2	3.07	1.045	390
OS3	3.06	1.040	390
OS4	3.07	1.060	390
OS5	3.06	1.040	390
OS6	3.02	1.066	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
OS1	15.28	22.977	.853	.950
OS2	15.23	22.675	.862	.949
OS3	15.25	22.685	.866	.949
OS4	15.23	22.395	.880	.947
OS5	15.25	22.731	.861	.949
OS6	15.28	22.491	.863	.949

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
18.30	32.350	5.688	6

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.897	8

Item Statistics

	Mean	Std. Deviation	N
TA1	3.03	1.002	390
TA2	3.04	1.063	390
TA3	3.05	1.078	390
TA4	3.00	1.033	390
TA5	3.03	1.059	390
TA6	3.01	1.042	390
TA7	2.71	1.284	390
TA8	2.82	1.279	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TA1	20.66	34.907	.829	.871
TA2	20.66	34.180	.838	.869
TA3	20.65	33.977	.842	.868
TA4	20.69	34.691	.819	.871
TA5	20.66	34.254	.834	.869
TA6	20.69	34.524	.826	.870
TA7	20.99	38.964	.319	.921
TA8	20.87	38.696	.339	.919

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
23.70	45.723	6.762	8

Reliability

Scale: ALL VARIABLES

Case Processing Summary

	N	%
Cases		
Valid	390	100.0
Excluded ^a	0	.0
Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.951	5

Item Statistics

	Mean	Std. Deviation	N
LMS1	3.02	1.007	390
LMS2	3.07	1.076	390

LMS3	3.05	1.070	390
LMS4	3.04	1.068	390
LMS5	3.01	1.015	390

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LMS1	12.17	15.157	.865	.940
LMS2	12.12	14.669	.865	.940
LMS3	12.14	14.716	.865	.940
LMS4	12.15	14.723	.866	.940
LMS5	12.18	15.090	.867	.940

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
15.19	22.956	4.791	5

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.889	6

Item Statistics			
	Mean	Std. Deviation	N
CC1	3.02	1.023	390
CC2	3.09	1.042	390
CC3	3.06	1.111	390
CC4	3.06	1.047	390
CC5	3.07	1.045	390
CC6	2.98	1.307	390

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CC1	15.26	19.494	.830	.851
CC2	15.19	19.230	.844	.848
CC3	15.22	18.775	.833	.848
CC4	15.22	19.377	.820	.852
CC5	15.22	19.275	.835	.850
CC6	15.31	23.252	.244	.951

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
18.28	28.034	5.295	6

Reliability**Scale: ALL VARIABLES****Case Processing Summary**

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.763	4

Item Statistics

	Mean	Std. Deviation	N
WD1	3.05	1.278	390
WD2	3.02	1.052	390
WD3	3.05	1.032	390
WD4	2.97	1.172	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
WD1	9.04	7.461	.432	.787
WD2	9.07	7.059	.705	.635
WD3	9.05	7.206	.693	.644
WD4	9.12	7.666	.472	.756

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
12.09	12.107	3.479	4

Reliability**Scale: ALL VARIABLES****Case Processing Summary**

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.951	5

Item Statistics

	Mean	Std. Deviation	N
FPES1	3.03	1.047	390
FPES2	3.03	1.061	390
FPES3	3.04	1.055	390

FPES4	3.06	1.018	390
FPES5	3.03	1.051	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
FPES1	12.17	14.813	.864	.939
FPES2	12.17	14.722	.863	.939
FPES3	12.16	14.715	.870	.938
FPES4	12.14	15.115	.849	.942
FPES5	12.17	14.737	.872	.938

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
15.20	22.875	4.783	5

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.913	5

Item Statistics

	Mean	Std. Deviation	N
EME1	3.13	1.085	390
EME2	3.14	1.108	390
EME3	3.09	1.092	390
EME4	3.09	1.061	390
EME5	3.12	1.082	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EME1	12.44	14.335	.776	.895
EME2	12.43	14.215	.770	.896
EME3	12.48	14.101	.803	.889
EME4	12.48	14.502	.774	.895
EME5	12.45	14.382	.771	.895

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
15.57	21.880	4.678	5

Reliability**Scale: ALL VARIABLES****Case Processing Summary**

Cases		N	%
	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.924	7

Item Statistics

	Mean	Std. Deviation	N
EER1	3.03	1.014	390
EER2	2.74	1.388	390
EER3	3.01	1.039	390
EER4	3.08	1.073	390
EER5	2.98	1.051	390
EER6	3.01	1.005	390
EER7	3.09	1.050	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EER1	17.90	30.154	.834	.906
EER2	18.19	32.091	.410	.958
EER3	17.92	29.844	.840	.905
EER4	17.85	29.385	.853	.904
EER5	17.94	29.647	.848	.905
EER6	17.92	29.949	.864	.904
EER7	17.84	29.644	.850	.904

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
20.92	40.462	6.361	7

Reliability**Scale: ALL VARIABLES****Case Processing Summary**

Cases		N	%
	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.893	5

Item Statistics

	Mean	Std. Deviation	N
EC1	2.96	1.144	390
EC2	2.98	1.118	390
EC3	2.98	1.124	390
EC4	2.94	1.142	390
EC5	2.95	1.127	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EC1	11.85	14.470	.759	.865
EC2	11.82	15.011	.708	.876
EC3	11.83	14.772	.735	.870
EC4	11.87	14.376	.775	.861
EC5	11.86	14.934	.710	.876

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
14.81	22.389	4.732	5

Reliability**Scale: ALL VARIABLES****Case Processing Summary**

	N	%
Cases		
Valid	390	100.0
Excluded ^a	0	.0
Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.921	5

Item Statistics

	Mean	Std. Deviation	N
LMC1	3.03	1.081	390
LMC2	3.02	1.099	390
LMC3	3.07	1.103	390
LMC4	2.98	1.094	390
LMC5	3.02	1.075	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LMC1	12.09	14.868	.783	.905
LMC2	12.11	14.626	.801	.901
LMC3	12.05	14.673	.790	.903
LMC4	12.15	14.528	.820	.898
LMC5	12.11	14.945	.777	.906

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
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15.13	22.564	4.750	5
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Reliability**Scale: ALL VARIABLES****Case Processing Summary**

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.964	7

Item Statistics

	Mean	Std. Deviation	N
GRP1	3.06	1.075	390
GRP2	3.05	1.041	390
GRP3	3.01	1.045	390
GRP4	3.03	1.005	390
GRP5	3.04	1.078	390
GRP6	3.07	1.031	390
GRP7	3.06	1.048	390

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GRP1	18.25	32.164	.891	.957
GRP2	18.27	32.746	.870	.959
GRP3	18.31	32.691	.870	.959
GRP4	18.28	33.191	.862	.959
GRP5	18.27	32.277	.877	.958
GRP6	18.24	32.905	.864	.959
GRP7	18.25	32.614	.875	.958

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
21.31	44.185	6.647	7

Reliability**Scale: ALL VARIABLES****Case Processing Summary**

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.321	4

Item Statistics			
	Mean	Std. Deviation	N
GZ1	3.10	1.253	390
GZ2	2.92	.972	390
GZ3	2.43	1.193	390
GZ4	2.74	1.312	390

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GZ1	8.09	5.010	.156	.276
GZ2	8.27	5.010	.346	.088
GZ3	8.75	5.348	.124	.312
GZ4	8.45	5.210	.088	.366

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
11.19	7.458	2.731	4

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	390	100.0
	Excluded ^a	0	.0
	Total	390	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.935	8

Item Statistics			
	Mean	Std. Deviation	N
HRD1	3.03	1.092	390
HRD2	3.07	1.104	390
HRD3	3.03	1.099	390
HRD4	3.01	1.060	390
HRD5	3.04	1.086	390
HRD6	3.05	1.112	390
HRD7	3.07	1.098	390
HRD8	2.97	1.113	390

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HRD1	21.23	40.812	.768	.926
HRD2	21.19	40.703	.767	.926
HRD3	21.23	41.076	.741	.928
HRD4	21.25	41.022	.779	.926

HRD5	21.22	40.543	.796	.924
HRD6	21.21	40.312	.791	.925
HRD7	21.19	40.694	.772	.926
HRD8	21.29	40.772	.754	.927

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
24.26	52.722	7.261	8

APPENDIX D

EFA ANALYSIS

FACTOR ANALYSIS 1

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.902
Bartlett's Test of Sphericity	Approx. Chi-Square	24776.159
	df	2775
	Sig.	<.001

Communalities

	Initial	Extraction
OS1	1.000	.817
OS2	1.000	.830
OS3	1.000	.830
OS4	1.000	.844
OS5	1.000	.820
OS6	1.000	.826
TA1	1.000	.818
TA2	1.000	.828
TA3	1.000	.845
TA4	1.000	.827
TA5	1.000	.836
TA6	1.000	.837
TA7	1.000	.452
TA8	1.000	.535
LMS1	1.000	.848
LMS2	1.000	.836
LMS3	1.000	.839
LMS4	1.000	.841
LMS5	1.000	.843
CC1	1.000	.819
CC2	1.000	.830
CC3	1.000	.839
CC4	1.000	.814
CC5	1.000	.832
CC6	1.000	.310
WD1	1.000	.416

WD2	1.000	.724
WD3	1.000	.718
WD4	1.000	.555
FPES1	1.000	.831
FPES2	1.000	.845
FPES3	1.000	.840
FPES4	1.000	.809
FPES5	1.000	.838
EME1	1.000	.752
EME2	1.000	.743
EME3	1.000	.782
EME4	1.000	.739
EME5	1.000	.744
EER1	1.000	.793
EER2	1.000	.659
EER3	1.000	.830
EER4	1.000	.850
EER5	1.000	.835
EER6	1.000	.840
EER7	1.000	.825
EC1	1.000	.726
EC2	1.000	.664
EC3	1.000	.713
EC4	1.000	.749
EC5	1.000	.671
LMC1	1.000	.757
LMC2	1.000	.775
LMC3	1.000	.773
LMC4	1.000	.798
LMC5	1.000	.744
GRP1	1.000	.857
GRP2	1.000	.829
GRP3	1.000	.826
GRP4	1.000	.813
GRP5	1.000	.840
GRP6	1.000	.813
GRP7	1.000	.829
GZ1	1.000	.473
GZ2	1.000	.629
GZ3	1.000	.634
GZ4	1.000	.313

HRD1	1.000	.693
HRD2	1.000	.694
HRD3	1.000	.650
HRD4	1.000	.718
HRD5	1.000	.728
HRD6	1.000	.730
HRD7	1.000	.700
HRD8	1.000	.675

Extraction Method: Principal Component

Analysis.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	Loadings		Total	Loadings		Total	Loadings	
		% of	Cumulative		% of	Cumulative		% of	Cumulative
		Variance	%						
1	12.359	16.479	16.479	12.359	16.479	16.479	5.919	7.893	7.893
2	7.175	9.566	26.045	7.175	9.566	26.045	5.584	7.445	15.338
3	6.061	8.081	34.126	6.061	8.081	34.126	5.439	7.252	22.590
4	5.614	7.485	41.611	5.614	7.485	41.611	5.068	6.757	29.347
5	4.243	5.658	47.269	4.243	5.658	47.269	5.038	6.717	36.064
6	3.790	5.053	52.322	3.790	5.053	52.322	4.437	5.916	41.980
7	3.524	4.699	57.021	3.524	4.699	57.021	4.394	5.859	47.839
8	3.237	4.316	61.337	3.237	4.316	61.337	4.240	5.653	53.492
9	2.511	3.347	64.684	2.511	3.347	64.684	3.866	5.155	58.647
10	2.424	3.232	67.917	2.424	3.232	67.917	3.762	5.015	63.662
11	1.733	2.310	70.227	1.733	2.310	70.227	3.647	4.863	68.525
12	1.375	1.834	72.061	1.375	1.834	72.061	2.243	2.990	71.515
13	1.246	1.661	73.721	1.246	1.661	73.721	1.396	1.862	73.377
14	1.084	1.445	75.166	1.084	1.445	75.166	1.342	1.789	75.166
15	.966	1.287	76.454						
16	.918	1.224	77.677						
17	.877	1.169	78.847						
18	.797	1.062	79.909						
19	.747	.996	80.905						
20	.657	.876	81.781						
21	.601	.801	82.582						
22	.536	.715	83.296						
23	.535	.713	84.009						
24	.483	.644	84.653						

25	.469	.625	85.278						
26	.416	.555	85.833						
27	.405	.541	86.374						
28	.380	.507	86.881						
29	.373	.497	87.377						
30	.363	.484	87.861						
31	.348	.464	88.326						
32	.346	.461	88.787						
33	.342	.456	89.243						
34	.334	.445	89.688						
35	.319	.426	90.114						
36	.311	.415	90.529						
37	.291	.387	90.917						
38	.286	.381	91.298						
39	.278	.371	91.669						
40	.274	.365	92.034						
41	.268	.358	92.392						
42	.262	.350	92.741						
43	.245	.327	93.068						
44	.245	.326	93.394						
45	.240	.319	93.714						
46	.231	.308	94.022						
47	.228	.304	94.326						
48	.219	.292	94.618						
49	.217	.289	94.906						
50	.214	.285	95.191						
51	.200	.267	95.458						
52	.194	.259	95.717						
53	.194	.259	95.976						
54	.188	.251	96.227						
55	.186	.248	96.474						
56	.180	.241	96.715						
57	.169	.226	96.941						
58	.166	.221	97.162						
59	.161	.214	97.376						
60	.159	.212	97.588						
61	.153	.204	97.792						
62	.147	.195	97.987						
63	.143	.191	98.178						
64	.138	.184	98.362						
65	.135	.180	98.542						

66	.129	.172	98.715						
67	.126	.168	98.882						
68	.124	.166	99.048						
69	.118	.158	99.206						
70	.111	.148	99.354						
71	.106	.142	99.496						
72	.105	.140	99.636						
73	.097	.129	99.765						
74	.095	.127	99.892						
75	.081	.108	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CC4	.644	.394												
CC3	.639	.416									-.332			
CC2	.638	.376									-.375			
CC5	.618	.427									-.351			
TA2	.617		-.309						-.352					
TA4	.607		-.342						-.351					
TA1	.605								-.398					
CC1	.599	.449									-.339			
TA3	.594	-.304							-.370					
TA6	.586	-.317							-.392					
TA5	.579	-.301	-.304						-.360					
LMS3	.535	.445								-.306				
LMS5	.530	.412								-.373				
WD2	.526	.399										.410		
LMS2	.523	.461								-.313				
LMS1	.509	.466								-.337				
WD3	.506	.435										.382		
LMS4	.500	.440								-.367				
OS4	.493		-.436											
OS3	.491		-.425		-.312									
OS1	.487		-.448		-.310									
OS5	.463		-.413					.302						
FPES5	.456	.424					.303			.360				
FPES3	.424	.417					.355			.357				
WD1	.361													
GRP1	.444	-.642							.308					

GRP3	.429	-.624											
GRP6	.450	-.610											
GRP4	.447	-.609											
GRP7	.461	-.598											
GRP5	.450	-.591						.313					
GRP2	.477	-.571											
FPES1	.430	.458					.334		.327				
FPES2	.422	.435					.326		.327				
FPES4	.422	.423					.376		.353				
EER4	.443		.617										
EER7	.525		.601										
EER6	.507		.593										
EER1	.494		.591										
EER3	.463		.575										
EER5	.503		.561										
OS6	.454		-.473					.307					
OS2	.440		-.447		-.302			.302					
HRD7			.348	.709									
HRD4			.331	.704									
HRD2			.344	.704									
HRD8			.315	.693									
HRD1			.396	.688									
HRD5			.427	.686									
HRD6			.439	.684									
HRD3			.371	.664									
EC4	.307				.453			.428		-.329			
LMC4					.418	.766							
LMC2					.378	.764							
LMC1					.373	.762							
LMC5					.443	.709							
LMC3					.456	.707							
EME1					-.413		.652						
EME3					-.400	.304	.635						
EME2				.314	-.381		.628						
EME4					-.389	.306	.611						
EME5					-.433		.603						
EC3					.389			.485		-.378			
EC5					.366			.480					
EC1					.402			.476		-.339			
EC2					.421			.456					
CC6								-.347					

Extraction Method: Principal Component Analysis.

Component

[illegible]

[illegible]

TA8					.307									.632	
EER2			.395											.596	
TA7														.480	
GZ4														.409	
GZ3															.674
GZ2			.379												.602
GZ1															.511

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Component Transformation Matrix														
Component	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.349	-.092	.366	.338	.414	.290	.346	.387	.022	.009	.184	.212	.110	.073
2	-.608	.170	-.081	-.217	-.255	.381	.382	.358	.059	-.083	.108	.197	-.054	-.014
3	.263	.431	.610	-.437	-.296	-.242	.070	.137	-.007	.051	-.066	-.023	.003	.061
4	.010	.832	-.251	.273	.206	.027	-.006	-.126	-.106	.240	.197	-.010	.012	-.056
5	.269	.100	-.132	-.347	.104	.254	-.272	-.120	.452	-.444	.445	.111	-.067	.007
6	-.170	.029	.045	.116	.098	-.216	.063	.030	.862	.314	-.194	-.018	.116	.014
7	.191	-.169	-.049	-.162	-.234	.414	-.268	.035	-.006	.751	.164	.092	-.091	.011
8	-.256	-.092	.391	.410	-.349	-.068	-.055	-.259	.048	-.026	.604	-.184	.038	.078
9	.466	.051	-.294	.322	-.600	.120	.328	.026	.169	-.154	-.159	-.125	-.104	-.057
10	-.125	.178	.300	.256	-.058	.515	-.497	.034	.047	-.207	-.459	-.130	.094	-.006
11	.003	-.028	.156	-.227	.167	.374	.469	-.649	.013	.072	-.122	-.268	.117	-.093
12	-.026	.018	.162	.151	-.077	-.043	.016	-.400	.013	-.025	-.165	.791	-.351	-.063
13	.010	.038	-.133	-.017	-.067	.034	.030	-.132	-.033	-.011	-.073	.139	.277	.924
14	.049	-.015	-.070	-.028	-.186	-.038	-.049	-.058	-.053	-.019	.036	.332	.851	-.333

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

FACTOR ANALYSIS 2

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.904
Bartlett's Test of Sphericity	Approx. Chi-Square	24381.778
	df	2485
	Sig.	<.001

Communalities		
	Initial	Extraction
OS1	1.000	.817
OS2	1.000	.832
OS3	1.000	.832
OS4	1.000	.844
OS5	1.000	.822
OS6	1.000	.825
TA1	1.000	.818
TA2	1.000	.827
TA3	1.000	.845
TA4	1.000	.829
TA5	1.000	.837
TA8	1.000	.738
LMS1	1.000	.847
LMS2	1.000	.838
LMS3	1.000	.838
LMS4	1.000	.844
LMS5	1.000	.843
CC1	1.000	.825
CC2	1.000	.836
CC3	1.000	.846
CC4	1.000	.821
CC5	1.000	.840
WD2	1.000	.797
WD3	1.000	.787
WD4	1.000	.569
FPES1	1.000	.836
FPES2	1.000	.842
FPES3	1.000	.850
FPES4	1.000	.819
FPES5	1.000	.845
EME1	1.000	.751
EME2	1.000	.743
EME3	1.000	.783
EME4	1.000	.744
EME5	1.000	.744
EER1	1.000	.798
EER2	1.000	.587
EER3	1.000	.828
EER4	1.000	.853

EER5	1.000	.836
EER6	1.000	.842
EER7	1.000	.825
EC1	1.000	.727
EC2	1.000	.661
EC3	1.000	.714
EC4	1.000	.757
EC5	1.000	.682
LMC1	1.000	.758
LMC2	1.000	.774
LMC3	1.000	.765
LMC4	1.000	.796
LMC5	1.000	.745
GRP1	1.000	.856
GRP2	1.000	.831
GRP3	1.000	.825
GRP4	1.000	.814
GRP5	1.000	.841
GRP6	1.000	.814
GRP7	1.000	.830
GZ1	1.000	.588
GZ2	1.000	.631
GZ3	1.000	.728
HRD1	1.000	.694
HRD2	1.000	.700
HRD3	1.000	.657
HRD4	1.000	.715
HRD5	1.000	.732
HRD6	1.000	.730
HRD7	1.000	.703
HRD8	1.000	.673
TA6	1.000	.837

Extraction Method: Principal Component
Analysis.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	Loadings		Total	Loadings		Total	Loadings	
		% of	Cumulative		% of	Cumulative		% of	Cumulative
		Variance	%		Variance	%		Variance	%

1	12.115	17.063	17.063	12.115	17.063	17.063	5.904	8.315	8.315
2	7.077	9.968	27.031	7.077	9.968	27.031	5.578	7.857	16.171
3	6.047	8.517	35.548	6.047	8.517	35.548	5.401	7.607	23.778
4	5.609	7.901	43.449	5.609	7.901	43.449	5.053	7.117	30.895
5	4.212	5.932	49.381	4.212	5.932	49.381	5.021	7.072	37.968
6	3.776	5.318	54.698	3.776	5.318	54.698	4.401	6.198	44.166
7	3.497	4.925	59.623	3.497	4.925	59.623	4.391	6.184	50.350
8	3.134	4.414	64.037	3.134	4.414	64.037	4.203	5.920	56.270
9	2.481	3.494	67.531	2.481	3.494	67.531	3.865	5.444	61.713
10	2.379	3.351	70.882	2.379	3.351	70.882	3.759	5.294	67.008
11	1.678	2.364	73.246	1.678	2.364	73.246	3.646	5.135	72.143
12	1.298	1.829	75.075	1.298	1.829	75.075	1.868	2.631	74.774
13	1.191	1.677	76.752	1.191	1.677	76.752	1.254	1.766	76.540
14	1.003	1.413	78.165	1.003	1.413	78.165	1.153	1.625	78.165
15	.829	1.168	79.333						
16	.743	1.046	80.379						
17	.603	.850	81.229						
18	.572	.806	82.035						
19	.552	.777	82.812						
20	.497	.700	83.512						
21	.479	.675	84.187						
22	.433	.610	84.798						
23	.415	.584	85.382						
24	.394	.556	85.937						
25	.385	.542	86.479						
26	.369	.519	86.998						
27	.358	.504	87.502						
28	.350	.493	87.994						
29	.343	.483	88.477						
30	.339	.478	88.955						
31	.324	.457	89.412						
32	.314	.442	89.854						
33	.294	.413	90.267						
34	.288	.405	90.672						
35	.281	.396	91.068						
36	.278	.391	91.459						
37	.271	.382	91.841						
38	.266	.375	92.216						
39	.247	.347	92.563						
40	.245	.346	92.909						
41	.243	.342	93.251						

42	.236	.332	93.583						
43	.231	.326	93.909						
44	.224	.315	94.224						
45	.220	.311	94.534						
46	.218	.307	94.841						
47	.200	.282	95.124						
48	.198	.279	95.403						
49	.196	.276	95.679						
50	.192	.270	95.949						
51	.188	.265	96.214						
52	.182	.257	96.470						
53	.172	.242	96.712						
54	.167	.235	96.947						
55	.165	.233	97.180						
56	.160	.225	97.405						
57	.157	.222	97.627						
58	.149	.210	97.837						
59	.147	.207	98.044						
60	.139	.196	98.240						
61	.137	.192	98.432						
62	.132	.186	98.618						
63	.130	.183	98.801						
64	.126	.177	98.978						
65	.120	.168	99.147						
66	.115	.163	99.309						
67	.108	.152	99.462						
68	.106	.150	99.611						
69	.098	.137	99.749						
70	.095	.134	99.883						
71	.083	.117	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CC4	.639	.400									-.326			
CC3	.634	.420									-.368			
CC2	.632	.379									-.405			
TA2	.616		-.303						-.334					

a. 14 components extracted.

Component

[illegible]

HRD6		.836											
HRD4		.834											
HRD7		.831											
HRD2		.828											
HRD1		.821											
HRD8		.809											
HRD3		.799											
EER4			.904										
EER3			.885										
EER6			.883										
EER5			.874										
EER1			.851										
EER7			.848										
EER2			.426										.420
OS4				.885									
OS2				.880									
OS5				.876									
OS6				.869									
OS3				.867									
OS1				.860									
TA6					.866								
TA3					.863								
TA5					.858								
TA1					.847								
TA4					.847								
TA2					.838								
FPES3						.889							
FPES5						.875							
FPES2						.874							
FPES4						.869							
FPES1						.869							
LMS4							.874						
LMS5							.869						
LMS1							.860						
LMS2							.859						
LMS3							.858						
CC5								.827					
CC2								.825					
CC3								.813					
CC1								.810					
CC4								.789					

LMC4									.886					
LMC2									.875					
LMC1									.864					
LMC3									.864					
LMC5									.855					
EME3									.879					
EME1									.861					
EME5									.853					
EME2									.847					
EME4									.847					
EC1									.840					
EC4									.832					
EC3									.831					
EC5									.787					
EC2									.783					
WD2					.305						.717			
WD3							.340				.708			
WD4											.686			
GZ3												.792		
GZ2			.387									.551		
TA8					.322								.757	
GZ1												.421	.499	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Component Transformation Matrix

Component	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.357	-.095	-.375	.344	.418	.294	.347	.392	.021	.008	.186	.165	.055	.064
2	-.611	.179	-.059	-.211	-.255	.376	.396	.355	.057	-.081	.113	.183	-.010	-.029
3	.278	.432	.602	-.438	-.289	-.059	.144	-.008	-.052	-.070	-.031	-.042	-.010	
4	.015	.829	-.251	.274	.208	.030	-.010	-.135	-.106	.239	.201	.000	-.052	-.002
5	.242	.100	-.116	-.333	.101	.251	-.255	-.128	.479	-.463	.448	.082	.024	-.006
6	-.156	.021	.048	.124	.086	-.198	.061	.040	.851	.363	-.203	-.031	-.021	.085

7	.186	-	-	-	-	.432	-	.021	-	.719	.219	.088	.024	-.047
		.174	.041	.178	.247		.278		.035					
8	-.251	-	.386	.429	-	-	-	-	.037	-	.599	-	.011	.036
		.093			.356	.143	.051	.225		.036		.179		
9	.487	.002	-	.230	-	-	.440	.002	.139	-	-	-	-	-.120
			.378		.572	.014				.092	.040	.038	.029	
10	-.005	.184	.222	.363	-	.500	-	.039	.079	-	-	-	-	.052
				.249		.417				.238	.472	.084	.050	
11	-.013	-	.223	-	.131	.364	.445	-	.013	.060	-	-	-	-.013
		.022		.160				.715			.150	.170	.103	
12	-.035	.009	.117	.132	-	-	-	-	.019	-	-	.841	.206	-.327
				.068	.105	.042	.289		.018	.097				
13	-.017	.041	-	-	-	.058	.051	-	-	.005	-	-	.942	.273
			.074	.002	.024			.065	.007		.046	.134		
14	.052	-	-	-	-	-	.028	-	-	-	-	.358	-	.886
		.008	.041	.021	.127	.045		.109	.058	.007	.001		.218	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

FACTOR ANALYSIS 3

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.907
Bartlett's Test of Sphericity	Approx. Chi-Square
	24108.168
	df
	2346
	Sig.
	<.001

Communalities

	Initial	Extraction
OS1	1.000	.816
OS2	1.000	.831
OS3	1.000	.830
OS4	1.000	.848
OS5	1.000	.822
OS6	1.000	.824
TA1	1.000	.815
TA2	1.000	.825
TA3	1.000	.843
TA4	1.000	.826
TA5	1.000	.832

TA8	1.000	.208
LMS1	1.000	.845
LMS2	1.000	.839
LMS3	1.000	.841
LMS4	1.000	.847
LMS5	1.000	.846
CC1	1.000	.832
CC2	1.000	.839
CC3	1.000	.851
CC4	1.000	.824
CC5	1.000	.841
WD2	1.000	.776
WD3	1.000	.780
WD4	1.000	.619
FPES1	1.000	.835
FPES2	1.000	.842
FPES3	1.000	.849
FPES4	1.000	.821
FPES5	1.000	.844
EME1	1.000	.751
EME2	1.000	.740
EME3	1.000	.783
EME4	1.000	.738
EME5	1.000	.742
EER1	1.000	.795
EER3	1.000	.833
EER4	1.000	.856
EER5	1.000	.840
EER6	1.000	.840
EER7	1.000	.831
EC1	1.000	.727
EC2	1.000	.663
EC3	1.000	.722
EC4	1.000	.755
EC5	1.000	.679
LMC1	1.000	.750
LMC2	1.000	.778
LMC3	1.000	.767
LMC4	1.000	.792
LMC5	1.000	.746
GRP1	1.000	.855

GRP2	1.000	.827
GRP3	1.000	.827
GRP4	1.000	.814
GRP5	1.000	.840
GRP6	1.000	.814
GRP7	1.000	.829
GZ2	1.000	.626
GZ3	1.000	.835
HRD1	1.000	.690
HRD2	1.000	.698
HRD3	1.000	.648
HRD4	1.000	.711
HRD5	1.000	.726
HRD6	1.000	.729
HRD7	1.000	.699
HRD8	1.000	.674
TA6	1.000	.829

Extraction Method: Principal Component

Analysis.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	Loadings		Total	Loadings		Total	Loadings	
		% of	Cumulative		% of	Cumulative		% of	Cumulative
		Variance	%		Variance	%		Variance	%
1	11.958	17.331	17.331	11.958	17.331	17.331	5.879	8.520	8.520
2	7.077	10.257	27.587	7.077	10.257	27.587	5.574	8.079	16.599
3	6.022	8.727	36.314	6.022	8.727	36.314	5.216	7.559	24.158
4	5.604	8.121	44.436	5.604	8.121	44.436	5.087	7.372	31.530
5	4.200	6.087	50.523	4.200	6.087	50.523	4.973	7.208	38.738
6	3.742	5.423	55.947	3.742	5.423	55.947	4.376	6.342	45.080
7	3.490	5.059	61.005	3.490	5.059	61.005	4.344	6.295	51.375
8	3.034	4.398	65.403	3.034	4.398	65.403	4.197	6.083	57.458
9	2.474	3.585	68.988	2.474	3.585	68.988	3.836	5.560	63.018
10	2.346	3.401	72.388	2.346	3.401	72.388	3.759	5.448	68.466
11	1.637	2.372	74.760	1.637	2.372	74.760	3.636	5.269	73.735
12	1.217	1.763	76.524	1.217	1.763	76.524	1.847	2.677	76.411
13	1.089	1.578	78.101	1.089	1.578	78.101	1.166	1.690	78.101
14	.925	1.341	79.442						
15	.651	.944	80.386						
16	.610	.885	81.271						

17	.582	.844	82.114						
18	.523	.758	82.872						
19	.479	.694	83.567						
20	.442	.641	84.208						
21	.420	.609	84.817						
22	.402	.583	85.400						
23	.390	.566	85.965						
24	.371	.538	86.503						
25	.358	.519	87.022						
26	.355	.515	87.536						
27	.344	.498	88.035						
28	.340	.493	88.528						
29	.325	.471	88.999						
30	.318	.461	89.460						
31	.296	.429	89.889						
32	.294	.426	90.315						
33	.283	.411	90.726						
34	.278	.403	91.129						
35	.275	.398	91.527						
36	.267	.387	91.914						
37	.259	.376	92.289						
38	.247	.357	92.646						
39	.243	.352	92.999						
40	.237	.344	93.343						
41	.232	.337	93.679						
42	.224	.324	94.004						
43	.223	.323	94.326						
44	.220	.319	94.645						
45	.201	.291	94.936						
46	.199	.288	95.224						
47	.197	.285	95.509						
48	.194	.281	95.790						
49	.188	.273	96.062						
50	.183	.265	96.328						
51	.174	.252	96.579						
52	.171	.248	96.828						
53	.167	.242	97.070						
54	.160	.232	97.302						
55	.158	.229	97.531						
56	.151	.219	97.750						
57	.148	.215	97.965						

58	.141	.205	98.170						
59	.138	.200	98.370						
60	.135	.195	98.565						
61	.131	.190	98.755						
62	.128	.186	98.941						
63	.120	.174	99.115						
64	.116	.167	99.283						
65	.109	.158	99.441						
66	.107	.156	99.596						
67	.098	.142	99.738						
68	.096	.139	99.877						
69	.085	.123	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component												
	1	2	3	4	5	6	7	8	9	10	11	12	13
CC4	.637	.400									-.332		
CC3	.632	.420									-.368		
CC2	.631	.379									-.410		
TA2	.622								-.339				
CC5	.612	.431									-.386		
TA4	.612		-.324						-.339				
TA1	.608								-.386				
TA3	.599	-.304							-.370				
CC1	.593	.452									-.376		
TA6	.592	-.315							-.377				
TA5	.583	-.303							-.348				
LMS3	.532	.458											
LMS5	.525	.426								-.343			
WD2	.524	.395										.506	
LMS2	.520	.474											
LMS1	.507	.480											
WD3	.504	.431										.493	
OS4	.498		-.432					.307					
LMS4	.496	.453								-.324			
OS3	.496		-.420										
OS1	.492		-.445										
OS5	.466		-.409					.320					

FPES5	.460	.421					.336			.332			
OS2	.446		-.443					.322					
FPES3	.428	.413					.385			.325			
FPES4	.426	.419					.402			.325			
GRP1	.455	-.641							.318				
GRP3	.437	-.625											
GRP4	.457	-.608											
GRP6	.459	-.608											
GRP7	.469	-.597							.307				
GRP5	.459	-.591							.326				
GRP2	.486	-.573											
FPES1	.433	.454					.362						
FPES2	.427	.428					.353			.301			
EER4	.438		.609										
EER7	.519		.594										
EER6	.499		.582										
EER1	.487		.581										
EER3	.457		.562										
EER5	.497		.551										
OS6	.459		-.470					.307					
HRD7			.366	.699									
HRD4			.346	.695									
HRD2			.361	.694									
HRD8			.330	.683									
HRD1			.414	.676									
HRD5			.443	.674									
HRD6			.455	.670									
HRD3			.385	.653									
EC4	.309				.450			.410		-.312			
LMC2					.412	.747							
LMC1					.403	.747							
LMC4					.452	.740							
LMC3					.483	.688							
LMC5					.475	.686							
EME1					-.431	.341	.607						
EME3					-.420	.381	.581						
EME2				.311	-.404	.325	.577						
EME4					-.407	.375	.559						
EME5					-.452	.308	.558						
EC3					.388			.482		-.369			
EC5					.360			.460					

EC1					.394			.459		-.319			
EC2					.416			.438					
TA8													
WD4	.338											.552	
GZ3												.399	.773
GZ2	.368												.550

Extraction Method: Principal Component Analysis.

a. 13 components extracted.

Rotated Component Matrix^a

	Component												
	1	2	3	4	5	6	7	8	9	10	11	12	13
GRP1	.893												
GRP5	.891												
GRP7	.880												
GRP3	.877												
GRP2	.877												
GRP4	.869												
GRP6	.865												
HRD5		.842											
HRD6		.836											
HRD4		.834											
HRD7		.832											
HRD2		.827											
HRD1		.821											
HRD8		.810											
HRD3		.799											
EER4			.906										
EER3			.888										
EER6			.881										
EER5			.878										
EER7			.850										
EER1			.849										
TA3				.865									
TA6				.862									
TA5				.856									
TA4				.846									
TA1				.846									
TA2				.843									
TA8				.417									
OS4					.886								

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Component Transformation Matrix													
Component	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.359	-.096	.356	.428	.340	.295	.346	.397	.014	.007	.193	.178	.056
2	-.609	.177	-.060	-.266	-.209	.377	.396	.351	.056	-.081	.108	.190	-.012
3	.291	.450	.594	-.279	-.435	-.242	.064	.145	-.017	.056	-.067	-.020	.043
4	.002	.820	-.264	.206	.287	.031	-.014	-.138	-.100	.238	.209	-.006	-.051
5	.237	.100	-.116	.092	-.327	.251	-.251	-.135	.488	-.467	.444	.080	.007
6	-.120	.015	.020	.113	.075	-.180	.071	.061	.839	.404	-.240	.003	-.024
7	.182	-.177	-.026	-.270	-.162	.446	-.288	-.001	-.064	.696	.245	.079	.014
8	-.238	-.102	.387	-.351	.434	-.206	.028	-.243	.114	-.019	.581	-.135	-.020
9	.499	.020	-.382	-.583	.246	.037	.398	.013	.130	-.110	-.113	-.038	-.017
10	-.067	.178	.294	-.203	.385	.470	-.449	.020	.093	-.229	-.447	-.058	-.035
11	-.011	-.010	.205	.143	-.158	.373	.453	-.703	.009	.056	-.168	-.201	.045
12	-.011	.011	.047	-.081	.089	-.115	-.023	-.301	-.017	-.011	-.098	.866	.343
13	-.044	.036	-.077	-.002	.023	.025	-.034	.110	.028	.003	.029	-.324	.932

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

APPENDIX E
DATA ANALYSIS

CORRELATIONS

Descriptive Statistics			
	Mean	Std. Deviation	N
Organizational Strategy (OS)	2.9794	.97165	390
Technological Advancements (TA)	2.9677	.93014	390
Leadership and Management Support (LMS)	2.9923	.85531	390
Corporate Culture (CC)	2.7175	.83878	390
Workforce Demographics (WD)	2.9019	1.13635	390
Feedback and Performance Evaluation Systems (FPES)	2.9051	.87002	390
Employee Motivation and Engagement (EME)	2.9041	.93596	390
External Educational Resources (EER)	2.8413	.95001	390
Economic Conditions (EC)	3.0226	1.12138	390
Labor Market Conditions (LMC)	2.9626	.97429	390
Government Regulations and Policies (GRP)	2.8471	.79874	390
Human Resource Development (HRD)	2.9293	.73264	390

Correlations					
		Organizational Strategy (OS)	Technological Advancements (TA)	Leadership and Management Support (LMS)	Corporate Culture (CC)
Organizational Strategy (OS)	Pearson Correlation	1	.273**	.355**	.290**

	Sig. (2-tailed)		<.001	<.001	<.001
	N	390	390	390	390
Technological Advancements (TA)	Pearson Correlation	.273**	1	.470**	.290**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	390	390	390	390
Leadership and Management Support (LMS)	Pearson Correlation	.355**	.470**	1	.567**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	390	390	390	390
Corporate Culture (CC)	Pearson Correlation	.290**	.290**	.567**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	390	390	390	390
Workforce Demographics (WD)	Pearson Correlation	.255**	.476**	.370**	.523**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Feedback and Performance Evaluation Systems (FPES)	Pearson Correlation	-.182**	-.047	-.149**	-.029
	Sig. (2-tailed)	<.001	.357	.003	.563
	N	390	390	390	390
Employee Motivation and Engagement (EME)	Pearson Correlation	.283**	.241**	.346**	.359**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
External Educational Resources (EER)	Pearson Correlation	.311**	.279**	.277**	.377**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Economic Conditions (EC)	Pearson Correlation	.295**	.339**	.216**	.124*
	Sig. (2-tailed)	<.001	<.001	<.001	.014
	N	390	390	390	390
Labor Market Conditions (LMC)	Pearson Correlation	.315**	.424**	.388**	.225**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Government Regulations and Policies (GRP)	Pearson Correlation	.338**	.426**	.483**	.447**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Human Resource Development (HRD)	Pearson Correlation	.404**	.371**	.497**	.496**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390

Correlations

		Workforce Demographics (WD)	Feedback and Performance Evaluation Systems (FPES)	Employee Motivation and Engagement (EME)	External Educational Resources (EER)
Organizational Strategy (OS)	Pearson Correlation	.255**	-.182**	.283**	.311**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Technological Advancements (TA)	Pearson Correlation	.476**	-.047	.241**	.279**
	Sig. (2-tailed)	<.001	.357	<.001	<.001
	N	390	390	390	390
Leadership and Management Support (LMS)	Pearson Correlation	.370**	-.149**	.346**	.277**
	Sig. (2-tailed)	<.001	.003	<.001	<.001
	N	390	390	390	390
Corporate Culture (CC)	Pearson Correlation	.523**	-.029	.359**	.377**
	Sig. (2-tailed)	<.001	.563	<.001	<.001
	N	390	390	390	390
Workforce Demographics (WD)	Pearson Correlation	1	.170**	.273**	.280**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	390	390	390	390
Feedback and Performance Evaluation Systems (FPES)	Pearson Correlation	.170**	1	.174**	-.112*
	Sig. (2-tailed)	<.001		<.001	.028
	N	390	390	390	390
Employee Motivation and Engagement (EME)	Pearson Correlation	.273**	.174**	1	.465**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	390	390	390	390
External Educational Resources (EER)	Pearson Correlation	.280**	-.112*	.465**	1
	Sig. (2-tailed)	<.001	.028	<.001	
	N	390	390	390	390
Economic Conditions (EC)	Pearson Correlation	.187**	-.156**	.269**	.137**
	Sig. (2-tailed)	<.001	.002	<.001	.007
	N	390	390	390	390
Labor Market Conditions (LMC)	Pearson Correlation	.330**	-.118*	.361**	.217**
	Sig. (2-tailed)	<.001	.019	<.001	<.001
	N	390	390	390	390
Government Regulations and Policies (GRP)	Pearson Correlation	.474**	-.141**	.433**	.334**
	Sig. (2-tailed)	<.001	.005	<.001	<.001
	N	390	390	390	390
Human Resource Development (HRD)	Pearson Correlation	.412**	-.287**	.417**	.431**

	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Correlations					
		Economic Conditions (EC)	Labor Market Conditions (LMC)	Government Regulations and Policies (GRP)	Human Resource Development (HRD)
Organizational Strategy (OS)	Pearson Correlation	.295**	.315**	.338**	.404**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Technological Advancements (TA)	Pearson Correlation	.339**	.424**	.426**	.371**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Leadership and Management Support (LMS)	Pearson Correlation	.216**	.388**	.483**	.497**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Corporate Culture (CC)	Pearson Correlation	.124*	.225**	.447**	.496**
	Sig. (2-tailed)	.014	<.001	<.001	<.001
	N	390	390	390	390
Workforce Demographics (WD)	Pearson Correlation	.187**	.330**	.474**	.412**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
Feedback and Performance Evaluation Systems (FPES)	Pearson Correlation	-.156**	-.118*	-.141**	-.287**
	Sig. (2-tailed)	.002	.019	.005	<.001
	N	390	390	390	390
Employee Motivation and Engagement (EME)	Pearson Correlation	.269**	.361**	.433**	.417**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	390	390	390	390
External Educational Resources (EER)	Pearson Correlation	.137**	.217**	.334**	.431**
	Sig. (2-tailed)	.007	<.001	<.001	<.001
	N	390	390	390	390
Economic Conditions (EC)	Pearson Correlation	1	.457**	.328**	.279**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	390	390	390	390
Labor Market Conditions (LMC)	Pearson Correlation	.457**	1	.748**	.453**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	390	390	390	390
Government Regulations and Policies (GRP)	Pearson Correlation	.328**	.748**	1	.578**

Human Resource Development (HRD)	Sig. (2-tailed)	<.001	<.001		<.001
	N	390	390	390	390
	Pearson Correlation	.279**	.453**	.578**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	390	390	390	390

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

REGRESSION

Regression

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Government Regulations and Policies (GRP), Feedback and Performance Evaluation Systems (FPES), External Educational Resources (EER), Economic Conditions (EC), Organizational Strategy (OS), Technological Advancements (TA), Corporate Culture (CC), Employee Motivation and Engagement (EME), Workforce Demographics (WD), Leadership and Management Support (LMS), Labor Market Conditions (LMC) ^b		. Enter

a. Dependent Variable: Human Resource Development (HRD)
b. All requested variables entered.

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics F Change	df1	df2	
1	.731 ^a	.534	.520	.50755	.534	39.321	11	378	

Model Summary ^b		
Model	Change Statistics Sig. F Change	Durbin-Watson
1	<.001	1.781

a. Predictors: (Constant), Government Regulations and Policies (GRP), Feedback and Performance Evaluation Systems (FPES), External Educational Resources (EER), Economic Conditions (EC), Organizational Strategy (OS), Technological Advancements (TA), Corporate Culture (CC), Employee Motivation and Engagement (EME), Workforce Demographics (WD), Leadership and Management Support (LMS), Labor Market Conditions (LMC)
b. Dependent Variable: Human Resource Development (HRD)

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.424	11	10.129	39.321	<.001 ^b

Residual	97.376	378	.258
Total	208.800	389	

a. Dependent Variable: Human Resource Development (HRD)

b. Predictors: (Constant), Government Regulations and Policies (GRP), Feedback and Performance Evaluation Systems (FPES), External Educational Resources (EER), Economic Conditions (EC), Organizational Strategy (OS), Technological Advancements (TA), Corporate Culture (CC), Employee Motivation and Engagement (EME), Workforce Demographics (WD), Leadership and Management Support (LMS), Labor Market Conditions (LMC)

		Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients				Correlations
Model		B	Std. Error	Beta	t	Sig.		Zero-order
1	(Constant)	1.306	.178		7.355	<.001		
	Organizational Strategy (OS)	.063	.031	.083	2.060	.040		.404
	Technological Advancements (TA)	.010	.036	.013	.286	.775		.371
	Leadership and Management Support (LMS)	.081	.042	.095	1.935	.054		.497
	Corporate Culture (CC)	.121	.044	.139	2.776	.006		.496
	Workforce Demographics (WD)	.091	.031	.142	2.922	.004		.412
	Feedback and Performance Evaluation Systems (FPES)	-.221	.035	-.262	-6.391	<.001		-.287
	Employee Motivation and Engagement (EME)	.130	.036	.167	3.581	<.001		.417
	External Educational Resources (EER)	.079	.033	.102	2.379	.018		.431
	Economic Conditions (EC)	.000	.027	.000	.011	.992		.279
	Labor Market Conditions (LMC)	.041	.044	.055	.941	.347		.453
	Government Regulations and Policies (GRP)	.170	.057	.185	2.986	.003		.578

		Coefficients ^a		Collinearity Statistics	
Model		Correlations		Tolerance	
		Partial	Part		VIF
1	(Constant)				
	Organizational Strategy (OS)	.105	.072	.753	1.327
	Technological Advancements (TA)	.015	.010	.595	1.682
	Leadership and Management Support (LMS)	.099	.068	.517	1.936
	Corporate Culture (CC)	.141	.097	.495	2.022
	Workforce Demographics (WD)	.149	.103	.523	1.910

Feedback and Performance Evaluation Systems (FPES)	-.312	-.224	.733	1.365
Employee Motivation and Engagement (EME)	.181	.126	.570	1.756
External Educational Resources (EER)	.121	.084	.665	1.505
Economic Conditions (EC)	.001	.000	.710	1.409
Labor Market Conditions (LMC)	.048	.033	.364	2.745
Government Regulations and Policies (GRP)	.152	.105	.321	3.117

a. Dependent Variable: Human Resource Development (HRD)

Collinearity Diagnostics ^a									
					Variance Proportions				
Model	Dimension	Eigenvalue	Condition Index	(Constant)	Organizational Strategy (OS)	Technological Advancements (TA)	Leadership and Management Support (LMS)		
1	1	11.276	1.000	.00	.00	.00	.00	.00	
	2	.145	8.816	.00	.02	.00	.00	.00	
	3	.116	9.859	.01	.00	.00	.00	.02	
	4	.103	10.462	.00	.06	.04	.00	.00	
	5	.074	12.343	.01	.39	.01	.00	.00	
	6	.068	12.921	.01	.07	.01	.00	.08	
	7	.059	13.841	.01	.32	.20	.00	.14	
	8	.058	13.902	.00	.04	.27	.00	.02	
	9	.044	16.024	.05	.04	.14	.00	.02	
	10	.025	21.201	.00	.01	.31	.00	.68	
	11	.018	24.810	.31	.02	.00	.00	.01	
	12	.014	28.467	.61	.03	.00	.00	.03	
Collinearity Diagnostics ^a									
					Variance Proportions				
Model	Dimension	Corporate Culture (CC)	Workforce Demographics (WD)	Feedback and Performance Evaluation Systems (FPES)	Employee Motivation and Engagement (EME)	External Educational Resources (EER)	Economic Conditions (EC)		
1	1	.00	.00	.00	.00	.00	.00	.00	

2	.00	.02	.21	.00	.00	.13
3	.06	.12	.11	.01	.02	.18
4	.00	.18	.01	.07	.22	.02
5	.00	.00	.00	.11	.02	.05
6	.01	.16	.01	.01	.21	.25
7	.02	.19	.00	.01	.01	.02
8	.21	.00	.00	.05	.12	.22
9	.05	.01	.01	.57	.20	.02
10	.49	.18	.00	.01	.08	.01
11	.14	.02	.19	.03	.07	.00
12	.00	.12	.46	.12	.05	.10

Collinearity Diagnostics^a

		Variance Proportions	
		Labor Market Conditions (LMC)	Government Regulations and Policies (GRP)
Model 1	1	.00	.00
	2	.03	.00
	3	.01	.00
	4	.01	.00
	5	.10	.04
	6	.05	.02
	7	.03	.01
	8	.02	.00
	9	.02	.02
	10	.00	.02
	11	.50	.40
	12	.24	.49

a. Dependent Variable: Human Resource Development (HRD)

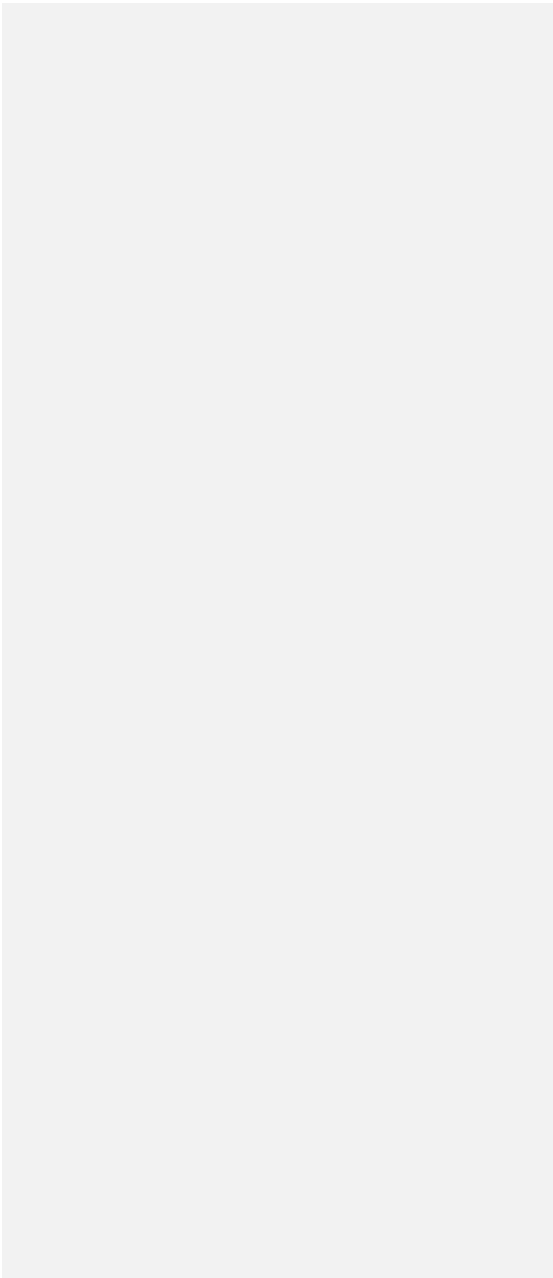
Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.4687	4.5571	2.9293	.53520	390

Residual	-1.27204	1.47258	.00000	.50032	390
Std. Predicted Value	-2.729	3.041	.000	1.000	390
Std. Residual	-2.506	2.901	.000	.986	390

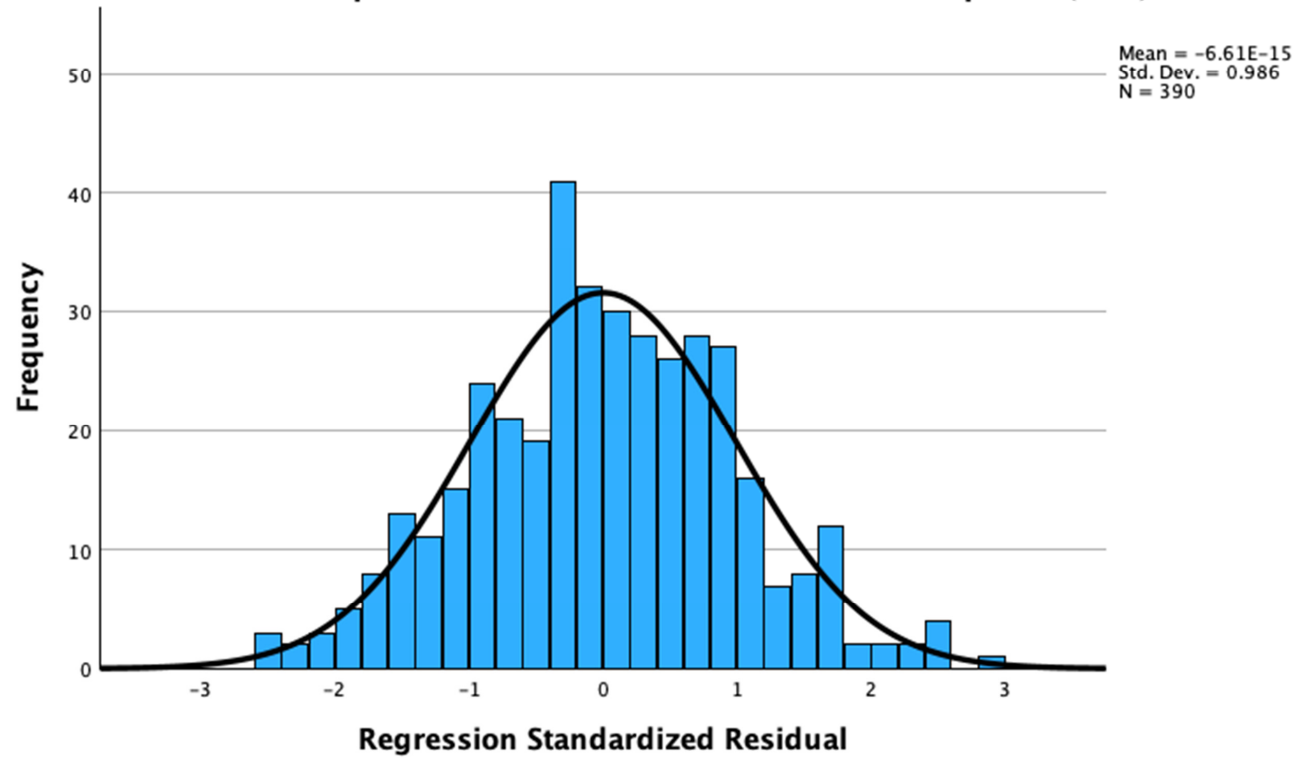
a. Dependent Variable: Human Resource Development (HRD)

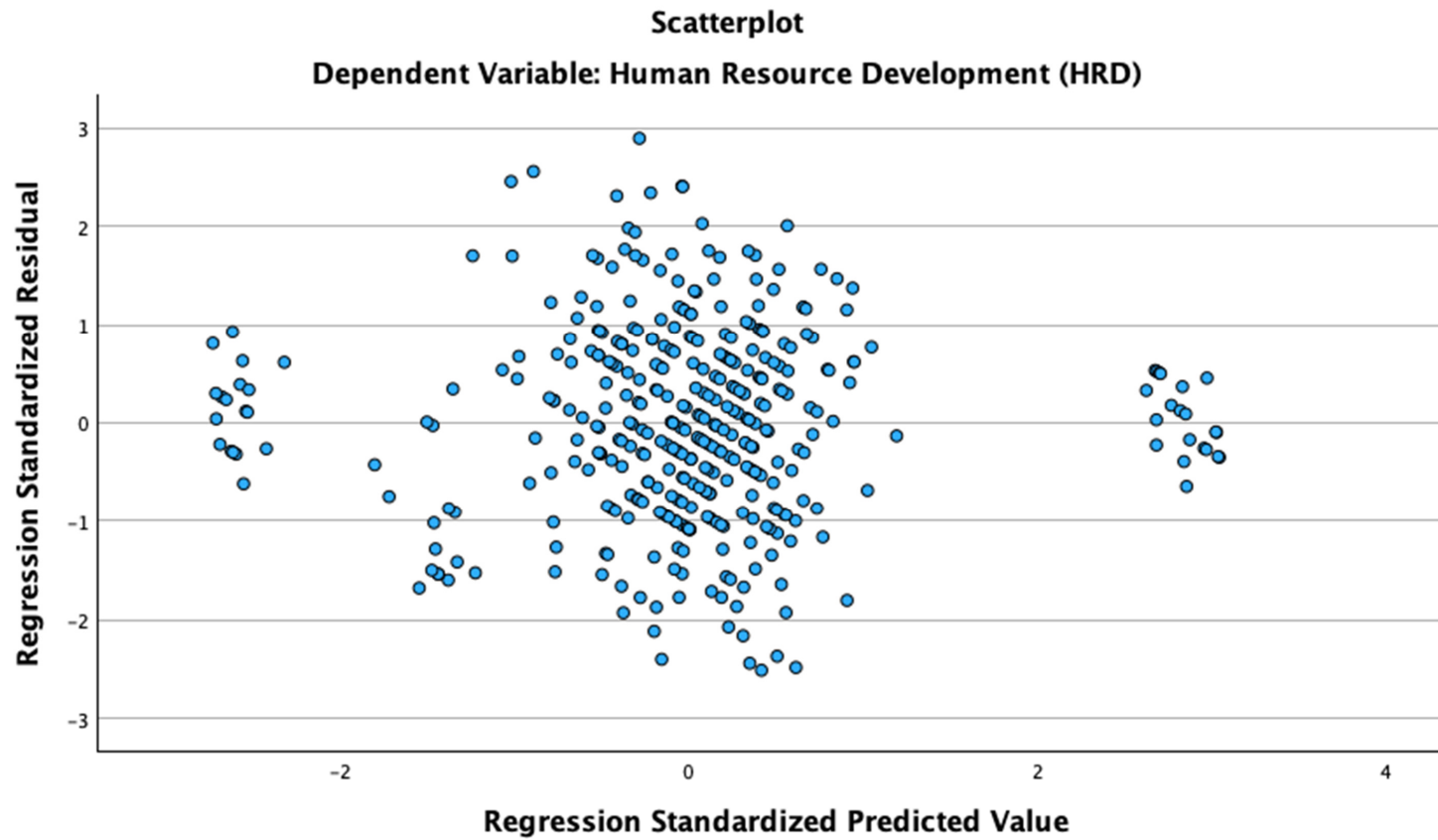
Charts



Histogram

Dependent Variable: Human Resource Development (HRD)





MANOVA ANALYSIS

General Linear Model

Between-Subjects Factors

		Value Label	N
Organization_Sector	1	Government Services	83
	2	Personal Services	75
	3	Infrastructure Services	65
	4	Distribution Services	83
	5	Financial services	71
	6	Other	13
Organization_Size	1	< 50 employees	188
	2	50 - 100 employees	185
	3	> 100 employees	17

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.811	794.900 ^b	2.000	371.000	<.001
	Wilks' Lambda	.189	794.900 ^b	2.000	371.000	<.001
	Hotelling's Trace	4.285	794.900 ^b	2.000	371.000	<.001
	Roy's Largest Root	4.285	794.900 ^b	2.000	371.000	<.001
Organization_Sector	Pillai's Trace	.034	1.298	10.000	744.000	.227
	Wilks' Lambda	.966	1.301 ^b	10.000	742.000	.225
	Hotelling's Trace	.035	1.304	10.000	740.000	.224
	Roy's Largest Root	.031	2.329 ^c	5.000	372.000	.042
Organization_Size	Pillai's Trace	.020	1.916	4.000	744.000	.106
	Wilks' Lambda	.980	1.921 ^b	4.000	742.000	.105
	Hotelling's Trace	.021	1.925	4.000	740.000	.104
	Roy's Largest Root	.021	3.815 ^c	2.000	372.000	.023
Organization_Sector *	Pillai's Trace	.063	1.213	20.000	744.000	.236
Organization_Size	Wilks' Lambda	.938	1.213 ^b	20.000	742.000	.236
	Hotelling's Trace	.066	1.212	20.000	740.000	.236
	Roy's Largest Root	.046	1.711 ^c	10.000	372.000	.076

a. Design: Intercept + Organization_Sector + Organization_Size + Organization_Sector * Organization_Size

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Employee Motivation and Engagement (EME)	13.171 ^a	17	.775	.880	.599
	Human Resource Development (HRD)	7.377 ^b	17	.434	.801	.692
Intercept	Employee Motivation and Engagement (EME)	818.970	1	818.970	929.959	<.001
	Human Resource Development (HRD)	717.459	1	717.459	1325.052	<.001
Organization_Sector	Employee Motivation and Engagement (EME)	6.205	5	1.241	1.409	.220
	Human Resource Development (HRD)	1.252	5	.250	.462	.804
Organization_Size	Employee Motivation and Engagement (EME)	4.185	2	2.093	2.376	.094
	Human Resource Development (HRD)	.256	2	.128	.236	.790
Organization_Sector * Organization_Size	Employee Motivation and Engagement (EME)	11.853	10	1.185	1.346	.204
	Human Resource Development (HRD)	4.166	10	.417	.769	.658
Error	Employee Motivation and Engagement (EME)	327.603	372	.881		
	Human Resource Development (HRD)	201.422	372	.541		
Total	Employee Motivation and Engagement (EME)	3629.960	390			
	Human Resource Development (HRD)	3555.387	390			
Corrected Total	Employee Motivation and Engagement (EME)	340.773	389			
	Human Resource Development (HRD)	208.800	389			

a. R Squared = .039 (Adjusted R Squared = -.005)

b. R Squared = .035 (Adjusted R Squared = -.009)

Parameter Estimates

Dependent Variable	Parameter	95% Confidence Interval					
		B	Std. Error	t	Sig.	Lower Bound	Upper Bound
Employee Motivation and Engagement (EME)	Intercept	3.700	.664	5.576	<.001	2.395	5.005
	[Organization_Sector=1]	-1.167	.857	-1.362	.174	-2.851	.518
	[Organization_Sector=2]	.700	1.149	.609	.543	-1.560	2.960
	[Organization_Sector=3]	.100	.938	.107	.915	-1.745	1.945
	[Organization_Sector=4]	.300	.857	.350	.726	-1.385	1.985
	[Organization_Sector=5]	-1.333	.766	-1.740	.083	-2.840	.173
	[Organization_Sector=6]	0 ^a	.	.	.	.	.
	[Organization_Size=1]	-.967	.734	-1.318	.188	-2.409	.476
	[Organization_Size=2]	-1.000	.938	-1.066	.287	-2.845	.845
	[Organization_Size=3]	0 ^a	.	.	.	.	.
	[Organization_Sector=1] *	1.353	.924	1.465	.144	-.464	3.170
	[Organization_Size=1]						
	[Organization_Sector=1] *	1.467	1.094	1.341	.181	-.684	3.617
	[Organization_Size=2]						
	[Organization_Sector=1] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	[Organization_Sector=2] *	-.482	1.201	-.401	.688	-2.844	1.880
	[Organization_Size=1]						
	[Organization_Sector=2] *	-.584	1.336	-.437	.662	-3.211	2.043
	[Organization_Size=2]						
	[Organization_Sector=2] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	[Organization_Sector=3] *	.095	1.007	.094	.925	-1.885	2.074
	[Organization_Size=1]						
	[Organization_Sector=3] *	-.032	1.159	-.027	.978	-2.311	2.248
	[Organization_Size=2]						
	[Organization_Sector=3] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	[Organization_Sector=4] *	-.133	.923	-.144	.885	-1.949	1.682
	[Organization_Size=1]						
	[Organization_Sector=4] *	-.174	1.094	-.159	.874	-2.325	1.978
	[Organization_Size=2]						

Human Resource Development (HRD)	[Organization_Sector=4] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	[Organization_Sector=5] *	1.503	.843	1.783	.075	-.154	3.160
	[Organization_Size=1]						
	[Organization_Sector=5] *	1.633	1.028	1.589	.113	-.388	3.655
	[Organization_Size=2]						
	[Organization_Sector=5] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	[Organization_Sector=6] *	0 ^a	.	.	.	.	.
	[Organization_Size=1]						
	[Organization_Sector=6] *	0 ^a	.	.	.	.	.
	[Organization_Size=2]						
	[Organization_Sector=6] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	Intercept	3.190	.520	6.131	<.001	2.167	4.213
	[Organization_Sector=1]	-.270	.672	-.402	.688	-1.591	1.051
	[Organization_Sector=2]	-1.190	.901	-1.320	.187	-2.962	.582
	[Organization_Sector=3]	-1.271E-12	.736	.000	1.000	-1.447	1.447
	[Organization_Sector=4]	-.437	.672	-.650	.516	-1.758	.884
	[Organization_Sector=5]	-.498	.601	-.829	.407	-1.680	.683
	[Organization_Sector=6]	0 ^a	.	.	.	.	.
	[Organization_Size=1]	-.063	.575	-.110	.912	-1.194	1.068
	[Organization_Size=2]	-.750	.736	-1.019	.309	-2.197	.697
	[Organization_Size=3]	0 ^a	.	.	.	.	.
	[Organization_Sector=1] *	.102	.725	.141	.888	-1.323	1.527
	[Organization_Size=1]						
	[Organization_Sector=1] *	.870	.858	1.015	.311	-.816	2.557
	[Organization_Size=2]						
	[Organization_Sector=1] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	[Organization_Sector=2] *	1.039	.942	1.104	.271	-.813	2.891
	[Organization_Size=1]						
	[Organization_Sector=2] *	1.749	1.048	1.669	.096	-.311	3.809
	[Organization_Size=2]						
	[Organization_Sector=2] *	0 ^a	.	.	.	.	.
	[Organization_Size=3]						
	[Organization_Sector=3] *	-.099	.789	-.125	.900	-1.651	1.453
	[Organization_Size=1]						

	[Organization_Sector=3] * [Organization_Size=2]	.457	.909	.503	.615	-1.330	2.245
	[Organization_Sector=3] * [Organization_Size=3]	0 ^a	.	.	.	.	.
	[Organization_Sector=4] * [Organization_Size=1]	-.041	.724	-.057	.955	-1.465	1.383
	[Organization_Sector=4] * [Organization_Size=2]	.954	.858	1.112	.267	-.733	2.641
	[Organization_Sector=4] * [Organization_Size=3]	0 ^a	.	.	.	.	.
	[Organization_Sector=5] * [Organization_Size=1]	.224	.661	.339	.735	-1.075	1.523
	[Organization_Sector=5] * [Organization_Size=2]	1.099	.806	1.363	.174	-.486	2.684
	[Organization_Sector=5] * [Organization_Size=3]	0 ^a	.	.	.	.	.
	[Organization_Sector=6] * [Organization_Size=1]	0 ^a	.	.	.	.	.
	[Organization_Sector=6] * [Organization_Size=2]	0 ^a	.	.	.	.	.
	[Organization_Sector=6] * [Organization_Size=3]	0 ^a	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Estimated Marginal Means

	Grand Mean			
Dependent Variable	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Employee Motivation and Engagement (EME)	3.069	.101	2.871	3.267
Human Resource Development (HRD)	2.873	.079	2.718	3.028

Post Hoc Tests**Organization_Sector****Multiple Comparisons**

Bonferroni

Dependent Variable	(I) Organization_Sector	(J) Organization_Sector	Mean Difference (I-J)		Sig.	95% Confidence Interval	
				Std. Error		Lower Bound	Upper Bound
Employee Motivation and Engagement (EME)	Government Services	Personal Services	.0406	.14951	1.000	-.4011	.4823
		Infrastructure Services	.0830	.15543	1.000	-.3761	.5422
		Distribution Services	.0386	.14567	1.000	-.3918	.4689
		Financial services	.0460	.15170	1.000	-.4022	.4942
		Other	.0677	.27992	1.000	-.7593	.8946
	Personal Services	Government Services	-.0406	.14951	1.000	-.4823	.4011
		Infrastructure Services	.0425	.15903	1.000	-.4274	.5123
		Distribution Services	-.0020	.14951	1.000	-.4437	.4397
		Financial services	.0054	.15539	1.000	-.4537	.4645
		Other	.0271	.28193	1.000	-.8058	.8600
	Infrastructure Services	Government Services	-.0830	.15543	1.000	-.5422	.3761
		Personal Services	-.0425	.15903	1.000	-.5123	.4274
		Distribution Services	-.0445	.15543	1.000	-.5037	.4147
		Financial services	-.0371	.16110	1.000	-.5130	.4389
		Other	-.0154	.28512	1.000	-.8577	.8269
	Distribution Services	Government Services	-.0386	.14567	1.000	-.4689	.3918
		Personal Services	.0020	.14951	1.000	-.4397	.4437
		Infrastructure Services	.0445	.15543	1.000	-.4147	.5037
		Financial services	.0074	.15170	1.000	-.4407	.4556
		Other	.0291	.27992	1.000	-.7978	.8561
	Financial services	Government Services	-.0460	.15170	1.000	-.4942	.4022

Human Resource Development (HRD)	Other	Personal Services	-.0054	.15539	1.000	-.4645	.4537
		Infrastructure Services	.0371	.16110	1.000	-.4389	.5130
		Distribution Services	-.0074	.15170	1.000	-.4556	.4407
		Other	.0217	.28310	1.000	-.8147	.8580
		Government Services	-.0677	.27992	1.000	-.8946	.7593
		Personal Services	-.0271	.28193	1.000	-.8600	.8058
		Infrastructure Services	.0154	.28512	1.000	-.8269	.8577
		Distribution Services	-.0291	.27992	1.000	-.8561	.7978
		Financial services	-.0217	.28310	1.000	-.8580	.8147
		Personal Services	.0224	.11723	1.000	-.3240	.3687
	Government Services	Infrastructure Services	.0402	.12188	1.000	-.3199	.4002
		Distribution Services	.2029	.11422	1.000	-.1346	.5403
		Financial services	.0783	.11895	1.000	-.2731	.4297
		Other	-.0341	.21949	1.000	-.6826	.6143
		Government Services	-.0224	.11723	1.000	-.3687	.3240
		Infrastructure Services	.0178	.12470	1.000	-.3506	.3862
		Distribution Services	.1805	.11723	1.000	-.1658	.5269
		Financial services	.0560	.12184	1.000	-.3040	.4159
		Other	-.0565	.22107	1.000	-.7096	.5966
		Government Services	-.0402	.12188	1.000	-.4002	.3199
	Infrastructure Services	Personal Services	-.0178	.12470	1.000	-.3862	.3506
		Distribution Services	.1627	.12188	1.000	-.1973	.5228
		Financial services	.0382	.12632	1.000	-.3350	.4113
		Other	-.0743	.22356	1.000	-.7348	.5862
		Government Services	-.2029	.11422	1.000	-.5403	.1346
		Personal Services	-.1805	.11723	1.000	-.5269	.1658
		Infrastructure Services	-.1627	.12188	1.000	-.5228	.1973
		Financial services	-.1246	.11895	1.000	-.4760	.2268
		Other	-.2370	.21949	1.000	-.8855	.4114
		Government Services	-.0783	.11895	1.000	-.4297	.2731
	Financial services	Personal Services	-.0560	.12184	1.000	-.4159	.3040

Other	Infrastructure Services	-.0382	.12632	1.000	-.4113	.3350
	Distribution Services	.1246	.11895	1.000	-.2268	.4760
	Other	-.1125	.22198	1.000	-.7683	.5433
	Government Services	.0341	.21949	1.000	-.6143	.6826
	Personal Services	.0565	.22107	1.000	-.5966	.7096
	Infrastructure Services	.0743	.22356	1.000	-.5862	.7348
	Distribution Services	.2370	.21949	1.000	-.4114	.8855
	Financial services	.1125	.22198	1.000	-.5433	.7683

Based on observed means.

The error term is Mean Square(Error) = .541.

Homogeneous Subsets

Organization_Size

Multiple Comparisons

Bonferroni

Dependent Variable	(I) Organization_Size	(J) Organization_Size	Mean Difference (I-J)	Std. Error	Sig.
Employee Motivation and Engagement (EME)	< 50 employees	50 - 100 employees	.0339	.09718	1.000
		> 100 employees	-.2188	.23767	1.000
	50 - 100 employees	< 50 employees	-.0339	.09718	1.000
		> 100 employees	-.2527	.23783	.866
	> 100 employees	< 50 employees	.2188	.23767	1.000
		50 - 100 employees	.2527	.23783	.866
Human Resource Development (HRD)	< 50 employees	50 - 100 employees	-.0889	.07620	.733
		> 100 employees	.0709	.18636	1.000
	50 - 100 employees	< 50 employees	.0889	.07620	.733

	> 100 employees	> 100 employees	.1597	.18649	1.000
	> 100 employees	< 50 employees	-.0709	.18636	1.000
		50 - 100 employees	-.1597	.18649	1.000

Multiple Comparisons

Bonferroni

Dependent Variable	(I) Organization_Size	(J) Organization_Size	95% Confidence Interval	
			Lower Bound	Upper Bound
Employee Motivation and Engagement (EME)	< 50 employees	50 - 100 employees	-.1998	.2676
		> 100 employees	-.7903	.3528
	50 - 100 employees	< 50 employees	-.2676	.1998
		> 100 employees	-.8246	.3193
	> 100 employees	< 50 employees	-.3528	.7903
		50 - 100 employees	-.3193	.8246
Human Resource Development (HRD)	< 50 employees	50 - 100 employees	-.2721	.0944
		> 100 employees	-.3773	.5190
	50 - 100 employees	< 50 employees	-.0944	.2721
		> 100 employees	-.2887	.6082
	> 100 employees	< 50 employees	-.5190	.3773
		50 - 100 employees	-.6082	.2887

Profile Plots

Employee Motivation and Engagement (EME)

Human Resource Development (HRD)