GRADUATE PERCEPTIONS OF FACTORS INFLUENCING OUTCOMES OF NATIONAL LICENSING EXAMINATION IN NEPAL: A MIXED-METHODS STUDY

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A Dissertation

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AN ABSTRACT

of the dissertation of *Nirmal Sapkota* for the degree of *Master of Philosophy in Curriculum and Instruction,* presented on *29 January 2026,* entitled *Graduate Perceptions of Factors Influencing Outcomes of National Licensing Examination in Nepal: A Mixed-Methods Study*.

APPROVED BY

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Niroj Dahal, PhD

Dissertation Supervisor

In the Nepali context, pass rates in National Licensing Examinations (NLEs) of Nepal Health Professional Council (NHPC) were low (NHPC, 2025). Many studies show that despite strong academic performance, unexpected NLE outcomes may arise due to the complex interaction of individual, institutional, and environmental factors (Graybow, 2015; Spohn et al., 2021; Tsunekawa et al., 2020; Webster, 2020). Such studies were not found in the Nepali context. So, the study aims to explore the trends and factors, graduates' perceptions on trends and factors of NLE outcomes in the Nepali context by using a sequential explanatory mixed-methods study (Khadka et al., 2022; Molina-Azorin, 2016; Othman et al., 2020; Paudel et al., 2025). In the first quantitative phase, the NLE system database from the tenth to the fifteenth NLEs (n=8057) was analyzed and interpreted to explore the factors of NLE outcomes among graduates. In the second phase, an in-depth interview was conducted with 10 purposively selected graduates using the interview guideline developed with reference to findings and gaps from the first quantitative study.

The first quantitative study revealed 3,233 (40.1%) attempts resulted in success and 4,824 attempts (59.1%) resulted in failure. A w-shaped trend line was observed, indicating a non-linear, fluctuating trend characterized by alternating declines and increases in success rate over the observed time period. Pearson chi-Square test confirms the statistically significant association between NLE outcomes

with age, gender, marital status, ethnicity, province of residence, course completion time, and number of NLE attempts. The second phase of a sequential explanatory mixed methods study, the qualitative study, confirms the findings of the first quantitative study. The association of self-efficacy beliefs and NLE outcomes was observed as explained by Bandura's social cognitive theory in the study context. Based on the findings of the study, recommendations at the graduate and institutional levels were offered for optimization of NLE success among graduates.

…… 29 January 2026

Nirmal Sapkota

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शोध सार

पाठ्यक्रम तथा शिक्षण पद्धति विषयमा दर्शनशास्त्रको स्नातकोत्तर उपाधिका लागि निर्मल सापकोटाको शोधप्रबन्धको शीर्षक "नेपालमा राष्ट्रिय इजाजतपत्र परीक्षाको नतिजालाई प्रभाव पार्ने कारकहरूप्रति उत्तीर्णको धारणा: एक मिश्रित-विधिमा आधारित अध्ययन" १५ माघ २०८२ मा प्रस्तुत गरिएको थियो ।

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निरोज दाहाल, पीएचडी

शोध निर्देशक

नेपालको सन्दर्भमा, नेपाल स्वास्थ्य व्यवसायी परिषद् (NHPC) द्वारा सञ्चालन गरिने राष्ट्रिय इजाजतपत्र परीक्षा (National Licensing Examination-NLE) मा उत्तीर्ण दर अपेक्षाकृत न्यून रहेको पाइन्छ (NHPC, 2025)। विभिन्न अध्ययनहरूले देखाएका छन् कि शैक्षिक उपलब्धि सन्तोषजनक हुँदाहुँदै पनि राष्ट्रिय इजाजतपत्र परीक्षाको नतिजा व्यक्तिगत, संस्थागत तथा वातावरणीय कारकहरूको जटिल अन्तरक्रियाका कारण अपेक्षाभन्दा फरक हुन सक्छ (Graybow, 2015; Spohn et al., 2021; Tsunekawa et al., 2020; Webster, 2020)। तथापि, यस्ता प्रकृतिका अध्ययनहरू नेपाली सन्दर्भमा उपलब्ध नभएको पाइयो। त्यसैले यस अध्ययनको उद्देश्य नेपालमा राष्ट्रिय इजाजतपत्र परीक्षाको प्रवृत्ति तथा नतिजालाई प्रभाव पार्ने कारकहरूबारे स्नातकहरूको धारणा अन्वेषण गर्नु रहेको छ। यसका लागि क्रमिक व्याख्यात्मक मिश्रित-विधि (Sequential Explanatory Mixed-Methods Design) मा आधारित अनुसन्धान विधि अवलम्बन गरिएको छ (Khadka et al., 2022; Molina-Azorin, 2016; Othman et al., 2020; Paudel et al., 2025)। अध्ययनको पहिलो, परिमाणात्मक चरणमा राष्ट्रिय इजाजतपत्र परीक्षाको दशौँदेखि पन्ध्रौँ संस्करणसम्मका कुल ८,०५७ परीक्षार्थीहरूको तथ्याङ्क (n = 8057) समावेश भएको राष्ट्रिय इजाजतपत्र परीक्षा प्रणालीको तथ्याङ्कीय अभिलेखको विश्लेषण तथा व्याख्या गरी परीक्षाको नतिजालाई प्रभाव पार्ने कारकहरूको अध्ययन गरिएको थियो। दोस्रो, गुणात्मक चरणमा पहिलो चरणबाट प्राप्त निष्कर्ष तथा पहिचान भएका अनुसन्धानगत अन्तरहरूलाई आधार बनाई तयार गरिएको अन्तर्वार्ता निर्देशिकाको प्रयोग गरी उद्देश्यपरक नमुना छनोट (Purposive Sampling) मार्फत चयन गरिएका १० जना स्नातकहरूसँग गहन अन्तर्वार्ता सञ्चालन गरिएको थियो।

परिमाणात्मक अध्ययनका निष्कर्षअनुसार ८,०५७ प्रयासमध्ये ३,२३३ (४०.१%) प्रयास सफल भएका थिए भने ४,८२४ (५९.९%) प्रयास असफल भएका थिए। अध्ययन अवधिभरको उत्तीर्ण दरमा W-आकारको प्रवृत्ति (W-shaped Trend) देखिएको थियो, जसले समयक्रममा उत्तीर्ण दरमा घटबढ हुँदै गएको गैर-रेखीय तथा उतारचढावयुक्त प्रवृत्तिलाई संकेत गर्दछ। साथै, पियर्सनको काइ-वर्ग (Pearson Chi-Square) परीक्षणबाट राष्ट्रिय इजाजतपत्र परीक्षाको नतिजा र उमेर, लिङ्ग, वैवाहिक अवस्था, जातीयता,

स्थायी बसोबास प्रदेश, पाठ्यक्रम सम्पन्न गर्न लागेको अवधि तथा राष्ट्रिय इजाजतपत्र परीक्षा दिएको प्रयास सङ्ख्याबीच सांख्यिकीय रूपमा अर्थपूर्ण सम्बन्ध रहेको पुष्टि भयो। क्रमिक व्याख्यात्मक मिश्रित-विधि अनुसन्धानको दोस्रो, गुणात्मक चरणले पहिलो परिमाणात्मक चरणका प्रमुख निष्कर्षहरूको पुष्टि गरेको छ। अध्ययनले बन्दुराको सामाजिक संज्ञानात्मक सिद्धान्त (Bandura's Social Cognitive Theory) को परिप्रेक्ष्यमा स्व-प्रभावकारिता सम्बन्धी विश्वास (Self-efficacy Beliefs) र राष्ट्रिय इजाजतपत्र परीक्षाको नतिजाबीच सम्बन्ध रहेको देखाएको छ। अध्ययनबाट प्राप्त निष्कर्षहरूको आधारमा स्नातक तथा शैक्षिक संस्थागत दुवै तहमा राष्ट्रिय इजाजतपत्र परीक्षामा सफलताको दर अभिवृद्धि गर्न आवश्यक नीतिगत तथा व्यवहारिक सिफारिसहरू प्रस्तुत गरिएको छ।

..... १५ माघ २०८२

निर्मल सापकोटा

उपाधि उम्मेदवार

This dissertation, entitled *Graduate Perceptions of Factors Influencing Outcomes of National Licensing Examination in Nepal: A Mixed-Methods Study,* was presented by *Nirmal Sapkota* on *29 January 2026.*

APPROVED BY

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I understand that my dissertation will become a part of the permanent collection of the library of Kathmandu University. My signature below authorizes the release of my dissertation to any reader upon request for scholarly purposes.

……..…… 29 January 2026
Nirmal Sapkota
Degree Candidate

DECLARATION

I hereby affirm that this dissertation has not been submitted or published as part of any other degree candidacy.

……..…….. 29 January 2026

Nirmal Sapkota

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DEDICATION

To

All NLE Participants

Harboring high professional inspirations

Special Thanks to

To my parents, Rajendra Prasad Sapkota and Shobha Sapkota, whose unconditional love and foundational support made my academic journey possible.

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ABBREVIATIONS

BPH	Bachelor of Public Health
CDC	Curriculum Development Center
CEE	Common Entrance Examination
CNI	Curriculum and Instruction
CTEVT	Council for Technical Education and Vocational Training
DoHS	Department of Health Services
GPA	Grade Point Average
HA	Health Assistant
HP	Health Post
HRH	Human Resource for Health
MCQS	Multiple Choice Questions
MEC	Medical Education Commission
MoHP	Ministry of Health and Population
MPhil	Master of Philosophy
NCEE	National Common Entrance Examination
NHRC	Nepal Health Research Council
PHCC	Primary Health Care Center
PhD	Doctor of Philosophy
PIME	Planning, Implementation, Monitoring and Evaluation
PNLEs	Philippine National Licensing Examination
SCT	Social Cognitive Theory
SEE	Secondary Education Examination
SOHS	School of Health Sciences
STEAM	Science Technology Education and Mathematics
TECS	Technical Education in Community Schools
TSs	Technical Schools
WHO	World Health Organization

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CHAPTER I
INTRODUCTION

This chapter covers the introduction of the research context, background, and context of the national licensing examination (NLE) system in Nepal and introduces the study area: the outcomes (pass or fail) of Proficiency Certificate Level of General Medicine (PCLGM) Graduates in the National Licensing Examination (NLE) of the Nepal Health Professional Council (NHPC). Research questions are framed based on a literature review and the researcher's 25 years of experience as an instructor in the PCLGM course to uncover answers to these questions. The principal question in this research is: "What are graduates' perceptions of factors of outcomes in high-stakes NLE?" The problem statement, objectives/purpose of the study, research questions, and the significance of the study are discussed in this chapter.

Introduction

In Nepal, the national constitution regards both education and health services as fundamental human rights. Obviously, the development of competent health professionals is a national priority (Constituent Assembly Secretariat [CAS], 2015). As per the national education structure of Nepal government, Proficiency Certificate Level (PCL) of health professionals is produced by the Council for Technical Education and Vocational Training (CTEVT) system of 10+3 years of technical education stream after SEE. Similarly, bachelor's and higher health professionals are produced by higher educational institutes or Universities through the MEC system of 4 to 5 years of education. The eligibility for higher degree (Bachelor, Master, MPhil, and PhD) health professional education degrees is 10+2 years in general and 10+3 years in the technical stream with 50 percent obtained mark in aggregate, and so on. (Baral et al., 2019).

The Government of Nepal has provisioned six health-related professional councils in Nepal under the Ministry of Health and Population (MOHP) with the legal mandate of quality assurance in health or medical professionals, patient safety, and quality assurance in health care services in Nepal. They are the Nepal Medical Council (NMC), Nepal Nursing Council (NNC), Nepal Health Professional Council (NHPC), Nepal Pharmacy Council (NPC), Nepal Ayurveda Medical Council

(NAMC), and Nepal Health Research Council (NHRC). All professional councils are established under the respective council acts.

According to legal provisions, all medical doctors are registered in the Nepal Medical Council (NMC), pharmacists in the Nepal Pharmacy Council (NPC), nurses in the Nepal Nursing Council (NNC), ayurvedic health professionals in the Nepal Ayurveda Medical Council (NAMC), and all health professionals who are not registered in NMC, NPC, NNC, and NAMC are registered in the Nepal Health Professional Council (NHPC). A health professional must pass the NLE of the respective professional council for registration.

In the context of Nepal, the Nepal Medical Council has started NLEs systems for medical and dental doctors in Nepal. The exact date of the first licensing examination conducted by NMC could not be traced, but NMC is collecting applications for the 75th NLE (Nepal Medical Council [NMC], 2026). Later on, the system was adapted by Nepal Nursing Council, which started NLE for nursing licensing, Nepal Pharmacy Council started NLE for pharmacist licensing, and Nepal Health Professional Council started NLE for health professionals licensing other than medical doctors, dental doctors, nurses, pharmacists, and ayurvedic health professionals in the country. The PCLGM graduates after passing through the NLE of NHPC will be eligible to register in NHPC at the "level B" category of health professionals. They are now eligible to work as a technical post of Health assistant or equivalent as prescribed by commission for Public Service in Nepal (Council for Technical Education and Vocational Training [CTEVT], 2024, 2025; Department of Health Services [DoHS], 2025; Government of Nepal [GoN], 1997).

PCLGM graduates need to pass the NLE conducted by NHPC (Curriculum Development Center [CDC], 2007; CTEVT, 2023; GoN, 1997). Only successful NLE graduates are registered at "Level B" of NHPC, also known as the Health Assistant (HA) level. If anyone fails the NLE, s/he will not be registered with NHPC and will not be eligible to join any job in the public or private sector as a health professional in Nepal (GoN, 1997). Furthermore, PCLGM graduates who are not registered with NHPC will not be eligible to apply for the National Common Entrance Examination (CEE) for undergraduate medical education courses taken by the Medical Education Commission (MEC) of Nepal (Nepal Law Commission [NLC], 2019). So, the career path of not only PCLGM graduates but also all medical education graduates becomes

deadlocked until they pass NLEs and register with the respective professional councils (GoN, 1997; NLC, 2019).

It will be so unfortunate if all the time, effort, money, and emotions invested in medical education are wasted when graduates cannot pass the NLE. It is obvious that, in the lives of medical education graduates, NLEs have a greater stake. This study is focused on how PCLGM graduates who have attended NLEs at least once in their lifetime, both pass and fail, perceive NLEs, the trend in NLE outcomes, and factors influencing high-stake licensing examination outcomes.

Problem Statement

Professional councils are responsible, authorized institutions for quality assurance of health professionals, medical education, and ultimately of health services in Nepal (GoN, 1997). These councils are placed in the organogram of the Ministry of Health and Population (MOHP) at the central level, with the responsibility for quality assurance in health professionals, ensuring patient safety and public trust in the health care delivery system. All professional councils are regulated autonomously with their respective Acts (DoHS, 2025). In the health care service delivery context of Nepal, Health Assistant (HA) is the primary health care service provider in community health facilities in Nepal (DoHS, 2025). They must pass the NLE held by NHPC as a minimum eligibility to work in the country. So, NHPC registration represents the start of a professional career (Saleem & Afzal, 2022) for PCLGM graduates in Nepal.

There is the other side of the coin, too. Since NLE occurs at the end of an individual's academic journey, the result of NLEs reflects cumulative professional opportunity or disadvantage for a lifetime (Kim & Joo, 2024). All the academic, financial, lifetime, and emotional investment in the PCLGM course will be worthless if a graduate cannot pass NLE. Even with the single delay in passing NLEs, all expectations of individual graduates, his or her families, the community, and the national health care system will be delayed for one-fourth of a year. Although the NLE system is designed for quality assurance among health care professionals, patient safety, and enhancing public trust in health professionals, as well as the national health care system, the system may create bottlenecks in the career path of graduates if graduates cannot perceive the high stakes of NLEs in time and cannot engage in NLE preparation in planned ways. Graduates will not be eligible for both job life and further study (Medical Education Commission [MEC], 2020; GoN, 1997). These legal provisions put a higher stake in NLE outcomes than academic performance of 10+3

academic years in secondary and technical schools (CDC, 2007). NLE of NHPC is a computer-based examination. Many PCLGM graduates may experience difficulty in a computer-based examination system because they have no prior experience with such an examination system.

The result of the fifteenth NLE of NHPC revealed a bitter reality where only 41.08% of PCLGM graduates met the minimum threshold for professional practice as a health assistant (NHPC, 2025). Similarly, only 19.34% of PCL Nursing candidates have passed the 34th Nepal Nursing Council's national licensing examination (Republica, 2023). The trend is almost similar in other professional councils, including the Nepal Medical Council and the Nepal Pharmacy Council in Nepal. This indicates that the majority of the newly trained health workforce is deemed "Unfit" for the service delivery immediately upon graduation. Despite the low NLE success rate, there is a conspicuous absence of empirical research investigating the area. There was no data-driven clarity trend and factors of NLE outcomes, success, or failure in the NLE system of Nepal.

Without an in-depth academic inquiry into this area, the "41.08% pass rate or 58.92% failure rate" remains a static, descriptive statistic rather than a catalyst for the optimization of NLE success rates among graduates. The continuous silence on this issue risks "normalizing" mass failure, leading to significant time loss, psychological and emotional pressure to graduates, significant economic loss to families, and a stagnant healthcare workforce for the nation. So, the most concerning aspect for the researcher here is "Why"? Despite the poor results, there is an absence of literature investigating the factors behind it in the Nepali context. As a teacher in the medical education field in Nepal, continuing to observe this failure without investigating it is a form of negligence. So, this research moves beyond reporting percentages and starts to investigate the trends of NLE outcomes, factors of NLE outcomes, and graduates' perception of the factors of NLE outcomes in the Nepali context.

Objective of the Study

Objectives of the quantitative study and the purpose of qualitative study were:

Objective of Quantitative Study

The objectives of the quantitative study were:

1. To find the trend of NLE outcomes among PCLGM graduates in Nepal.
2. To identify the association of study variables with NLE outcomes among PCLGM graduates in Nepal.

Purpose of Qualitative Study

The purposes of the qualitative study were:

1. To explore graduates' perceptions on trends and factors associated with NLE outcomes in Nepal.
2. To explore in what ways the perceptions of graduates with respect to their self-efficacy beliefs and NLEs outcomes were associated.

Research Questions

This study quantitatively addressed the following research questions.

Quantitative Research Questions

This study aimed to answer the following questions from a quantitative approach.

1. What is the trend of NLEs outcomes among PCLGM graduates in Nepal?
2. What are the factors associated with NLE outcomes in the Nepali context?

Research Hypothesis

The study aimed to test the hypothesis "There is no significant difference in NLE outcomes of the graduates by age, gender, marital status, ethnicity, province of residence, course completion time, type of institution, board of graduation, country of graduation, and number of NLE attempts".

Qualitative Research Questions

This study aims to answer the following questions from a qualitative approach.

1. How do graduates perceive the trends and associated factors in NLE outcomes?
2. How do the factors of NLE outcome shape graduates' experience of NLEs?
3. How do graduates perceive the association between their self-efficacy beliefs and experience of NLE outcomes?

Significance of the Study

This study holds substantial academic and professional relevance. NLE serves as an important regulatory mechanism to ensure that graduates entering the health workforce possess the minimum competencies required for safe and effective health care practice in community-level health service institutions in the Nepali context. Thus, such a study has important implications for academic and professional regulation as well as for health system performance. Despite growing concern about fluctuating and low pass rates in NLEs, no empirical research has systematically

examined trends in NLE outcomes and the underlying factors from the perspectives of graduates themselves. This study addresses the gap by generating contextually grounded evidence on how graduates perceive the trends and factors shaping NLE outcomes in the Nepali context.

These findings are expected to contribute to the body of knowledge in medical education by identifying trends of NLE outcomes, success, or failure in the Nepali context, and also revealing personal, behavioral, and environmental factors that influence NLE outcomes, success, or failure. Such evidence is particularly valuable for students who are currently studying PCLGM courses, graduates who are waiting to attend NLEs, institutions that are offering PCLGM courses in Nepal and abroad, and institutions that are offering preparatory classes for NLE preparation.

Furthermore, this study offers practical implications for policy makers, academic leaders, and regulatory authorities by informing evidence-based interventions aimed at improving graduates' preparedness and performance in NLEs. Enhancing the effectiveness of preservice education and strengthening alignment between academic institutions and licensing requirements can ultimately contribute to the competence of the health workforce. In a broader sense, the study supports national efforts towards strengthening human resources for health (HRH) by ensuring that the medical education system produces competent health professionals capable of meeting the health care needs of the population. Thus, this research not only advances scholarly understanding of the NLE dynamics but also provides actionable insights for improving the quality, accountability, and responsiveness of technical/medical education in Nepal.

Additionally, the theoretical significance of the study lies in its contribution to understanding NLE outcomes through the lens of Albert Bandura's Social Cognitive Theory, particularly the construct of self-efficacy belief.

Furthermore, in a country like Nepal with ample rural community health care settings, every failed PCLGM graduate in NLE is a missed opportunity for a rural community health care institution. Improving NLE pass rates directly impacts the availability of the health assistant workforce in underserved areas. Indirectly, it also addresses the wasted investment of students who spend three years in medical/technical education for PCLGM course completion, only to be barred from professional practice. Understanding the factors can help reduce the psychological and emotional strain of NLE failure at the graduate level and the economic drain at

the family level. Moreover, help update their teaching and learning strategies at the institutional level, support quality assurance and system reforms at the policy level, and ensure health workforce readiness at the national level.

Chapter Summary

Chapter one presented the context and background of the study. The research problems, rationale of the research, and significance of conducting the research were included in the chapter. Furthermore, the chapter outlined the purpose, research questions, and hypothesis guiding the research process.

CHAPTER II
LITERATURE REVIEW

This chapter provides a summary of the relevant literature review. It includes thematic, theoretical, policy, and empirical reviews. The research gaps explored and the theoretical framework of the study are also presented here in this chapter. Five relevant themes are presented in this chapter. They are: health professional education in Nepal, PCLGM curriculum in practice, quality assurance in academic institutions, NLEs in the quality assurance of Health professionals, and dilemmas in professional licensing examinations.

Thematic Review

The thematic review section organizes and synthesizes existing scholarly evidence related to the study. This approach enables the identification of major themes and research gaps concerning graduates' perceptions, factors of NLE outcomes, and the contextual issues in health professional education in Nepal. The thematic review digs out five different related themes.

Health Professional Education in Nepal

In Nepal, the PCLGM (Health Assistant) course was started in 1956 at Bir Hospital. A total of 65 students graduated from Bir Hospital. Later on, in 1972, the responsibility of PCLGM course implementation was transferred to the Institute of Medicine (IOM) and to the Council for Technical Education and Vocational Training (CTEVT) in 1989 (Dixit, 2009, 2017). The Health Assistant course was the first course started in the CTEVT system from the School of Health Science (SOHS), Bharatpur, Chitwan, in 1997 with an annual enrollment capacity of 60 students (CTEVT, 2023).

National demand for the PCLGM (Health Assistant) workforce abruptly increased with the new health policy in 1991. This comes with the provision of a health post in the leadership of a health assistant to provide primary health care services at the community level (Ministry of Health and Population [MoHP], 1991). In response to this increasing demand for the PCLGM workforce by the health care system of the country, CTEVT started to provide affiliation to for-profit, private technical schools in the country from 1999 (CTEVT, 2023). In 26 years from 1999, twelve PCL-level health professional courses and around 574 programs will be

running in the country in the CTEVT system. Among them, the majority are private, some are in partnership, and very few are CTEVT-constituted schools.

Specifically, for the general medicine course, there are 149 schools. Among them, only 3 are constituted schools, 8 are schools running in partnership with CTEVT, and 138 are private schools. When we see the annual enrollment capacity, 149 schools with 40 seats in each give 5,960 students. Furthermore, annually, 10 percent of students (596 students) get a full scholarship in these schools and programs as per the CTEVT admission directives. Students achieving an overall Grade Point Average (GPA) of 2.0 out of a total GPA of 4.0 in SEE are eligible to get admission in these courses (CTEVT, 2025). The CTEVT examination controller office in Bhaktapur plays the role of a national regulatory body in student enrollment through a national common selection process.

Proficiency Certificate Level in General Medicine Curriculum in Practice

Ali (2018) suggests that alignment of curriculum intentions, strategies of instruction, as well as assessment and evaluation, is crucial for effective teaching and learning. If the alignment is effective, learners know what is expected to learn, and the teacher plans the teaching strategies to match the learning outcomes (Ali, 2018). PCLGM curriculum provides a concrete guide to students, teachers, and technical school managers about curriculum objectives, intended instructional strategies, processes, and procedures for assessment and evaluation of students' learning outcomes (CTEVT, 2024). Educating health professionals requires robust faculties and adequate physical infrastructure. Furthermore, alignment of the intended curriculum with the community health needs, educating students in real community and clinical settings where they are intended to work as health professionals, gives ample opportunity to internalize the community health needs and help in developing a strong cadre of community health workers (Burdick, 2007).

PCLGM curriculum standards to be followed by technical schools are clearly listed in the curriculum development and disseminated by the Curriculum Development Authority of CTEVT. The overall purpose of the PCLGM curriculum is to prepare the PCLGM workforce in the nation with essential knowledge and perfect technical skills that are required in the real-life working situation of professionals at the community level.

Furthermore, one academic year is equivalent to 35 weeks of academic performance, and one week is equivalent to 40 hours, excluding evaluation time. The

pattern of attendance expected in all subjects is a minimum of 90%, students with less than 90% attendance will not be eligible to attend the annual board examination of that year. Language of instruction is both English and Nepali (CTEVT, 2024). Similarly, curriculum standards require technical schools to maintain an overall teacher-student ratio at the institutional level of 1:40 in theory class and 1:10 in practical and demonstration class. There is a clear instruction to manage 75% instructors as full-time in the school. PCLGM Curriculum expects a fair allocation of study hours in both theory and practical classes of each subject, as guided in the curriculum. The protocol design for the comprehensive clinical field, community diagnosis field, PHCC fields, and other concurrent and observation fields must be followed strictly in terms of deputation in respective departments, level of hospitals, number of cases managed, and maintenance of a logbook of every day (CTEVT, 2024).

Regarding the assessment and evaluation system, three internal examinations in one academic year, in the format of both assessment of learning and assessment for learning, were envisioned by the curriculum. The internal evaluation covers 20% of the full marks in all subjects. Students must pass all subjects in the internal evaluation to be eligible for the final evaluation exam that is conducted by CTEVT at the end of each academic year. There is a provision for a continuous assessment system for the practical component of the curriculum. Institution attendance for the practicum class carries 10% of the full mark. Similarly, a logbook or practicum book signed with a related supervisor carries 10%, performance in a spot or practicum test carries 40%, and viva voce from internal and external evaluators carries 20% each, covering a total of 80% of the final evaluation, and 20% is assigned for internal evaluation. There is provision of a back examination for the paper in which the student could not achieve the pass mark of 40 percent in theory and 50% in practical evaluation in the CTEVT board examination. Total 6 years, three years as a regular student, and the next three years as back paper is fixed as the course completion time. A student who could not complete the course in 6 years needs to reregister for the course (CTEVT, 2024). There is a provision of one chance examination in the third year after the result of the regular examination for the students who have a backlog only in third-year subjects. The curriculum has clearly spelled out the role, responsibility, and ethical guidelines for students in the course.

The grading system followed is distinction for marks obtained greater than or equal to 80% of the aggregate of full marks, first division for 65% to less than 80%, second division to 50% to less than 65%, and pass for 40% to less than 50% of full marks. The career opportunity will be to work as a non-gazette technical, first-level health worker, or as a health assistant under the MOHP. The graduates will be eligible to register in NHPC as per its rules. There are 23 subjects, and the full mark of the course is 2975 in the three-year PCLGM course. In the first year, there are a total of nine subjects with full marks 850, including Physics (100), Chemistry (100), Zoology (100), Botany (100), Mathematics (100), Anatomy and Physiology (100), Nepali (100), English (100), and Social Studies (50). Similarly in second year, there are 8 subjects with full marks 1175, including Medicine I (200), Surgery I (200), Basic Medical Procedure and first aid (150), Clinical Pathology of (100), Pharmacology and Pharmacy (125), Environmental Health (125), Health Education (125) and Primary Health care and family health including maternal and child health, family planning and nutrition (125). Furthermore, in the third year, there are 6 subjects with a full mark of 950, including Medicine II (100), Surgery II (100), Health Management (50), Epidemiology, Demography and Community Diagnosis (100), Comprehensive clinical practicum and Primary Health care field (400), and Comprehensive Community Field Practice (200) (CTEVT, 2024).

According to Bapat (2009), common problem in existing professional education practice is the widening gap between what the professionals know and what they can actually perform. To perform something, a deep understanding of the concepts, mastery of the skills needed, and a professional attitude of learning and performing are needed. Educationalists have suggested that deliberative practice, deliberated practice instead of unstructured practice with well-defined tasks to perform, regular monitoring and constructive feedback, and ample opportunity to practice repeatedly until achieving confidence in the required performance is needed (Bapat, 2009). It is a well-established fact that assessments have to serve three levels of goals, including goals at the personal level, institutional level, and Societal level. Diagnostic assessment, for example, guides institute for learner selection, formative assessment shows dimension of assessment for learning, and summative assessment has the built-in power of deciding what students have learned (Epstein & Hundert, 2002).

Quality Assurance in Academic Institutions

Quality assurance involves quality control and management (Joshi, 2012). When we consider quality assurance in health professionals' education as a coin, the first side is the creation of the next generation of competent professionals, and the other side is adherence to principles of and values of health professional education in the institution. Quality assurance involves accreditation at the national or international level, designing, developing, and operating policies, standards, systems, and procedures contributing to the enhancement of both sides of the quality coin (Joshi, 2012). Globally, quality is being assured through institutional monitoring, including infrastructure, academic process and results, course evaluation, peer evaluation, getting regular feedback from graduates and alumni of the institutions, self-assessment, etc. (Joshi, 2012).

Obviously, Quality assurance in health professionals of the PCLGM level program is the collective responsibility of CTEVT as an apex body of technical education in the nation, the technical schools' system as an implementer of curriculum, NHPC of Nepal as a professional council that registers PCLGM graduates after passing the NLE designed for the course, and MEC of Nepal as a key regulator commission for medical education in Nepal after the National Medical Education Act 2018.

Though the role and responsibility of students, teachers, guides or mentors in clinical and community settings, and evaluators are equally responsible for the quality of the workforce produced by the technical education system (CTEVT, 2023, 2024; Dixit, 2009, 2017; GoN, 1997; NLC, 2019), from legal perspective, quality assurance from council registration to lifelong professional practice as workforce in health care delivery system comes under jurisdiction of NHPC and MOHP in Nepal (CTEVT, 2023; DoHS, 2025; GoN, 1997).

NLEs in Quality Assurance of Health Professionals

Over the last two decades, more visible changes are seen in health professional education sector with negative contribution in quality of health professional education and ultimately showing negative impacts on health care delivery service of a country (Dixit, 2009). There are huge changes in numbers and types of health professional education schools, and the quality of offered services in some schools is not at an acceptable standard of health professional education (Dixit, 2009). Research has

shown that the increase in the number of private medical colleges from 1970 to 2005 is 1120% (Babla et al., 2020; Bapat, 2009; Swanson & Roberts, 2016).

Though satisfactory performance at any examination does not necessarily confirm that the professional will practice competently, those who advocate for NLE systems claim that low-performing professionals are prevented from entering the profession by these types of barriers. Furthermore, a major concern of the global community in NLEs is to ensure that clients receiving the services from any professionals are getting safe, effective, and efficient service (Swanson & Roberts, 2016). In the context of increasing types and number of educational institutions, increasing global mobility of health professionals, there is need of assurance regardless the type and country of educational institution that health professionals have minimum acceptable level of competence (Bapat, 2009; Swanson & Roberts, 2016).

Dilemmas in Professional Licensing Examinations

The main objective of licensing is to ensure all health professionals possess the requisite knowledge and competencies to deliver health care services in a safe and effective manner (Swanson & Roberts, 2016). They had claimed that a good performing professional in NLE may not provide an accepted standard of services in a professional context. This proves NLE systems practiced globally are not free of limitations and dilemmas (Swanson & Roberts, 2016). There are some different arguments about professional licensing examination practices. Some theoretical analysts assume that licensing processes and procedures reduce the average quality of services in the labor market where information asymmetry exists (Klee, 2013). Furthermore, according to Klee (2013), some theorists are questioning NLEs, blaming that such policies allow professionals with low-quality standards to practice in the market for a longer time (Klee, 2013).

As argued by Epstein and Hundert (2002), the NLEs are occupied with limitations and dilemmas, by virtue, assessment and evaluation by NLEs serve individuals, institutions in society, and society as a whole within their rational limits. The standards of competent professional practice include technical, conceptual, and cognitive as well as emotional aspects in practice, which may not be measurable by a single high-stakes national licensing examination (Epstein & Hundert, 2002).

WHO defines a health service delivery system as a complex system where health professionals have to work in a team from different disciplines. So, assessment

of competencies of health professionals can be measured with a single form of test, like a test paper of 100 marks with 100 multiple-choice questions. The complex constructs in the skills set of health professionals like clinical reasoning skills, decision making skills, problem solving skill, time management skill, professional communication skill, professionalism, conflict management skill, group dynamics in team working, expert judgement, management of ambiguity etc. requires multidimensional assessment strategy with adequacy of reliability and validity. Thus, the NLEs system needs to try to incorporate assessment strategies for these special skills through various innovative strategies (Epstein & Hundert, 2002).

The existing trend of NLEs is contributing to assessing and validating a generic and homogeneous skill set in the pool of newcomer professionals. At the same time, some countries have begun to revalidate or recertify the initial license, though assessment modalities may vary. The future of NLE systems should look forward to addressing the continuous or lifelong professional education process among professionals (Swanson & Roberts, 2016).

Policy Review

According to the national educational structure after federalism in Nepal, technical education of 10+3 years in Nepal is under the jurisdiction of CTEVT. In the technical education system, as an apex body in Nepal, CTEVT is responsible for accreditation and planning, implementation, and monitoring of the national standard for technical education programs. As a central regulating body, CTEVT will be leading in curriculum design, development, and updates. Furthermore, student enrollment procedures and annual board examinations for summative evaluation of course implementation are controlled by the CTEVT Examination Control Office. On the other hand, technical school is responsible to: admit students recommended by CTEVT, implement given curriculum in prescribed standard, maintain portfolio of academic engagement of students, conduct three internal examinations and provide results with constructive feedback, complete course as expected in annual calendar of CTEVT and prepare students for board examination that will be taken by CTEVT at the end of an academic year(CTEVT, 2025).

In the Nepali context, especially in the context of the CTEVT system, quality assurance is done through an annual regular monitoring system (CTEVT, 2025). Annually, every Technical School (TS) is monitored from the respective provincial office of CTEVT with a centrally developed monitoring tool, including academic and

physical infrastructure, as well as all academic procedures, including arrangement of hospitals, Primary Health Care Centers (PHCCs), Health Posts (HPs), and Community for practical placement. Collective reports of all TSs with recommendations from annual monitoring visits are sent to the CTEVT central office in different divisions, including the technical division for private, Polytechnique division for constituted and partnership, and the Technical Education in Community Schools (TECS) division for TECS schools. The respective division of the CTEVT central office reviews and compiles the monitoring reports. The qualified TSs for the annual renewal process are notified for the annual programmatic renewal process, and the non-qualified TSs are notified for recommended corrections, and verification is done through the re-monitoring visit. List of TSs qualified from annual monitoring visit and renewed respective divisions are collectively sent to the CTEVT examination office for the admission announcement process for the next academic session. Before going to the admission announcement for the next academic year, the MEC of Nepal allocates seats for the accredited programs. After seat allocation approval from MEC, the CTEVT examination controller's office announces the admission for the academic year. Students' merit list for the admission is developed centrally in CTEVT and sent to TSs for their admission and start of the academic session (CTEVT, 2025).

In addition to the quality assurance procedures of CTEVT, the MEC of Nepal, as the national regulatory body of Nepal for medical education, is also responsible for the quality assurance system. MEC of Nepal has the legal authority to issue a letter of intent for a health profession-related program during the accreditation process. After granting affiliation from CTEVT, the MEC of Nepal finally allocated seats for the institution after thorough supervision. It is already mentioned that all TS seats in the health professional education program are allocated from the MEC of Nepal. As per legal provision, a comprehensive, technical monitoring is provisioned, but due to duplication of authority in legal provision between related health professional councils and the MEC of Nepal, there has been no technical supervision from both professional councils and the MEC since 2018 (CTEVT, 2023; GoN, 1997; NLC, 2019). Not only this, but related professional councils play a vital role in the quality assurance mechanism in health professional education in Nepal. All TSs should go through the accreditation process in the related professional councils, too. There are program wise minimum standards and ethical guidelines developed by professional

councils. Before MEC, all professional councils used to conduct annual regular monitoring visits to all TSs in Nepal, but after the National Medical Education Act the council supervision is not been done. Details of student enrolled in health professional education all over the country should be provided to professional councils for their recording and monitoring purposes.

Moreover, after graduation, graduates must go through the National Licensing Examination (NLE) system in Nepal. Students should submit all academic certificates certified by a notary public, a logbook recommended by the councils, and certificates while applying for the NLEs to register their name in the professional council. Graduates will not be eligible for entry into a health profession and a bachelor's degree in medical education, unless they pass NLEs as minimum eligibility to be registered in professional councils. The students who are excellent in academic performance may not pass NLEs (Swanson & Roberts, 2016). All efforts, time, investment, and emotions invested in health professional education, even with excellent marks in academic degrees, will be worthless if graduates cannot pass NLEs (Kasper & Dillon, 2024). The triple accreditation process, which includes the accreditation of CTEVT, MEC, and the related professional council, different accreditation standards by different authorities, an annual system of renewal and seat allocation, and an annual regular monitoring system of CTEVT, is contributing to the quality assurance system in the health professional education system in Nepal.

NHPC is the national authority to conduct NLEs for PCLGM Graduates in Nepal. As per the current practice, NHPC issues a public notice requesting online applications for NLE on a biannual or Quarterly basis as per the decision of the NHPC examination committee. Graduates apply online for NLE. They have to sit for a computer-based licensing examination. There will be 100 multiple-choice questions carrying 1 mark each. Thus, NLE is 100 full marks, and the pass mark is 50. There is no negative marking system for wrong answers. NHPC has published a comprehensive curriculum for NLE of PCLGM graduates. According to the NHPC curriculum for NLEs of PCLGM graduates, anatomy and physiology covers 10%, community health covers 25%, General medicine covers 25%, General surgery covers 25%, Pharmacy and Pharmacology cover 5%, and Clinical Pathology covers 5% of the full mark 100. Since NLE is a computer-based examination, the results are published on the same day. Graduates can view their results through the NHPC

website. The examination result system displays only passes or fails status, as there is no provision for reporting the marks obtained in the examination.

Theoretical Review

Kumar et al. (2022) highlight that theory is a lens that can be used to examine and explain phenomena around them. Learning theory is an act to explain the learning process and help to understand the complex inherent learning process in human beings (Muhajirah, 2020). When we examine the development of learning theories, the behaviorist approach is complemented by the cognitivist approach, the cognitivist approach is complemented by the constructivist approach, and so on. Early learning theories had emerged and started to provide a framework for research from as early as the 1920s (Gredler, 2009). No single theory explains all aspects of learning. Application of insights from all these theories makes learning more inclusive, more effective, and continuous.

The relevance of these theoretical perspectives in teaching and learning activities can be justified with various classroom examples from today. The traits of behaviorism are seen in schools and classrooms in the form of contractual agreements for expected change in behavior, class routines, and built-in systems like rewarding or punishing someone for encouraging or discouraging pretended behavior. Use of chunking, strategies to manage optimum cognitive loads, like the use of reflective presentation based on worked out examples, etc., gives evidence of a cognitivist orientation. Constructivist principles support learners in knowledge construction through active engagement in teaching and learning process in the context. Connectivism encourages the utilization of all possible connections, including digital networks, whereas humanism encourages respect for learners' autonomy in the learning process (Karunarathna et al., 2025).

This study underpins the ideology of constructivism, specifically the idea of Bandura's Social Cognitive Theory (SCT), because SCT recognizes that learning occurs in society. Thoughts and behaviors of learners have a social context and are learned through conscious observation and decision making. Furthermore, this study is in the Nepali context, where PCLGM graduates must pass the NLE conducted by NHPC to register in it, which is one of the mandatory legal requirements to enter into a job or further study. The researcher here is using the guidelines of SCT for various purposes. First, identification of variables for the first quantitative review of the NLE data system of NHPC. Second, to identify constructs in the theoretical framework.

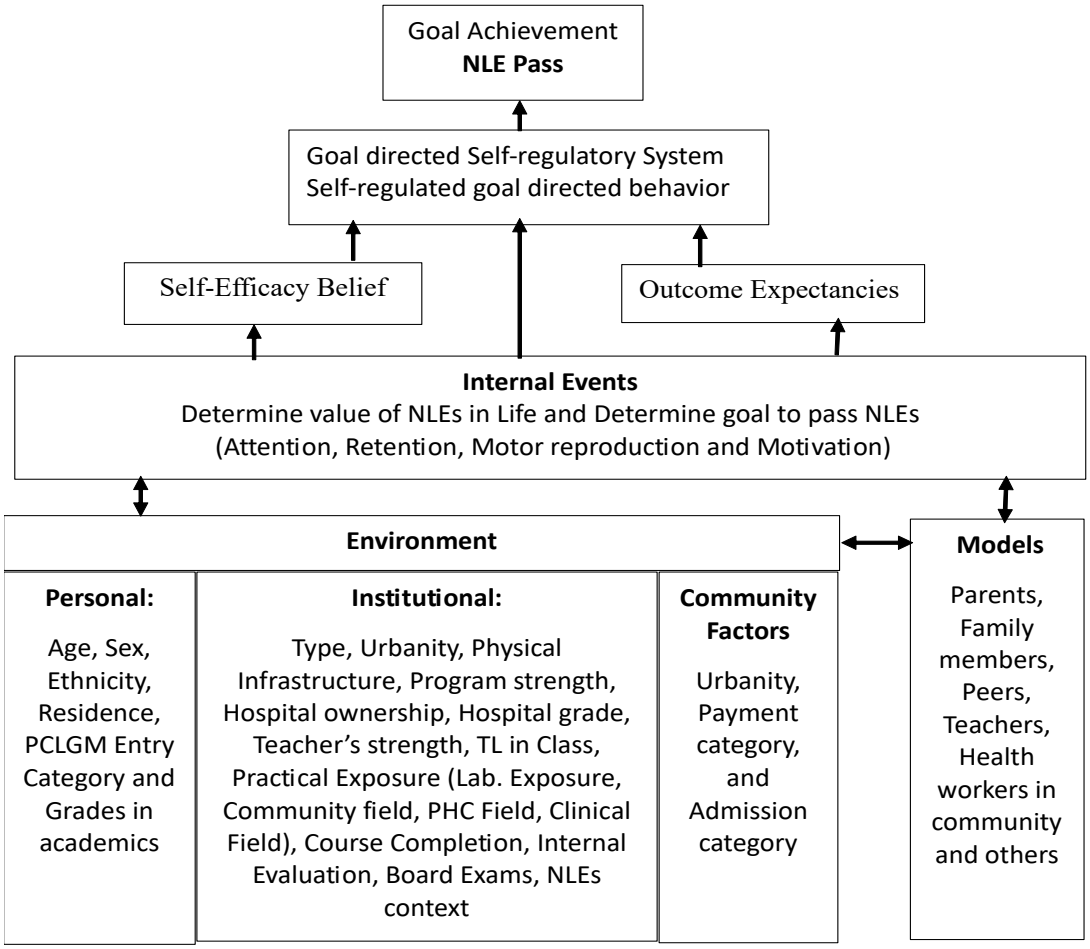
Third, for identifying constructs for the in-depth interview guideline in the second qualitative part of the research. Later, Qualitative research aims to explore perceptions of graduates who have experienced NLEs and outcomes of NLEs at least once in their lives. And, fourth, to get a framework to integrate common concepts and ideas explored from both types of studies.

More specifically, in this sequential explanatory mixed-methods study, the interlocking triadic relationship between the following three elements, which Albert Bandura refers to as reciprocal determinism, contributes to the development of the self- regulatory system. First, the event (cognitive factors in PCLGM Graduates), beliefs in their capabilities to pass NLE conducted by NHPC (Self-efficacy), with the expectation to get NHPC registration and legal eligibility to enter into a job as health professionals, set goals (of NLE preparation). Second, engagement in the goal directed behavior, that is, engagement in NLE's preparatory activities like attending preparation class, practicing previous exam Multiple Choice Questions (MCQs), searching, getting, and revising on NLE's syllabus, etc. And, the third, environment including peers influence, family and teacher influence, expectations and encouragement, the NHPC examination systems, etc. (Creswell & Creswell, 2023; Gredler, 2009; Khadka et al., 2022; Neupane, 2025).

According to Bandura's analysis in his social cognitive theory, four influences work as sources for getting efficacy beliefs. First, Mastery Experiences involve constructing cognitive as well as behavioral capabilities for performing an action in an expected course of action. Second, vicarious experiences and efficacy beliefs are also generated from the observer's observation of the success of others in his environment. The others, who are similar to the observer in the observer's perception. The third, social persuasion, the positive words from people in the social network about the learners' capabilities in cognition as well as performance, will act as a source of efficacy belief. The fourth, Emotional and psychological state, including stress as well as tension in the actor, influences his or her self-efficacy beliefs (Gredler, 2009). As guided by Creswell, Bandura's SCT will shape both the NLEs database review and identify constructs for the qualitative interview guideline (Creswell & Creswell, 2023). These insights, constructs, and connecting nodes in the explanation of Bandura's SCT are plotted here to construct the theoretical framework of the study. The theoretical framework of this study is presented in Figure 1.

Figure 1

Theoretical Framework of the Study



(Carter et al., 2016; Gredler, 2009)

The framework in Figure 1 illustrates how NLE success is explained using Albert Bandura's Social Cognitive Theory. According to the framework, passing NLE (goal achievement) results from a goal-directed self-regulatory system where the learner/ PCLGM actively regulates his or her learning and NLE preparation. This process is influenced by two key cognitive components: self-efficacy and outcome expectancies, which shape motivation and efforts. This internal process operates within a broader environmental context, including personal characteristics, institutional factors, community-related factors, and social models such as parents, teachers, and peers. Together, the interactions of cognitive beliefs, behavior, and environmental influences determine a graduate's readiness and eventual success or

failure in NLE. Thus, the theoretical review is summarized in the comprehensive theoretical framework, which will guide the entire research process.

Empirical Review

This empirical review focuses on the research articles and review articles related to National licensing examination systems in the global, regional, and national scenarios. Unfortunately, I could not get any related empirical studies in Nepal.

Among the empirical studies reviewed, a comprehensive examination report prepared for a social work school has highlighted the cumulative effect of students' individual factors, academic institution's factors, and community factors as determinants of NLEs outcomes. The socioeconomic status of the community, racial/ethnic segregation, and socioeconomic inequalities are the community-level determinants of NLEs outcomes. Furthermore, the same report elaborates, at the institutional level, features of institutions like ownership (public vs. private), degree of selection at admission, availability of scholarship schemes, faculty strength, program size, and urbanity of institution's location are found to determining NLEs outcomes. Similarly, at the individual student's level, socioeconomic and demographic features like age, race/ethnicity, and gender, marital and parental status, exam behaviors and timing, exam preparation timing, and academic performance and scores at graduation or previous graduation are among significant determinants of NLEs outcomes (Kim & Joo, 2024).

Kasper and Dillon (2024) argue that flexibility in examination time is also important in exam outcomes (Kasper & Dillon, 2024). The literature further claims that there is some degree of association between examination time after completion of an academic degree and NLEs outcomes. The ideal recommended time of examination is found between 3 weeks and 3 months after completion of the academic course (Kasper & Dillon, 2024). Furthermore, there are some evidence in the literature about racial differences in examination outcomes. Black examinees are securing lower performance in comparison to white in NLEs (Kim & Joo, 2024). A study from the UK revealed NLEs outcomes can be predicted by prior examination success. Further, home graduates performed better in NLEs compared to graduates trained elsewhere. Archer et al. (2017) contend NLEs exert impacts on graduates' health. Complaints of Stress and Burnout are commonly noticed among graduates after completing the test. The complaints are more serious among the graduates who

are low performers in the previous examinations, including graduating examinations (Archer et al., 2017).

Similarly, a study from Ghana shows that stress and anxiety, low conceptual clarity, short preparation time are student-related factors, and poor curriculum completion, large class size, inadequate skills laboratories are institutional factors of nursing student NLEs outcomes (Agyemang-Dankwah, 2015). A scoping review on Philippine NLEs outcomes discloses an average first-time pass rate of 75% between 2014 and 2018. PNLEs of November show high odds of pass rate compared to PNLEs of May/June. PNLEs outcome was found to be associated with students' learning styles, Intellectual ability, as well as psychological behaviors. Furthermore, the same study revealed that academic score in schools, nursing college, admission test in nursing college, aptitude test, internal evaluation, clinical nursing courses, and English course were significant predictors of PNLEs success. On the other side, school size, ownership category, and student-teacher ratio at schools are institutional determinants of PNLEs' outcome (Montegrico et al., 2022). The relationship of English language proficiency with academic as well as NLEs outcomes was found to be significant in another study from the Philippines (Oducado et al., 2020). A study among migrant physicians suggested that age, examination type, and language used in NLEs are factors of success or failure (Sturesson et al., 2020).

The empirical review helped to gather information related to individual, institutional, and community-related factors of NLE outcomes in different international contexts. There was a scarcity of literature related to factors of NLE outcomes of health professionals, including PCLGM graduates, in the Nepali context. So, this study aims to explore the possible factors of NLE outcomes among PCLGM graduates based on available information on the NLE system database of NHPC in the Nepali context.

Research Gap

Many researchers have gone through thematic, policy, theoretical, and empirical literature reviews. Researchers could not find any literature related to the factors of the NLEs outcomes from Nepal. It means the proposed research is virgin from the point of view of the research study. Literature from the American context has outlined the factors associated with the NLEs outcomes in their context. So, empirical research on trends and factors of racial/ethical and other demographic determinants in NLE's outcomes in the Nepali context needs to be explored. Understanding factors of

NLE outcomes in the learners, academic institutions, NLEs systems, and in the community helps to design interventions in respective arenas (Kim & Joo, 2024).

In health professional education research, there is a gap in the general understanding of what a research paradigm is and how it is constructed in a research study (Brown & Dueñas, 2020). Further review suggests that there is an increasing trend of mixed-methods research to enhance the methodological rigor in every stage of the research study. A very few studies are using this methodology in health professional education research. So, there exists a need for some practical examples of such methodologies in the context (Healey et al., 2025; Neupane, 2025; Othman et al., 2020).

Chapter Summary

This chapter outlines the summary of the reviewed relevant literature to establish the scholarly foundation of the research. The thematic review summarizes key themes related to trends and factors influencing NLE outcomes among PCLGM graduates. The policy review examines the national policies, regulatory provisions, guidelines, and standards governing technical/medical education and the NLE system in Nepal. The empirical review analyzed findings from the previous national and international studies on trends and factors of NLE outcomes. The theoretical review guided by Albert Bandura's social cognitive theory provided the conceptual basis for understanding how personal beliefs, behaviors, and environmental factors influence the NLE outcomes. Despite this contribution, the review identified a significant research gap in the Nepali context, particularly in evidence exploring PCLGM graduates' perceptions of trends and factors of NLE outcomes using a mixed-methods study, thereby justifying the need for this study.

CHAPTER III
RESEARCH METHODOLOGY

In this chapter, the philosophical and methodological foundations of the study are presented. The philosophical assumptions underpinning the study, including ontological assumptions, epistemological assumptions, axiological assumptions, research paradigm, and research methods, are explained. Quality assurance techniques adopted and the ethical considerations during the research process are outlined in the chapter.

Philosophical Assumptions

Philosophical assumptions are simply the underpinning beliefs that dictate how we perceive reality and what we consider to be true. Research philosophy provides foundational beliefs and assumptions that guide how knowledge is generated, interpreted, and validated within a study. In simple terms, philosophical assumptions are "hidden foundations" of how we think, research, and act (Jackson, 2013).

Generally, an expert researcher sees the rigor in research through the lens of alignment between the belief systems guiding the research and the entire research approaches used in answering the research question (Brown & Dueñas, 2020). A researcher's positionality is at the heart of choosing research methodology. The four sets of beliefs, including ontology, epistemology, axiology, and methodology, highlight the researcher's positionality (Othman et al., 2020).

Thinking of quantitative research corresponds to positivism in the research paradigm. Whereas, thinking of qualitative research aligns with any of or a mix of post-positivism, interpretivism, or constructivism, and the critical inquiry paradigm. This research has been underpinned by the philosophical foundation of pragmatism (Shan, 2022). Shan (2022) further elucidates that a consensus has not been achieved regarding the philosophical foundation of mixed-methods research yet. Further, the author claims pragmatism acknowledges knowledge as a product of person-environment interaction and that knowledge is both constructed and an objective reality. Accordingly, both socially constructed and objective worlds exist. Furthermore, Reality is complex and multiple. Thus, social science research is problem oriented, and the aim of social science research is to solve the problem. So, a

social science researcher does not have to make a choice between the postpositivist position and the constructivist / interpretivist position. They are free to choose the methods best meet their need and purpose and can employ both quantitative and qualitative methods when designing and conducting research (Shan, 2022).

Ontological Assumptions

Philosophical study of the nature of reality is termed Ontology (Jackson, 2013). In this study, the researcher is interested in the inquiry of "Graduates' Perceptions" about the "Trend" and "Factors" of "NLE outcomes". It is posited that NLE outcomes and their trend already existed reality in the NLE database of NHPC. The role of the researcher here is to observe, calculate, and measure it. Obviously, the quantitative NLE outcomes, their trends, and factors come first in existence, which is objective as well as external and independent of the researcher and research participant. Thus, the first part of the research deals with objective reality.

Furthermore, the second part of the study aims to explore "graduates' perception" of the trend and factors of NLE outcomes. It is posited that a graduate's perception is an experience or a constructed reality based on social or individual perception. Hence, "Perception of graduates" here is truly a subjective reality. So, the second part of the study deals with subjective reality (Jackson, 2013).

Epistemological Assumptions

This study aims to explore "Graduate perception on trend and factors of NLE outcomes" in Nepal. First, it is necessary to identify the trends and factors of NLE outcomes using a quantitative approach. Second, the graduate's perception of the trend and factors of NLE outcome will be explored using a qualitative approach.

Thus, graduates' perception of trends and factors of NLE outcomes in Nepal needs the third epistemological perspective called the pragmatist perspective, suggesting that reality and knowledge are dynamic and contextual, and they are continuously changing with experiences and changing context. This epistemological standpoint supports the adoption of a mixed-methods approach integrating quantitative and qualitative techniques to better capture the multifaceted reality while realizing the limitation of fully understanding it at any given point in time (Pretorius, 2024).

Axiological Assumptions

Axiology is fundamental in shaping the ethical and value-oriented moral dimension of research. It encourages researchers to critically examine how their

personal values, beliefs, and potential biases may influence the research process from the formulation of the research question to the dissemination and application of research findings. Researcher are therefore required to reflect on their value system that informs their selection of research topics, methodological approaches, and presentation of findings. Thus, axiological assumptions and their reflection are essential for transparency, integrity, and ethical accountability in research as they acknowledge the way in which personal and cultural values may influence the entire research process (Pretorius, 2024).

In this study, the researcher values both the objective evidence and subjective experiences of NLE participants as an important source of knowledge. Throughout the research process, the researcher is committed to maintaining ethical standards, minimizing personal biases, respecting the viewpoints of participants, and ensuring that interpretation and presentation of findings remain transparent, credible, and socially responsible.

Research Paradigms

In a research process, a paradigm is a philosophically guided way of thinking. It guides a researcher to fix what and why to do as a researcher. Furthermore, thinking of mixed-methods research corresponds to the mixing of quantitative and qualitative aspects, corresponding to all research paradigms. This study, a sequential explanatory mixed-methods study, builds on post-positivist research pragmatism and interpretivist research paradigm (Kumar et al., 2022; Maudsley, 2011; Nasser et al., 2021).

Post-Positivist Paradigm

The postpositivist paradigm advocates for the objective investigation of the research problem through multiple forms of data. This approach mainly prioritizes quantitative data while using qualitative data to support and explain the quantitative findings. In this study, both qualitative and quantitative data were given equal importance. The qualitative and quantitative findings were verified and strengthened through triangulation (Panhwar et al., 2017). In this study, the postpositivist research paradigm was selected to investigate the phenomenon under study; that is, NLE success rates, objectively taking help of qualitative data.

Interpretive Paradigm

This paradigm, also called interpretivism, holds the assumption that the research problem always exists in a social context. Interpretivists view the social world as a human creation and have many aspects which cannot be measured

quantitatively. Therefore, reality can only be understood through involvement, engagement, and shared meaning making (Gichuru, 2017). In this study, the researchers want to explore the perceptions of the graduates regarding trends and outcomes of the NLEs, which were internal factors within the graduates, which may not be measured through the quantitative approaches only. So, postpositivism and interpretivism were regarded as the guiding research paradigms in this study.

Research Methods

This study, a Sequential Explanatory Mixed-Methods study, involved integration of methodologies and approaches of quantitative as well as qualitative origins. The primary rationale for adopting a mixed method approach is to achieve a more comprehensive and in-depth understanding of graduates' perceptions of trends and factors of NLE outcomes in the Nepali context. Teddlie and Tashakkori (2009) claim that, in sequential mixed methods research, blending of either qualitative or quantitative strands enhances understanding of the phenomenon and helps address research questions by informing revision to the study design or instrument, generating new hypotheses, and elucidating the underlying reasons and meaning of findings from either phase. Such sequential design may be implemented either as planned or may be evolved during the course of research (Teddlie & Tashakkori, 2009).

In this study, the initial phase involved a quantitative analysis of the NLE database, covering the 10th to 15th cycles (years) conducted by NHPC. The quantitative analysis of the NLE database enabled the identification of key trends and factors associated with NLE outcomes. Building upon the research gap identified in the first quantitative study, an interview guideline was subsequently developed to guide follow-up in-depth interviews conducted in the second qualitative phase of the study. Results and insights from both phages were presented in an integrated way to add value from a Mixed-Methods design. Equal priority was given to findings from both phases of research (Maudsley, 2011; Molina-Azorin, 2016; Neupane, 2025; Othman et al., 2020; Paudel et al., 2025; Şahin & Ozturk, 2022). The study design of this mixed-method study is shown in Figure 2.

Quantitative Study

In the first quantitative study, an Excel sheet of the NLE system database of 10th to 15th NLEs of NHPC conducted between September, 2024 and October, 2025 was accessed from the NHPC authority. The Excel sheet was imported into SPSS version 25.0 for further study and analysis. A total of 8057 NLE attempts were made

by 4673 PCLGM graduates in 10th to 15th NLE cycles. Hence, the first quantitative study was a secondary data review and analysis of the NLE database as a census.

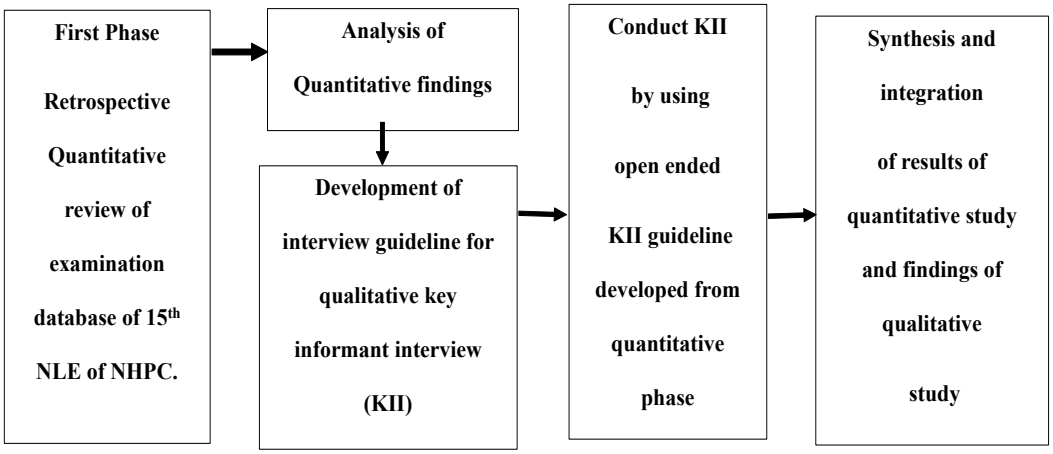
Qualitative Study

Quantitative study revealed personal, institutional, and community related factors in NLE's outcomes, the graduate's story from graduation to NLE success or failure remains untold. Without capturing the diversified perceptions, attitudes, feelings, motivations, efficacy beliefs, and expected outcomes of health professionals and experiences of PCLGM graduates in the process and procedures of NLEs, the study remains incomplete. So, it demands a follow-up qualitative study involving graduates who have attended 10th to 15th NLEs and were included in the first quantitative study. Moreover, during the follow-up, in-depth interview with purposively selected NLE participants, both researchers and graduates contextualize the numbers with the context and enrich quantitative findings by adding perceptions, attitudes, feelings, motivations, and lived experiences of the graduates about NLEs live experiences and its outcome.

A follow-up, in-depth interview was conducted using an interview guideline developed with reference to factors of NLE outcome and research gap identified from the first quantitative study and the theoretical insights from the underpinning Bandura's theory of Social Cultural Learning (See appendix 1). Interviews with NLE participants were carried out by the researcher himself.

Figure 2

A Sequential Explanatory Mixed-Methods Study Design



Research Site and Participants Selection

Quantitative Study

Quantitative study was a secondary data review. Census of 10th to 15th NLE participants was reviewed and analyzed in this study.

Qualitative Study

Ten graduates for the qualitative study were selected purposively from the NLE system database, representing at least one graduate from attributes for dependent and independent variables under study.

Contact details of the graduates were identified through the institution from which they graduated. In this first step of finding the contact details of graduates, email and mobile number with address details were taken from the institution from which they graduated. The next step, the researcher had traced them through mobile numbers and email. Researchers have interviewed 10 graduates. Among the interviews conducted, 6 were face-to-face interviews in their study or working sites, 1 telephone interview, and 3 WhatsApp interviews, valuing the request of participants. The interview timing ranged from a minimum of one hour to a maximum of 3 hours. Each graduate was provided with a pseudonym to maintain anonymity throughout the research process.

Details of the graduates selected and interviewed are as follows:

Graduate One (Anand K.C.)

The first participants in face-to-face qualitative interviews were male, unmarried graduates belonging to the 15-19 years age group from the brahmin / Chettri ethnicity and residents of Koshi province. He has completed the PCLGM course in standard three academic years from an institution operating under a partnership modality in Nepal. He has passed the NLE on his first attempt.

Completion of the PCLGM course in the standard three-year time indicates consistent academic performance and academic engagement with the prescribed curriculum. Furthermore, passing the NLE on the first attempt signals adequate conceptual clarity, strong knowledge retention, sufficient theoretical and practical exposure, and appropriate exam preparedness at the time of graduation, as well as preparation of NLEs. Similarly, passing NLE on the first attempt represents a graduate with early academic readiness and timely professional progression.

Graduate Two (Bijaya Kumari Jha)

The participants in the face-to-face qualitative interviews were female, married graduates belonging to the 20-24 years age group from the Terai / Madhesi ethnicity, and residents of Madhesh province. He has completed the PCLGM course in 6 academic years with back papers from a CTEVT-constituted institution in Nepal. He has passed the NLE on his third attempt.

Here, for this participant, the prolonged PCLGM course completion time and eventual success after multiple examination attempts in both the PCLGM course and NLEs suggest challenges related to conceptual clarity, exposure to theory and practical knowledge, knowledge retention issues, and issues related to exam preparations. However, his eventual success after multiple examinations both in PCLGM and NLE demonstrates persistence, resilience, and the capacity to overcome academic barriers to achieve professional licensure.

Graduate Three (Chandani Jaishwal)

The participants in the face-to-face qualitative interviews were female, unmarried graduates belonging to the 15-19 years age group from the Terai / Madhesi ethnicity and residents of Madhesh province. She has completed the PCLGM course in 3 academic years from a CTEVT-affiliated private institution in Nepal. She has passed the NLE on her first attempt.

Currently, she is pursuing her Bachelor's Degree in Public Health (BPH) in a private college in Kathmandu, Nepal. For these participants, timely progression toward higher education is clearly noticed. Her enrollment in a private institution for both PCLGM and BPH courses suggests a comparatively strong academic as well as economic background of her family, which may have facilitated access to educational resources, academic continuity, and focused NLE preparation, contributing to her success in NLE on her first attempt.

Graduate Four (Dipti Gurung)

The participant in the face-to-face qualitative interviews was a female, married graduate of 30+ years of age, now from the Janajati ethnicity, and a resident of Bagmati province of Nepal. She has completed the PCLGM course in 5 academic years, a longer duration than the standard course time, from a CTEVT-affiliated private institution in Nepal. She has passed NLE on her eighth attempt. Here, she has represented a deeply complex and resilient academic pathway shaped by prolonged educational, personal, psychological, and emotional challenges.

The prolonged course completion time, combined with advancing age and marital responsibility, likely affects academic continuity, knowledge retention, and the capacity to engage in sustained exam preparation. Repeated examination attempts, in PCLGM course and in NLEs, often carry cumulative psychological burdens including examination anxiety, diminished self- confidence, continuous social pressure, and emotional fatigue, particularly for married women balancing household economic and even caregiving roles. Despite facing the NLE eight times, her eventual success reflects remarkable resilience, self-regulation, and continuous commitment to professional identity. Following registration, she has started her own community health clinic in her own community, translating earned knowledge, attitudes, skills, and competencies and licensures into the livelihood and services. Her long journey illustrates that while a prolonged academic pathway and repeated failures in NLEs impart high personal, familial, social, emotional, economic, and psychological costs, perseverance can ultimately lead to goal achievement.

Graduate Five (Ek Raj B.K.)

The participants in the face-to-face qualitative interviews were male, unmarried graduates belonging to the 15-19 years age group from the Dalit ethnicity, and residents of Gandaki province of Nepal. He has completed the PCLGM course in 4 academic years, a slightly longer duration than the standard course time, from a CTEVT-affiliated private institution in Nepal. He failed on his first attempt at NLE.

Coming from a socially and economically marginalized section of the community, his academic journey may have been influenced by long-standing disparities in educational access, social capital, and the academic social system. The failure in the first NLE does not necessarily reflect a lack of potential but rather highlights the intersection of marginalization, extended course duration, and systematic inequalities that can affect exam preparedness and confidence during high-stakes NLE.

Graduate Six (Fakir Yadav)

The participant in the face-to-face qualitative interview is a male, married graduate belonging to the 30+ years age group from the Madhesi ethnicity and a resident of Madhesh province of Nepal. He has completed the PCLGM course in 3 academic years, at standard course time, from a private institution in India. He failed on his third attempt at NLE.

This participant here is representing an educational pathway influenced by cross-border education and structural misalignment issues between what has been planned and what has been taught, and how it has been taught in the PCLGM course. Importantly, in India, there is no career path for PCLGM graduates in the healthcare system. They have implemented the PCLGM curriculum from Nepal in the Indian context. This structural disconnect may limit contextual curriculum implementation practices. It may also have some issues with the alignment of skills and competencies developed among PCLGM graduates and expected by the NLE framework. The repeated failure in NLE may therefore reflect not only the individual preparedness but also broader quality assurance, regulatory alignments, and curricular relevance in cross-border implementation of curriculum design and development in the context of one country to another.

Graduate Seven (Gaurav Mahato)

The participant in the telephone interview was a male, unmarried graduate belonging to the 20-24 years age group from the Tharu ethnicity and a resident of Lumbini province of Nepal. He has completed the PCLGM course in 7 academic years, at a significantly prolonged standard course time, from a CTEVT-affiliated private institution in Nepal. He failed on his sixth attempt at NLE.

Here, significantly prolonged course completion time delays consolidation of core competencies, weakens conceptual clarity, diminishes knowledge retention, and reduces confidence when facing high-stakes NLEs. The multiple failures in the NLEs may be shaped by the system-related factors, including limited transparency in the examination feedback system, insufficient preparation time, misalignment between the teaching focus in PCLGM and NLE expectations, and cumulative psychological burdens created by repeated attempts. Additionally, high exam pressure and lack of structured academic counseling can further disadvantage graduates from marginalized ethnic backgrounds. In this context, the sixth attempt failure highlights how institutional preparation gaps and NLE system constraints, combined with prolonged academic pathways, can significantly affect examination outcomes beyond individual efforts alone.

Graduate Eight (Hira Devi Sahi)

The participant in WhatsApp interviews was a female, unmarried graduate belonging to the 20-24 years age group from the Brahmin / Chettri ethnicity and a resident of Karnali province of Nepal. He has completed the PCLGM course in

Golden Chance after more than seven academic years, at a significantly prolonged standard course time, from a CTEVT-affiliated private institution in Nepal. He failed on his sixth attempt at NLE.

She belongs to a socially perceived superior or advanced ethnic group. But her educational achievement during the PCLGM course and NLEs reflects the realities of residents of a marginalized province with limited access to educational resources. This participant represents the complex intersection of academic vulnerability, geographic marginalization, and gender related marginalization in the provincial context. Due to the interplay of multiple factors, the ethnic advantage could not be translated into educational and NLE success.

Graduate Nine (Indu Yadav)

The participant in WhatsApp interviewed was a female, married graduate belonging to the 20-24 years age group from the Terai / Madhesi ethnicity and a resident of Madhesh province of Nepal. She has completed the PCLGM course in Golden Chance after more than seven academic years, at a significantly prolonged standard course time, from a CTEVT-affiliated private institution in Nepal. She failed on eight attempts of the NLE.

This participant represents and provides insights on how cultural norms, gender expectations, prolonged academic exposure, and limited institutional support in academic courses, as well as at the time of NLEs, affect them. The failure after ten attempts is not solely an individual shortcoming. But it is a reflection or repercussion of broader socio-cultural and ethnic constraints affecting Madhesi women in their profession.

Graduate Ten (Janak Subedi)

The participant in the WhatsApp qualitative interview was a male, unmarried graduate belonging to the 25-29 years age group from the Brahmin / Chettri ethnicity and a resident of Sudur Paschim province of Nepal. He has completed the PCLGM course in Golden Chance after more than seven academic years, at a significantly prolonged standard course time, from a CTEVT-affiliated private institution in Nepal. He failed on the tenth attempt of NLE.

In summary, live experience of the participants is combined experience of ethnic advantage (brahmin/Chettri) with prolonged course completion time as well as maximum repetition of tenth time fail in NLE, lack of support system for back paper students in institutions while studying PCLGM course and lack of educational

resources and coaching center in Sudur Paschim province as well as lack of exam-based feedback system in NLEs all are showing combined effect. The concise summary of the in-depth interview participant is included in the appendix (see Appendix 2).

Data Collection Tools and Techniques

Data collection was done in two phases. First, the quantitative phase, and second, the qualitative phase.

Quantitative Data Collection Tools and Techniques

In the first quantitative phase, an Excel sheet of the NLE system of NHPC was accessed from the NHPC authority. The sheet was thoroughly reviewed. Listing out the possible variables to review and analyze in the first quantitative study was carried out. Data available in the provided Excel sheet were NLEs outcome, graduates' information, including sociodemographic information, including date of birth, gender, marital status, ethnicity, residential provinces, board of PCLGM course, and Country of PCLGM course completion, etc. The Excel sheet with NLE system data was imported into SPSS version 25.0 software. After reviewing the database, variables that are possible to calculate or find out from the database data were assessed. Number of attempts in NLE, type of institutes, PCLGM course completion time, and NLE attempts were the study variables obtained from coding/recoding and computation in SPSS version 25.0 software.

Qualitative Data Collection Tools and Techniques

In the second phase of the study, data collection was done through in-depth interviews. An in-depth interview guideline was developed based on the findings from the first quantitative study (See Appendix 4). The in-depth interview was conducted by the researcher himself, and the detailed interview note was taken for further analysis.

Among the ten interviews taken, 6 were face-to-face interviews in their study or working sites, 1 telephone interview, and 3 WhatsApp interviews, valuing the request of participants. The interview timing ranged from a minimum of one hour to a maximum of 3 hours. Each graduate was provided with a pseudonym to maintain anonymity throughout the research process. Member checking for a summary of qualitative information from the in-depth interview was done on the next day of the interview through the same mode as used in the interview. Similarly, face-to-face

discussion for member checking after extracting the theme was carried out with 6 graduates who were available in Kathmandu valley.

Data Management and Analysis

The separate strategies were applied in quantitative and qualitative data analysis.

Quantitative Data Management

The Excel sheet of the NLE database from the 10th to 15th NLE conducted by NHPC was imported to SPSS version 25.0 for quantitative data analysis. Before actual data analysis, a comprehensive data preparation phase was executed by the researcher himself. Firstly, data verification was done to check whether all variables were correctly imported or not. The second step was defining the variables and their properties by assigning labels, defining value labels, and setting the measurement level. The third and most rigorous step in data preparation was data cleaning.

In the data cleaning phase, checking for missing data, detecting errors and outliers, and removing duplicate data were sincerely done. Some variables are recoded into different variables, and some new variables were computed. The data set was checked for consistency thoroughly. A comprehensive code sheet was prepared to guide the data analysis process (See Appendix 1). The cleaned data were checked with preliminary descriptive analysis, including frequency and some descriptive statistics where applicable. The file of the clean data set was saved for further analysis and backup.

Quantitative Data Analysis

During data analysis, frequency, percentage, and descriptive statistics (Mean, Median, Mode, standard deviation, minimum value, maximum value) were calculated based on the nature of the variables in the study. The association of different independent variables, including age, gender, marital status, ethnicity, residential provinces, types of institutes, Board of PCLGM graduation, Country of Graduation, Course completion time, and NLE attempts with the dependent variable NLE outcomes was tested with a chi-square test at 95% confidence interval. The calculated and tabulated values of chi-square and P value were taken as the decision-making references. In the analysis process, the multiple NLE attempts made by graduates were treated as independent NLE attempts.

Qualitative Data Analysis

The goal of qualitative data analysis in this study is to engage in a systematic and reflexive process to capture the rich experiential accounts of NLE participants with the aim of exploring and distilling the essential and invariant structures, the core essence of their shared lived experiences in in-depth interviews (Dahal, 2025). This analysis was specifically focused on participants' perception of trends and factors associated with NLE outcomes, and participants' self-reported efficacy beliefs regarding NLE and their outcomes.

During data analysis, emphasis was placed on the identification and interpretation of patterns, or themes, within the data set. These themes or patterns were validated and refined through discussion with NLE participants. After discussion with the participants, the patterns or themes were revised, expanded, and adjusted as needed. Hence, thematic analysis was done for the qualitative data analysis. During the data analysis process, the first step was the engagement with the interview notes prepared during the in-depth interview. From the massive engagement, initial patterns were recognized, and some codes were developed. Later on, the initial patterns and codes were jotted down. Themes were developed by clustering the codes into broader categories and by uncovering the patterns in the data until data saturation and thematic sufficiency were achieved (Dahal, 2025).

Ensuring Quality

Reliability and Validity of Quantitative data, as well as Credibility and trustworthiness of quantitative data, were the key concerns of the researcher in each step of the research process (Teddlie &Tashakkori, 2009)

Validity and Reliability of Quantitative Study

In this study, the quantitative component was based on the comprehensive secondary review of census data derived from the NLE database of NHPC, encompassing all eligible research participants whose results were officially published. The use of a complete enumeration of NLE participants inherently strengthens the external validity as the findings are fully representative and there is no sampling bias involved. Furthermore, content validity was assured through extensive review of the relevant literature, incorporation of expert inputs from supervisors, and a senior researcher ensuring that the selection of variables and analytical focus are theoretically grounded and contextually appropriate. Additionally, value addition by incorporating feedback from academic faculties during the proposal defense

contributes to refining the research design and enhancing the overall rigor of the study. The use of officially recorded examination system data directly reflects actual NLE outcomes and related variables, thereby maintaining a high level of accuracy and relevance to the research objectives. Furthermore, construct validity was supported by the standardized nature of the examination system, where variables like pass/fail, age, gender, marital status, examination attempts, ethnicity, province, type of institution, course completion time, board from where the course was completed, country of course completion, etc., are clearly defined and consistently being measured across cohorts from various NLE cycles.

Internal validity is enhanced through the use of authentic, preexisting NLE system data where there is zero risk of measurement error, recall bias, and researcher bias. Since data were generated independent of the research process and followed a standardized process established by the licensing authority of the nation, the likelihood of systematic bias is substantially reduced. In terms of reliability, the study benefited from the consistency and stability of the NLE database. As the database is recorded, maintained, and published by a government official regulatory body using criteria and procedures across examination cycles. Data analysis was conducted in a licensed IBM SPSS Statistics 25.0, ensuring the application of standardized and validated statistical procedures and enhancing the accuracy and reproducibility of the results. Additionally, data verification, cleaning, and statistical analysis were undertaken by the researcher himself to ensure completeness and accuracy of analysis.

In summary, the use of census based official NEL system database, methodological rigor, theoretical underpinning, continuous expert consultation, and systematic statistical analysis provides a strong foundation for the validity and reliability of quantitative findings regarding trends and factors of NLE outcomes.

Trustworthiness and Authenticity of Qualitative Study

Lincoln and Guba (1985) framed a framework for rigor in qualitative research. They introduced criteria for trustworthiness as credibility and transferability, and for authenticity as fairness and catalytic authenticity, emphasizing that reality is socially constructed and highlighting the importance of multiple perspectives, negotiated meaning, and practical impact of research in empowering participants and informing the real-world changes (Lincoln & Guba, 1986). Trustworthiness and authenticity in this study were maintained thoroughly using several methods.

Trustworthiness

Trustworthiness in the qualitative component of this mixed-methods study was ensured through adherence to the four key criteria: credibility, transferability, dependability, and confirmability. Credibility was maintained through long and smooth engagement and in-depth exploration of graduates' live experiences regarding factors of NLE outcomes with the NLE participants. Triangulation techniques were applied to confirm the authenticity of live experiences during in-depth interviews regarding participants' demographics and NLE attempts, to compare qualitative and quantitative findings of the study, and to compare findings of the study to the findings of other literature reviewed. Transferability of research and its findings was ensured by providing a thick description of the study context, study participants, and NLE system. Dependability was maintained by following the systematic research process, including detailed documentation of each step and process of the research process, coding framework, and analytical decisions supported by peer debriefing with colleagues and the study supervisor during each stage of the research process.

Authenticity

The authenticity of the qualitative phase of this study was ensured by fair and faithful representation of diverse perspectives of NLE participants regarding trends and factors of NLE outcomes in the Nepali context. The study has captured the lived experiences of both successful and unsuccessful, young and older, married and unmarried, participants from different ethnicity and residential provinces, graduated from different examination boards and countries who have completed the course in standard time and prolonged study time etc., Ontological authenticity was ensured by helping participant to reflect deeply on their lived experiences of NLE attempts and on their perception of factors of NLE outcomes identified form the first quantitative aspect of the research. The educative authenticity of the study will be ensured by sharing the research impressions with future NLE participants, teachers, and leaders in the education sector, NLE system designers, and all stakeholders related to the PCLGM course and NLE system. Catalytic authenticity was ensured by generating evidence-based conclusions and recommendations to students, institutions, policy makers, and all. The tactical authenticity is embedded in the potential of the study to empower all NLE participants, future NLE participants, teachers of PCLGM course offering institutions, and policy makers through the appealing evidence-based recommendations. In summary, the study ensured that the voices of all participants

were accurately captured and meaningfully interpreted, preserving the integrity and contextual richness of their lived experiences.

Ethical Considerations

Necessary ethical considerations were applied at every step of research. First, Ethical approval from the ethical review committee of Kathmandu University School of Education, Department of STEAM Education, was achieved. Furthermore, permission for research activity was received from NHPC and CTEVT with the help of a recommendation letter from Kathmandu University, School of Education, Department of STEAM Education, before starting the research activity in the corresponding institutions. The confidentiality of the examination system database was maintained. In the later qualitative phase, verbal and written consent from the participant was taken (see Appendix 3 for consent form). Anonymity and confidentiality of the participants were respected. Participants' right to voluntary participation and withdrawal right at any time during the research process were respected (Othman et al., 2020).

Chapter Summary

In summary, this chapter explained the methodology aspects of the study from philosophical underpinning, through ontology, epistemology, axiology, research paradigm, including both post-positivist and interpretivist research paradigms. Research design used includes a blending of both quantitative and qualitative approaches, resulting in a sequential explanatory mixed-methods study design with a quantitative approach at first and a qualitative approach building on the first quantitative approach. The first quantitative approach was a census study based on NLE data of PCLGM graduates (n=8057 attempts) in 10th to 15th NLE cycles. The second qualitative in-depth interview includes the qualitative live experience of NLEs from ten purposively selected graduates from the pool of NLE cycles studied in the first quantitative study. Thus, the second qualitative study was the follow-up study of the first quantitative study based on the interview guideline developed from the findings and gaps identified from the first qualitative study. Quantitative data analysis was done by using SPSS version 25.0. The statistical association of NLE outcomes, the dependent variable, with the independent variable was tested with Pearson’s Chi-Square test. The thematic analysis was carried out for qualitative data analysis. As a census data review from an authentic, published, governmental data source was conducted, the reliability of the data was dependable. Process and procedures

ensuring credibility and authenticity of the qualitative data, including thick explanation of context and graduates, two-time member checking; first for summary of in-depth interview and second for theme extraction and explanation were explained in the chapter. Steps, processes, and procedures for ethical compliance were also explained in the chapter.

CHAPTER IV
RESULTS

This chapter presents the results of the quantitative study. In the quantitative study, personal attributes including age, gender, marital status, and time of PCLGM course completion of the NLEs participants, institutional attributes like type of institution, University or Board of affiliation, Country where institution lies, and community related attributes like ethnicity and residential setting, including province, municipality & district were reviewed and analyzed from the NLE database of 10th to 15th NLEs. NLE outcome in terms of pass or fail in a certain number of attempts after PCLGM graduation was analyzed as the outcome variable. More importantly, this chapter deals with answering the quantitative research questions one and two, including What is the trend of NLE outcomes among PCLGM graduates in Nepal? And what are the factors associated with NLE outcomes in the Nepali context, respectively?

Attributes of NLEs Participants

The NLE system of NHPC is designed for online application by the graduates to participate in NLEs for eligible courses from the proficiency certificate to PhD level. Review and analysis of the NLE database revealed that a total of 8057 attempts of 4673 PCLGM graduates had been recorded for the 10th to 15th NLEs. The personal, institutional, and community related attributes of the NLE participants accessed for review and analysis were age, gender, marital status, PCLGM course completion time, ethnicity, province, type of institute, board or university of graduation, country of graduation, Number of NLE attempts, and NLE outcomes.

Personal Attributes

In this study, personal attributes of NLE participants, including age group, gender, and marital status, were reviewed and analyzed. Descriptive statistics shows the median age of NLEs attempting graduation was 22 years, with a minimum and maximum age of 17 years and 50 years, respectively, and an age range of 33 years. The majority (61.8%) of graduates were from the 20-24 years age group. Further, analyzing the gender distribution of NLE attempts, it was revealed that about 4486 (55.7%) NLE attempts were of male graduates, and 3571(44.3%) of attempts were of female graduates. Regarding the marital status of the graduates attending NLEs, the

majority, 6995 (86.8%), were unmarried, and 1062 (13.2%) were married. Details are shown in Table 1.

Table 1

Personal Attributes of NLE Participants

Attributes	Numbers	Percentage
Age group		
15-19 Years	1370	17.0
20-24 Years	4982	61.8
25 to 29 Years	1297	16.1
30 and more Years	408	5.1
Total	8057	100.0
Gender		
Male	4886	55.7
Female	3571	44.3
Total	8057	100.0
Marital Status		
Unmarried	6995	86.8
Married	1062	13.2
Total	8057	100.0

Community Related Attributes

Moving to the residence of the NLE participants, data on Municipality, Districts, and Province were captured in the NLE database. Data shows that participants from 655 local governments, including 77 districts of Nepal, have attended NLEs. In community related attributes, only two variables, the residential province and ethnicity, were available and feasible to include in the study. Data from Table 1 shows that more than half (50.5%) of the NLE participants were residents of Madhesh province of Nepal. When we observe the province-wise distribution further, Koshi province (11.1%), Lumbini province (10.1%), Sudur Paschim province (9.6%), Karnali province (8.3%), Bagmati province (5.6%), and Gandaki province (5.6%) come in the sequence of higher to lower numbers of NLE participants among the seven provinces.

When we observe the ethnic group of NLE participants, more than half (50.8%) were from the Terai/Madheshi ethnic group, and more than a quarter (25.5%) from the Brahmin / Chettri ethnic group. NLE participants from the Janajati ethnic group were 15.8% and, from the Dalit ethnic group were 4.7%, and from other ethnic groups were 3.2%. The categorization is based on the categorization of data in the NLE database system. This categorization does not synchronize with the national categorization of the ethnic group in Nepal. Detailed status of community related attributes is displayed in Table 2.

Table 2

Community Related Attributes of NLE Participants.

Attributes	Numbers	Percentage
Residential province		
Koshi	892	11.1
Madhesh	4072	50.5
Bagmati	451	5.6
Gandaki	390	4.8
Lumbini	811	10.1
Karnali	667	8.3
Sudur Paschim	774	9.6
Total	8057	100.0
Ethnicity		
Brahmin / Chettri	2053	25.5
Dalits	378	4.7
Janajati	1277	15.8
Terai / Madhesi	4095	50.8
Others	254	3.2
Total	8057	100.0

Institution Related Attributes

Furthermore, the quantitative review and analysis disclosed that, out of 8057 NLE attempts, the majority (60.2%) of participants have completed their PCLGM course in 3 years. Whereas the next 36.4% took 4 to 7 years, and the remaining 3.4% took more than 7 years to complete the PCLGM course of 3 academic years. Data on the type of institute shows that the majority (97.6%) were from private institutes,

1.7% from the constituted institute & only 0.7% were from institutions running in partnership.

Further, 96.7% of the NLE participants have graduated from the PCLGM course from CTEVT in Nepal, and the remaining 3.3% have graduated from different universities in India. The universities of graduation for the PCLGM course in India include: Parul University (1.7%), Sangam University (0.8%), OM Sterling Global University (0.5%), RMIT University (0.2%) & Guru Kashi University (0.2%). The details can be viewed in Table 3.

Table 3

Institutional Attributes of NLE Participants

Attributes	Numbers	Percentage
Course Completion time		
Standard 3 years	4850	60.2
4 to 7 years	2930	36.4
More than 7 years	277	3.4
Total	8057	100.0
Type of Institution		
Constituted	135	1.7
Run in Partnership	57	0.7
Private	7865	97.6
Total	8057	100.0
Country of Graduation		
Nepal	7788	96.7
India	269	3.3
Total	8057	100.0
Board or University		
CTEVT, Nepal	7788	96.7
Parul University, India	133	1.7
Sangam University, India	62	0.8
OM Sterling Global University, India	37	0.5
RMIT University, India	20	0.2
Guru Kashi University, India	17	0.2
Total	8057	100.0

NLE Outcomes of Graduates

Quantitative study revealed that, out of the total 8057 NLE attempts, 3233 (40.1%) attempts achieved success, and the remaining 4824 attempts (59.1%) could not achieve success in NLEs. Descriptive statistics revealed that the median number of NLE attempts was 2.0. That is, half of the graduates who have passed NLEs had experienced more than 2 attempts to achieve a successful result of NLE. The number of attempts made by graduates to pass the NLE varies from a minimum of 1 attempt to a maximum of 10 attempts in the 10th to 15th NLE cycle. Data shows a gradual decrease in NLE pass rate with an increase in the number of NLE attempts. The majority (69%) of the graduates passed NLE on their first attempt. Furthermore, among the graduates who achieved success in NLEs, only 14% were passed in their second NLE attempts. The pass percentage of the graduates declined to 7.1% in the third attempt, 4.0% in the fourth attempt, 2.7% in the fifth attempt, 1.5% in the sixth attempt, 1.1% in the seventh attempt, 0.4% in the eighth attempt, 0.1% in the ninth attempt, and 0.1% in the tenth attempt.

Tenth NLE Outcomes

From the quantitative review of NLE data, in the 10th NLE, it was found that a total of 1858 graduates participated, and 730 (39.3%) graduates passed. In further analysis, among 730 graduates who passed in the 10th NLE, 60.3% graduates passed NLE on their first attempt, 25.5% in second, 8.2% in third, 3.3% in fourth, 2.5% in fifth, and 0.3% in seventh attempt.

Eleventh NLE Outcomes

Moving to 11th NLE, among 980 PCLGM graduates who appeared in 11th NLE, 190 (19.4%) graduates passed. In further analysis, it is seen that among the graduates who passed in the 11th NLE, 17.9% passed in the first attempt, 42.6% passed in the second attempt, 17.4% passed in the third attempt, 12.6% passed in the fourth attempt, 6.8% passed in the fifth attempt, 2.1% passed in the sixth attempt, and 0.5% passed in the eighth attempt.

Twelfths NLE Outcomes

In 12th NLE, out of the total 833 PCLGM graduates who attended NLE, 164 graduates (19.7%) passed. In this case, out of the total 165 graduates who passed in 12th NLE, 21.3% passed NLE in the first attempt, 12.2% in the second, 28.0% in the third, 21.3% in the fourth, 10.4% in the fifth, 5.5% in the sixth, and 1.2% in the seventh attempt.

Thirteenth NLE Outcomes

In the 13th NLE, out of the total 2153 PCLGM graduates who attended the NLE, 1390 graduates (64.6%) passed, and the remaining 763 graduates (35.4%) failed in the examination. In this examination, 90.9% graduates have passed NLE on their first attempt. Other 1.2% in second, 1.6% in third, 2.7% in fourth, 1.6% in fifth, 0.8% in sixth, 0.9% in seventh, and 0.3% have passed NLE on their eighth attempt.

Fourteenth NLE Outcomes

In the 14th NLE, a total of 1133 PCLGM graduates attended the NLE, among them 349 (30.8%) got successful results and 784 (69.2%) became unsuccessful. Further, among the 349 graduates who passed the 14th NLE, 63.6% passed the NLE on their first attempt. Whereas, the next 25.5% in second, 2.3% in third, 0.9% in fourth, 2.6% in fifth, 2.9% in sixth, 1.4% in seventh, 0.9% in eighth attempt. In this NLE, 15 graduates were attending NLE for their ninth attempt. But, unfortunately, no one can pass NLE among these 15 students attending NLE for their ninth attempt.

Fifteenth NLE Outcomes

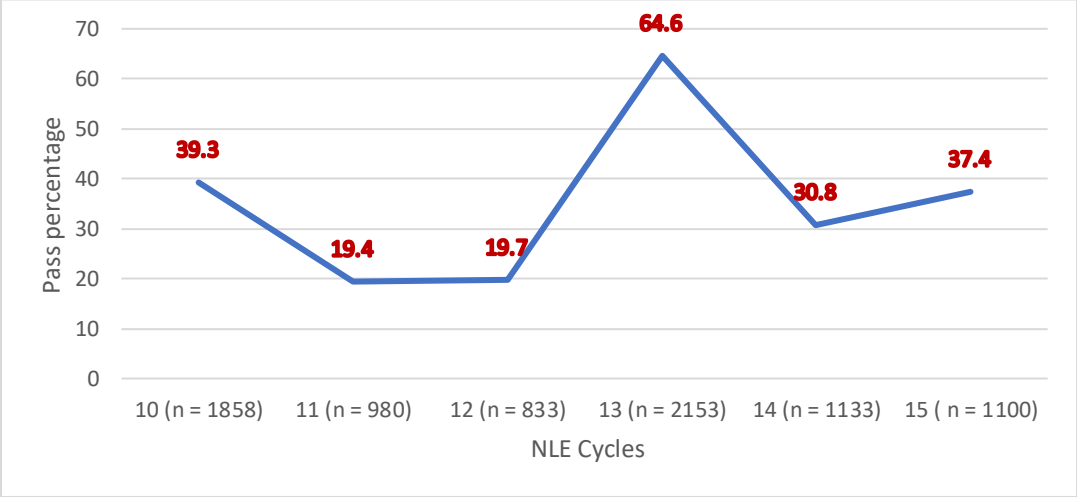
In the 15th NLE, a total of 1100 PCLGM graduates appeared in the NLE. Among them, 410 graduates (37.4%) passed, and the remaining 690 graduates (62.7%) could not pass this examination. In this examination, 58% graduates passed on their first attempt, 14.9% in second attempt, 14.4% in third attempt, 1.5% in fourth attempt, 2.0% in fifth attempt, 3.4% in sixth attempt, 3.2% on their seventh attempt, 1.5% in eighth attempt, 0.7% in ninth attempt, and 0.5% passes NLE on their tenth attempt. In this NLE, out of 12 PCLGM graduates who attended for their tenth attempt, only 2 graduates passed the examination.

Trends of NLE Outcomes

Data shows the minimum pass rate (19.4%) in the 11th NLE results. Expected NLE outcomes, the pass rate of NLE remains below 20% in 11th and 12th NLE, between 30 and 40 percent in 10th, 14th, and 15th NLE. The highest pass rate (64.6%) was observed in the 13th NLE. Furthermore, a w-shaped trend line was observed, indicating a non-linear, fluctuating trend characterized by alternating declines and increases over the observed time period. It indicates periods of improvement and deterioration occurring alternatively or influences of certain policy changes and or cohort effects.

Figure 3

Trend of Pass Percentage of Graduates in Different NLEs.



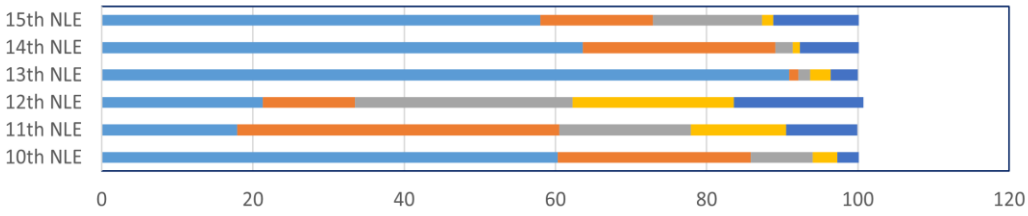
Furthermore, from Figure 3, it is lucidly demonstrated that there is an inverse relationship between NLE pass rates and increasing numbers of NLE attempts.

Factors of NLE Outcomes

Age and NLE Outcomes of the Graduates

Figure 4

Trend of NLEs Success Rates in Different NLE Attempts



Attempts	10th NLE	11th NLE	12th NLE	13th NLE	14th NLE	15th NLE
First	60.3	17.9	21.3	90.9	63.6	58
Second	25.5	42.6	12.2	1.2	25.5	14.9
Third	8.2	17.4	28.8	1.6	2.3	14.4
Fourth	3.3	12.6	21.3	2.7	0.9	1.5
>= Fifth	2.8	9.4	17.1	3.6	7.8	11.3

Table 4 demonstrates that there is a statistically significant association between age group and NLE outcomes ($\chi 2 = 833.432$, df = 3, $P < 0.05$ at 95% confidence level). A clear variation was observed in NLE success rates across different age groups. Data shows that graduates of the age group 15 to 19 years achieve the highest NLE success rate of 69.6%, substantially exceeding the overall

NLE success rate of graduates (40.1%). Furthermore, graduates of the age group 25 to 29 years, the largest cohort, achieve a considerably lower NLE success rate (39.5%) and account for the majority of failures in NLEs. Moreover, the decline in NLE success rates became more prominent in graduates from the older age group, 25 to 29 years (18.7%) and 30 years (16.9%). It revealed that there is notable poor performance in NLEs with a failure rate exceeding 80% in both older age categories. Thus, there is a significant difference in NLE outcomes of the graduates by age. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by age" could not be accepted.

Table 4

Cross Tabulation of Age and NLE Outcomes

	NLE Outcomes		**Total**	**Pearson χ2-Value**	**Degree of Freedom**	**P Value**
	Pass Count (%)	**Fail Count (%)**				
Age group						
15-19 Year	953 (69.6)	417 (30.4)	1370	833.432[a]	3	.000
20-24 Year	1968 (39.5)	3014 (60.5)	4982			
25-29 Year	243 (18.7)	1054 (81.3)	1297			
>=30 Year	69 (16.9)	339 (83.1)	408			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count was 163.72.

Gender and NLE Outcomes of the Graduates

Table 5 demonstrates that there is a statistically significant association between gender and NLE outcomes ($\chi 2 = 63.438$, df = 1, $P < 0.05$ at 95% confidence level). In this quantitative study, out of the total 8057 NLE attempts, male graduates constituted a larger proportion (n=4486) compared to female graduates (n=3531). In the study results, a notable difference was observed in NLE success and failure between the two groups.

Table 5

Cross Tabulation of Gender and NLE Outcomes

	NLE Outcomes		Total	Pearson χ2-Value	Degree of Freedom	P Value
	Pass Count (%)	Fail Count (%)				
Gender						
Male	1626 (36.2)	2860 (63.8)	4486	63.438 [a*]	1	.000
Female	1607 (45.0)	1964 (55.0)	3531			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count was 1432.92

Table 5 shows that, among the male graduates, 36.2% of NLE attempts resulted in NLE success and 63.8% of NLE attempts resulted in failure. In contrast, for the female graduates, the proportion of success (45.0%) and failure (55.0%) was different from that of male graduates. Thus, male graduates exceed female graduates in both absolute numbers and numbers of failures in NLEs. Overall, the findings suggest that the female graduates performed significantly better than the male graduates. Thus, there is a significant difference in the NLE outcome of the graduates by gender. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by gender" could not be accepted.

Marital Status and NLE Outcomes of the Graduates

When NLE outcomes, success or failure, are disaggregated by the marital status of graduates, a remarkable difference was observed. Among married graduates, only 21.8% (n = 231) achieved NLE success, where as 78.2% (n = 831) achieved NLE failure. In contrast, among unmarried graduates, a higher proportion, 42.9% (n = 3002), achieved NLE success while 57.1% (n = 3993) achieved NLE failure. Table 7 demonstrates that there is a statistically significant association between the marital status of graduates and their NLE outcomes ($\chi 2 = 171.912$, df = 1, $P < 0.05$ at 95% confidence level). Thus, there is a significant difference in the NLE outcome of the graduates by marital status. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by marital status" could not be accepted.

Table 6

Cross Tabulation of Marital Status and NLE Outcomes

	NLE Outcomes					
	Pass Count (%)	**Fail Count (%)**	**Total**	**Pearson χ2-Value**	**Degree of Freedom**	**P Value**
Marital Status						
Married	231 (21.8)	831 (78.2)	1062	171.912 a*	1	.000
Unmarried	3002 (42.9)	3993 (57.1)	6595			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count was 426.14

Ethnicity and NLE Outcomes of the Graduates

The study findings reveal a statistically significant association between ethnic groups and NLE outcomes, success or failure, indicating that NLE performance varies meaningfully across various ethnic groups under study. The mere data of the overall NLE success rate of 40.1% hides the existing disparity of NLE performance or outcomes among PCLGM graduates from different ethnic groups under study. Data shows that graduates belonging to the Brahmin/Chhetri ethnic group demonstrated the highest NLE success rates (47.3%), closely followed by Dalits (46.0%) and Janajati (44.6%); all the NLE success rates are above the overall NLE success rate of 40.1%. In contrast, graduates from the Terai / Madhesi ethnic group, the largest cohort among graduates, exhibit a substantially lower NLE success rate (34.7%); similarly, the Other ethnic group shows a relatively lower NLE success rate (38.6%).

It is clearly seen from Table 7 that Pearson's Chi-Square test confirms that the difference in NLE success or failure rates among graduates from different ethnic groups under study is statistically significant ($\chi2 = 111.107$, df = 4, $P < 0.05$ at 95% confidence level). Thus, there is a significant difference in NLE outcomes of the graduates by ethnicity. Hence, the null hypothesis, "there is no difference in the NLE outcomes of the graduates by ethnicity," could not be accepted.

Table 7

Cross Tabulation of Ethnic Groups and NLE Outcomes

	NLE Outcomes					
	Pass Count (%)	**Fail Count (%)**	**Total**	**Pearson χ2-Value**	**Degree of Freedom**	**P Value**
Ethnic groups						
Brahmin / Chettri	971 (47.3)	1082 (52.7)	2053			
Dalits	174 (46.0)	204 (54.0)	378			
Janajati	570 (44.6)	707 (55.4)	1277	111.107 [a*]	4	.000
Terai / Madhesi	1420 (34.7)	2675 (65.3)	4095			
Others	98 (38.6)	156 (61.4)	254			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count was 101.92

Province of Residence and NLE Outcomes of the Graduates

Quantitative analysis shows a difference in the proportion of NLE success or failure rates among graduates from different provinces. The highest NLE success rate (53.3%) was observed among graduates from Gandaki province, compared to almost similar success rates among graduates from four provinces, including Koshi (47.5%), Sudur Paschim (47.3%), Bagmati (47.2%), and Lumbini (47.1%). Forty percent of graduates from Karnali province achieve NLE success compared to 33.7% from Madhesh Province (Table 8).

It is clearly seen from Table 8 that Pearson's Chi-Square test confirms that the difference in NLE success or failure rates among graduates from different residential provinces is statistically significant ($\chi2 = 160.704$, df = 6, $P < 0.05$ at 95% confidence level). Thus, there is a significant difference in NLE outcomes of the graduates by the residential province of the graduates. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by province of residence" could not be accepted.

Table 8

Cross Tabulation of Residential Provinces and NLE Outcomes

	NLE Outcomes		Total	Pearson χ2-Value	Degree of Freedom	P Value
	Pass Count (%)	Fail Count (%)				
Provinces						
Koshi	424 (47.5)	468 (52.5)	892			
Madhes	1373 (33.7)	2699 (66.3)	4072			
Bagmati	213 (47.2)	238 (52.8)	451			
Gandaki	208 (53.3)	182 (46.7)	390	160.704 a*	6	.000
Lumbini	382 (47.1)	429 (52.9)	811			
Karnali	267 (40.0)	400 (60.0)	667			
Sudur Paschim	366 (47.3)	408 (52.7)	774			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count was 156.49

Type of Institute and NLE Outcomes of the Graduates

Table 9 showed a difference in the proportion of NLE passed students between participants who graduated from constituted, partnership & private institutes, with the highest pass percentage among participants who have completed the PCLGM course from the institute running in partnership (52.6%) compared to the Constituted institute (48.9%) and the institute run for profit or private institute (39.9%).

It is clearly seen from Table 10 that Pearson's Chi-Square test confirms that the difference in NLE success or failure rates among graduates from different types of institutions is statistically significant ($\chi2 = 8.214$, df = 2, $P < 0.05$ at 95% confidence level). Thus, there is a significant difference in NLE outcomes of the graduates by type of institute. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by type of institute" could not be accepted.

Table 9

Cross Tabulation between Type of Institutions and NLE Outcomes

	NLE Outcomes		Total	Pearson χ2-Value	Degree of Freedom	P Value
	Pass Count (%)	Fail Count (%)				
Types of Institutions						
Constituted	66 (48.9)	69 (51.1)	135			
Partnership	30 (52.6)	27 (47.4)	57			
Private	3137 (39.9)	4728 (60.1)	7865	8.214 a*	2	.016
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count is 22.87

Board of Graduation and NLE Outcomes of the Graduates

Table 10 shows that the majority of graduates graduated from the CTEVT Board of Nepal (n = 7788), and their NLE success rate (40.1%) is equal to the overall NLE success rate. In contrast, graduates from various Indian Universities constitute a smaller proportion of the graduates, and their NLE success rates vary across the Boards or Universities. Among the Indian Universities, RMIT University (60.0%), Guru Kashi University (58.8%), and OMSG University (48.6%) show higher NLE success rates compared to the overall NLE success rates in the study. The Parul University (36.8%) and Sangam University (29.0%) exhibit lower NLE success rates compared to the overall NLE success rate.

Despite the observable differences in NLE success rates among various boards or Universities from Nepal and India, the Pearson's Chi-Square test confirms that the variations are not enough to establish a statistically significant association between the boards or universities of graduation and NLE success or failure ($\chi2 = 10.654$, df = 5, P = 0.059 at 95% confidence level). Thus, there is no significant difference in the NLE outcome of the graduates by the board of the graduation. Hence, the null

hypothesis "there is no difference in the NLE outcomes of the graduates by board of graduation" was accepted.

Table 10

Cross Tabulation between Boards of Graduation and NLE Outcomes

	NLE Outcomes		Total	Pearson χ2-Value	Degree of Freedom	P Value
	Pass Count (%)	Fail Count (%)				
Boards of Graduations						
CTEVT, Nepal	3126 (40.1)	4662 (59.2)	7788			
Parul University, India	49 (36.8)	84 (63.2)	133			
Sangam University, India	18 (29.0)	44 (71.0)	62			
OMSG University, India	18 (48.6)	19 (51.4)	37	10.654 [a]	5	0.059
RMIT University, India	12 (60.0)	8 (40.0)	20			
Guru Kashi University, India	10 (58.8)	7 (42.2)	17			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count is 6.82

Country of Graduation and NLE Outcomes of the Graduates

Data in Table 11 showed a difference in the proportion of NLE success between graduates who graduated from Nepal and India. The NLE success rate among graduates who have completed the PCLGM course from Nepal was 40.1% compared to 39.8% NLE success rate of graduates who have completed their PCLGM course from India. It is clearly seen from Table 11 that Pearson's Chi-Square test confirms that the difference in NLE success or failure rates among graduates from Nepal and

India is not statistically significant ($\chi 2 = 0.014$, df = 1, P = 0.905 at 95% confidence level). Thus, there is no significant difference in NLE outcome of the graduates by country of graduation. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by country of graduation" was accepted.

That means, study findings are suggesting a high degree of consistency in NLE outcomes among the graduates who have graduated from Nepal and India. The Chi-Square test confirmed that the observed difference in NLE outcomes, success or failure, among graduates who have graduated from Nepal and India, is attributable to random variation rather than systematic difference. Beyond the statistical meaning, the findings suggest that the quality or relevance of the PCLGM course in Nepal and India is similar at least with respect to competencies assessed by the NLE system of NHPC. Thus, there is no significant difference in NLE outcome of the graduates by country of graduation. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by country of graduation" was accepted.

Table 11

Cross Tabulation of "Country of Graduation" and "NLE Outcomes".

	NLE Outcomes		**Total**	**Pearson χ2-Value**	**Degree of Freedom**	**P Value**
	Pass Count (%)	**Fail Count (%)**				
Country of Graduation						
Nepal	3126 (40.1)	4662 (57.9)	7788	0.014 [a*]	1	.905
India	107 (39.8)	162 (60.2)	269			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count is 107.94

NLE Attempts and NLE Outcomes of the Graduates

Data in Table 12 showed a difference in the proportion of NLE passed students with respect to their NLE attempts. NLE success rate is highest among graduates in

the first attempt (62.8%) compared to the second attempt (31.5%), followed by the third attempt (22.8) and four or more attempts (15.5%).

It is clearly seen from Table 12 that Pearson's Chi-Square test confirms the difference in NLE success or failure rates among graduates with different numbers of NLE attempts was statistically significant ($\chi2 = 1449.365$, df = 3, P <0.05 at 95% confidence level). Thus, there is a significant difference in the NLE outcome of the graduates by the number of NLE attempts. Hence, the null hypothesis, "there is no difference in the NLE outcomes of the graduates by the number of NLE attempts," could not be accepted. That means, the difference in NLE outcomes among graduates with different numbers of NLE attempts suggests there were certain mechanisms in place creating some differences in NLE outcomes across different numbers of NLE attempts of graduates in Nepal.

Table 12

Cross Tabulation of "NLE attempts" and "NLE Outcomes"

	NLE Outcomes		**Total**	**Pearson χ2-Value**	**Degree of Freedom**	**P Value**
	Pass Count (%)	**Fail Count (%)**				
NLE Attempts						
First attempt	2232 (62.8)	1324 (37.2)	3556			
Second attempts	454 (31.5)	985 (68.5)	1439	1449.365 a*	3	.000
Third attempts	228 (22.8)	773 (77.2)	1001			
>= Four attempts	319 (15.5)	1742 (84.5)	2061			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count is 22.87

Course Completion Time and NLE Outcomes of the Graduates

Table 13 shows that graduates who have completed the PCLGM course in the regular exam have shown the highest (49.3%) success rate in NLE compared to graduates who have completed the PCLGM course in the back exam (27.4%) and golden exam (13.4%).

It is clearly seen from Table 13 that Pearson's Chi-Square test confirms that the difference in NLE success or failure rates among graduates with different course completion times is statistically significant ($\chi2 = 449.502$, df = 2, P <0.05 at 95%

confidence level). Thus, there is a significant difference in NLE outcomes of the graduates by course completion time. Hence, the null hypothesis "there is no difference in the NLE outcomes of the graduates by course completion time" could not be accepted.

Table 13

Cross Tabulation between Course Completion Time and NLE Outcomes

	NLE Outcomes		**Total**	**Pearson χ2-Value**	**Degree of Freedom**	**P Value**
	Pass Count (%)	**Fail Count (%)**				
Course Completion Time						
Pass in the Regular Exam (3 years)	2392 (49.3)	2458 (50.7)	4850			
Pass in Back Exam (4 to 7 year)	804 (27.4)	2126 (72.6)	2930	449.502 a*	2	.000
Pass in golden chance exam (More than 7 years)	37 (13.4)	240 (86.6)	240			
Total	3233 (40.1)	4824 (59.9)	8057			

* 0 (0.0%) cells have expected count less than 5. The minimum expected count is 111.15

Gaps in Quantitative Study and Need for Qualitative Study

This quantitative study provided valuable information about PCLGM graduates attending NLEs as a legal requirement to proceed forward as health professionals in the country. Quantitative review of the database of 10th to 15th NLEs revealed several personal, institutional, and community related attributes were

associated with the fluctuating trend of NLE outcomes of the graduates, success, and failure.

On one hand, there are many concerns that are unanswered in this quantitative study, and on the other hand, further concerns are raised from the findings of the quantitative study. The quantitative study revealed a w-shaped trendline of the NLEs outcomes, indicating alternating declines and increases in NLE success or failure rates among graduates. An in-depth study with primary data was needed to explain the possible causal explanation, and factor analysis is needed to find the factors associated with the non-linear trends of NLEs success or failure. The study discloses the association of factors like age, gender, marital status, province, ethnicity, type of institute, course completion time, and NLE attempts made by participants with graduates' NLE outcomes. Still, there is a question to answer about how? And why? Of these associations of NLE outcomes, success or failure? For example, how is the age of the graduates associated with NLE success or failure? Why are younger graduates more successful compared to older graduates in NLEs? Moreover, many aspects of PCLGM graduates, including their attitudes, feelings, and life experiences in the journey to become health professionals, remain unaddressed. Quantitative study revealed that some PCLGM graduates have passed NLEs on their first attempt, and some others have passed on their tenth attempt. Not only this, there are some graduates who are still hoping to pass the next NLE after failing in their tenth NLE attempts. Obviously, there is diversity in attitude, feelings, experience, motivations, perceptions about the PCLGM course, institutions where they studied the PCLGM course, the NLE examination system, process, and results. Without understanding the lived experiences of PCLGM graduates passing through or still stuck in NLE preparation, the study remains incomplete.

Chapter Summary

In the reviewed 10th to 15th NLEs conducted by NHPC in around 14-month periods from September, 2024 to October, 2025, a total of 4673 PCLGM graduates appeared in NLEs for 8057 attempts, and 3233 graduates (69.2%) passed the NLE. NLE attempts by a graduate vary from a minimum of 1 to a maximum of 10, with a median of 2 attempts.

Median age of PCLGM graduates who have participated in the 10th to 15th NLE was 22 years, with a minimum age of 17 years and a maximum age of 50 years. Male (55.7%) participants were more than female (44.3%), with a huge dominance of

unmarried (86.8%) participants. Six in ten graduates completed their PCLGM course in the expected 3-year period. More than half of NLE participants were from Madhesh province and the Terai / Madheshi ethnicity. Huge domination of PCLGM graduates from private institutions (97.6%) was found among NLE participants. PCLGM graduates from India (3.3%) exceed the graduates participating in NLEs who completed their PCLGM course from constituted and partnership institutions in Nepal.

The quantitative study concludes the unpredictable trend of NLE outcomes with fluctuating NLE success or failure trend in the 10th to 15th NLE cycle of NHPC. The dependent variable "NLE outcomes" was found to be associated with 8 independent variables, including age, gender, marital status, ethnicity, province, institution type, course completion time, and number of NLE attempts. The association of country of graduation, Nepal and India, and NLE outcomes was not statistically significant in this study. In this study, the association between independent variables (age, gender, marital status, ethnicity, province of residence, type of institution, course completion time, and number of NLE attempts) and the dependent variable (NLE outcomes) was explored with the Chi-Square test. The Chi-Square test could not confirm the strength of associations between the variables. Through the quantitative study, the null hypothesis "there is no significant difference in NLE outcomes of the graduates by age, gender, marital status, ethnicity, province of residence, type of institutes, course completion time, and numbers of NLE attempt" could not be accepted. Whereas the null hypothesis "there is no significant difference in NLE outcomes of the graduates by board of graduation and country of graduation" was accepted.

CHAPTER V
REPORTING QUALITATIVE INSIGHTS

In this chapter, insights from in-depth interviews are presented. The chapter addresses the three research questions: first, how do graduates perceive the trend of NLE outcomes? Second, how do graduates perceive the factors associated with NLE outcomes? And the third, how do graduates perceive the relationship between their self-efficacy beliefs and their NLE outcomes? Three broader themes were explored from the analysis. Each theme is reported below with narrative descriptions and supported by illustrative quotations to demonstrate how graduates collectively contributed to the theme.

Graduates' Perception of the Trend of NLE Outcomes

Addressing the qualitative research question one, the thematic analysis of qualitative insights from in-depth interviews revealed a major theme: the trend of NLE outcomes, success or failure, was unpredictable, inconsistent, and fluctuating over time or NLE cycles. The theme identified about the trend of NLE outcomes from the qualitative study was aligned with the observed w-shaped trend of NLE outcomes from the quantitative study. The journey from in-depth interviews of graduates to the identification of major themes through the identification of quotes, codes, coding categories, and themes is presented below.

Mr. Ananda K.C. (Graduate one), the first face to face in-depth interview participants, was male, unmarried, of age group 15-19 from brahmin / Chhetri ethnicity and permanent resident of Koshi province of Nepal, graduated from institution running in partnership in Nepal and completed PCLGM Course in 3 years, who have passed NLE in first attempt perceived trend of NLE outcomes, success or failure as:

> *Even though I was lucky … to pass NLE on my first attempt, the overall trend of NLE results is unpredictable. There is a high pass rate in some NLEs and a very high failure rate in others. I guess… NLE result does not follow a consistent pattern; it is almost always fluctuating.*

Mrs. Bijaya Kumari Jha (Graduate two), a married female of age group 20 to 24 from Terai / Madheshi ethnicity, permanent resident of Madhesh province of Nepal who got opportunity to study PCLGM course in a CTEVT constituted campus in

Nepal with classified scholarship, completed the 3-years course in 6 years and passed NLE in third attempts describe his perception of trend of NLE outcomes, success or failure as:

> *I have passed NLE on my third attempt…Ohh! After getting experience of failure in NLEs for two times. In this hard journey, the NLE result was never as expected. Sometimes hopeful, sometimes discouraging but always challenging. Even I prepared well, the outcome is not predictable! as in my first and second attempt. I came from a difficult path… I see result goes ups and down over time, I never see it consistent.*

Regarding the trend of NLE outcomes, perception of Chandani Jaiswal (graduate 3), is contained in the Quotes, "*However, I passed NLEs in my first attempt, I still felt that the overall NLE results were not consistent, some NLEs shows better results, while other declined. So, the trend of NLE outcomes seemed unpredictable."*

Mrs. Dipty Gurung (Graduate 4, See Appendix 2 for detail), express her perception of trend of NLE outcomes as:

> *After going through multiple attempts, I have passed NLE in eighth attempt. I felt, NLE results were never predictable. Sometimes, results are Improved but declines again in other cycles. Over the year, the trend remains very unpredictable and fluctuating, which made my journey even more challenging and emotionally draining.*
>
> Further, she speaks:
>
> *After failing seven times in NLEs! I realized that failing is regular task… actually normal task… happens in life… You just prepare and try again, hoping for the best. There are some of my friends they could not pass in eight attempts also … what they can do now is just prepare for ninth attempt… just prepare…*

Mr. Ek Raj B.K. (Graduates 5, See Appendix 2 for detail), speaks about NLE trends as,*"I realized, the NLE outcome trend is not steady. It goes ups and down, and that made me anxious after failing in my first NLE attempts in spite of my best preparation for NLE."*

Mr. Fakir Yadav (graduates six, see appendix 2 for detail) perceived the trend of NLE outcomes, success or failure as:

> *I studied in India. I have completed PCLGM course in 3 years regular time. But, after failing three times in NLE, I felt the NLE results were very*

inconsistent, with each attempt, I realized the results fluctuates a lot, which made me feel uncertain and frustrated.

Graduates six who have failed in his third NLE attempts expressing frustration on unpredictability of NLE outcomes, *"I never thought failing again would happen. Each time I study harder, but results are still unpredictable! It feels like luck play a part."*

Analyzing qualitative insight through various quotes presented above, common patterns of graduates' perception regarding trends of NLE outcomes were found clustering around the patterns or codes like inconsistency of NLE outcome trend, fluctuating trends of NLE outcomes, unpredictability of NLE outcomes, unexpected results of NLEs etc. Thus, the final theme regarding the trend of NLE outcomes, success or failure, was extracted as "The trend of NLE outcomes, success or failure, is unpredictable, inconsistent and fluctuating over time or NLE cycles." The extracted theme was later subjected to member checking with graduates, peer briefing with colleagues and supervisors of the study and endorsed by all. Which ensured credibility and trustworthiness of the qualitative data co-constructed with the participants during in-depth interview.

Graduates Perception on Factors of NLE Outcomes

Building upon the findings of quantitative phase of the study, the qualitative analysis in this section aims to answer the second research question of the qualitative study: how do graduates perceive the factors associated with NLE outcomes? During the interview, graduates were requested to reflect on their experiences during their PCLGM college years and relate those experiences to their NLE outcomes including the factors associated with NLE success or failure. Those first-hand reflections provided deeper insights into the factors of NLE outcomes identified in the quantitative analysis and beyond. The graduates' narratives helped clarify the statistical associations observed for factors associated with NLE outcomes including age, gender, marital status, ethnicity, province of residence, course completion time, types of institutions, and numbers of NLE attempts which were found to be associated with NLE outcomes of the graduates from quantitative analysis. Moreover, these qualitative insights illustrated how these factors function and interact within the real-life experiences of graduates. The contextualized "Quotes" from the graduates have described how a range of interacting personal, behavioral, and environmental factors

influences their success or failure in NLEs. The first-hand quote of Mr. Ananda K. C. (graduate one, See Appendix 2) is presented below.

> *During my college years of PCLGM course, I was disciplined student with average academic performance. Being youngest and unmarried member of my family, my only duty was to study. Which allow me to dedicate much time in my study. My college was public college run in partnership of local municipality and CTEVT of Nepal. We got fairly good teaching learning environment at college. I knew about NLE system of NHPC while I was studying at third year of my PCLGM course from my teachers. I knew, NLE is mandatory for all PCLGM graduates for Registration in NHPC, which is an essential requirement for any job or further study in Nepal. From then, I started to think about passing NLEs. I discussed with a senior from my college. From the senior, I came to know that NLE preparation requires more focused preparation of MCQs based on curriculum of NLEs. So, alongside the regular class, I started to practice MCQs of past NLEs. I regularly passed PCLGM course in three academic years. Being from Koshi province, I also accessed some local NLE preparatory supports, which helped me to be on track during free time after PCLGM graduation. I applied online for NLEs. I succeeded NLE in my first attempt. I think, my success in NLE was not due to single reason but a combination of my routine study habits, supportive learning environment in my family and college, timely realization of importance of NLE and preparation started in advance, complete course coverage of PCLGM and NLE curriculum before NLE attempt and so many other factors…*

From the above narrative, which was representative of all 10 graduates involved in the in-depth interview, several factors were disclosed that were perceived as factors influencing NLE outcomes. They were: student discipline, study habits, Family structure, family responsibility, family support, time available for study, teaching learning environment at college, information about NLEs, timely realization of importance of NLE, timely NLE preparation, guidance from teachers and seniors, focused preparation, MCQ based preparation, curriculum coverage, course completion time, access to preparatory resource, self-motivation, continuous engagement, etc., Not only this, the graduate was perceiving NLE outcomes to be influenced by multiple and interconnected factors of daily life which can be broadly

categorized into three categories including: personal, behavioral, and environmental factors as guided by the bandura's social cognitive theory.

Personal Factors of NLE Outcomes

Summary of insights from qualitative interview signals personal factors including age, gender, and marital status influence the NLE outcomes through influencing the time, responsibilities and opportunities available for preparation of NLEs. Similarly, PCLGM course completion time shapes NLE outcomes through continuity of learning and knowledge retention. Beyond these structural aspects, the emotional resilience and self-efficacy beliefs emerged as factors of NLE outcomes. Graduates who demonstrated confidence in their ability and have the capacity to cope with failure were more likely to adapt situational strategies and persist through multiple NLE attempts, ultimately shaping their NLE success or failure. The representative summary of first-hand "quotes" of graduates' perception of factors of NLE outcomes and mechanisms of influencing the NLE outcomes are presented in Table 14.

Table 14

Quotes Summary for Personal Factors

Graduate's Name (Pseudonym name) and context	Firsthand "Quotes"
1. Mr. Ananda K. C. (Male, Unmarried, 15-19 Years, Brahmin / Chhetri, Institute run in partnership, in Nepal, complete PCLGM course in standard 3-years, and Pass NLE in First attempt)	In words of Ananda, *Being younger, sharp and self-confident, I could focus fully on my study during PCLGM course time and NLE preparation time. I could grasp facts and concepts quickly. Which helped me to pass both PCLGM course and NLE without any delay.*
2. Mrs. Bijaya Kumari Jha (Female, Married, 20-24 years age, from Terai / Madhesi ethnicity, studied in CTEVT constituted campus, in Nepal,	*Bijaya shared:* *I was studying PCLGM course in constituted campus of CTEVT in classified scholarships in Madheshi & Female quota. I tried very much but could not convince my parents to delay my family*

Graduate's Name (Pseudonym name) and context	Firsthand "Quotes"
completed PCLGM course in 6 years, Passed NLE in third attempts)	*decision about my marriage. I got married when I was at second year. After marriage, balancing responsibility of daughter in-laws in Madheshi family and study was difficult task. Which delayed my PCLGM course completion time, reduces my self-confidence and eventually delayed NLE success too. But, with focused preparation at Kathmandu with support of my husband, I eventually passed NLE.*
3. Miss. Chandani Jaiswal (Female, Married, 20-24 Years of age, from terai / Madheshi ethnicity, from Madhesh province, studied in private college, in Nepal, Completed PCLGM course in standard three Years, Pass NLE in first attempt)	Chandani reflected: *As a first daughter of a typical Madhesi family, I have to take care of study and family expectations, especially in kitchen work and guiding study of my two younger brothers at class 3 and 7. But, staying focused in my study during college time and personal time in family and peer support help me succeed.*
4. Mrs. Dipty Gurung (Female, married, 30+ years of age, from Janajati ethnicity, Bagmati province, Private college, in Nepal, Passed PCLGM in back paper, passed NLE in 8th attempt)	In Ditty's words: *I get marriage at 19 years while I was studying PCLGM first year. After marriage, family responsibility… increased, Study became difficult day by day... Even in examination time I could not focus my mind in study. So, from then fear and anxiety in examination time kills me so many times…I pass NLE in eight attempts. I could have passed NLE in first attempt if I were not married at that time…*

Graduate's Name (Pseudonym name) and context	Firsthand "Quotes"
5. Mr. Ek Raj B.K. (Male, Unmarried, 15-19 Years, Dalits, Gandaki province, Private institute, Nepal, Back papers (4 Years), NLE fail, in First attempt)	Mr. Ekraj shared: *You know! I am from Dalit community. I am first person to study after SEE in my family. I do not have supportive and academic family environment and exposures. Which made me weak, less confident and eventually take longer time to pass PCLGM course and NLE both But, I hope I will pass NLE in next attempt.*
6. Mr. Fakir Yadav (Fail, Male, Married, 30+, Terai / Madhesi, Madhesh province, Private institute, India, 3 standard years, third attempt in NLE)	According to lived experience of Fakir Yadav, he reflected: *I studied PCLGM course in a private college in India. Now, I feel, we did mistake to choose to study in India. College could not cover PCLGM course. Take exam from covered portion only. So, I passed PCLGM course easily. Now, I am feeling the deficit… while preparing for NLE.*
7. Mr. Gaurav Mahato (Fail, Male, Unmarried, 20-24 years age, other ethnicity, Lumbini province, Private institute, in Nepal, Completed PCLGM in 7 years, sixth NLE attempts)	*Gaurav Said. "With each attempt, I learned something new, but repeated failure reduces my confidence and made it harder to improve…"*
8. Mrs. Hira Devi Sahi (Fail, Female, Unmarried, 20-24 years age, Brahmin / Chhetri ethnicity, From Karnali	In Hira's words: *I am from Karnali. Due to poor academic background at schools and language problem in class I passed PCLGM course in golden chance.*

Graduate's Name (Pseudonym name) and context	Firsthand "Quotes"
province, Private institute, in Nepal, Passed in golden chance, 7 years, sixth NLE attempts)	*But I am suffering from failure in NLEs even in sixth attempts. I could not come to Kathmandu for NLE preparation. So, I am hopeless for my NLE success…*
9. Mrs. Indu Yadav (Fail, Female, Married, 20-24 years, Terai / Madhesi ethnicity, Madhesh Province, Private institutes, in Nepal, Passed PCLGM in golden chance in 7th year, tenth NLE attempt)	Indu Yadav shared: *After each failure, it became harder to stay motivated, but I kept trying. Still over time, the stress, emotional instability, anxiety and fear of next failure in examination time are affecting my ability to perform well…then my age, gender, marital status and many other factors in my life…*
10. Mr. Janak Subedi (Fail, Male, Unmarried, 25-29 years, Brahmin / Chhetri ethnicity, Sudur Paschim province, private institutes, in Nepal, Passed in golden chance exam after 7 years, tenth NLE attempt)	Janak shared his insight as: *Because I took 8 years…, 5 more years than standard time allocated for PCLGM course due to my health issues…, Health condition is recovered. Now I am fit in every aspect related to my health condition. I always felt myself academically deficit. That feeling is weakening me into every NLE attempt….. I am trying to boost up my adequacy feeling since long…For me, age, gender, marital status and other factors have no effect, but I want to upbring the self-adequacy feeling so that I could handle all the other aspects in NLEs…*

A summary of graduate's first-hand narratives cited from the interview notes of the in-depth interview had expanded the list of factors associated with NLE outcomes identified from the first quantitative study. Thus, personal factors as perceived by the graduates which were associated with their NLE outcomes includes: age, maturity level related to age, age related role and responsibilities, delayed

progressions, Gender roles, marital status and related role and responsibilities, family expectation, household role and responsibilities, self-confidence, self-belief of self-confidence, sustained motivation, cognitive ability, learning capacity, Emotional and psychological state, Fear and anxiety before, during and after NLEs, academic preparedness, continuity of study, personal health condition and state of physical well-being, sense of academic adequacy and inadequacy, personal resilience and coping ability etc.

Behavioral Factors of NLE Outcomes

Some of the example Quotes are presented below.

A graduate, Gaurav (Male, Unmarried, 20-24 years age, other ethnicity, Lumbini province, Private institute, in Nepal, Completed PCLGM in 7 years, fail in sixth NLE attempts) have said:

> *After failing multiple times… each time, … I changed my study technique. I am focusing more on past questions, joining coaching classes, even though result still not improved… It would be better if NHPC have NLE feedback system in place…*

Similarly, Mrs. Hira (Female, Unmarried, 20-24 years age, Brahmin / Chhetri ethnicity, From Karnali province, Private institute, in Nepal, passed PCLGM in golden chance, 7 years, fail in sixth NLE attempts) is also facing multiple NLE attempts. Her experience of repeated NLE participation and getting failed resulting in normalization about NLE outcome. She was trying to reinforce NLE attempt persistently but now getting some emotional fatigue. But She do not want to give up in the middle of career stage. She said, *"Failing again and again… affected my confidence, but stopping to participate NLE is not an option…I am just adjusting my preparations and trying again…. And will try until pass NLE…"*

Summary from the narrative insights from all graduates revealed that nearly all graduates emphasize behavioral factors as pivotal to NLE outcomes, success or failure. Graduates consistently highlighted the role of study habits, NLE focused preparation strategies, participation in preparatory coaching classes, peer discussion, consultations with seniors and teachers, engagement in mock test with MCQs, practicing computer-based examinations, and repeated NLE attempts until get success. Graduates give insights, to learn from prior failure and maintain consistent study routine as key factor. Graduates have recommended modifying the preparatory

approaches and updating learning resources after unsuccessful NLE attempts demonstrating adaptive behaviors in response to uncertainty of NLE success.

Environmental factors of NLE Outcomes

Regarding the environmental factors of NLE outcomes, answering the probing how institution type shapes NLE success, Mr. Ananda K. C. (Male, Unmarried, 15-19 Years, Brahmin / Chhetri, studied in institute run in partnership, in Nepal, completed PCLGM course in standard 3-years, and Pass NLE in First attempt) said:

> *I think, type of institute, private or government, is very important for quality education. Institution shape student's habit, and KAPs through attendance monitoring, internal examinations, evaluation of class performance, engagement in lab. Practices, engagement in field like Health post, hospitals and community field as prescribed by curriculum.*

Graduates major concern was found in the misalignment between what has been taught in academia at PCLGM course and what has been expecting from PCLGM graduates in professional environment. Condition of PCLGM graduates preparing for NLEs can be internalized from the statement during interview from Mr. Fakir Yadav (Male, Married, 30+, Terai / Madhesi, Madhesh province, Private institute, India, 3 standard years, fail in third attempt in NLE). "*What we studied in college did not always match in the NLEs and what we have to perform in the expected job role. This gap is making NLEs outcome unpredictable."*

Some participants have highlighted provincial marginalization in terms of availability of quality faculties and teaching learning resources in certain provinces, limited or no academic support to student with back paper in the academic institutions, lack of mentoring about NLEs in institutions. Similarly, NLE system related factors including lack of access to past questions, feedback about performance in last NLEs etc., are also causing NLE outcome nonpredictable.

In the words of Mr. Janak Subedi (Male, Unmarried, 25-29 years, Brahmin / Chhetri ethnicity, Sudur Paschim province, private institutes, in Nepal, passed in golden chance exam after 7 years, fail in tenth NLE attempt). *"Coming from remote province, we lacked guidance and exam orientation about computer base examination system in NLEs…, this environment made us passing harder…"*

Eventually, from the insight shared by all interviewed graduates, it was clear that they perceive NLE outcomes results from a reciprocal and reinforcing interaction of graduates' efficacy-beliefs and characteristics, behavioral persistence, modification

and adaptation, and environmental condition with in academic and NLE systems. Almost all graduates believe environmental factors particularly institutional quality, examination structure of PCLGM course and NLE, perceived difficulty level and feedback on NLE results, marginalize provinces, country or board implementing PCLGM course, type of institute in and out of the country strongly influence NLE outcomes.

Relationship of Self -efficacy Beliefs and NLE Outcomes

From the qualitative interview findings, graduates' narratives discloses that self-efficacy beliefs, that is self-confidence in one's ability to prepare for and success in NLE plays crucial role in shaping NLE expectations, self- directed and goal oriented preparatory actions, and outcomes. Graduates who passed NLEs in early attempt showed a strong sense of self-efficacy beliefs in interview. The self-confidence found to be grounded on timely course completion and perceived strong academic preparation for NLE.

Mr. Ananda K. C. (Male, Unmarried, 15-19 Years, Brahmin / Chhetri, Institute run in partnership, in Nepal, complete PCLGM course in standard 3-years, and Pass NLE in First attempt) reflected, *I believed I could pass in NLE in first attempt because I have passed PCLGM course regularly …I know… I have understood major theoretical and practical content of PCLGM course in class and practical settings as well…*

Reviewing this reflection with taking supports from Banduras Social Cultura Theory of learning, it is clearly observable here, this efficacy-belief was rooted in his previous academic achievements. This efficacy has driven by self-outcome expectancies of career goal and translated into self-directed preparatory action for NLE success and resulted in effective NLE achievement in first attempt.

In contrast reflection from Mr. Ananda K.C., graduates experiencing prolonged course completion time to standard three years course periods of PCLGM, and repeated NLE attempts have frequently reported weak self-efficacy beliefs. The delay in academic achievement in PCLGM reinforce feeling of inadequacy leading to weakening of self-efficacy beliefs.

In this regards Mr. Janak Subedi (Male, Unmarried, 25-29 years, Brahmin / Chhetri ethnicity, Sudur Paschim province, private institutes, in Nepal, passed in golden chance exam after 7 years, fail in tenth NLE attempt) said, *"Taking more than*

seven years to complete the three years PCLGM course made me feel weak academically… Each NLE failure made my confidence further weaker…"

There was similar voice of Mrs. Hira Devi Sahi (Female, Unmarried, 20-24 years age, Brahmin / Chhetri ethnicity, From Karnali province, Private institute, in Nepal, passed in golden chance, 7 years, fail in sixth NLE attempts). *"After failing many times, I myself doubt, maybe I was not capable enough, even though I kept trying…because there was no other option for me…"*

For some graduates, self-efficacy belief was found fluctuating across the NLE attempts. Which was found continuously evolving by partial success like expected marks in the practical or mock tests results, peers companion and some other external motivators like motivations from family members.

In this context, Mr. Ek Raj B.K. (Male, Unmarried, 15-19 Years, Dalits, Gandaki province, Private institute, Nepal, Back papers (4 Years), NLE fail in First attempt) says, *"Sometimes I felt confidence enough… after studying hard but when results come negative again, my beliefs in myself drops."*

In similar context, Mr. Gaurav Mahato (Male, Unmarried, 20-24 years age, other ethnicity, Lumbini province, Private institute, in Nepal, Completed PCLGM in 7 years, fail in sixth NLE attempts) said, "*Seeing friends… who were weaker than me at class are passed while I am failed…. This affected my confidence more than the NLE itself"*

This qualitative study revealed that despite repeated failure some graduates resilient self- efficacy beliefs, reframing failure as part of longer journey to pass in next attempt. Mrs. Dipty Gurung (Female, married, 30+ years of age, from Janajati ethnicity, Bagmati province, Private college, in Nepal, Passed PCLGM in back paper, who have passed NLE in eighth attempt) reflected:

> *I failed many times…But I never thought I could not pass NLE… I told many times and convince myself that persistence will eventually leads to success…I would not be registered health professional when I had given up after any attempts before eight attempts…*

In-depth interview revealed some graduates with more fragile self-efficacy beliefs attempting NLEs for multiple times. Mr. Fakir Yadav (Male, Married, 30+, Terai / Madhesi, Madhesh province, Private institute, India, 3 standard years, fail in third attempt in NLE) reflected, "*Even when I studied well, I was not sure if it was enough because the result is always unpredictable for me…"*

This is the condition driven by the normalization of the systematic uncertainty. In summary, all the narratives reflected by the graduates were showing that self-efficacy beliefs among graduate was founded in the prior academic experiences, learning from repeated NLE experiences, and external support mechanisms in the society. Strong self- efficacy belief among student was contributing in promoting proactive study behaviors, self-regulating behaviors and consistency in goal-directed related actions. On the other hand, weaker or low self-efficacy beliefs of the graduates was found to be associated with self-doubt, inconsistent preparatory tasks, anxiety of career goal and NLE as barrier. Importantly repeated NLE attempts both changed in some case leave strengthened self-efficacy beliefs of graduates depending up on the graduate ability to reinterprets failure and access to supportive environment.

From the qualitative in-depth interview, concluding insights regarding self-efficacy belief was: “the self- efficacy beliefs among ten interviewed graduates were in evolving state”. The gradual development is observed from their academic performance in PCLGM course, Self-directed preparation strategies and actions doing for preparation of NLEs, repeated NLE attempts and associated learnings, self-realized experience feedback from previous failure, learning from the feedbacks of peers, family role models, teachers, seniors, and other social institutional environmental exposures. These beliefs influence motivation, consistency in preparatory and self-determined and goal directed actions for NLE preparations, persistent, modifying and adaptive study behaviors from NLE system exposure etc., and ultimately to NLE outcomes. In conclusion, as guided by the banduras’ social cultural theory, self-efficacy belief was found to be functioning as a crucial personal factor interacting reciprocally with behavior strategies including study strategies, persistence etc., and environmental influences including institutional quality, teaching, learning and evaluation structure, peer comparisons etc. NLE success thus was found tied to graduates evolving self-efficacy beliefs about their own ability.

Chapter Summary

This chapter presents qualitative insights from 10 purposively selected NLE participants representing diverse personal, behavioral, and environmental factors. The interview record of the in-depth interview with aim to capturing live experiences of NLE participants about trends and factors of NLE outcomes guided by the first quantitative study and self-reported efficacy-beliefs and NLE outcomes underpinned

by theoretical underpinning of Albert Bandura's Social Cognitive Theory was the steering of the chapter.

The collective qualitative insights revealed NLE outcomes are widely perceived as unpredictable, often requiring repeated attempts. Majority of the participants are attributing NLE outcomes not only to preparatory academic efforts but also to element of a chance. Graduates have normalized repeated failure as a part of NLE process. And, they are developing coping mechanism rooted in persistence and hope, as they have no alternative life line. Furthermore, graduates perceive that NLE outcomes as a result of dynamic interaction between personal factors (including age, gender, marital status, academic performance, and self-efficacy belief), behavioral factors (including study strategies, adaptation capacities, coping mechanisms, emotional and psychological endurance, motivation etc.,) and Environmental factors (including ethnicity, residential provinces, type of institutions, examination boards, curriculum alignments, examination settings, examination systems etc.,).

A central insight of the chapter is central role of self-efficacy belief in shaping NLE outcomes. Graduates with strong self-efficacy beliefs was found often linked with positive academic experiences including timely course completion and NLE successes. They have demonstrated confidence, consistency in preparation, and better NLE performance. In contrast, those with prolonged academic trajectories and repeated failure often experience low self-efficacy beliefs, anxiety, and inconsistent study behaviors. However, self-efficacy belief was found to be dynamic, evolving through academic excellence, experiences, social and family supports, and reflections on previous failures. Overall, the chapter highlights the NLE success is not determined by single academic factor but emerge from the reciprocal interaction of personal beliefs, behavioral adaptation, and environmental conditions, with self-efficacy beliefs serving as a pivotal mechanism influencing graduates' perception, motivation, persistence and eventual positive NLE outcomes.

CHAPTER VI
DISCUSSION AND SYNTHESIS OF FINDINGS

This chapter presents discussion and synthesis of study findings and insights from both quantitative and qualitative phases of the study. It goes beyond mere description to critical interpretation on how the identified factor converge, interact, and influence NLE outcomes. The statistically significant associations are explained and enriched through graduates lived experiences, facilitating deeper understanding of the underlying mechanism. Through this synthesis, the chapter highlights the dynamic and multifactorial nature of NLE success or failure, situating the findings within existing literature and drawing meaningful conclusion. The discussion and synthesis of finding is organized around the research questions in first quantitative and second qualitative phase of the research. Quantitative finds were derived from quantitative review and analysis of NLE system data base. Qualitative insights were analyzed based on quotes, codes, categories and themes (Dahal, 2025; Gautam et al., 2025).

Key Findings

This sequential explanatory mixed method study observed three key findings. First, the trend and factors of NLE outcomes, success or failure across recent six NLEs (10th to 15th NLE cycles) conducted by NHPC. The study uncovered a w-shaped trend line of NLE success indicating a non-linear and fluctuating pattern of NLE success across NLE cycles, alongside an inverse relation of NLE success with the increasing numbers of NLE attempts. Second, graduates perceived both the trend and factors of NLE outcomes, success or failure, as unpredictable and multidimensional, emphasizing the diverse role of personal, behavioral and environmental factors. And, the third, self-efficacy beliefs as a crucial factor of NLE outcomes, success or failure. Where, higher self-confidence, persistence, and adaptive learning were perceived to enhance likelihood of NLE success and vice versa.

Trend and Factors of NLE Outcomes

The integrated analysis of quantitative results and qualitative insights revealed a consistent understanding of the trend of NLE outcomes, success or failure. The trend of NLE outcomes, success or failure, is non-linear, and variable across six recent NLE cycles (10th to 15th NLEs). Quantitatively, the observed w-shaped trend line with NLE success rates as low as 19.4% (11th NLE) to as high as 64.6% (13th

NLE) clearly demonstrate alternating phase of improvements and declines of NLE success rates across NLE cycles suggesting the influence of cohort difference or systematic errors (Georgantopoulos et al., 2009) . However, the inverse relationship between NLE success rates and numbers of NLE attempts suggest that repeated NLE attempts is associated with the diminishing NLE success rates. This claim is further justified when we observe NLE success rates of graduates for the first three NLE attempts. Results show, NLE success rates accumulating the success rate of first three NLE attempts goes to as low as 77.9% instead of 19.4% (11th NLE) and as high as 93.6% instead of 64.6% (13th NLE). Thus, the observed fluctuation in overall NLE success rate may be attributed to cohort effect, that is influence of repeated NLE attempts by the graduates.

Further, factors of NLE outcomes, success or failure, were understood through the synthesis of quantitative results and qualitative insight of the graduates in in-depth interview. In the quantitative study, the statistically significant association between NLE outcomes, success or failure and different personal, behavioral, and environment related and institutional factors of the graduates was observed. Out of ten independent variables studied (age, gender, marital status, ethnicity, province, board of PCLGM graduation, type of institution, Country of graduation, course completion time, and Numbers of NLE attempts), eight variables (age, gender, marital status, ethnicity, province, type of institution, course completion time, and Numbers of NLE attempts) have shown statistically significant association with NLE outcomes, success or failure. Indicating that NLE outcomes, success or failure, was associated with these variables.

Theses quantitative findings were complemented by live experiences of graduates during in-depth interview. Qualitatively, more other factors including personal (Emotional resilience and Self-efficacy belief), behavioral (Study habits, NLE preparation strategies, access to NLE resources including coaching classes, participation in peer discussion, consultation with seniors and teachers, engagement in mock test with computer based MCQs examination), and environmental (Institutional quality, Examination structure of PCLGM and NLEs, Difficulty level of questions, feedback system in NLE results, geographical marginalization of institute etc.) factors were explored. Some interesting examples from qualitative insights of the graduates includes: the graduates who passed in first attempt attributed NLE success to “Good luck” rather to an “academic success” similar to that of the graduates who pass NLE

in tenth attempt. Furthermore, graduates even with satisfactory academic performance in PCLGM were experiencing difficulty in translating KSA (Knowledge, attitude and skills) learned into NLE success.

Graduates' Perception on Trend and Factors of NLE Outcome

Synthesis of finding from quantitative and qualitative study revealed NLE outcomes, success or failure, is the result of interplay of various personal, behavioral, and environmental factors in the context rather to graduates' academic preparation and performance alone. Quantitative data revealed the dependent variable NLE success is statistically associated with independent variables available for analysis in NLE database like age, gender role, marital status, ethnicity, residential province of the graduates, type of institute from where graduates have completed PCLGM course, course completion time, and numbers of NLE attempts etc. Furthermore, in majority of NLE cycle except for 11th NLE, graduates attempting NLE for the first time have shown comparatively higher NLE success rate. For an example, in 13th NLE cycle, 90.9% of graduate get success in first attempt compared to 0.3% in eighth attempt. The trend is similar in other NLE cycles also. The study shows, the difference in the pass rate among students who have completed PCLGM course from Nepal and India is not significantly different.

In this study, the follow up qualitative interview was designed to explore the insights from participants on mechanisms how the various independent factors influence the NLE outcomes in the various contexts. The qualitative insights of participants align with the findings and confirms the finding from the qualitative study. The qualitative follow-up study was found successful to dig out the mechanism of how different factors influences the NLE outcomes. Qualitative insight suggests the variable or factor identified to have significant association with NLE outcomes are not inherently supporting or hindering to NLE outcomes rather their influences depend on interplay / interactions and in the context where they are operated (Extracted summary from graduate's quotes in the interview).

Association of Age and NLE Outcomes

Finding of quantitative study showed percentage of NLE passed students decreases with increase in age of NLE participants. The difference in pass or fail rate with respect to age of the NLE participants was found statistically significant. This quantitative finding was found consistent with the finding of the 2022 analysis of ASWB examination pass rates: the finale report and several other studies from US,

Japan, Peru, and Philippine where study related to licensing examination on medical education were found concentrated(Flores-Cohaila, 2022; Graybow, 2015; Hyland, 2012; Kim & Joo, 2024; Montegrico et al., 2022; Spohn et al., 2021; Tsunekawa et al., 2020; Webster, 2020). Based on summary of insights from qualitative exploration of this study participant's age may not be inherently facilitator or barrier of NLE success. Its influences depend on the interaction between academic continuity, exam preparation state (academic, Psychological and emotional), Professional exposures and experience, self-efficacy beliefs at exit point of PCLGM course and entry points for NLE. Knowledge retention, family responsibility and several role conflicts, perceived family and social expectations, etc., also plays pivotal role in NLE success or failure. This study also revealed that younger graduates may benefits from academic continuity and older graduates from experiential learning and maturity; though both of the groups may face distinct vulnerability affecting NLE outcomes. In this study, the association between independent variable (age of respondents) and dependent variable (NLE outcomes) was explored with Chi-Square test. The Chi-Square test could not confirm the strength of associations between the variables. So, future study with primary data and confirmatory data analysis tools including regression analysis or confirmatory factor analysis is needed to reach this end (Rana & Singhal, 2015).

Association of Gender and NLE Outcomes

Quantitative part of this study revealed gender relation is associated with NLE outcomes aligning the findings from several previous study from US, Japan, Peru, and Philippine etc. Though, comparable study in the Nepali context could not be found regarding NLE exams, the finding is coherent with some of the study findings from Nepal where gender relation has shown significant association with examination outcomes (Khadka et al., 2022; Paudel et al., 2025). This quantitative association revealed by review of NLE database was approved by all of the qualitative follow up study participants unanimously. The qualitative insights drawn from narratives of in-depth interview further discloses the perceived mechanism of how gender role influences on the NLE outcomes. In this study, the association between independent variable (gender of respondents) and dependent variable (NLE outcomes) was explored with Chi-Square test. The Chi-Square test could not confirm the strength of associations between the variables (Rana & Singhal, 2015).

Furthermore, deep rooted patriarchal norms and gendered social roles and responsibilities are found to influence NLE outcomes. Narratives of both male and female participants of the follow-up studies confirm gender role is affecting NLE preparation time, access to educational resources and preparatory coaching classes, sufficient revision time during examination days building confidence about exam preparation, and even long-term career goal for the female as caretaker and household manager in later family life. Mismatch of aspirations of parents / relatives and female graduated about career goal and marriage and family goals for female graduates hampered in building of self-confidence by diverting focus on NLE preparation. Some of the female participant in follow up interview has reported "feeling stressed by family responsibility of taking care of sick parents and young brothers" in NLE preparation time. Some of the participants have also shared after graduation from PCLGM, parents' aspiration to their daughter was tilted toward "getting good husband and home than passing NLE".

In conclusion, gendered social role for male and female in Nepali society in almost all seven provinces and all ethnic group in the Nepali society could either support or constraints in NLE outcomes through the mechanism of priority of future aspirations to profession or husband and homes, availability of study time, access to educational resources including NLE preparation coaching and discussion with peers and seniors, emotional and psychological distractions during NLE preparation and examination time due to difference of priority among career goal of female graduates and family goals of parents of female graduates.

Association of Marital status and NLE Outcomes

First quantitative review identified that pass percentage among unmarried NLE participants (42.9%) was found almost double compared to pass percentage among married NLE participants (21.8%). The reviewed literature has not illustrated the explicit relationship between marriage and NLE outcomes. But various literature related to NLE outcomes from US, Japan, Philippines and some of the literature related to female education in Nepal and narratives from almost all participants involved in the follow up study of the research revealed some of the factors including preparation time for NLEs, access to educational resources, study focus, test anxiety, self- regulated learning strategies, older age, support from husband and mothers-in-law, delay in taking examination time etc., are indirectly influenced by marital status

in the social context of Nepal ((Khadka et al., 2022; Paudel et al., 2025; Tsunekawa et al., 2020).

The narrative of female NLE participant, who has passed NLE in eighth attempt related to NLE outcomes revealed support from family members specially from husband and mothers-in-laws varied considerably in Nepali society which could either facilitate or hinder study time, study focus, emotional and psychological state, access to educational and preparatory resources, family expectations to fulfil during peak examination time "left little time to prepare for exam and cause loss of confidence to attend NLEs" proves how marital status of graduates influence the NLE outcomes.

Association of Ethnicity and NLE Outcomes

Several studies related to NLE outcomes like Flores-Cohaila (2022), Graybow (2015), Hyland (2012), Kim and Joo (2024), Montegrico et al. (2022), Spohn et al. (2021), Tsunekawa et al. (2020) and Webster (2020) explicitly shown the relationship between ethnicity and NLE outcomes. The quantitative and qualitative both finding of the study was found consistent with the existing body of knowledge found in reviewed literature.

Qualitative follow-up study approved the quantitative finding of the exam data base reviewed and explored the mechanism of influence in Nepali context. Based on majority of participants (six out of ten) ethnicity with hierarchical structural inequalities is affecting educational access, preparation and performance of NLEs and ultimately the NLE outcomes.

Association of Province of Residence and NLE Outcomes

Quantitative analysis shows difference in proportion of NLE passed student between participants who were from different provinces. There is association between NLE participants from different provinces and NLE outcome. Constitutionally, province represent the residential location representing geographic and topographic variability, administrative feasibility, economic sustainability, socio-cultural and ethnic compositions, population distribution, access to service and inclusion and National cohesion. These provincial features may interact and influence the mechanism showing how province of the graduates is associated NLE outcomes.

The association of province of the residence of graduates with NLE outcomes was confirmed by all of the participants in the successive follow-up qualitative study. In summary, the geographic, socio-economic and institutional factors in relation to

provinces are influencing the NLE outcomes both directly and indirectly. The influences synthesized from the narratives of study participants includes access to educational or preparatory resources, quality of preparation, and availability of various supportive structures in the province. Uneven access to curriculum implementation including exposure to quality clinical training during PCLGM course time, preparatory opportunity including coaching classes, mock tests, opportunity to discuss with peers and seniors, availability of preparatory learning materials etc., shapes graduate self-efficacy beliefs and self confidence level unevenly and this uneven confidence level in NLE participants from different (stronger / weaker) province gives rise to uneven (stronger / weaker) the NLE outcomes as seen in the quantitative review of the NLE database.

Association of Type of Institute and NLE Outcomes

There was significant difference in NLE outcomes among students from types of institutes from where they had graduated for PCLGM course. This quantitative finding suggests that context from where graduates completed the PCLGM course play a significant role in NLE success or failure. Furthermore, qualitative insights also confirms that this association is not merely institutional labelling. There are differences in academic infrastructures and resource allocations, student selection process, alignment if curriculum, its implementation, assessment, and evaluation, and NLE examination orientation and preparedness etc. among type of institutes.

The study finding of association of type of institute that is private or public schools from where student have graduated is consistent with the several studies of similar type form various countries including Japan, Korea, Peru, etc., (Flores-Cohaila, 2022; Kim & Joo, 2024; Spohn et al., 2021; Tsunekawa et al., 2020). In study context of Nepal, qualitative insights were suggesting that the institution type is associated with several factors including availability of academic as well as physical infrastructure, competent and motivated faculties, practical placement opportunities, and even curriculum, implementation, and assessment alignment. Furthermore, several student related factors including regular class attendance, participation in internal evaluations and practical related field activities are also different in different type of institute. Majority of graduates were inspirational toward public institute compared to private institute.

Association of Boards of Graduation and NLE Outcomes

The difference in pass rate among graduates who have completed their PCLGM course from Nepal and India was not statistically significant contrary to the previous research findings suggesting country of graduation also influence the NLE performance of the graduates (Kim & Joo, 2024). The qualitative follow up study after the quantitative review revealed the fact that the Indian institutions are also using the exactly same curriculum there as in Nepal. There is no difference in curriculum content even in the language's courses like Nepali and Nepal Parichaya course. The controversial research findings are probably explained by the implementation of same curriculum and similar cultural settings in terai region of Nepal and Bordering areas of Nepal and India from where PCLGM graduates are passing the courses.

Association of Number of NLE Attempts and NLE Outcomes

Quantitative review and qualitative insight both revealed the fact there is significant difference in NLE pass rates among graduates with respect to NLE attempts. The finding is similar to the findings from similar previous studies from different countries in different time and population setting (Flores-Cohaila, 2022; Kim & Joo, 2024; Montegrico et al., 2022).

Findings from this mixed methods study demonstrate lucid inverse relationship between numbers of NLE attempts and subsequent NLE success rates. First quantitative review showed the candidates pass rates were higher for the first NLE attempts in each of six NLE cycle reviewed with notable decline of pass rates in second, third, fourth and so on. This statistical association was re-confirmed by the qualitative narratives of the follow-up qualitative study participants. Graduates attending repeated NLE attempts has described decreased self-confidence, increased fear and anxiety related to NLE, persistent self-doubt leading to loss of focus in NLE preparation and negative expectation from the test. A participant expressed entering the NLE hall "already thinking of failing again" indicating diminishing self-efficacy beliefs due to repeated NLE attempts.

Association of Course completion time and NLE Outcomes

Quantitative study shows that, NLE participant who have completed PCLGM course in regular exam have shown highest (49.3%) pass rate in NLE compared to NLE participants who have completed PCLGM course in back exam (27.4%) and golden exam (13.4%). There is convergence of finding with previous research findings as well as both quantitative and qualitative findings suggesting that timely

course completion as a protective factor both academically and psychologically as well as emotionally (Montegrico et al., 2022; Spohn et al., 2021).

The first quantitative analysis demonstrated that graduates who have completed the PCLGM course in standard three years achieved comparatively higher NLE pass rates. Similarly, the qualitative narratives from the follow-up study provided the deeper insights approving the quantitative facts. The graduates who have completed PCLGM course in more than three years of time have experienced academic discontinuity and loss of study momentum leading to diminished confidence in their academic ability. Almost all participants of follow-up study have agreed taking longer time to complete the course create a self-perception of being academically weak and diminished self-efficacy beliefs resulting in fear and anxiety if NLE failure and ultimately the bad NLE outcomes.

Moreover, the prolonged course completion time causes the knowledge gap, reduced peer supports, increase family and economic pressure, and further decreases the NLE preparation focus. Thus, prolonged course completion time not only reflect prior academic deficiency but also contribute to lower NLE performance through mechanism of preparation gap, reduced access to preparation resources, reduced self-efficacy, social isolation, and competing family and economic pressures.

Graduate's Perception of association of Self-efficacy and NLE Outcomes

This mixed methods study has re-affirmed the findings from several scientific literatures from different part of the world including Nepal, Japan, USA, Philippines, Peru, and Korea which have established the theoretical as well as empirical connections between perceived self-efficacy beliefs of the graduates and NLE outcomes (Flores-Cohaila, 2022; Graybow, 2015; Hyland, 2012; Khadka et al., 2022; Kim & Joo, 2024; Montegrico et al., 2022; Paudel et al., 2025; Spohn et al., 2021; Tsunekawa et al., 2020; Webster, 2020).

The synthesis of first quantitative review results and follow-up qualitative in-depth interview in this explanatory sequential mixed methods study demonstrate self-efficiency belief as a central explanatory mechanism underlying NLE success among PCLGM graduates in Nepal. The quantitative findings show higher NLE success among candidates who have attended NLE for the first time, those who have exposed to well-structured NLE preparations including taking preparatory coaching classes, mock tests, previous examination questions review, discussed with peers and seniors regarding NLE preparation etc., Furthermore, the qualitative insights highlighted how

graduates have interpreted their capacity to beat NLEs. In the in-depth interviews, graduates have consistently pointed out their NLE success in term of their self-confidence achieved through focused and deliberated NLE preparation tasks. The perceived self-confidence, which is the core construct of self-efficacy beliefs with in Bandura's Social Cognitive Theory.

The qualitative narratives revealed that graduates who perceived themselves academically sound and well prepared for NLE approached the NLE with self-determination and strategic preparation including engaging in through revision of PCLGM course from first year to third year, consistent revision with previous examination questions from previous examination question banks, participating and self-evaluating through mock tests conducted in various coaching centers, best emotional as well as psychological control during examination preparation and examination attending time, less anxious about the NLE results etc., In contrasts, graduates with prolonged PCLGM course completion time and low self-efficacy beliefs explained fear, anxiety, often disturbing exam preparation focus etc., The quantitative findings of NLE outcomes with the two groups of graduates were different. Thus, we can associate that the qualitative perception about graduate self-efficacy beliefs with difference in NLE outcomes.

The repeated NLE attempts and its results further explain the mechanism more lucidly. Quantitative review showed that increasing the number of NLE attempts was found to be associated with decreasing NLE success rates. And, qualitatively all the participants who have attended NLEs multiple times have explained that repeated NLE failure had weakened their self-confidence level and have created anxiety of NLE failure during NLE preparation time and before entering to the examination hall. Many of them have explained entering to examination hall in subsequent attempt with diminished motivation and heightened anxiety reflecting erosion of self-efficacy beliefs. This qualitative insight signals that prior NLE failure does not necessarily represent academic deficiencies but contributes to cognitive, emotional and psychological patterns that negatively influence future outcomes confirming the concept of reciprocal determinism as proposed by Bandura in Social Cognitive Theory.

Moreover, almost all participants in qualitative follow-up study emphasized the role of academic performance in PCLGM course periods and peers, familial, and social supports in shaping their confidence about NLE success or failure. Those who

have performed well in PCLGM course, who have completed PCLGM course in standard three-year time without appearing any back paper examination, who regularly receive supports from peers, seniors, teachers, family members have reported strengthened beliefs in their theoretical and practical capabilities as health professionals and vice-versa. These empirical findings align with the Bandura's theoretical proposition that self-efficacy beliefs develop through mastery of experiences, vicarious learnings and verbal persuasion and that it directly influences efforts, resilience and emotional regulation during challenging tasks such as high-stake NLEs.

In conclusion, the integration of quantitative findings of six cycles of NLEs data and qualitative self-reported perception on self-efficacy beliefs of the graduates who have experienced NEL at least once in their life time supports the proposition of self-efficacy beliefs act as a mediating psychological construct linking academic excellence, NLE preparatory works and environmental factors to NLE outcomes. The qualitative insights provided explanatory depth to the quantitative findings of statistical association of different behavioral and environmental factors to NLE outcomes framing NLE success with in social cognitive theory therefore strengthening the conceptual coherence of the study positioning self-efficacy not merely as an individual trait but as a dynamic product of academic, social and experiential influences that ultimately determine NLE performance.

Chapter Summary

In summary, the trend of NLE outcomes is found to be non-linear, and variable across six NLE cycles from 10th to 15th NLE cycles. The w-shaped trend line was observed from quantitative study of trend of NLE outcomes in the study. Furthermore, an inverse relationship between NLE success and numbers of NLE attempt was observed. In the quantitative study, the statistically significant association between NLE outcomes, success or failure and different personal, behavioral, and environment related and institutional factors of the graduates was observed. Out of ten independent variables, eight variables (age, gender, marital status, ethnicity, province, type of institution, course completion time, and Numbers of NLE attempts) have shown statistically significant association with NLE outcomes, success or failure. Indicating that NLE outcomes, success or failure, was associated with these variables. These findings were confirmed and the list of various factors including personal, behavioral and environmental factors were added from the qualitative study. Although, the

association between independent variable (8 variables) and dependent variable (NLE outcomes) in this study was explored with Chi-Square test. The Chi-Square test could not confirm the strength of associations between the variables. So, future study with primary data and confirmatory data analysis tools including regression analysis or confirmatory factor analysis is needed to reach this end (Rana & Singhal, 2015).

CHAPTER VII
REFLECTIONS, CONCLUSION, AND RECOMMENDATION

Chapter seven is presenting researcher reflections, conclusion and recommendation of the sequential explanatory mixed method study. Here in this sections, conclusion and recommendations are presented in accordance with the study objectives and research questions. The study was started with quantitative review of NLE database of tenth to fifteenth NLE conducted by NHPC. After the quantitative review phase, a follow-up qualitative study was conducted with purposively selected in-depth interview participants with the in-depth interview guideline developed with reference to the findings of the first quantitative review. Both quantitative and qualitative findings were presented in separate chapters and synthesized in the separate discussion chapter parallelly. The conclusions are drawn from parallel discussion of findings from both quantitative and qualitative findings.

Reflection of Research Process

Chapter 7 is presenting reflection of research process; a reflexive journey conducting a sequential explanatory mixed methods study on Graduate's Perceptions of NLE outcomes among PCLGM graduates in Nepal.

Positioning Myself in the Research

Conducting research on title "Graduates' perception of factors of national licensing examination outcomes in Nepal: A mixed methods study" was not only the academic task but also an intellectual and professional responsibility as professional practicing in field of medical education in Nepal. As per national legal arrangement, national licensing examination for PCLGM graduates is the foundational door steps not only to enter in the field of health care industry as health professionals but also to purse any bachelor degree in medical education in Nepal. Here, my position with in landscape of medical education in Nepal influenced how I framed the problem, interpreted the findings and engaged with the research participants. So, acknowledging this positionality became central to ensuring credibility and transparency throughout the research process.

Identifying the Research Problem

Consistent pattern of low pass rate in national licensing examination of health care professionals was one of the common news headlines in Nepali newspaper.

Generally, this news gives idea of this much number of health professionals were attending the national level licensing examination and only this much percentage of health workers (Doctors, Nurse, Pharmacist, etc.,) became eligible to registered as health professionals. Where is the quality of health professional education gone? In such news, blaming to academic institutions for poor quality of education they are offering was the regular phenomenon in Nepali society.

The NLE results from any professional councils, including Nepal medical council, Nepal health professional council, Nepal Nursing Council and Nepal Health professional Council; in Nepali context just give the idea of this much students have attended the NLE and this much number of students are passed or failed the NLE. This mere quantitative number just gives the idea about the trend of NLE pass or fail rates. They did not sufficiently explain why such low pass rate is happening for many cycles of NLEs conducted by various professional councils in Nepal. The researcher realized that beyond the numbers published in the NLE result sheet, there are lived experiences, beliefs and contextual realities which are continuously influencing the NLE outcomes among participants which remains uncovered till the date for Nepali context. This realization shaped the core inquiry: understanding not only statistical association but also graduates perceptions of those outcomes. At this stage, I reflected on whether the issue was issue of quality education offered by academic institution or issue of individual incompetence of graduates or there is some systematic misalignment leading to the consistently lower pass rate in NLEs. This reflection at early stage guided me toward a decision for integrating both quantitative numbers and subjective experiences of the NLE participants in relation to persistently lower NLE pass rates. Among so many subjects which requires its professionals to get through the national licensing examination gateway, researcher have selected PCLGM course and NLE system of Nepal Health Professional Council for the subject to study in this regard.

Choosing Sequential Explanatory Mixed-Methods Design

Choosing the sequential explanatory mixed method study design (Quant-Qual) study design was a deliberate methodological design guided by both research problem and researcher interest to learn or implement both quantitative and qualitative research methods in a single research process. In the study area, mere quantitative numbers are repeatedly being covered by newspapers. The fact of consistently lower success rates in NLEs was common social facts of Nepali society. But, key question in

researcher's mind was why this is happening? So, both quantitative measures to identify trend and associated factors in NLE outcomes and qualitative methods to explore the real-life experience of NLE participants while facing NLEs are to be combined in this study to seek the solution of the research problem comprehensively.

For the shake of easiness, initially researcher had considered a purely quantitative review. But, later on, researcher have realized that description of pure statistical association between NLE outcomes with certain factors in NLE database could risk the oversimplification of the research issue. In the other hand, relying completely in qualitative methods only might limit generalizability. So, researcher decided to implement sequential explanatory mixed method research design where first quantitative review will find the trend and associated factors of NLE outcomes statistically and then follow up qualitative in-depth interview of NLE participants based on interview guideline developed on the ground of gaps in quantitative study help researcher to explore participants perceptions of quantitatively identified factors of NLE outcomes with opportunity to uncover the underlying mechanism. This decision is reflecting researcher commitment to methodological rigor and researcher's beliefs in pragmatism as guiding philosophical stance.

Journey from Research Problem to Research Proposal

The journey of research proposal development started with recognition of consistent trend of low pass rate and repeated unsuccessful attempts as research problem in context of Nepal. The NLE result sheet provides information about total number of NLE attended, passed and failed graduates. NLE result sheet does not provide information even about the mark obtained by the graduates in NLE. They have never tried to explain or explore the underlying factors behind the NLE outcomes. This information gap has prompted the formulation of research question that moves beyond measuring association of various factors to NLE outcomes to understand the perception of graduates about factors of NLE outcomes and mechanism of how these factors interplays in NLE performance.

A sequential explanatory mixed methods research design was selected as a most appropriate approach after critically reviewing the existing literature and reflecting the multidimensional nature of the problem to solve through research process. This research design allowed first quantitative review of the NLE database to quantify the trend of NLE outcomes and identify the factors of NLE outcomes. And, in the second qualitative phase, it allows to explore how the graduates interpret their

experience in relation to factors identified in the first quantitative phase of the research through qualitative in-depth interview based on interview guideline developed based on quantitative findings of the first phase of the research. Thus, this research proposal was evolved as a structured response to a complex educational and regulatory challenges, integrating quantitative rigor with qualitative depth to generate comprehensive and contextually grounded insights into NLE outcomes among PCLGM graduates in Nepal.

The developed research proposal had presented in front of senior researcher from Kathmandu University, STEAM education department. Valuable feedbacks from the senior researcher were incorporated in the proposal. The approved proposal from the department with the recommendation letter for necessary support in the research process for NHPC and CTEVT, the research journey was started.

Conducting First Quantitative Study

I feel, conducting the first quantitative phase of the study that is quantitative review of NLE database from tenth to fifteenth NLE conducted by NHPC of Nepal was both technically demanding and academically transformative exercise. The quantitative review process began with securing ethical and administrative approval which required patience, persistence and careful negotiation. Gaining access to the NLE database from NHPC authority and academic records from exam controller office of CTEVT was not so easy and straightforward. It involves multiple formalities including getting formal recommendation letter from university STEAM education department, series of follow-up meetings with different personnels in hierarchy, clarification and presentation of research proposal in front of authorities, clarification of data confidentiality measures and reassurance regarding responsible use of data. Suring this process, procedural delay and bureaucratic communication gap created uncertainty Whether access to data would be granted or not. However, this phase taught me the importance of professional communication, differences between individual and institutional communication, individual and institutional trust building, and ethical as well as administrative accountability. I realized that data access is not merely procedural but also relational, requiring transparency and credibility.

The next steps, obtaining and learning to use SPSS software was another significant step in the research journey. Initially, getting SPSS software, its installation was challenges to myself. My professional peer's networks supported me in this regard. Later on, unfamiliar statistical process and procedures felt over helming. In

this step, you tube class for SPSS beginners become an excellent solution. Transition from the theoretical knowledge of data cleaning, data organizing, hypothesis testing required intensive self-learning and consultation with peers, seniors and mentors. Importing large NLE database into SPSS software revealed inconsistencies in coding formats, missing values, and variable labelling issues. These technical hurdles give valuable learning opportunities and strengthening my competencies in data importing, cleaning, data organizing, and descriptive analysis.

Data cleaning and organization was proved to be one of the most time consuming and critical steps of the journey. I encountered numbers of incomplete entrees and numbers of duplicate entrees. This step gives me a brilliant learning opportunity about the importance of unique identification numbers or code numbers of the graduates in each entry. This challenging task needs sufficient concentration to the detail of each NLE participants and through review for all numbers of attempt made by the participant in the database. Here, I have realized the difference in the study with primary data and secondary data.

The next step, data analysis phase was more important and challenging for me as I was truly beginers for using SPSS software in data analysis. Running descriptive statistics and inferential statistics including Chi-Square test was interesting. It was really interesting to find association between NLE outcomes and factors like numbers of NLE attempts, course completion time of the graduates, type of institutes, and socio-demographic factors including age, sex, gender, marital status, ethnicity and residential provinces of PCLGM graduates etc. However, interpreting the findings required cautions. Writing the quantitative results demanded clarity, objectivity and disciplined reporting without over generalization. This phase strengthened my statistical test use and analytical thinking and also deepened my understanding of statistical reasoning.

Perhaps the most important learning is from identification of gap within the quantitative finding. The Chi-Square test highlighted the statistical association between NLE outcomes with several variables including Number of NLE attempts, course completion times, type of institutions, and several socio-demographic factors like age, sex, gender roles, ethnicity and residential provinces etc., But, unfortunately, this quantitative data cannot explain why and how these factors shape the NLE outcomes among graduates. What is the underlying mechanism of that quantitative association given by the Chi-Square test could not be explained by the quantitative

findings. So, at this stage, I realized, these numerical findings of the quantitative study raised more questions than they answered.

Here, this realization, marked a critical moment in the research journey reinforcing the necessity of the qualitative follow-up phase. This quantitative phase here served not only as foundational phase for identifying the trend of NLE outcomes and factors associated with it but also served as the catalyst for deeper inquiry, shaping the transition toward a sequential explanatory mixed method approach that could integrate statistical evidences with the graduates lived experiences.

Transitioning to the Second Qualitative Study

Transition to second, qualitative phase of the study marked a deliberate and theoretically grounded shift from measuring quantitative trends, associations and patterns to understand meaning and interpretation of association and patterns based on graduates' live experiences. The quantitative findings have revealed significant association of NLE outcomes to repeated NLE attempts, type of institutes, course completion time, and sociodemographic factors like age, gender roles, marital status, ethnicity and residential provinces etc., But they left the critical explanatory gaps regarding graduates lived experiences, motivations, perceived barriers, and coping mechanisms. The recognition of that statistical trend alone could not illuminate the underlying mechanisms behind the outcomes. For this gap to fulfill, the second explanatory phase of study, follow-up in-depth interview with the NLE participants was executed.

For the second phase, I purposively selected 50 NLE participants from the NLE databased representing proportionately from NLE passed and failed participants, graduates who passed NLE in one, two, three, four or more attempts, from male and female, married and unmarried, age group of 15 to 19, 20 to 24, 25 to 29 and 30+, different ethnic groups, different residential provinces, type of institution, course completion time, PCLGM course completion boards etc., to capture all possible variations in perception and experience in the qualitative inquiry. Later on, only 29 candidates were contacted through the communication channels of the institution they have studied PCLGM courses. Out of 29 graduates, only 18 graduates were ready to participate in in-depth interview. Due to limited time, only 10 candidates representing all factors under study were interviewed.

The in-depth interview guideline was carefully developed from the gap identified in the first quantitative phase of the study. The main strategy to develop the

in-depth interview guideline was mere transformation of numerical findings to explanatory questions such as how repeated NLE attempts shape self-efficacy? How examination context shapes the NLE outcomes? How type of institute shapes the NLE outcomes? This transition required reflexivity ensuring that the qualitative inquiry did not necessarily confirm statistical results of the quantitative study but genuinely explored graduates' narratives. This process reinforces the logic of the sequential explanatory mixed methods study design where the qualitative phase became an explanatory and interpretive lens to contextualize and deepen the understanding of the quantitative finding with in the Nepali context.

Engaging with Qualitative Insights

The in-depth interview with purposively selected graduates were conducted using GATHER (Greet, Ask, Tell, Help, Explain and Return) approach. Which provided both structured and empathetic framework for engaging participants in conversations about their participation experiences in high stakes NLEs. I started each interview with warm greetings for the participant and establish rapport ensuring confidentiality, volunteer participation, and explaining the study purpose. During the ask phase, I invited them to share their educational, personal emotional and psychological as well as motivational and perceptional experiences of PCLGM course and NLEs participation after graduation of PCLGM course. My focus during this phase was also towards their perception on the trends of NLE outcomes. I was conscious during that time about not to disturb the narrative flow of the participants. I tried myself to capture their educational and NLE experiences. In the tell and help phase, I gently probe areas emerging from quantitative findings. My focus includes repetition of NLE attempts, NLE preparation strategies, age, gender role and marital status and related emotional and psychological and social perspectives, study time and focus, etc., encouraging deeper reflection maintaining the non-judgmental stance. Through explain stage, I clarified any ambiguity and summarized key points to ensure accurate understanding and writing. Finally in the return stage, I closed interview respectfully offering appreciation and emotional reassurance, recognizing that reciting failure or delayed success in such a high-stake NLE context could be sensitive. This structures but reflexive interviewing process fostered trust and enabled rich narratives that illuminated how demographic, institutional and socio-cultural variables intersected with self-efficacy beliefs and NLE outcomes.

Engaging deeply with ten interview participants who are collectively represented variation across statistically associated variables including age, gender role, marital status, ethnicity, residential provinces, type of institution, time of course completion for PCLGM course, board of PCLGM study, number of NLE attempts etc., extended my understanding of how structured and personal factors interact in shaping performance of NLEs. The NLE is repeatedly described as decisive gate way without passing it, graduate could not either join any professional job or any further study plan in medical education field. An older graduate (+30 years) who have delayed completing the PCLGM course reflected "At this stage of life, failing means more than securing optimum marks in the examination, my family responsibilities are waiting for my NLE success. I cannot start earning or join my bachelor degree without passing NLE". This narrative illustrate how age and delayed course completion intensifies the family and socio-economic pressures tied with NLE and its outcomes.

Gender role and marital status also shaped experiences in subtle but powerful ways. A married female participant shared "After marriage, balancing household duties and study time and focus was difficult. When I failed once, everyone in the family said focus on family. Do not worry about NLE outcomes." Her statement revealed how socially constructed gender expectations influence preparation time and focus and ultimately the self-efficacy beliefs of the graduate. In contrast, an unmarried male participant noted "my only responsibility is to study and prepare smart and pass the NLE. I feel I have no excuses". These contrasting narratives demonstrated how gendered division of role has mediated the emotional, psychological and practical space available for exam preparation. Similarly, an unmarried female graduate described the urgency to pass NLE and join any job before marriage negation starts linking the NLEs to social timing and professional autonomy.

Ethnicity and residential provinces as well as the provincial location of the PCLGM course completed institution lies also influence graduates academic and NLE performance and their self-efficacy beliefs. A narrative of participants from remote province "In our schools, basic science course was weak, when I come to Kathmandu for NLE preparation, I have realized other have stronger basic science foundations." This reflected how geographic differences could shape confidence and perceived preparedness among graduates from different provinces. Another participant from historically marginalized ethnic groups shared "Sometimes, I feel we have to prove

more to be recognized as competent". Such narratives did not claim direct discrimination in exam process but highlighted internalized discrimination in the academic environment that are duly influencing the self-efficacy beliefs. Institution type and PCLGM board performance were strongly echoed in the interview, aligning with quantitative associations. A high scorer participant from public school remarked "My PCLGM grades gave me inner confidence. I trusted my concepts during NLE." Conversely, a private institution graduate who have more course completion time than standard three years have stated "We focused more in passing internal exams and board exams, NLE pattern was different, so I struggled." Repeated NLE attempts have emerged as a powerful emotional and psychological turning points for majority of the graduates participating in NLEs multiple times. One graduate who have already participated NLE fourth time have said "Each failure reduces the self-confidence. I started studying, but fear comes automatically". In contrast, a candidate who have passed NLE in first attempt described mock test and peer discussion as mastery experiences that have strengthened the self- efficacy beliefs.

Across the all cases, the high-stake nature of NLE due to its obligatory requirement to pass the exam for council registration for employment and further study both amplified the impact of these variables. Quantitative data shows the association and qualitative narratives gives mechanisms for examples: role strain among married women, delayed economic independence among older male graduates, academic foundation, practical exposure and faculty availability disparities among provinces. Thus, confidence or self-efficacy beliefs is linked to prior academic achievements and psychological erosion and emotional instability due to anxiety of NLEs outcomes through repeated NLE attempts.

Reflexively, I realized that NLE outcomes are shaped by dynamic interplay of structural positions and personal belief system. The in-depth qualitative interview guided by the interview guideline developed from the quantitative study findings transformed abstract variables to lived realities, deepening my understanding how age, gender role, marital status, ethnicity, province of residence, type of institute, PCLGM boards, Course completion time, numbers of NLE attempt collectively influence both self-efficacy beliefs and NLE outcomes in Nepali context.

Concluding the qualitative inquiry, I realized that NLE is more than standardized licensing test. It is crucial life threshold that shapes professional identity, socio-economic mobility, and graduates' academic progression to bachelor level in

medical science. As a researcher, I realized the statistical association between dependent and independent variables tells only a part of the whole story. Behind every association, there lies a pile of human experiences shaped by family condition, socio-economic condition, family and individual responsibility, aspirations, fear, resilience, family and social expectations, peer and senior's expectations, and so on. Listening to the experience of the graduates, NLE outcome is associated not only with pass or fail but more strongly associated with delayed employment, postponed higher study, social and familial expectations, marital choices, geographic disadvantages. And, repeated NLE attempts have more value than I have realized before. Now, I am more aware of own assumption about merit and performance, NLE performance of whether pass or fail, recognizing how self-efficacy is socially constructed and contextually influenced. The qualitative part of the study strengthened my skill in empathetic listening, probing without leading, and honoring the graduates' vulnerabilities particularly when discussing failure in high-stake NLEs context. Furthermore, by the deep engagement with the NLE participants during the in-depth interview and during the member checking phase, I realized the research and research process itself can play a vital role to empower the research participants. Honestly reflecting, this research process and engagement with the NLE participants from different age, gender role, marital status, ethnic group, residential provinces, academic background and their context related to NLE and their perception of NLE outcomes changes my perspectives on NLE outcomes from and statistics of passing or failing an examination to the doorstep for the professional beginning, success or failure of NLE participants aspirations.

Synthesis of Quantitative Results and Qualitative Insights

This synthesis or integration of quantitative results and qualitative insight was very interesting job for myself. The quantitative phase of the research provided clarity on patterns identifying the trend of NLE outcomes, and statistically significant associations between NLE outcomes and age, gender roles, marital status, ethnicity, residential provinces, course completion time in PCLGM, type of institute, board of PCLGM course and NLE attempts. Later, it was qualitative narratives which explain the mechanism how the association is executing by explaining mechanism underlying the associations. Through integration, I learned that number reveals what is happening but qualitative insight or narratives explains why and how it is happening in the social context. I have also realized during the process that, the integration process required

reflexivity to avoid dominance of one evidence to another evidence, instead allowing both stand to complement and refined each other. This experience strengthens my appreciation for sequential explanatory mixed method design demonstrating how combining quantitative trends and qualitative meaning produce a more holistic and contextually grounded understanding of NLE outcomes among PCLGM graduates I Nepal.

Aligning with the Theoretical Framework

Aligning the study with Bandura's Social Cognitive Theory was not merely a theoretical requirement but a transformative learning process in this research journey. Initially, the theoretical framework serves as a guiding lens to conceptualize construct such as self-efficacy belief, outcome expectancies and reciprocal determinism. As the study was designed as sequential explanatory mixed methods study, researcher was engaged with the both quantitative patterns and qualitative insights. During these engagements, researcher internalized how theory and lived experiences interact dynamically. I learned that self-efficacy is not an abstract psychological term but a deeply contextual belief shaped by mastery of experiences (Academic performance, mock test performances), Social persuasions (peers, seniors, family members, teachers' encouragement) and emotional state (fear or NLE associated anxiety after repeated failure). The process of aligning finding with theoretical framework give researcher a constant framework to move forward. This blue print sharpened my analytical thinking, any time push me from description to explanation. It also taught me to become reflexive. Helped me to recognize when data genuinely supported theoretical propositions. Ultimately, integrating theory with empirical findings strengthened the coherence of the study and strengthened my understanding of how personal beliefs, environmental conditions and behavioral efforts interact to influence NLE outcomes in Nepali context.

Ethical and Emotional Reflection

Ethically this research journey required continuous vigilance, humility and responsibility. Working with sensitive data from NLE system database of NHPC and academic records of CTEVT and participants personal narratives of success and failure, support and creating hurdles, in the context demanded strict adherence to confidentiality, informed consent, voluntary participation, and respectful representation. I was aware that participants were professionals with self -dignity, aspirations, reputations, and their identity were closely tied to NHPC NLE system and

CTEVT system. So, ensuring anonymity and securely handling the system database became moral commitments in each and every step of the research. I learned ethical research extend beyond approval letters, avoiding deficit framing and honoring participants trust in every stage of analysis and reporting.

Emotionally, the journey was equally profound. Listening to graduate's recall of delayed career, family pressure due to delay in NLE success, financial strain, diminished self-confidence, stigmatic experiences from peers, seniors, relatives and even family members were at time hard and heavy to cope with. The sigh-stake nature of NLE caused every story painful and unique. I often found myself reflecting on my own assumptions about merit, efforts and success recognizing how structural inequalities and contextual barriers interact to shape NLE outcomes. At the same time the story of prompt success, resilience, persistence, and eventual success were inspiring and emotional. This emotional engagement of both positive and negative sense strengthened my empathy and reinforced the responsibility to portrays participant's experiences authentically and sensitively. Ultimately, the research journey was not only academic endeavor but also a personal process of growth in ethical awareness, emotional intelligence and scholarly integrity.

Personal as well as Academic Growth

This study was transformative journey for my personal and academic growth. I get a independent opportunity to translate a professional issue in to researchable problem, I myself translated the researchable problem to the research proposal and executed the whole research process independently. I myself defended for the methodological choices with the senior researchers from the STEAM department of Kathmandu university. I moved from simply being interested in NLEs trends to articulating underlying perceptions through both quantitative findings and qualitative insights, which was academically and personally significant evolution. This phase cultivated clarity of thought, patience in refining purpose and objectives, and confidence in making quantitative as well as qualitative research questions, making null and alternative hypothesis for statistical testing and engaging with theoretical and methodological debates.

The next, research implementation phase strengthen my technical competence and resilience. Conducting quantitative review of huge NLE system database and quantitative analysis required mastering in data management, statistical reasoning and disciplined interpretation. While the next qualitative follow-up in-depth interview

phase strengthened my skills in empathetic listening, probing without leading, reflexivity and thematic analysis. Seeking and getting institutional approval for data collection, data access challenges, and the weight of emotional feelings of the participants during in-depth interviewing the participants' high stake lived experiences enhanced my professionalism, ethical sensitivity and emotional endurance. Here, I independently dealt with the objectivity found in the quantitative review of NLE database and the empathy within the NLE participants who sacrifices their personal time for my study during qualitative in-depth interview. I regard this opportunity as the best opportunity I received in the research process as the researcher.

In discussion writing, I learned to move beyond description toward synthesis connecting quantitative findings with qualitative insights and aligning both with Bandura's Social cognitive theory and lived experiences. This process strengthened my analytical depth and strengthened my academic voice. Reflection writing in turn encourage revisiting all the research process from the beginning to the end. By reflecting on the whole research projects, I realized that research is not merely producing the findings but about producing knowledge with critical thinking, coherence and ethical responsibility. Ultimately the research journey transformed me from a data collector into a reflexive scholar capable of integrating evidences, theory and lived experiences to contribute meaningfully to understand trends and factors of NLE outcomes in Nepali context.

Summary of Reflection of Research Process

In conclusion, reflecting the entire research process revealed a long journey that transformed me both academically and personally. The journey started with an inquiry into trends of NLEs outcomes, evolved into a deeper understanding of how evidences, theory, context and human experience intersect. Through proposal development, proposal defense, data collection, data analysis, integration, discussion writing, drawing conclusion and recommendations, and reflection writing of whole research process, I learned that the rigorous research demands not only methodological precision but also ethical sensitivity, critical thinking and humility. This process strengthens my identity as a scholar who value both statistical truth and lived reality and it reaffirmed that meaningful research is not simply about generating findings it is about growing in insights, responsibility and commitment to contributing knowledge that matters in real world context.

Conclusions

Trend of NLE outcomes, success or failure, among PCLGM graduates in Nepal is demonstrating a w- shape trend line. The w-shape trend line indicates a non-linear and fluctuating trend across studied NLE cycles with substantially varying success rates among NLEs. Additionally, the inverse relationship between NLE success rates and increasing numbers of NLE attempts suggest likelihood of greater the number of NLE attempts, lower the chances of NLE success. The cumulative success rates within three NLE attempts (Out of up to 10th NLE attempts in 15th NLE cycle), success rates become substantially higher indicating that fluctuation in NLE success rates are driven by cohort effect, particularly inclusion of repeated NLE candidates.

Quantitative phase of the sequential explanatory mixed method study revealed age, gender, marital status, ethnicity, province of residence, type of institute, PCLGM course completion time, and Numbers of NLE attempt were significantly associated with NLE outcomes, success or failure. That means, these factors were shaping NLE performance among the graduates. Although, the association between independent variable (8 variables) and dependent variable (NLE outcomes) in this study was explored with Chi-Square test. The Chi-Square test could not confirm the strength of associations between the variables. So, future study with primary data and confirmatory data analysis tools including regression analysis or confirmatory factor analysis is needed to reach this end (Rana & Singhal, 2015).

Qualitative insights in the second phase of the study expanded the list of factors adding more personal (Self-efficacy beliefs & emotional resilience), behavioral (Study habits, Exam preparation strategies, access to and use of coaching classes, peers' consultation, consultation with seniors, consultation with teachers, engagement in mock test, practice test of computer-based examination.) and environmental factors (Institutional quality, exam structure, difficulty level, feedback system of NLE results, geographical marginalization of institute location etc.). Qualitative study revealed that graduates perceive the trend of NLE outcomes, success or failure, as non-linear, inconsistent, unpredictable and fluctuating across various NLE cycles. Quantitative finding of w-shaped trends of NLE outcomes was confirmed by the qualitative study.

Further, personal, behavioral and environmental factors of NLE outcomes, success or failure from both quantitative and qualitative approach. Overall, graduates

perceived that all the identified factors do not inherently promote or hinder NLE outcomes, success or failure. However, effects of every factor in NLE outcomes, success or failure, depends on how they interact with one another and the specific context in which they are operated. Moreover, the study revealed perceived self-efficacy beliefs as a key mediating factor linking all personal, behavioral and environmental factors towards NLE outcomes, success or failure. However, self-efficacy belief is a dynamic construct shaped by learning experiences in the context.

Recommendations

Recommendations to Optimize NLE Outcomes

The following recommendations are proposed to optimize NLE outcomes among PCLGM graduates in Nepal.

1. Graduates are recommended to engage in planned NLE preparation including starting consultation with peers, seniors, and teachers; joining preparatory classes, Practicing MCQs from previous NLEs, practicing computer based MCQs examinations etc. immediately after PCLGM course completion to get NLE success in as early attempt as possible.
2. Graduates preparing for NLEs are recommended to explore and participate in all possible activities intended to enhance self-efficacy beliefs and emotional resilience among students.
3. Institution offering PCLGM course are recommended to orient all PCLGM students about NLEs, its curriculum, examination systems and its importance as early as possible during the course period.
4. Institutions offering PCLGM courses are recommended to organize behavioral and NLE preparatory support mechanisms such as: Organization of online / physical NLE preparation classes, Computer based mock test in NLE format and curriculum blue print, offer setting for peer learning and mentorship from seniors and teachers, give special attention and counselling to vulnerable graduates, etc. with special attention to vulnerability level based on personal, behavioral & environmental factors identified (age, gender, marital status, ethnicity, residential provinces, course completion time, NLE attempts, and so on)
5. Institutions offering PCLGM course and NLE preparatory classes are recommended to integrates activities targeted to enhance graduate's self-efficacy beliefs and emotional resilience including Counselling, Motivational

workshops, Reflective learning sessions etc. recognizing self -efficacy belief as a key mediator of NLE performance.

Recommendations to Future Research

Following future research recommendations are recommended based on the finding and reflexive experience of the mixed method study.

1. The observed association between independent variable (8 variables) and dependent variable (NLE outcomes) in this study was explored with Chi-Square test. The Chi-Square test could not confirm the strength of associations between the variables. So, future study with primary data and confirmatory data analysis tools including regression analysis or confirmatory factor analysis is needed to reach this end (Rana & Singhal, 2015).

Contribution of the Research

Contribution of the research at different level of stakeholders have been identified at following different level as follows.

Contribution of Research at Graduates' Level

This study provides valuable insights for PCLGM graduates by highlighting the personal, behavioral and environmental factors that influence NLE success. By realizing the role of self-efficacy belief, NLE preparation strategies, impact of prolonged PCLGM course completion time and repeated attempt to NLEs prospective PCLGM graduates can develop more effective strategies for effective NLE preparation and management of emotional and psychological intelligence in relation to NLE success. The research finding enhanced the importance of course completion in standard course time, timely NLE attempts, structured revision and preparation strategies, engagement with supportive peers, seniors, teachers, family members and mentor networks enabling graduates to adopt evidence informed strategies that enhance both confidence level and performance in NLE outcomes.

Contribution of Research at Institution Level

The research result offers evidence-based guidance to academic institutions in identifying the gaps in curriculum alignment, teaching and learning strategies, and support strategies defined for student's support system. Graduates' narratives of qualitative in-depth interview revealed the critical role of structured preparation, mock examination, mentorship program on NLE preparation in shaping the NLE outcomes. Academic institutions can use these evidences to design and implement

targeted interventions such as NLE focused preparatory modules, monitoring and support system to at risk students, and psychological support services to graduates. Such measures can enhance academic quality of the institute, students' performance in NLEs and overall institutional image.

Contribution of Research at NLE System Level

At the NHPC NLE system level, Curriculum alignment between PCLGM course and NLE blue print, expected feedback system for achievement of NLE results in spite of just getting information about pass or fail highlight the areas where the NLE system optimize its attention.

Limitation of the Study

Despite the careful methodological rigor design and rigorous implementation of the research, there are some limitations which need to be considered. The first quantitative study was based on secondary data review of NLE system database. The study is limited to the variables available in the database of the NLE system, which may have not included all individual and institutional level variables associated with the NLE outcomes in Nepali context. Moreover, the qualitative study relies on self-reported perception and efficacy beliefs of the NLE participants which may be subjected to recall bias and the personal perception on factors of NLE outcomes and efficacy beliefs may also have been influenced by NLE outcome of pass or fail, the outcome status itself may potentially shape their views on the contributing factors.

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APPENDIX 1

Code Book

SN	**Study Variables**	**Labels**	**Codes**
1.	NLE_outcomes	Results of National Licensing Examination, Success or Failure	Pass Fail
2.	Gender	Gender role of Graduates	Male Female
3.	M_status	Marital status of the Graduates	Married Unmarried
4.	Age_group	Age group of the graduates	15-19 20-24 25-29 30 +
5.	Ethnicity	Ethnic group of the graduates	Brahmin/Chettri Dalits Janajati Terai/Madhesi Others
6.	Province	Province of Permanent Residence of the Graduates	Koshi Madhesh Bagmati Gandaki Lumbini

SN	**Study Variables**	**Labels**	**Codes**
			Karnali Sudur Paschim
7.	Inst_type	Type of institute where graduate have completed for PCLGM course.	Constituted Partnership Private
8.	Country	Country from where graduate have graduated	Nepal India
9.	CC_Time	Time Taken by Graduates to Complete the PCLGM Course.	3 years 4 to 7 More Than seven
10.	NLE_Attempts	Number of NLE Attempts attending	First Attempt Second Attempt Third Attempt Fourth Attempt Fifth Attempt Sixth Attempt Seventh Attempt Eighth Attempt Nineth Attempt Tenth Attempt
11.	NLE_Attempts_01	Grouping of Number of NLE Attempts Including the Last Attempt in NLEs.	First Second Third Four or more
12.	Boards	The University or Boards from where graduates have	CTEVT, Nepal GURU Kashi University, India OMGU, India

SN	**Study Variables**	**Labels**	**Codes**
		graduated for PCLGM course.	Parul University, India RIMT University, India Sangam University, India
13.	NLEs	National Licensing Examinations	10_Tenth Licensing Examination 11_Eleventh Licensing Examination 12_Twelfth Licensing Examination 13_Thirteenth Licensing Examination 14_Fourteenth Licensing Examination 15_Fifteenth Licensing Examination
14.	District	District of graduate residence.	NA
15.	Municipality	Municipality of graduate residence	NA
16.	Code	Code number of the graduates	NA

APPENDIX 2

Graduates Involved in In-depth Interview

SN	NLE Results	Gender	M. Status	Age group	Ethnicity	Province	Type of institute	Graduation Country	CC time	NLE attempts
1.	Pass	Male	Unmarried	15-19	B/C *	Koshi	Partnership	Nepal	3 years	First
2.	Pass	Female	Married	20-24	T/M **	Madhesh	Constituted	Nepal	4 to 7	Third
3.	Pass	Female	Unmarried	15-19	T/M	Madhesh	Private	Nepal	3 years	First
4.	Pass	Female	Married	30+	Janajati	Bagmati	Private	Nepal	4 to 7	Eighth
5.	Fail	Male	Unmarried	15-19	Dalits	Gandaki	Private	Nepal	4 to 7	First
6.	Fail	Male	Married	30+	T/M	Madhesh	Private	India	3 years	Third
7.	Fail	Male	Unmarried	20-24	Other	Lumbini	Private	Nepal	4 to 7	Sixth
8.	Fail	Female	Unmarried	20-24	B/C	Karnali	Private	Nepal	Golden	Sixth
9.	Fail	Female	Married	20-24	T/M	Madhesh	Private	Nepal	Golden	Eighth
10.	Fail	Male	Unmarried	25-29	B/C	Su. Pa. #	Private	Nepal	Golden	Tenth

Notes: **** B / C = Brahmin / Chhetri, ** T / M = Terai / Madheshi, # Su. Pa. = Sudur Paschim*** ***

APPENDIX 3

Consent Form

KU
Department of STEAM Education, Kathmandu University School of Education
Hattiban, Lalitpur, Nepal
In-depth interview guideline

Graduate Perception of Factors of National Licensing Examination Success in Nepal: A Mixed-Methods study

Consent for the respondent for participation

I have fully understood that to take part in this study is fully voluntary. I can withdraw my participation from this interview at any time without any charge. I am fully aware with objectives, procedure, danger and advantage of this study. I have understood; information taken from me is only for study purpose and remains confidential. I have had opportunity to ask question to clarify any queries during the interview. I am willing to give my consent to use the information from me in this study only. For me to participate in this interview is my personal decision. I have understood that the participation in the study will have no harm for me.

Respondent's Name …… Respondent's Sign …….

Date: ……..

APPENDIX 4

In-depth interview guideline

KU
Department of STEAM Education, Kathmandu University School of Education
Hattiban, Lalitpur, Nepal
In-depth interview guideline

Graduate Perception of Factors of National Licensing Examination Success in Nepal: A Mixed-Methods study

Form Number:

In-depth interview guideline

1. Please introduce yourself.

   Answer.

   ……
   ……

   Now, I am requesting you to recall your past experiences about your decision to study PCLGM course and related information.

2. Why and how you decide to study PCLGM course at that time. Please recall your inspirations / inspirators at that time.

   Answer

   ……
   ……

3. How was your experience at your college during study time?

   (Probe to Individual, Institutional and community related factors related to study outcomes: Age, sex, marital status, ethnicity, residence, institution type, country, course completion time, other personal, institutional and community factors influencing your educational achievements).

   Answer

   ……
   ……

4. Please recall the day when you are graduated from PCLGM Course? What was level of self-efficacy about your performance as health assistant in clinical setting at the time of Graduation?

   Answer

……
……

5. When did you get information about NLEs of Nepal Health professional Council (NHPC)? Please recall your experience with NLE and its outcomes in your professional life. Do you think NLEs is essential?
   Answer
   ……
   ……
6. What is your experience about NLEs? (Probe in Examination preparation, Examination systems, Experience at examination hall, result waiting time, NLE attempts, impression after results, about curriculum you studied at college, curriculum of NHPC, Question patterns, etc.….)
   Answer
   ……
   ……
7. Can you please relate your performance at college, performance at NLEs and performance at professional life? (Probe about alignment…, Curriculum, Implementation, Evaluation, NLEs, Job life skills etc.)
   Answer
   ……
   ……
8. What is your view on finding of quantitative study? Why and how individual, institutional and community related factors influence achievements in NLEs? (Share findings of quantitative study and relate in his life experience, probe with factors showing significant association in quantitative study and try to explore more factors experienced by the participants)
   Answer
   ……
   ……
9. Please share your experience after getting expected / unexpected results from NLE result? How you coped with the situation? How you became ready to next NLE? Is there any difference in preparation strategy among various NLEs time? Which strategy led you to the success in NLEs?
   Answer

……
……

10. What are your suggestions for betterment in students' expectation, experiences, in PCLGM Course and NLEs systems? (feel free to suggest…)
    Answer
    ……
    Thank you