

# Lived Experiences of Bachelor of Science in Chemistry Graduates during Comprehensive Examinations

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## ABSTRACT

This study explores the lived experiences of Bachelor of Science in Chemistry graduates (2022–2025) at Central Mindanao University regarding the implementation of comprehensive examination as preparation for the Chemist Licensure Examination. Using a transcendental phenomenological design, data were collected from seventeen graduates through semi-structured interviews and analyzed using Braun and Clarke’s thematic analysis.

Findings show that the comprehensive examination helped students integrate foundational chemistry concepts, thereby strengthening their academic readiness, and develop self-directed learning practices. At the same time, it exposed them to significant emotional and cognitive demands. Participants reported challenges related to limited preparation time, concurrent academic requirements such as thesis work, and gaps in prior knowledge, particularly among those affected by pandemic-related learning disruptions. To cope, they relied on peer support, time management, and personal belief systems to sustain motivation.

These findings suggest that comprehensive examinations function not only as summative assessments but also as complex learning experiences that shape students’ academic readiness, enhance their preparedness for licensure examination conditions, and build their confidence in their ability to succeed. The study underscores the need for assessment practices that balance cognitive rigor with adequate institutional support for students’ well-being, including structured review programs, manageable scheduling, and access to academic and psychosocial support services.

**Keywords:** comprehensive examination, lived experiences, licensure examination preparation, chemistry

## INTRODUCTION

Performance in licensure examinations is widely used as a key indicator of institutional effectiveness in higher education, particularly among state universities and colleges (SUCs). In the Philippine context, licensure outcomes are embedded in the SUC leveling framework under Key Result Area 1 (KRA 1), influencing institutional classification, funding allocation, staffing provisions, and policy development (Tan et al., 2023; DBM–CHED, 2016). High and consistent passing rates also contribute to accreditation outcomes, such as recognition as Centers of Development or Centers of Excellence, and are often viewed as evidence of instructional quality and graduates’ readiness for professional practice (Ferrer, 2024; Tan et al., 2023).

For science-based disciplines such as Chemistry, licensure examinations function not only as measures of academic achievement but also as safeguards of professional competence. These examinations are designed to assess not only theoretical knowledge, analytical reasoning, and professional judgment required for safe and ethical practice (Kane, 2005). Performance in the Chemist Licensure Examination therefore has implications for both institutional reputation and the credibility of graduates entering the profession.

At Central Mindanao University (CMU), the BS Chemistry program has historically faced challenges in meeting the national passing rate for first-time takers in the Chemist Licensure Examination. From 2011 to 2021, institutional performance fluctuated, with passing rates ranging from a 0% in 2012 to intermittent peaks that exceeded the national passing rate in 2018 and 2021 (PRC 2011-2021). Institutional records further show that from 2017 to 2019, the Chemist Licensure Examination recorded the lowest passing rates among all board programs at CMU and consistently remained below the national passing rate during this period (Tan et al., 2023). These trends highlighted the need for stronger academic interventions to support students' academic readiness for the licensure examination.

In response, the Department of Chemistry introduced a comprehensive examination for graduating students in BS Chemistry program. The comprehensive examination is a department-level assessment that covers the major fields of chemistry and is administered before graduation. It is intended to: (a) assess students' cumulative learning across the curriculum, (b) identify and bridge competency gaps before graduation, and (c) help equip students for the demands of the Chemist Licensure Examination.

In this study, academic readiness refers to the extent to which graduates possess the necessary disciplinary knowledge and cognitive skills needed to engage with board-level chemistry content. Preparedness, in contrast, refers to the overall state of being ready to take the licensure examination, which includes not only academic readiness but also familiarity with exam format, time pressure, and the ability to apply knowledge under testing conditions. Meanwhile, confidence refers to the individual's belief in their ability to successfully pass the licensure examination, reflecting a psychological perception rather than actual competence or preparation.

Since the implementation of the comprehensive examination, licensure outcomes at CMU have shown periods of improvement alongside continued variability. The passing rate of first-time takers increased from 66.67% in 2021 to 80% in 2022, declined to 57.78% in 2023 despite a CMU graduate placing Top 2 nationally, decreased further to 42.11% in 2024, and then rose to 78.95% in 2025 (PRC, 2022-2025). These fluctuations indicate that licensure performance is shaped by multiple factors.

Institutional records suggest that some first-time takers in 2023 and 2024 were earlier graduates who delayed taking the examination and were already employed, which may have limited their ability to engage in structured review. In contrast, recent graduates in 2025 achieved 100% passing rate, suggesting the advantage of taking the exam soon after graduation. These patterns indicate possible links between exam timing, access to review, and academic readiness, but they do not establish a direct effect of the comprehensive examination on licensure results. Additional factors may have influenced preparedness. During the COVID-19 pandemic, institutions adopted more flexible academic policies, resulting in varied learning experiences among graduates from 2023–2024 (M.A.T. Lacasan, personal communication, April 2026). In this study, preparedness refers to overall readiness for the licensure exam, while confidence refers to belief in one's ability to succeed.

When effectively designed, comprehensive examinations can encourage students to revisit foundational concepts, integrate knowledge across subdisciplines, and develop deeper conceptual understanding needed for licensure. However, their broad scope and high-stakes role in determining graduation eligibility can also generate substantial psychological and emotional demands, leading to stress, anxiety, and pressure during preparation. Beyond measurable outcomes such as board examination passing rates, the comprehensive examination may therefore influence students' study strategies, perceptions of academic readiness and preparedness, coping mechanisms, and overall well-being.

Thus, this study explores the lived experiences of BS Chemistry graduates at Central Mindanao University who have completed both the comprehensive and Chemist Licensure examinations. By examining how students prepare, the challenges they encounter, the coping strategies they employ, their perceived academic readiness, preparedness, and confidence for the licensure examination, and the recommendations they offer to future students, the study seeks to provide deeper insight into the role of comprehensive examinations in chemistry education and their contribution to preparation for the Chemist Licensure Examination.

## METHODOLOGY

### Objectives:

This study explores the lived experiences of BS Chemistry students regarding the comprehensive examination implemented in the BS Chemistry program at Central Mindanao University. Specifically, the study sought to address the following research questions:

1. How do BS Chemistry students describe their lived experiences of preparing for and taking the comprehensive examination?
2. What challenges do they encounter, particularly in relation to academic stress and expectations?
3. How do they cope with and make sense of these challenges?
4. How do they describe their experience and perception of the chemist licensure examination, particularly in terms of difficulty and preparedness?
5. What recommendations can they offer to future students who will take the comprehensive examination?

### Research Design:

This study adopted Moustakas' transcendental phenomenological design to explore the lived experiences of BS Chemistry graduates regarding the comprehensive examination. This approach focuses on describing how individuals experience a shared phenomenon and how they make meaning of that experience. It is appropriate for examining students' preparation, challenges, coping strategies, and perceptions of readiness for the Chemist Licensure Examination.

The researchers engaged in bracketing by recording personal beliefs and assumptions in reflexive journals prior to data collection and revisiting these notes throughout the study to minimize bias. Epoché was supported through ongoing memo writing and peer debriefing sessions, allowing the researchers to foreground participants' descriptions rather than their own interpretations. Open-ended, semi-structured interviews were used to elicit rich, first-person narratives, consistent with Giorgi's descriptive phenomenological approach.

### Participants of the Study

The participants were seventeen (17) BS Chemistry graduates from Central Mindanao University who had completed both the departmental comprehensive examination and the Chemist Licensure Examination between 2022 and 2025. Participants were selected using purposive sampling, with inclusion criteria that required graduates to: (a) have completed all BS Chemistry academic requirements, (b) have taken the comprehensive examination under the current departmental implementation, and (c) have taken the Chemist Licensure Examination. Potential participants were identified through departmental records, social media groups, and personal academic networks, and were invited via direct messages and email. Participation was voluntary, and all participants provided informed consent prior to the interviews.

### Data Gathering Procedure

Data were gathered through in-depth semi-structured interviews conducted online using Google Forms, which allowed flexibility for graduates who were already employed or located outside the university. The interview guide consisted of five open-ended questions focusing on: (1) experiences in preparing for and taking the comprehensive examination, (2) challenges and academic stress encountered, (3) coping mechanisms, (4) perceptions of the Chemist Licensure Examination in terms of difficulty and preparedness, and (5) recommendations for future students. Participants were contacted through digital invitations and were given the option to respond at a time convenient to them. Interview was conducted through an online platform.

## **Ethical Considerations in the Data Collection**

Ethical standards were strictly observed throughout the study. Participants received an informed consent form explaining the purpose of the research, procedures, potential risks and benefits, voluntary nature of participation, and the right to withdraw at any time without penalty. Informed consent was obtained prior to data collection, and pseudonyms or codes were used in transcripts and reports to protect participants' identities. Data were used only for academic purposes and were stored and disposed of according to institutional ethical protocols.

## **Phenomenological Approach**

To explore the lived experiences of BS Chemistry students, the researchers employed Moustakas' (1994) transcendental phenomenological approach. This approach focuses on describing participants' experiences and the meanings they ascribe to a shared phenomenon. Open-ended, semi-structured interviews were used to elicit rich and detailed narratives of students' preparation, challenges, and coping experiences during the comprehensive examination, consistent with Giorgi's descriptive phenomenological approach.

To minimize researcher bias, bracketing and epoché were systematically practiced through reflexive journaling, memo writing, and peer debriefing. These processes enabled the researchers to set aside prior assumptions and remain grounded in participants' perspectives throughout data collection and analysis. This approach ensured that themes emerged inductively from the data, rather than being shaped by predetermined categories, thereby strengthening the credibility and authenticity of the findings.

## **Data Analysis**

Data were analyzed using Braun and Clarke's six-phase thematic analysis. First, the researchers familiarized themselves with the data by repeatedly reading transcripts and written responses. Second, initial codes were generated by highlighting meaningful units related to preparation, challenges, coping strategies, perceptions of licensure, and recommendations. Third, similar codes were clustered to form preliminary themes such as "integrating foundational knowledge through self-directed yet emotionally demanding preparation," "managing competing academic demands under time and preparedness constraints," "utilizing social, cognitive, and spiritual resources to sustain academic persistence," and "viewing the comprehensive examination as a foundational preparation for licensure." Fourth, themes were reviewed against the coded extracts and the full data set to check coherence and distinctiveness. Fifth, each theme was clearly defined and named to capture its central organizing idea. Finally, illustrative excerpts were selected and integrated into the narrative to support the interpretation of themes in light of relevant literature. Trustworthiness was enhanced through audit trails, peer debriefing, and adherence to Lincoln and Guba's criteria of credibility and dependability.

# **RESULTS AND DISCUSSION**

## **On the Experiences in Preparing for and Taking the Comprehensive Examination**

### **Emerging Theme: Integrating Foundational Knowledge Through Self-Directed yet Emotionally Demanding Preparation**

Participants described preparation for the comprehensive examination as an extensive and integrative process that required reviewing topics across analytical, organic, inorganic, physical chemistry, and biochemistry. Many revisited previous notes, created summaries, and practiced using past examinations and problem sets to rebuild their understanding of core concepts.

A dominant pattern among participants (Respondents 1, 2, 3, 5, 6, 8, 9, 11, 13, 15, and 17) was the need to return to foundational knowledge. As Respondent 3 explained, "We had to study everything we learned over the past three years, which meant going back and relearning many concepts." Some participants (Respondents 8 and 10), particularly those who experienced pandemic-era learning, reported weak foundations. Respondent 10 shared, "My foundation wasn't that solid, so it felt like starting from scratch."

Participants also described their preparation as largely self-directed. They selected reference materials, used online lectures, and organized their own study schedules (Respondents 2, 4, 7, 9, 10, 12, and 16). Respondent 7 noted, “I focused on using one main resource per subject. Watching YouTube lectures also helped reinforce my understanding.”

Participants (Respondents 1, 5, 6, 11, 14, and 17) reported stress, anxiety, and mental exhaustion due to the wide coverage and unpredictability of the examination. As Respondent 5 stated, “It’s much harder because there are five major subjects with a wide scope, and you don’t know what questions will come out.”

These findings suggest that preparation for the comprehensive examination is both cognitively integrative and self-directed. The need to revisit and connect concepts across multiple domains indicates a shift from memorization toward deeper conceptual understanding, which is commonly associated with knowledge integration in higher education (Lehmann, 2022; Drake & Reid, 2020; Chen et al., 2025).

Participants’ practices also align with self-directed learning, where learners take initiative in identifying their learning needs, setting goals, selecting resources, and evaluating outcomes (Knowles, 1975). Their use of textbooks, online lectures, and structured study plans shows active control over their learning process rather than reliance on instructor-led review.

This is further supported by self-regulated learning frameworks, which emphasize planning, monitoring, and adapting strategies, as well as reflecting on performance to achieve learning goals (Zimmerman, 2002; Panadero, 2017). In this context, the comprehensive examination appears to encourage students to manage their time, effort, and study strategies more intentionally.

At the same time, the emotional demands reported by participants highlight the challenges of this process. While self-directed learning promotes autonomy, it also requires motivation, persistence, and self-regulation. These demands may become more difficult in high-stakes situations, where students must manage both cognitive and emotional pressures (Panadero, 2017).

These findings suggest that preparation for the comprehensive examination strengthens students’ academic readiness, as it requires the integration and reconstruction of foundational knowledge across chemistry domains.

## **On the Challenges Encountered During the Implementation of the Comprehensive Examination**

### **Emerging Theme: Managing Competing Academic Demands Under Time and Preparedness Constraints**

Participants experienced several overlapping challenges while preparing for and taking the comprehensive examination. These challenges mainly involved competing academic responsibilities, limited preparation time, and gaps in foundational knowledge.

A major challenge (Respondents 2, 3, 6, 8, 12, and 15) was managing thesis work alongside comprehensive examination preparation. This dual requirement created significant academic strain. One participant (Respondent 12) described the experience as “super exhausting,” noting the difficulty of balancing laboratory work, writing tasks, and exam review simultaneously. This indicates that overlapping academic requirements increased workload demands and reduced students’ capacity to focus effectively.

Time constraints (Respondents 4, 7, 9, 11, and 14) were also frequently reported. Participants described having limited time to review the broad coverage of five chemistry subjects, especially when examinations were scheduled in close succession. One participant (Respondent 9) stated, “After finishing one exam, I had to immediately prepare for another subject.” This reduced opportunities for rest and thorough review.

Several participants (Respondents 1, 5, 10, 13, and 16) reported difficulties due to insufficient foundational knowledge. These gaps were often linked to earlier disruptions in learning, particularly during remote instruction. One participant (Respondent 10) explained, “My foundation wasn’t that solid, so it felt like starting from scratch.” This suggests that weaknesses in prior learning made exam preparation more demanding.

These findings suggest that overlapping academic requirements intensified students' cognitive and workload demands. When thesis work is combined with multiple high-stakes examinations, students may struggle to allocate sufficient attention to each task. This supports cognitive load theory, which states that performance declines when demands exceed working memory capacity (Sweller, 1988; Paas et al., 2003). In this context, combined academic tasks increased cognitive load and reduced the capacity for deeper processing and integration of concepts.

Participants limited preparation time affects learning quality and performance. Closely scheduled examinations reduce opportunities for rest and meaningful review, which may hinder knowledge consolidation. Prior research shows that time pressure in high-stakes assessments can increase anxiety and reduce perceived control, negatively affecting cognitive performance (Pekrun, 2006; Zeidner, 1998). From a cognitive load perspective, insufficient time further limits students' ability to process and connect complex concepts effectively.

These findings also indicate that gaps in foundational knowledge significantly influence students' experience of difficulty in cumulative assessments. Weak prior learning makes it harder to engage with advanced content, especially in disciplines that build progressively. Studies show that disruptions in structured learning, such as those experienced during the COVID-19 pandemic, can weaken conceptual understanding over time (Kuhfeld et al., 2020). This highlights the importance of strong foundational learning, as early gaps tend to accumulate and affect later academic performance.

These findings suggest that gaps in foundational knowledge directly affect students' academic readiness, while time constraints and competing academic demands limit their preparedness to effectively perform under examination conditions.

## **On the Coping Mechanisms Used by Students**

### **Emerging Theme: Utilizing Social, Cognitive, and Spiritual Resources to Sustain Academic Persistence**

Participants described various coping mechanisms to manage the academic and emotional demands of the comprehensive examination, involving both external support and internal regulation.

Social support was a common coping strategy among participants (Respondents 3, 5, 7, 9, 12, and 14). Students studied with classmates, shared notes, and discussed difficult concepts after exams. One participant (Respondent 7) stated, "My classmates and I helped each other—we shared notes and studied together." These interactions helped students manage difficult content and reduce feelings of isolation.

Time management and structured study routines were also widely reported (Respondents 2, 4, 6, 8, 10, and 15). Participants created schedules, prioritized subjects, and allocated time for rest. One participant (Respondent 4) shared, "Planning my days ahead helped me focus on what to review." These strategies helped them organize the broad exam coverage and maintain preparation consistency.

Several participants (Respondents 1, 11, 13, and 17) relied on personal belief systems, including faith, prayer, and self-encouragement. One participant (Respondent 13) explained, "Always talk to God. Whatever happens, keep believing in yourself." These strategies were especially important during moments of failure, retakes, or emotional exhaustion.

In addition, participants (Respondents 3, 6, 12, 14, and 16) also reported self-care practices, including adequate sleep, proper eating, short breaks, and leisure activities such as socializing or playing games. These activities were used to manage stress and restore mental energy during intensive review periods.

These findings suggest that students used both problem-focused and emotion-focused coping strategies, consistent with Lazarus and Folkman's (1984) transactional model of stress and coping. Problem-focused coping involves directly managing the source of stress. This was reflected in time management, structured scheduling, and collaborative learning. These strategies helped students actively reduce academic demands by improving organization, efficiency, and content mastery.

Collaborative learning also reflects social constructivist principles, where knowledge is co-constructed through interaction (Vygotsky, 1978). Peer discussions and shared resources helped students clarify difficult concepts and distribute cognitive load. This supports research showing that collaborative learning environments enhance both academic understanding and emotional regulation in demanding academic contexts (Panadero, 2017).

Emotion-focused coping was also evident through reliance on faith, self-talk, and self-care practices. These strategies did not directly change academic demands but helped students regulate emotional responses such as stress, anxiety, and frustration. This aligns with research showing that emotion-focused coping is particularly important in uncontrollable or high-stakes academic situations (Lazarus & Folkman, 1984).

These coping strategies not only supported emotional regulation but also contributed to students' confidence, as they reinforced their belief in their ability to manage academic demands and succeed in high-stakes assessments.

## **On the Perceptions of the Chemist Licensure Examination**

### **Emerging Theme: Viewing the Comprehensive Examination as a Foundational Preparation for Licensure**

Participants generally perceived the comprehensive examination as a meaningful preparatory step for the Chemist Licensure Examination administered by the Professional Regulation Commission. This perception highlights the role of the comprehensive exam as both an evaluative and preparatory tool.

Several participants (Respondents 2, 5, 8, 10, 12, and 16) reported that the comprehensive examination resembled the licensure examination in terms of pressure, scope, and format. One participant (Respondent 8) stated, "It felt like the pressure and conditions of the board exam." This indicates that students experienced the assessment as similar to a real licensure testing environment.

In addition, participants (Respondents 3, 6, 9, 14, and 15) reported increased confidence after completing the comprehensive examination. One participant (Respondent 6) shared, "Passing the comprehensive exam gave me confidence for the board exam." This suggests that success in the examination contributed to a stronger sense of readiness for future high-stakes testing.

These findings suggest that the comprehensive examination functioned as a form of authentic and preparatory assessment, consistent with principles of authentic assessment theory. Authentic assessments replicate real-world tasks and conditions to improve transfer of learning and readiness for future professional demands (Wiggins, 1998). In this context, the similarity between the comprehensive exam and the licensure examination may have helped students become familiar with exam pressure and structure, thereby reducing uncertainty during the actual board exam.

This interpretation is supported by research indicating that exposure to high-stakes simulation assessments can improve test familiarity and performance readiness by reducing cognitive and emotional novelty (Arrogante et al., 2021). Repeated exposure to exam-like conditions allows students to develop test-taking strategies and adapt to time pressure, which are critical components of performance in standardized licensure examinations.

The reported increase in confidence also aligns with Bandura's self-efficacy theory. According to Bandura (1997), mastery experiences are the most influential source of self-efficacy. Successfully passing the comprehensive examination serves as a mastery experience that strengthens students' belief in their capability to succeed in the licensure examination. This effect is further supported by studies showing that academic self-efficacy is reinforced through successful performance in cumulative assessments (Chen et al., 2025; Gilar-Corbi & Pérez-Soto, 2024).

These findings suggest that the comprehensive examination enhances students' preparedness by simulating licensure examination conditions, while successful performance contributes to increased confidence through mastery experiences.

## On the Recommendations for Future Students

### Emerging Theme: Emphasizing Early Preparation, Deep Learning, and Resilience for Examination Success

Participants' recommendations reflect their retrospective evaluation of what contributed to or hindered their preparation. These suggestions emphasize proactive and sustained engagement with learning.

A recurring recommendation (Respondents 1, 4, 7, 9, 11, 16, and 17) was to begin preparation early and maintain consistent study habits throughout the program. Participants emphasized building strong foundational knowledge from the first year rather than relying on intensive review in the final year. They also advised treating regular coursework as long-term preparation rather than isolated requirements.

Another key recommendation (Respondents 2, 6, 8, 12, and 15) was to prioritize conceptual understanding over rote memorization. Participants stressed the importance of understanding principles, practicing problem-solving, and integrating concepts across chemistry subfields. They also suggested using tools such as tables of specifications to identify key topics and guide focused review.

Several participants (Respondents 3, 5, 10, and 13) emphasized perseverance and resilience. They acknowledged that setbacks such as retakes or delayed graduation may occur, but stressed that sustained effort, discipline, and personal or spiritual motivation are important for eventual success.

These recommendations highlight the importance of sustained academic engagement. The emphasis on early and continuous preparation reflects the idea that learning is more effective when distributed over time rather than concentrated in short periods. This is consistent with engagement theory, which explains that sustained behavioral, cognitive, and emotional engagement contributes to higher academic achievement (Fredricks et al., 2004). Empirical evidence also shows that consistent academic engagement is positively associated with performance and persistence in higher education (Casuso-Holgado et al., 2013; York et al., 2015; Fu et al., 2025). From this perspective, continuous preparation strengthens knowledge retention and reduces cognitive overload before high-stakes examinations.

The emphasis on conceptual understanding aligns with constructivist learning theory, which posits that learners build knowledge by connecting new information to prior understanding (Bruner, 1966; Piaget, 1970). In chemistry education, conceptual understanding is particularly important because the discipline is highly cumulative and interrelated. This supports outcomes-based education (OBE), which prioritizes the application and integration of knowledge rather than memorization of isolated facts (Tam, 2014; Yu, 2016). In addition, research in chemistry learning shows that conceptual understanding reduces cognitive load and improves problem-solving performance, while rote memorization often leads to fragmented and less transferable knowledge structures (Johnstone, 2010).

The emphasis on perseverance and resilience reflects the role of non-cognitive factors in academic success. According to Duckworth et al. (2007), sustained passion and persistence toward long-term goals is a strong predictor of achievement in challenging academic contexts. Similarly, academic resilience theory explains that students who can adapt to stress, setbacks, and failure are more likely to persist and succeed in demanding educational environments (Farrington et al., 2012; Masten, 2014). These traits are particularly relevant in cumulative assessments such as comprehensive and licensure examinations, where sustained effort over time is required.

These findings suggest that students view success in the comprehensive examination as dependent not only on cognitive preparation but also on long-term engagement, deep conceptual learning, and psychological resilience.

## LIMITATIONS

This study offers important insights into the lived experiences of BS Chemistry graduates; however, several limitations should be noted. The small sample size of seventeen participants ( $n=17$ ) from a single institution

limits the generalizability of the findings. The use of purposive sampling may also introduce selection bias, as participants may not fully represent the broader graduate population. Data collected through self-reported online interviews are subject to recall bias and may lack the depth of face-to-face interaction. Lastly, the study focuses on subjective experiences rather than measurable outcomes, and thus does not establish causal relationships between the comprehensive examination and licensure performance.

## CONCLUSION

This study explored the lived experiences of BS Chemistry graduates regarding the implementation of the comprehensive examination as preparation for the Chemist Licensure Examination. The findings reveal that the comprehensive examination serves as both an academic assessment and a meaningful preparatory experience that promotes the integration of foundational knowledge across major chemistry disciplines, thereby strengthening students' academic readiness. It also enhances preparedness by exposing students to conditions similar to the licensure examination, including its scope, format, and time constraints.

However, the examination also presents significant cognitive and emotional demands. Students experienced challenges related to overlapping academic responsibilities, limited review time, and gaps in foundational knowledge, which affected both their academic readiness and preparedness. Despite these challenges, students demonstrated resilience by employing various coping strategies, which helped regulate stress and contributed to the development of their confidence.

Importantly, the comprehensive examination was perceived as a valuable preparatory tool. Its similarity to the licensure examination provided familiarity, while successful performance strengthened students' confidence through mastery experiences. Thus, findings suggest that while the comprehensive examination enhances academic readiness, improves preparedness, and builds confidence, its effectiveness depends on maintaining a balance between academic rigor and institutional support.

## RECOMMENDATIONS

Institutions should provide structured review programs, improve scheduling to reduce overlap with major academic tasks, and offer support for addressing foundational learning gaps. Strengthening academic and psychosocial support services is also recommended. Faculty should emphasize conceptual understanding and integrate cumulative assessments across the curriculum. Students are encouraged to engage in early and consistent preparation, focus on deep learning, and practice effective time management and self-care. Future research may explore broader samples and examine the relationship between comprehensive examination performance and licensure outcomes.

## ACKNOWLEDGEMENT

Based on the findings of this study, several recommendations are proposed for students, faculty, and future researchers.

For students, it is recommended to engage in early and continuous preparation for the comprehensive examination by strengthening foundational knowledge throughout their undergraduate years. Developing effective study habits, time management skills, and seeking peer or mentor support can help reduce academic stress and improve readiness.

For faculty and academic institutions, it is recommended to design more balanced and student-centered assessment structures. Scheduling the comprehensive examination in a way that minimizes overlap with major academic requirements, such as thesis work, may help reduce cognitive overload. Additionally, institutions may consider providing structured review programs, mentoring systems, and mental health support services to address both academic and emotional needs of students.

For the Department of Chemistry, continuous evaluation of the comprehensive examination's design and implementation is encouraged to ensure alignment with licensure examination competencies. Incorporating formative assessment elements and feedback mechanisms may further enhance its effectiveness as a preparatory tool.

For future researchers, it is recommended to expand the scope of the study by including multiple institutions and larger sample sizes to improve generalizability. Mixed-methods approaches may also be employed to examine the relationship between comprehensive examination performance and actual licensure outcomes. Further studies may also explore the long-term impact of comprehensive examinations on professional practice and career readiness.

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