

Predictive Modeling of Learning Practices among Tertiary Educators: A Multiple Regression Approach

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ABSTRACT:

This study employed a quantitative predictive modeling design using multiple regression analysis to examine the extent to which content transformation and assessment integration predict learning practices among tertiary educators in teacher education programs of State Universities and Colleges in Region 12. Using total enumeration, full-time Mathematics faculty from six participating Higher Education Institutions in Region 12 served as respondents. Data were gathered through a validated 5-point Likert scale questionnaire and analyzed using mean, Pearson's *r*, coefficient of determination, and multiple linear regression.

Results revealed high levels of content transformation, assessment integration, and learning practices. A strong positive correlation was found between teaching practices and learning practices. Multiple regression analysis showed that both content transformation and assessment integration significantly predict learning practices. Consequently, the null hypotheses stating no significant relationship and no significant prediction were rejected. The findings underscore that effective transformation of disciplinary content and integration of assessments are key drivers of quality learning practices. It is recommended that HEI administrators provide continuous professional development on evidence-based instructional strategies and that teacher education curricula include modules linking teaching and learning processes. Future research may explore other predictors such as motivation and learning environment.

Keywords: Predictive Modeling, Content Transformation, Assessment Integration, Learning Practices, Tertiary Educators, Philippines

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Introduction

The quality of education largely depends on the effectiveness of teachers, which starts with how they

are prepared in Teacher Education Institutions (TEIs). Teaching practices are important in shaping how future educators plan lessons, deliver

instruction, and support student learning. Globally, education has shifted from teacher-centered approaches to student-centered and interactive methods that promote active learning and deeper understanding (Darling-Hammond, 2017). This shift highlights the need for TEIs to prepare pre-service teachers who can respond to the diverse needs of learners in modern classrooms.

Today, education systems also focus on developing 21st-century skills such as critical thinking, collaboration, communication, and problem-solving. Teaching practices are expected to integrate technology, inquiry-based learning, and flexible strategies that address different learning needs (OECD, 2019). Effective teaching also includes clear lesson planning, meaningful assessment, and addressing student misconceptions to improve learning outcomes.

In the Philippines, teaching practices are guided by national policies. The Department of Education (DepEd) promotes learner-centered instruction and formative assessment under the K to 12 Program (DepEd, 2015). At the higher education level, the Commission on Higher Education (CHED) sets standards for teacher education through CHED Memorandum Order No. 74 Series of 2017 and CHED Memorandum Order No. 75 Series of 2017, focusing on content knowledge, teaching skills, and practical training. However, the EDCOM II Report notes ongoing issues such as uneven teaching quality, gaps in teacher preparation, and differences between training and actual classroom needs.

At the local level in Region XII, TEIs such as State Universities and Colleges follow these standards but still face challenges like limited resources, unequal access to technology, and differences in faculty development. These factors may affect how teaching practices are implemented. Teaching and learning in TEIs are closely connected, as effective teaching helps develop critical thinking, reflection, and independence among student teachers (Shulman, 1986). However, although there are studies on teacher education, there is still limited research on the factors behind how these practices are carried out in Region XII, showing the need for further study which this study aims to address.

The theoretical foundation of this study is grounded in the synergy between Bandura's Social Cognitive Theory (1986) and Kolb's Experiential Learning Theory (1984), which collectively provide a robust conceptual basis for understanding how teaching practices serve as environmental stimuli that shape and predict student learning behaviors. According to

Bandura's Principle of Reciprocal Determinism, human functioning is the result of a triadic interaction between environmental factors, personal factors, and behavior. Within this framework, teaching practices—such as content transformation and assessment integration—function as the critical environmental stimuli that do not exist in isolation but are theorized to actively influence the students' learning practices, including reflective engagement and self-directed learning. By establishing the status and prevalence of these variables, the study captures the environmental and behavioral components necessary to determine the statistical strength of their association.

Research Questions

What is the level of content transformation and assessment integration among tertiary educators?

1. To what extent are learning practices implemented in the teacher education programs in State Universities and Colleges in Region 12 in terms of reflective engagement, collaborative inquiry, experiential learning, and self-directed resource use?
2. Do content transformation and assessment integration significantly predict learning practices among tertiary educators?

Methods

Study Design

The study utilized a quantitative predictive modeling design using multiple regression analysis to examine the extent to which content transformation and assessment integration predict learning practices among tertiary educators. The researchers employed quantitative survey methods to establish the current status and prevalence of various teaching and learning practices. This design ensures that the study effectively addresses fundamental questions regarding the implementation levels of specific constructs, such as content transformation and reflective engagement. Furthermore, the correlational aspect moves beyond mere description to determine the strength and direction of the relationships existing among the measured variables. This phase is crucial for testing the hypothesis that effective teaching practices are significantly linked to high-quality student learning practices, thereby providing a data-driven understanding of how pedagogical competence influences student outcomes.

Sample

The respondents of the study comprised the total population of full-time Mathematics faculty members from the six participating Higher Education

Institutions (HEIs) in region 12. These institutions include Cotabato Foundation College of Science and Technology (CFCST), Cotabato State University, Mindanao State University-General Santos City, University of Southern Mindanao (USM-Kabacan), University of Southern Mindanao (Kidapawan City Campus), and Sultan Kudarat State University (SKSU).

Census or complete enumeration was used in this study to include all identified respondents. This method ensured a complete, accurate, and reliable collection of data since no sampling was done. By involving the entire population, the study was able to fully capture the characteristics of the respondents and reduce sampling error, leading to more valid and dependable results.

Instrumentation

The researchers utilized a self-made survey questionnaire designed to gather data on both teaching and learning practices within the higher education institutions in region 12. It was divided into two parts. The first part contains the teaching practices demonstrated by teachers particularly how content transformation and assessment integration are applied in the classroom. The second part examines the level of learning practices among the students particularly reflective engagement, collaborative inquiry, experiential learning, and self-directed resource use. This two-part structure enables the researcher to examine both the instructional processes of teachers (teaching practices) and the reactions or engagement of learners (learning practices), thereby offering a more complete view of the teaching-learning process. It utilized the defined Likert scale which ranges from 1 to 5 and a detailed descriptions of each scale as presented in the matrix to enhance the reliability of the responses and support appropriate interpretation of results.

Data Analysis

To determine the level of teaching practices and learning practices in the teacher education programs of State Universities and Colleges in Region XII, the arithmetic mean was employed. This measure was used to describe the average responses of the participants across the identified indicators, including content transformation, assessment integration, reflective engagement, collaborative inquiry, experiential learning, and self-directed resource use.

To examine the relationship between teaching practices and learning practices, Pearson Product-Moment Correlation (Pearson r) was used because the data were continuous and suitable for parametric testing.” This parametric test was considered

appropriate due to the ordinal nature of the data derived from Likert-scale responses and its ability to measure the strength and direction of association between the two variables.

The coefficient of determination (R^2) was calculated to determine the proportion of variance in learning practices that can be explained by teaching practices. This analysis helped establish the extent of the predictive influence of teaching practices on learning outcomes.

Finally, multiple linear regression analysis was conducted to determine the extent to which Content Transformation and Assessment Integration predict the manifestation of Learning Practices. The resulting regression model provides insight into the relative contribution of these instructional dimensions, though the statistical evidence suggests a nuanced interpretation.

Results and Discussion

Table 1, shows teaching practices in terms of content transformation. Indicators 6 and 10 obtained the highest mean of 4.68, interpreted as consistently applied. This points out the teachers' ability to distinguish themselves as educational experts through content transformation and the intentional design of lessons that move students from personal experience toward specialized academic knowledge. Such a result suggests that the respondents view their role not merely as lecturers, but as architects of cognition. This supports Xiang Deng (2021), who explained that content transformation involves recontextualizing knowledge so it becomes more accessible to learners while maintaining its academic integrity.

Indicators 2 and 3 yielded a mean of 4.60, also interpreted as consistently applied. This highlights that teachers consistently act as a bridge between complex disciplinary knowledge and student understanding. Furthermore, the high mean for using analogies, metaphors, and practical examples indicates a strong reliance on scaffolding techniques to make abstract concepts tangible. This finding supports the study of Mareike Kunter et al. (2013), which found that teachers who effectively transform content and use supportive strategies enhance student achievement and motivation.

Indicators 1, 5, 7, and 8 received a mean of 4.58, interpreted as consistently applied. This underscores a uniform consistency in how teachers simplify subject matter, account for prior knowledge, and provide diverse representations of a topic. These results reinforce Shulman's (1986) view that teaching involves

reshaping content in ways that match students' developmental levels and learning needs.

Finally, Indicators 4 and 9 attained a mean of 4.50. While these are the relatively lower scores in the set, they are still interpreted as consistently applied. Indicator 4 relates to critical reflection on subject matter before teaching, while Indicator 9 highlights awareness that poor understanding may transfer misconceptions. This indicates that while teachers are highly skilled at delivery, there remains an opportunity to deepen the pre-instructional reflection process and the rigorous self-checking of subject matter to prevent the transfer of misconceptions. These findings are consistent with Fouad Hashweh (1987), who warned that weak subject matter understanding can lead to student misconceptions, emphasizing the importance of careful content preparation and self-monitoring by teachers.

Overall, the composite mean of 4.59, interpreted as consistently applied, reflects an exemplary level of pedagogical mastery among the respondents. This high average suggests that the transformation of content, the core of effective teaching is a standardized professional practice among Mathematics teachers in the Colleges of Education of State Universities and Colleges (SUCs) in region 12. The results imply that these educators possess a sophisticated balance of subject matter expertise and pedagogical skill, ensuring that academic knowledge is not just transmitted, but effectively reconstructed for student success. This result aligns with the idea of Lee Shulman's (1986) Pedagogical Content Knowledge (PCK), which emphasizes that effective teaching requires not only strong subject matter knowledge but also the ability to represent and adapt content for learners.

Table 1. Level of Content Transformation among Tertiary Educators

Statements	Mean	Description
1. The teachers modifies or simplifies subject matter before presenting it to students, as effective teaching always requires this.	4.58	Consistently Applied
2. The teachers simplifies complex subject matter easier for students to understand.	4.60	Consistently Applied
3. The teachers uses real-world analogies, metaphors, and practical examples to help students grasp abstract concepts.	4.60	Consistently Applied
4. The teachers critically reflects on the subject matter before teaching a topic to find the best way to explain it to their specific students.	4.50	Consistently Applied
5. The teachers ensures adapting the teaching content to account for students' prior knowledge and developmental level is a non-negotiable step in lesson planning.	4.58	Consistently Applied
6. The teachers' ability to transform subject content for teaching is what truly distinguishes them as an expert from a subject matter expert.	4.68	Consistently Applied
7. The teachers' effective transformation of content leads to students showing higher levels of achievement and motivation.	4.58	Consistently Applied
8. The teachers provides multiple, diverse representations of the same topic, because students learn most effectively this way.	4.58	Consistently Applied
9. The teachers presents insufficient understanding of a subject which lead students to create or transfer misconceptions.	4.50	Consistently Applied
10. The teachers designs the way they teach content to aim to move students' personal experiences towards specialized, powerful academic knowledge.	4.68	Consistently Applied
Overall	4.59	Consistently Applied

The results in Table 2 reveal a very high level of teaching practices in terms of assessment integration, with an overall mean of 4.45 which is interpreted as Consistently Applied. This implies that teachers have already integrated assessment into their instructional

practices as a core element, rather than treating it as an activity done only at the end or as something separate from teaching. This finding strongly supports the assertion of Khan (2012) that assessment must be

integrated continuously within teaching to meaningfully enhance student learning.

The highest-rated indicator 1 with a mean of 4.75 shows that teachers overwhelmingly view assessment as a continuous and systematic process. This means that the teachers in the study look at assessment as ongoing and organize part of teaching every day. This aligns with the core principle emphasized in the literature that effective assessment is not confined to end-of-unit evaluation but is integrated throughout the learning process (Khan, 2012). Such practice reflects a mature instructional approach where assessment actively shapes teaching decisions and student progress.

Indicator 3 with a mean of 4.62, which emphasizes the alignment of assessment tasks with learning outcomes and teaching strategies, further demonstrates strong instructional coherence among teachers. This finding is in line with the concept of constructive alignment introduced by Biggs (2023), which explains that properly aligned assessments help make expectations clear and effectively direct student learning. In the same way, Wilfrid Laurier University highlights that transparency in assessment reduces student anxiety and enables learners to concentrate their efforts more efficiently. This is further supported by Indicator 4 with a mean of 4.53, showing that teachers place high importance on clarity in their assessment practices.

The high mean for Indicator 2 with a mean of 4.55 suggests that teachers recognize the direct relationship between assessment quality and student learning, again affirming Khan's (2012) position that the effectiveness

of assessment practices significantly influences learning outcomes. Together, these top indicators demonstrate that teachers possess strong conceptual understanding of assessment integration principles. This approach sets a great foundation for improving learning practices in programs like those in SUCs in Region 12.

Indicator 10 is the lowest indicator with mean of 4.18 which means that it is Frequently Applied, points to a relative difficulty in aligning assessment methods with curriculum standards, such as those in the K–12 program. Although still positive, this result suggests an area for improvement. This finding is significant in light of DepEd (2015) guidelines, which stress that assessment must be aligned with curriculum competencies to ensure standards compliance. Similarly, research from Philippine E-Journals (2024) underscores that alignment among curriculum, instruction, and assessment is essential for achieving satisfactory student performance. The slightly lower rating may indicate challenges in translating policy requirements into classroom practice.

In conclusion, the findings show that teachers are effectively integrating assessment into their teaching, especially in continuous evaluation, alignment, and feedback. However, there is still a need to improve how assessments align with curriculum standards and to use a wider variety of assessment strategies. Improving these areas can further strengthen assessment integration and maximize its benefits for student learning.

Table 2. Level of Assessment Integration among Tertiary Educators

Statements	Mean	Description
1. The teachers' views assessment as a continuous, systematic process embedded throughout instruction, not just an end-of-unit measure.	4.75	Consistently Applied
2. The teachers recognizes that the quality of student learning in their classroom is directly related to the quality of their assessment practices.	4.55	Consistently Applied
3. The teachers ensures their assessment tasks are always clearly and demonstrably aligned with the intended learning outcomes and teaching methods.	4.62	Consistently Applied
4. The teachers provides students with transparency about how they will be assessed, as this helps students focus their learning efforts effectively.	4.53	Consistently Applied
5. The teachers regularly uses low-stakes formative assessment to diagnose student learning gaps and make real-time adjustments to their instruction.	4.40	Consistently Applied

6. The teachers uses a variety of assessment strategies in their teaching, recognizing that relying on only a few may not promote meaningful student learning.	4.25	Consistently Applied
7. The teachers data gathered from formative assessments positively influences their students' performance on summative assessments.	4.33	Consistently Applied
8. The teachers actively engages students in the assessment process, encouraging them to develop skills in self-evaluation and critical thinking.	4.43	Consistently Applied
9. The teachers prioritizes providing students with specific, timely feedback that enhances their autonomy and control over their own learning.	4.43	Consistently Applied
10. The teachers ensures the assessment methods they employ are consistently aligned with the curriculum standards and required competencies of the educational program (e.g., K-12).	4.18	Frequently Applied
Overall	4.45	Consistently Applied

The results in Table 3 shows learning practices in terms of reflective engagement among students is highly evident, with an overall mean of 4.21. Indicator 9 yielded the highest mean of 4.48, interpreted as highly evident, which was recorded for the students' exposure to sustained professional development based on reflective practice. This indicates that the impact on learning is most significant when reflection is not merely a one-time activity but a consistent, long-term institutional priority. This aligns with studies stating that reflective engagement leads to deeper professional and academic development when it is consistently applied (Darling-Hammond et al., 2017). Indicators 2 and 3 obtained a mean of 4.30, also interpreted as highly evident, suggesting that students show a high level of proficiency in using reflection to fuse personal experience with new knowledge. They also successfully utilize reflection to connect their current actions with their future professional identities, which is a hallmark of transformative education. This shows that critical reflection helps students create meaning and shape their identity. This supports Indrašienė et al. (2023), who explained that reflection connects past experiences with new learning to build a stronger sense of self. It also agrees with Colomer et al. (2020), who highlighted that reflection supports the development of professional identity and long-term skills.

Indicators 6 and 10 obtained means ranging from 4.23 to 4.25, still interpreted as highly evident. These results point to a strong presence of meta-thinking and the questioning of biases among learners. Specifically, the high mean for Indicator 6 highlights the successful role of digital and online resources in facilitating these critical self-assessments. This supports the idea that reflective learning can be improved through well-

planned activities and online platforms that promote self-assessment and critical thinking (Means et al., 2010; Das, 2016).

Furthermore, indicators 4, 5, and 7 received means between 4.13 and 4.18, interpreted as Highly Evident. These indicators demonstrate that a permissive and appreciative classroom climate, combined with project-based learning and documented reflections, effectively informs instructional decisions. These scores suggest that the teacher-student feedback loop is a well-established component of the curriculum. These findings agree with Campo et al. (2023), who explain that learner-centered methods help develop reflection and critical thinking. They also support Alkandari and Alfaraj (2025), who found that reflective practices improve teachers' awareness and help them make better instructional decisions.

On the other hand, indicators 1 and 8 received relatively lower scores with means ranging from 3.95 to 4.07, interpreted as frequently evident. These lower means for peer review and independent critical judgment suggest that students are currently more comfortable reflecting individually or under teacher guidance than they are when judging their own outcomes or critiquing their peers.

Overall, the results show that students have a strong level of reflective engagement, and it is becoming part of their learning habits. This supports Colomer et al. (2020), who said that reflection is important for developing critical thinking and lifelong learning skills. It also agrees with the American Library Association (2016), which explains that reflection helps students become more aware and better at evaluating knowledge and authority. This supports the idea of reflective engagement as an active and critical process

of examining one's learning and outcomes (Farr & Riordan, 2012, as cited in Hansen, 2025).

Table 3. Extent of Learning Practices in terms of Reflective Engagement

Statements	Mean	Description
1. The student engages in reflective practice that moves beyond simple contemplation by actively inquiring into a problem and critically judging their process and outcomes.	3.95	Frequently Evident
2. The student uses critical self-reflection, guided by the teacher, to fuse their personal experience with new knowledge, leading to a new sense of meaning.	4.30	Highly Evident
3. The student uses reflection as a systematic way to connect what they know, what they do, and who they aim to be as a learner or future professional.	4.30	Highly Evident
4. The student is required to engage in self-evaluation and meta-thinking through learning activities like debates or project-based learning, which the teacher frequently designs.	4.18	Frequently Evident
5. The student is encouraged to engage in deep and honest reflection due to the open, appreciative, and permissive classroom climate the teacher consciously creates.	4.13	Frequently Evident
6. The student incorporates self-assessment questions and critical thinking assignments into their learning, which the teacher embeds in digital or online resources to promote transformative learning.	4.25	Highly Evident
7. The student documented reflection on their learning process helps the teacher raise awareness of the student's underlying beliefs and informs the teacher's instructional decisions.	4.18	Frequently Evident
8. The student regularly engages in collaborative and reflexive practices (e.g., peer review or group self-assessment) with classmates, as this contributes substantially to their academic growth.	4.07	Frequently Evident
9. The student is exposed to professional development based on reflective practice that is sustained over a long time to have a meaningful impact on their learning.	4.48	Highly Evident
10. The student is prompted to critically examine their own assumptions and information biases, recognizing how authority and knowledge are constructed in their field.	4.23	Highly Evident
Overall	4.21	Highly Evident

Table 4 shows learning practices in terms of collaborative inquiry. Indicators 9 and 10 yielded the highest mean of 4.58, interpreted as highly evident. These scores reflect students' development of 21st-century skills, specifically critical thinking and communication, alongside improved motivation and persistence. This confirms that collaborative methods are not merely administrative tools but serve as active drivers of student engagement and modern skill acquisition. This supports Thornhill-Miller et al. (2023), who highlighted that collaborative approaches help develop key skills needed for lifelong learning and future success.

Furthermore, Indicators 2 and 4 obtained means ranging from 4.53 to 4.55, also interpreted as highly evident, indicating that student learning is positively impacted by data-driven discussions. Teachers are successfully bridging the gap between educational theory and classroom practice, ensuring that instruction constantly evolves to meet actual student needs. This supports Nelson et al. (2010), who found that using data in collaboration helps teachers improve their teaching and enhance student learning. It also agrees with Carpenter (2015), who explained that collaborative inquiry helps teachers grow through reflection and self-directed learning.

Indicators 1, 3, and 8 which obtained means between 4.48 and 4.50, interpreted as highly evident. These indicators highlight a culture of collective accountability, where students receive a consistent educational experience because the teaching staff systematically solves problems and shares expertise. Such collaboration prevents the learning gaps that often occur when teachers work in isolation. This supports Donohoo (2018), who explained that collective teacher efficacy, the shared belief among teachers that they can improve student learning, is a strong factor in student success.

Similarly, Indicators 5 and 6 received a mean of 4.40, interpreted as highly evident. These scores suggest that while teachers are collaborating, the transition from basic procedural instruction to deeply refined conceptual understanding is an ongoing process. The staff's shared belief in their collective impact provides a strong, stable foundation for student success. This is in line with Bandura (1997), who explained that social interaction strengthens both individual and collective efficacy.

While Indicator 7 received a relatively lower mean of 4.32, it remains Highly Evident. This slightly lower score suggests that while the institutional culture is trusting, the social-professional interactions among

staff could be further deepened to transition from simple cooperation toward truly transformative inquiry. This means that even though there is a trusting learning environment, there is still a need to improve deeper professional interaction and inquiry. This result supports Learning Forward (2025), which says that trust and strong relationships are important for effective collaborative inquiry.

The overall mean of 4.48, interpreted as highly evident, signifies a robust culture of Professional Learning Communities (PLCs) within the institution. This result demonstrates that the school has moved beyond traditional teaching models toward a Collective Efficacy framework. An overall mean of 4.48 indicates that student growth is not left to chance; instead, it is the deliberate result of a teaching staff that investigates, iterates, and improves together. This high level of collaborative inquiry ensures that students are the primary beneficiaries of a reflective, synchronized, and effective instructional system. This is in line with Gosselin et al. (2003), who stated that effective collaboration requires shared goals, responsibility, and accountability. It also agrees with Thomson and Perry (2006), who found out that collaboration results in shared efforts and improved learning outcomes.

Table 4. Extent of Learning Practices in terms of Collaborative Inquiry

Statements	Mean	Description
1. The student benefits from the teacher regularly working with colleagues to systematically investigate and solve shared problems of practice in the school.	4.50	Highly Evident
2. The student learning is positively impacted because teacher collaborative discussions are evidence-informed, focusing on data and student learning outcomes to drive inquiry.	4.55	Highly Evident
3. The student receives a consistent and strong educational experience because the teaching staff shares intellectual expertise, responsibility, and accountability for instructional challenges.	4.48	Highly Evident
4. The student is taught by a teacher who uses Collaborative Inquiry to explore discrepancies between educational theory and their current classroom practice, ensuring instruction is continuously improving.	4.53	Highly Evident
5. The student learning is enhanced due to the staff's collective efficacy—their shared belief in their ability to positively impact student learning.	4.40	Highly Evident
6. The student benefits from instructional practices that are refined through collaboration, moving from a basic procedural level to a deeply refined, conceptual understanding.	4.40	Highly Evident
7. The student thrives in a trusting and genuinely inquiring learning culture that is fostered by the social interactions among the teaching staff.	4.32	Highly Evident

8. The student benefits from school improvement efforts and innovations that are a direct result of the teacher's involvement in Collaborative Inquiry.	4.48	Highly Evident
9. The student motivation, persistence, and overall achievement are improved by engaging in collaborative learning methods designed by the teacher.	4.58	Highly Evident
10. The student develops essential 21st-century skills such as critical thinking and communication through the collaborative processes intentionally used in the classroom.	4.58	Highly Evident
Overall	4.48	Highly Evident

Table 5 shows learning practices in terms of experiential learning. Indicators 1 and 4 yielded the highest means, ranging from 4.53 to 4.55, interpreted as highly evident. These scores were recorded for the consistent cycle of hands-on experience followed by reflection, confirming that students are not merely performing tasks but are engaged in a structured process where hands-on practice serves as the primary driver of their learning. This supports Kolb and Kolb's (2017) idea that learning happens in a cycle of doing, reflecting, and applying knowledge. It also agrees with Healy (2017), who highlighted that reflection is important in making experiences meaningful for learning.

In the same way, Indicators 2 and 8, with means of 4.43 to 4.48, point out a high level of evidence that students recognize knowledge as a product of transformed experience. The inclusion of reflection as a formal, required part of the curriculum ensures that the doing effectively leads to actual understanding. This aligns with Kolb (1984), who state that learning happens when experience is transformed into understanding. It also supports Jiménez et al. (2022), who explain that experiential learning improves learning by allowing students to learn through "doing."

Indicators 6, 9, and 10, with means ranging from 4.37 to 4.40, highlight that students are developing critical thinking through integrated activities and receiving timely instructor feedback. This supports An (2019), who found out that experiential learning improves student learning, especially when teachers provide feedback. It also agrees with Dvergsten and Haugen (2015), who found out that experiential activities help students develop critical thinking skills like evaluation and reasoning. The mean for indicator 10 specifically suggests that experiential learning is successfully treated as a continuous process rather than an isolated event.

Furthermore, Indicators 3 and 7, both with a mean of 4.38, bring to light that teachers are effectively accommodating diverse learning styles and preparing students for the professional world through internships and service-learning. These scores indicate a strong link between classroom activities and career readiness. Indicators 3 and 7 with a mean of 4.38 show that teachers consider different learning styles and use activities like internships and service-learning to prepare students for future jobs. This result agrees with Kolb and Kolb (2005; 2017), who explained that experiential learning includes different forms such as internships and service-learning. It also supports Earnest et al. (2016), who found out that experiential learning helps students connect classroom theory with real work situations.

While Indicator 5 received a mean of 4.35, it remains highly evident. This score suggests that while students are making connections between abstract theories and real-world experiences, this remains an area where instructional methods can be further refined to bridge the gap even more effectively. The result validates the explanation provided by Friedman and Goldbaum (2016) that experiential learning serves as a link between academic learning and practical application. The overall mean of 4.43, interpreted as highly evident, indicates that Experiential Learning Theory (ELT) is deeply integrated into the instructional framework. This result signifies that the learning environment successfully moves beyond traditional rote memorization. A composite mean of 4.43 confirms that students are viewed as active participants in the creation of knowledge. By prioritizing the transformation of experience into understanding, the institution ensures that students develop not only theoretical knowledge but also the practical wisdom and critical thinking skills necessary for success in complex, real-world environments. This result supports Kolb's (1984) Experiential Learning Theory, which explains that knowledge is created through the transformation of experience. This

approach not only improves understanding but also develops critical thinking, practical skills, and career readiness, as supported by Kolb & Kolb (2017), An (2019), and Healy (2017). In other words, the results

show that students learn best when they are actively involved in real experiences, reflect on them, and apply what they learn to new situations.

Table 5. Extent of Learning Practices in terms of Experiential Learning

Statements	Mean	Description
1. The student consistently moves through a learning process that connects hands-on experience with reflection and application, as ensured by the teacher's lessons.	4.55	Highly Evident
2. The student is provided with and uses opportunities to reflect on their concrete experiences as a formal and required part of the learning process.	4.48	Highly Evident
3. The student is supported in their learning because the teacher recognizes different learning style preferences and adjusts instructional strategies to meet this variety.	4.38	Highly Evident
4. The student prioritizes learning through doing and hands-on practice, which improves their perceived learning because the teacher designed the activities this way.	4.53	Highly Evident
5. The student is taught using methods designed to help them establish clear connections between abstract theoretical concepts and real-world experiences.	4.35	Highly Evident
6. The student develops critical thinking skills through engaging with integrated experiential activities and reflective writing assignments.	4.40	Highly Evident
7. The student is effectively prepared for a smoother transition to the professional world of work by engaging in experiential activities (e.g., internships, service-learning).	4.38	Highly Evident
8. The student understands that knowledge is fundamentally created or enhanced through the transformation of experience into new understanding.	4.43	Highly Evident
9. The student receives specific, timely instructor feedback during experiential learning activities, which positively relates to their desired learning outcomes.	4.40	Highly Evident
10. The student engages in experiential learning as a continuous process throughout the curriculum, rather than a single, one-time, linear event.	4.37	Highly Evident
Overall	4.43	Highly Evident

Table 6 reveals learning practices in terms of self-directed resources use. Indicator 10 yielded the highest mean of 4.60, interpreted as highly evident. This score reflects the students' positive perception of the institutional environment, suggesting that the school successfully fosters a supportive atmosphere where students feel encouraged and empowered to pursue self-directed learning. This reflects Knowles' (1975) concept that resource identification is a key step in SDL. It also supports Ayyildiz and Tarhan (2015), who emphasized that learners must be able to locate and use appropriate resources to succeed in self-directed learning.

Similarly, Indicators 1, 6, 7, and 8 obtained a mean of 4.48, also interpreted as highly evident. These results underscore that students demonstrate a consistent ability to identify human and material resources while using self-reflection to define their personal learning paths. Notably, they view technology as a liberating factor, and their high technological self-efficacy allows them to utilize digital tools effectively.

Furthermore, indicators 2, 5, and 9, with means ranging from 4.40 to 4.43, highlight that students recognize that merely having resources available is insufficient; they understand the necessity of active implementation. They also demonstrate a high readiness for flipped learning, being well-prepared to

engage with online content independently outside the classroom. This supports Rogers (1969), who explained that effective learning requires access to a wide range of resources, but also learner initiative in using them properly.

While Indicator 3 received a mean of 4.23, interpreted as highly evident, this score is slightly lower than those for specific resource use. This may indicate that students are more targeted and efficient in the resources they select rather than searching broadly. This confirms with George et al. (2014), who found that access to learning resources plays an important role in supporting SDL, while limited engagement reduces learning effectiveness.

Finally, indicator 4 received a mean of 4.17, interpreted as frequently evident. This item received the relatively lowest score in the set, suggesting that while students are excellent at selecting and using resources, the administrative aspect of time management within the self-regulated learning process is an area that could benefit from further scaffolding or support. This supports Zimmerman (2002), who stated that self-regulated learning includes managing time, learning strategies, and resources to reach academic goals. It also aligns with Broadbent (2017),

who found that better self-regulation leads to higher academic performance.

The overall mean of 4.38, interpreted as highly evident, signifies that students have developed strong Self-Directed Learning (SDL) competencies. These findings show that students have shifted from just passively taking in information to actively taking charge of their own learning. A composite mean of 4.38 confirms that students possess the technological self-efficacy and critical thinking necessary to navigate both physical and digital learning landscapes. By effectively managing resources and seeking out new paths for inquiry, these students show they're ready for the ongoing learning demands of today's world.

Overall, the findings show that students are good at using self-directed learning resources, especially in choosing materials, using technology, and managing their own learning. This supports Morris (2019) and Song and Hill (2007), who said that self-directed learning depends on students' ability to independently find and use learning resources effectively. This means that the results show that students are becoming more independent learners who can find, choose, and use the right resources to support their learning, especially when the learning environment is supportive.

Table 6. *Extent of Learning Practices in terms of Self-Directed Resource Use*

Statements	Mean	Description
1. The student actively identifies and selects the necessary human and material resources (e.g., specific people, books, articles) to achieve their learning goals.	4.48	Highly Evident
2. The student understands that simply having learning resources available is insufficient and must actively choose and implement them for effective learning.	4.43	Highly Evident
3. The student makes an effort to access the widest possible range of resources available to support their self-directed learning.	4.23	Highly Evident
4. The student effectively manages their time and learning materials as a core part of their goal-setting and self-regulated learning (SRL) process.	4.17	Frequently Evident
5. The student ability to self-regulate the way they use learning resources is critical to their overall academic success.	4.40	Highly Evident
6. The student intentionally uses self-reflection to help them seek out new resources and define their personal learning path.	4.48	Highly Evident
7. The student perceives the technological resources provided in their learning environment as a liberating factor that supports their Self-Directed Learning.	4.48	Highly Evident
8. The student comfort and ability to use digital tools (technological self-efficacy) directly impact how well they utilize online resources for learning.	4.48	Highly Evident
9. The student is highly prepared and able to effectively engage with online content and resources outside of the classroom (e.g., in a flipped learning approach).	4.40	Highly Evident

10. The student perceives the academic environment in their institution as supportive of their efforts to engage in self-directed learning and resource utilization.	4.60	Highly Evident
Overall	4.38	Highly Evident

Table 7 shows that there was a high positive correlation of 0.710 between the outcome and predictors and they were significant at 1% level of significance (two-tailed). This suggests that teaching practices, particularly content transformation and assessment integration, are strongly related to learning practices, and as teaching practices improve, learning practices also tend to improve. This result was unlikely due to chance as indicated in the p -value = 0.001 at 0.01 level of significance. Thus, this led to the decision to reject the H_{01} that there is no significant relationship between teaching practices and learning practices among tertiary educators.

Moreover, the results of multiple regression analysis revealed that both content transformation and assessment integration are significant predictors of learning practices, p -values of 0.007 and 0.027, both less than 0.05. Hence, the null hypotheses H_{02} and H_{03} stating that content transformation does not significantly predict learning practices among tertiary educators as well as assessment integration does not significantly predict learning practices among tertiary educators were both rejected.

Further, the model yielded a coefficient of determination $R^2 = 0.504$ implies that about 50.4% of the total variation in the learning practices can be explained by content transformation and assessment integration. The remaining 49.6% of the variation is attributed to other factors not included in this model. Additionally, the resulting regression equation model is: Learning Practices = 0.696 (Level of Content Transformation) + 0.447(Level of Assessment Integration) - 0.797.

The findings support the content transformation as the necessary change knowledge undergoes to move from specialized cultural knowledge (e.g., within a discipline) to knowledge in the curriculum, and ultimately, to knowledge taught and learned in the classroom (Deng, 2021; Taylor & Francis Online, 2025). This didactic perspective highlights a dual transformative process in the classroom: the didactic transformation that brings cultural knowledge closer to the students' experience, and the cognitive transformation wherein students' experiences develop towards powerful, specialized knowledge (Taylor & Francis Online, 2025). This body of literature reinforces that content must be transformed through selection, simplification, condensation, and elaboration to serve educational purposes and facilitate the development of students' intellectual capacities (Bernstein, 2000, as cited in Deng, 2021).

On the other hand, assessment integration is also a key component of curriculum implementation and standards compliance. Policy guidelines stress that teachers must employ assessment methods that are consistent with curriculum standards to ensure learners meet or exceed expected competencies (DepEd, 2015). This idea extends to tertiary mathematics learning. For instance, a study on Statistics and Probability confirmed that aligning curriculum objectives, teacher instruction, and assessment tools is essential for attaining satisfactory student performance and improving the overall quality of education.

Table 7. Influence of Content Transformation and Assessment Integration on Learning Practices

Outcome	Predictors	Unstandardized Coefficients		Standardized Coefficients	t-value	p-value	Remarks
		B	Std. Error	Beta			
	(Constant)	-0.797	0.869		-0.917	0.365	
Learning Practices	Level of Content Transformation	0.696	0.245	0.432	2.846	0.007	Significant
	Level of Assessment Integration	0.447	0.194	0.349	2.300	0.027	Significant

Overall: $R = 0.710$; $R^2 = 0.504$; $F = 18.783$; $Sig = 0.001$ (two-tailed)

Conclusion and Recommendations

Based on the findings of the study, it is concluded that teaching practices in Teacher Education Programs in State Universities and Colleges in Region XII are

highly implemented and are closely associated with students' learning practices. The high means in teaching practices suggest that when educators effectively bridge the gap between abstract theory and student understanding, it creates a ripple effect that encourages students to become more collaborative and experiential. Moreover, teaching practices are a strong predictor of learning practices, accounting for a substantial portion of the variance in students' learning behaviors. While only fifty percent of the total variation in the learning practices can be explained by content transformation and assessment integration, it

is evident that learning practices are also influenced by other teaching practices not covered in this study. Finally, it is recommended that the higher education administrators may provide continuous professional development programs focused on innovative and evidence-based teaching strategies to further improve instructional quality, and incorporate modules on connecting teaching and learning into pre-service teacher training. Future studies may examine other determinants of learning practices, such as motivation, learning environment, and socio-economic factors.

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