Faculty Teaching Styles on Student Learning and Engagement in Research Classes

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ABSTRACT

The research investigates the relationship between how teachers teach and how students learn and participate in research course. The research was conducted in a private higher education of Bukidnon during the 2024–2025 first semester involving 105 students as participant of the study. A descriptive-correlational research design such-mean and standard deviations to rate teaching approaches composed of inquiry-based learning, mentoring and coaching, and technology-enhanced learning while measuring student performance through cognitive and behavioral retention levels. Pearson's R Correlation used to find out the relationship of the study's variable. The research showed that the three teaching strategies achieved successful implementation at a high level. The students displayed limitations in knowledge retention which indicated their ability to remember information remained unknown six months to a year after instruction. Student behavioral engagement reached very high scores while their cognitive engagement levels were assessed as high. Finally, the research found out that there was no significant connection between teaching styles and student academic performance levels in addition to student participative behaviors and educational achievements.

Keywords: Teaching style, inquiry based learning, mentoring, coaching, technology enhanced learning, knowledge retention, cognitive enagement, behavioral engagement

INTRODUCTION

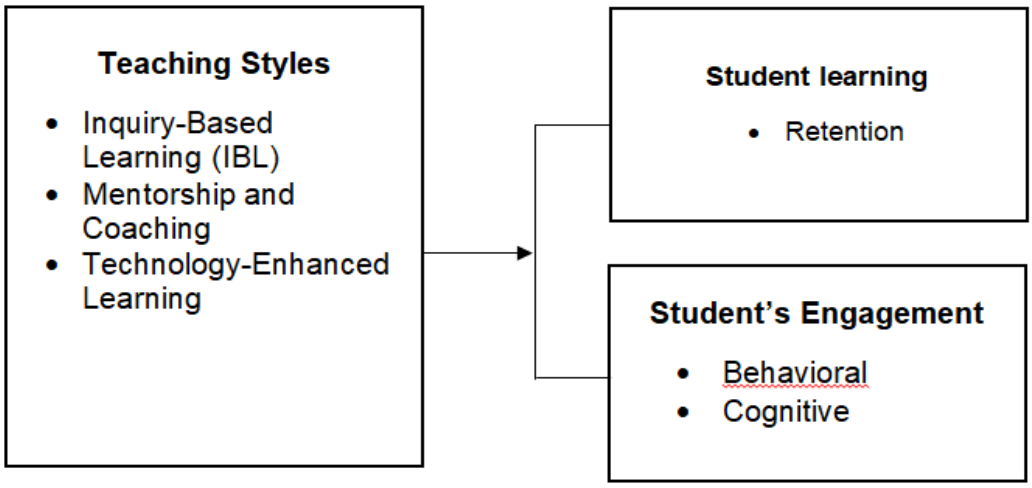
Effective teaching is a cornerstone of education, shaping students' learning experiences and academic success. Teaching style—an educator's approach to delivering lessons—is crucial in engaging students and fostering meaningful learning. While academic performance is often measured through grades and test scores, true educational success extends beyond numerical outcomes, including active engagement, critical thinking, and knowledge retention.

Teaching styles vary depending on educational levels, student demographics, and instructional goals. In tertiary education, students are expected to be more independent learners compared to primary and secondary levels, where structured guidance is more prevalent. Despite this expectation, the effectiveness of teaching styles depends on how well they aligned with students' preferred learning methods. Studies indicated that Filipino students often favor visual and kinesthetic learning approaches, yet many teaching strategies do not cater to these preferences, potentially limiting engagement and learning outcomes (Englis, 2019; Quejado, Recede, & Carnecer, 2022), which emphasized active learning and student-centered approaches. The research investigated professorial teaching approaches that affected both student learning processes and classroom engagement within research-based academic settings to address missing data in current literature. Research subjects need analytical thinking at high levels and student engagement, which made it necessary to develop instructional methods that promoted deeper learning and student interest. Additionally, research suggested that the alignment between teaching styles and student learning preferences significantly impacts learning effectiveness (Zhang, 2023; Rahmah, 2023; Isra & Mufid, 2022). However, a gap remained in understanding how these dynamics function in higher education, particularly in research-intensive subjects.

This study investigated how educators at the Philippine College Foundation (PCF) developed more effective teaching practices that match student learning needs. The research project contributed to ongoing discussions

on teaching excellence in higher education by focusing on closing this knowledge deficit and improving research-based teaching instruction.

Figure 1 Schematic diagram showing the relationship between teaching styles, students learning and students engagement.



Statement of the Problem

This study aimed to determine the influence of faculty teaching styles on student learning and engagement in research classes. It aimed to answer the specific questions:

1. What is the extent of faculty teaching styles in terms of:

    1.1. Inquiry-Based Learning (IBL)
    1.2. Mentorship and Coaching
    1.3. Technology-Enhanced Learning

2. What is the extent of student learning in terms of knowledge Retention?

3. What is the extent of student engagement in terms of:

    3.1. Behavioral
    3.2 Cognitive

4. Is there a significant relationship between teaching styles and student learning?

5. Is there a significant relationship between teaching styles and student engagement?

Hypothesis:

H_o1: There is no significant relationship between teaching styles and student learning.

H_o2: There is no significant relationship between teaching styles and student engagement.

Framework of the Study

This study was anchored in Fleming's VARK Learning Styles Theory (1987), which categorized learners into four primary modal preferences: visual (V), aural (A), read/write (R), and kinesthetic (K). According to this model, students processed information differently, and understanding these preferences helped educators designed instructional strategies that enhanced engagement and learning outcomes. Although the VARK model offered helpful principles for individual learning differences, it encountered drawbacks regarding its actual validity. Willingham et al. (2015) demonstrated that student learning success depended heavily on

educational content quality and intellectual participation instead of strictly relying on personal learning preferences. This research adopted multi-modal learning as its perspective because it combined instructional methods that supported different student needed while promoting deep learning comprehension. The teaching approach followed constructivist principles by giving students the center of learning through active engagement, critical thinking, and meaningful educational content interaction.

The research utilized VARK and three additional methods: inquiry-based learning (IBL), mentorship and coaching, and Technology-Enhanced Learning (TEL). The inquiry-based learning approach helped students solve problems together in interactive sessions that benefited learners who understood best through movement and hearing. IBL was effective pedagogical tool for research education because it helped students perform information analysis synthesis and evaluation tasks. Faculty participants use IBL strategies to help students in their discussions and explore new knowledge independently while teaching analysis techniques. Through mentorship, students received structured guidance that supported their learning acrossed the research process, especially in writing research manuscripts. The teaching approach included three different types of learning methods: Students viewed research models visually and participate in discussions for auditory learning while they developed manuscripts to work with written information. Through feedback and individual guidance, faculty mentors assisted students in improving their research competencies and academic outcomes.

Technology-enhanced learning (TEL) was critical in addressing diverse learner preferences. Visual learners benefited from data visualization tools, infographics, and multimedia presentations, while aural learners gained insights through podcasts, recorded lectures, and interactive discussions. Kinesthetic learners learned best through computer simulations and manual exploration activities, along with virtual team connections. TEL tools divide sophisticated research subjects into smaller portions, reducing cognitive load and building an organized learning process. These technology-driven strategies not only enhance accessibility but also supported a more interactive and student-centered learning environment.

This study examined how faculty teaching styles influenced student engagement and learning outcomes in research-based courses. Specifically, it investigates how teaching styles aligned with or diverge from students' learning preferences, how inquiry-based learning, mentorship, and TEL contributed to engagement and academic achievement, and how multi-modal teaching approaches improved research instruction at the Philippine College Foundation (PCF). Many Filipino students tend to be visual and kinesthetic learners (Englis, 2019; Quejado, Recede, & Carnecer, 2022), so traditional lecture-based methods may not always be practical. By integrating VARK, IBL, mentorship, and TEL, this study offered an evidence-based framework for enhancing research instruction and fostering more effective pedagogical strategies in higher education. The research findings contributed to understanding adaptive teaching approaches for student-centered learning techniques in research-intensive educational subjects.

METHODOLOGY

The researcher used a descriptive-correlational approach to determine the teaching styles among teachers, students' learning, engagement levels, and the relationship between the study variables. The researcher conducted the study at the Philippine College Foundation, one of five private higher education institutions in Valencia City, Bukidnon, offering primary, secondary, and tertiary education. This educational institution is a member of the City Of Valencia Private Schools Athletic Association (CVAPSAA) and presently offers five CHED-accredited programs.

The respondents were students, specifically those in their 4th year during the first semester of SY 2024-2025. These students, having completed their Research I subject, were well-positioned to assess the teaching styles of their research teachers based on relevant indicators. Primary *data* comprises two parts that were employed to gather the data from the respondents. Part 1 was a self-made questionnaire that included twenty-four (24) indicators designed to assess the faculty's teaching style, which was set on a 5-point Likert scale, where five represented 'strongly agree' (the highest rating) and one means 'strongly disagree' (the lowest rating). Part 2 was an adapted questionnaire comprising nine (9) indicators to assess student engagement in research classes. The study utilized random sampling, in which students had an equal opportunity to be selected.

To assess student learning in terms of knowledge retention, *secondary data*, specifically the midterm grades from the Research 1 subject, were used to compare with the student's most recent scores obtained in November 2024. Students scores were categorized into five levels: Outstanding Retention Level (90-100), Very Satisfactory Retention Level (85-89), Satisfactory Retention Level (80-84), Fair Retention Level (75-79), and Poor Retention Level included everything below 75%.Finally, The researcher used statistical tools such as Mean and Standard Deviation (SD) to answer research questions 1-3, while Pearson's r correlation measured the relationship of the study's variables.

RESULT AND DISCUSSION

Table 1 Level of Teaching Style in terms of Inquiry-based Approach

Indicators	**Mean**	**SD**	**Verbal Description**	**Qualifying Statement**
1. The instructor encourages students to ask their own questions based on curiosity and observations.	4.66	0.757	Strongly Agree	Very High
2. The instructor guides students to refine broad research questions into clear, testable inquiries.	4.62	0.685	Strongly Agree	Very High
3. The instructor develops a classroom environment where students feel comfortable discussing and revising their research questions.	4.67	0.689	Strongly Agree	Very High
4. The instructor helps students' understanding of the subject by facilitating open-ended discussions.	4.66	0.617	Strongly Agree	Very High
5. The instructor encourages students to learn independently and grow from their mistakes.	4.57	0.618	Strongly Agree	Very High
6. The instructor facilitates collaborative discussions.	4.51	0.710	Strongly Agree	Very High
7. The instructor facilitates students' engagement with real-world data collection.	4.58	0.662	Strongly Agree	Very High
8. The instructor supports students in independently interpreting data.	4.46	0.694	Agree	High
Overall	**4.59**	**0.679**	**Strongly Agree**	**Very High**

Legend:

Range	Verbal Description	Qualitative Interpretation
4.51-5.00	Strongly Agree	Very High
3.51-4.50	Agree	High
2.51-3.50	Neutral	Moderately High
1.51-2.50	Disagree	Low
1.00-1.50	Strongly Disagree	Very Low

Table 1 shows that respondents expressed their strong agreement on the following constructs: "The instructor develops a classroom environment where students feel comfortable discussing and revising their research

questions" (4.67), "The instructor encourages students to ask their own questions based on curiosity and observations" (4.66) and "The instructor helps students' understanding of the subject by facilitating open-ended discussions" (4.66). The relatively high mean scores demonstrate a "very high" level in implementing inquiry-based learning approaches. In implementing inquiry-based learning, teachers establish a culture of active learning and intellectual curiosity in addition to helping students grasp subject matter more deeply by letting them pursue self-directed investigation. According to Wilson and Vernimb (2020), inquiry-based learning positively influenced student achievement, knowledge retention, and engagement. In private higher education institutions such as PCF, student retention is crucial given that there are multiple learning institutions as competitors; as such, giving attention to students' needs is an important matter that teachers must consider. Research teachers typically begin the lesson by recalling the previous discussion, allowing students to share thoughts and obtain clarification about what students need to know further. When teachers allow for questions and facilitate structured but flexible conversations, students learn complex material more effectively, since it requires teachers to guide meaningful conversations while providing contextual meaning for students to generate long-lasting learning. If students perceive that they have given enough attention, they will appreciate the school more and feel that it is a valued and welcoming environment.

On the other hand, among the indications, only, "The instructor supports students in independently interpreting data" gained the mean score of (4.46), which signifies "high." This suggested that students lack instructional assistance in analyzing and interpreting research findings. In the classroom, teachers teach students to interpret data; however, in constructing the interpretation in chapter 4 of their study, it is the taks of the research advisor to guide and edit the content of the student's paper. Inadequate instruction in data interpretation, a crucial skill in research education, may impact the validity and dependability of students' research outputs. While inquiry-based learning can do better than standard expository techniques, Lazonder and Harmsen (2016) stressed that the effectiveness of this approach largely depended on how well teachers provide instructional support. The student may not realize the use of inquiry-based learning if teachers do not give enough guidance, especially in complex tasks like data interpretation

Table 2 Level of Teaching Style in terms of Mentoring and Coaching

Indicators	**Mean**	**SD**	**Verbal Description**	**Qualifying Statement**
1. The instructor provides individualized guidance and support during the research process.	4.47	0.721	Agree	High
2. There are regular opportunities for one-on-one or group mentoring sessions with the instructor.	4.36	0.735	Agree	High
3. I receive constructive feedback from my instructor that helps me improve my research skills.	4.55	0.772	Strongly Agree	Very High
4. The instructor encourages me to take ownership of my research and develop independent thinking.	4.46	0.749	Agree	High
5. The instructor helps me set achievable research goals and provides the support needed to reach them.	4.57	0.691	Strongly Agree	Very High
6. The instructor provides real-world examples and scenarios to guide my research process.	4.64	0.606	Strongy Agree	Very High
7. I feel more confident in conducting research due to the mentoring and coaching I receive.	4.47	0.75	Agree	High
8. The instructor is approachable and willing to offer additional coaching when needed.	4.62	0.789	Strongly Agree	Very High
Overall	**4.52**	**0.727**	**Strongly Agree**	**Very High**

Legend:

Range	Verbal Description	Qualitative Interpretation
4.51-5.00	Strongly Agree	Very High
3.51-4.50	Agree	High
2.51-3.50	Neutral	Moderately High
1.51-2.50	Disagree	Low
1.00-1.50	Strongly Disagree	Very Low

Table 2 presents data about research class instruction through mentoring and coaching methods. Students rated "very high" on three statements regarding instructor performance: "The instructor provides real-world examples and scenarios to guide my research process" (4.64), "The instructor is approachable and willing to offer additional coaching when needed" (4.62), and "The instructor helps me set achievable research goals and provides the support needed to reach them" (4.57). The findings indicate that educators enormously succeed in teaching research subjects, thus leading to improved student engagement and academic results. Philippine College Foundation research instructors align their teaching based on their department agendas; for instance, criminology students are expected to produce research on topics such as equality in law enforcement and peacebuilding in criminal justice. As instructors, they help students conceptualize and create research titles and successfully guide them to complete hardbound research at the end of thesis two. To effectively achieve the end product of the subject, teachers provide real-world examples, the most instructional practice. The study by Bolkan and Goodboy (2019) demonstrated that instructional examples provided by teachers produced clear lessons that resulted in better test scores, particularly among students who showed disinterest in the subject matter. In addition to improving comprehension of research concepts, practical demonstrations connect abstract theory to practical applications. The research environment became more nurturing through mentorship and high approachability and supportiveness ratings.

On the other hand, students give "high" credits on "I feel more confident in conducting research due to the mentoring and coaching I receive." (4.47). The instructor encourages me to take ownership of my research and develop independent thinking (4.46), and "There are regular opportunities for one-on-one or group mentoring sessions with the instructor" (4.36). The findings indicated that although teachers provided comprehensive guidance, students encounter challenges in developing their self-assurance and capacity for independent investigation. According to Cabual (2021), students experienced learning difficulties in self-assurance development while pursuing independent investigation if their preferred learning style did not align with current instructional methods. The limited availability of individualized mentorship sessions, perhaps as a result of the instructors' workload, could be one explanation for this gap. Furthermore, some students may not receive the individualized attention required to develop confidence and autonomy in their studies because PCF undergraduate research projects were frequently carried out in groups which consist of five members.

Table 3 Level of Teaching Style in terms of Technology-enhanced Learning

Indicators	**Mean**	**SD**	**Verbal Description**	**Qualifying Statement**
1. The instructor regularly uses technology-based tools and resources in research instruction.	4.65	0.571	Strongly Agree	High
2. The power point lectures enhance my understanding of research concepts.	4.61	0.740	Strongly Agree	High
3. The instructor effectively integrates digital tools (e.g.,	4.47	0.856	Agree	Very High

Google Scholar, SPSS, Excel) into research activities.				
4. The technology-based instruction provided by my teacher supports my learning goals in research.	4.59	0.756	Strongly Agree	High
5. The instructor provides adequate support and guidance for using technology in research activities.	4.63	0.716	Strongly Agree	Very High
6. The use of technology in my research class has increased my engagement with the subject matter.	4.63	0.711	Strongly Agree	Very High
7. The instructor encourages the use of online platforms and tools for collaborative research projects.	4.62	0.726	Strongly Agree	High
8. Overall, I am satisfied with how my teacher incorporates technology into the research subject.	4.63	0.669	Strongly Agree	Very High
Overall	**4.60**	**0.718**	**Strongly Agree**	**Very High**

Legend:

Range	Verbal Description	Qualitative Interpretation
4.51-5.00	Strongly Agree	Very High
3.51-4.50	Agree	High
2.51-3.50	Neutral	Moderately High
1.51-2.50	Disagree	Low
1.00-1.50	Strongly Disagree	Very Low

Table 3 represents students' responses to the teaching styles regarding Technology-Enhanced learning. Data revealed that among the indicators that gained the highest mean score were "The instructor regularly uses technology-based tools and resources in research instruction (4.65), followed by three indicators that obtained a uniform mean score of 4.63 "The instructor provides adequate support and guidance. For using technology in research activities, "The use of technology in my research class has increased my engagement with the subject matter," and Overall, I am satisfied with how my teacher incorporates technology into the research subject (4.63); using digital tools can be one tool for use in a meaningful curriculum (Saini & Al-Mamri, 2019). Every classroom of the Philippine College Foundation has a television that allows teachers to present their lessons using advanced technology, such as PowerPoint presentations, video clips, and actual data demos using laptops and HDMI.

It was evident that in today's generation, technology was one way to make learning effective, engaging, and meaningful. The 21st-century educator needed to be skillful, creative, innovative, knowledgeable, and a master of digital literacy while ensuring responsible and accountable use. Technology enhanced and developed the student's critical problem-solving skills (Chikwaka et al., 2024). Moreover, integrating technological tools could be effective for teachers and students. Instructors who were well-equipped with technology preparation werea factor in teaching and learning success, enhancing the students' learning quality (Ghavifekhar & Rosdy, 2015).

On the contrary, students express their agreement on the indicator "The instructor effectively integrates digital tools (e.g., Google Scholar, SPSS, Excel) into research activities (4.47), which means that the technology learning approach of the faculty handling the research subject is "high." Learners response proved that the

students acknowledge the utilization of technology as part of their learning. In teaching research, scholarly websites and software were helpful when developing a literature review or data processing stage. However, on the data presented, students are not fully percived that teachers used it effectively, because though there is television that assist teacher in presenting lesson, there were no internet connection that can be utilized to demonstrate sites that can be usefull in constructing their RRL, moreover, there is no existing SPSS application that the school availed for processing of data. According to Ghavifekhar and Rosdy (2015), integrating technological tools could be effective for teachers and students. Instructors who were well-equipped with technology preparation were a factor in the success of teaching and learning, enhancing the students' learning quality.

Table 4 Level of Student Learning in Terms of Retention

	Mean	SD	Qualifying Statement
Retention	1.67	1.122	Fair retention level

Legend:

Scale	Score	Qualifying Statement
4.51-5.00	90-100	Outstanding Retention level
3.51-4.50	85-89	Very Satisfactory Retention level
2.51-3.50	80-84	Satisfactory Retention level
1.51-2.50	75-79	Fair Retention level
1.00-1.50	Below 75	Poor Retention level

Table 4 indicates a fair retention level among students whose mean score is 1.67. It emphasizes that students could not recall their lesson and get high scores from the current test given to them in their research class. It implies that knowledge retention strongly depends on how much time passes between learning episodes. The students failed to regain their prior semester examination scores despite retaking the assessment during this period after the first administration took place either one year previously or six months earlier. Moreover, despite the very high score obtained on the approaches being employed in teaching research, data shows an opposing result, which also means that, although learning outcomes from the research subject showed practical teaching approaches, students failed to keep previous semester information despite these effective methods. This finding was consistent with Rogowsky et al. (2020), who asserted that teaching to a student's learning style preference did not significantly improved comprehension or retention in education. It implied that teachers must find different ways to teach the appropriate material and help students retain the requisite knowledge due to the demands of standardized tests (Al-Emran, Abbasi, et al., 2021; Granito et al., 2012). Moreover, the duration of days was one factor that contributed to retaining knowledge.

Table 5 Level of Student Engagement in terms of Behavioral

Indicators	**Mean**	**SD**	**Verbal Description**	**Qualifying Statement**
1. I did the best work I could have done in research subject.	4.57	0.648	Strongly Agree	Very High
2. I tried my hardest to do very well in research subject.	4.60	0.659	Strongly Agree	Very High
3. I put my maximum effort in research subject.	4.51	0.668	Strongly Agree	Very High

4. I did as much as I could to learn the material in research subject.	4.55	0.720	Strongly Agree	Very High
Overall	**4.56**	**0.674**	**Strongly Agree**	**Very High**

Legend

Range	Verbal Description	Qualitative Interpretation
4.51-5.00	Strongly Agree	Very High
3.51-4.50	Agree	High
2.51-3.50	Neutral	Moderately High
1.51-2.50	Disagree	Low
1.00-1.50	Strongly Disagree	Very Low

The research class behavioral engagement data appears in Table 5. The students expressed strong agreement toward every indicator, thus obtaining an overall rating of 4.56, which indicates very high behavioral engagement levels. The findings show high teaching effectiveness among teachers managing research subjects, as seen previously in prior tables regarding inquiry-based learning, mentoring and coaching, and technology-enhanced learning techniques. The teaching methods shown in this study demonstrate a strong ability to grasp students' classroom attention. Such findings show a conducive teacher-student connection that helps create a supportive classroom environment.

According to Cayubit (2021), academic success with higher achievement rates emerged when college students find themselves in positive learning environments that increase both their classroom participation and their learning approaches and drive motivation levels. Students were more likely to participate fully in class activities when they believed their teachers care about them. Amerstorfer and Münster-Kistner (2021) asserted that students' academic engagement in problem-based learning was influenced by their perceptions of their teacher was caring, credibility, communication style, and feedback.

Table 6 Level of Student Engagement in terms of Cognitive

Indicators	**Mean**	**SD**	**Verbal Description**	**Qualifying Statement**
1. When I learn something new in class, I try to tie it to other facts and ideas that I already know.	4.45	0.759	Agree	High
2. As I study the topics in research, I try to think about how they relate to the topics I am studying in other classes.	4.47	0.785	Agree	High
3. In this class, I set goals based on things I really want to learn.	4.47	0.654	Agree	High
4. In this class, I ask questions that allow me to explore topics that interest me.	4.47	0.708	Agree	High
5. In this class, I do my assignments primarily to learn something new.	4.47	0.646	Agree	High
Overall	**4.47**	**0.710**	**Agree**	**High**

Legend

Range	Verbal Description	Qualitative Interpretation
4.51-5.00	Strongly Agree	Very High
3.51-4.50	Agree	High
2.51-3.50	Neutral	Moderately High
1.51-2.50	Disagree	Low
1.00-1.50	Strongly Disagree	Very Low

Table 6 displays the level of students' cognitive engagement in research classes. The results show that students consistently showed a "high" degree of involvement across all indicators, obtaining the same mean score of 4.47 in the following statements: "As I study the topics in research," "I try to think about how they relate to the topics I am studying in other classes," "In this class, I set goals based on things I want to learn," "In this class, I ask questions that allow me to explore topics that interest me," and "In this class, I do my assignments primarily to learn something new." It implied that teachers handling research subjects were excellent in imparting knowledge to the students, as students displayed significant cognitive engagement through their efforts to link research subjects to other classroom topics along with their deliberate goal-setting and enthusiastic questioning and their assignment work that aimed to build new understandings. According to Dame et al. (2023), teachers teaching style influenced students' cognitive ability by 44—89%.

Meanwhile, the indicator that received the lowest score is "When I learn something new in class, I try to tie it to other facts and ideas I already know (4.45). This implies that although students participate actively in research learning, they could find it difficult to combine new knowledge with past experiences fully. The main challenge came from research learning delivering complex abstract material that does not easily connect to students' established knowledge. This means that teachers' support, such as scaffolding and reflective or sharing activities, are essential to guide students and overcome their struggle in integrating the knowledge acquired into their experiences. Teachers could enhance students' higher-order thinking abilities by providing challenging, open-minded questions, encouraging questioning, promoting group discussions, and guiding students in metacognition and reflection. Arviani et al. (2023) suggested that students' critical thinking abilities could be improved by designing teaching that integrated several methods that encouraged them to think critically.

Table 7 Correlation anaysis between teaching styles and student learning in terms of retention.

	Correlation coefficient	**p-value**
Teaching Styles	.068	.497

Correlation analysis revealed no significant relationship between teaching styles and student learning, as stated in the correlation coefficient (r=.068), with its corresponding p-vale =497, which is higher than the level of significance (0.05). Therefore, the null hypothesis, which states "there is no significant relationship between teaching style and student learning," is accepted. This implied that the way teachers delivered lessons did not have implications for students' learning. Student's retention of acquired knowledge was influenced by their initial level of learning, motivation, and depth of understanding, with higher levels of these factors leading to better retention over time (Tho, 2017). Moreover, Rogowsky, Calhoun, Tallal (2020) states that providing based on students' learning style preferences did not significantly improve learning, while some studies suggested that teaching styles had a significant relationship with students' learning and academic achievement, with specific styles like participative and facilitator models enhancing outcomes, while other studies indicated that matching teaching to learning styles may not always lead to improved comprehension or retention (Vizeshfar, & Torabizadeh, 2018 and Cardenal, et al.,2023).

Table 8 Correlation anaysis between student engagement and student learning in terms of retention.

	Correlation coefficient	p-value
Student engagement	.156	.111

The data in Table 8 revealed that there is no significant relationship between student engagement and student retention, as stated in the (r=1.56) and (p-value= 1.11), which is higher in the set alpha of 0.05. Thus, the second null hypothesis of the study is accepted. This means that even students had a high level of engagement towards the subject, it did not fully guaranteed that they may also get high level of retention or can perform or answer task after taking the research subject. This further implied that new, complex models of student engagement were needed to better understand and transform learning in diverse and digital contexts (Tai et al., 2019). This contradicted various studies that suggested that student engagement, particularly emotional and cognitive engagement, generally had a positive relationship with student learning outcomes, although some studies indicated that behavioral engagement may not always be a significant predictor of academic performance (Çali et al., 2024; Li & Xue, 2023; Tomaszewski, 2022).

CONCLUSION

This research found that teachers handling research have effectively applied and have a high level of inquiry-based approach, mentoring and coaching, and technology-enhanced learning teaching style inside the classroom. These approaches ensure that students are accommodated according to their learning preferences, whether visual, auditory, or kinesthetic. However, it is found that students have a fair retention level towards research subjects. This means that even though teachers do their best to execute and deliver an effective approach, it does not guarantee that students will be able to recall all the learnings that they acquired in previous semesters of taking the subject. In terms of student engagement, only behavioral aspects got a very high rating, while cognitive engagement is rated as high. It shows that there is a conducive teacher and student connection that helps create a supportive environment.

Finally, no significant relationship is shown between teaching styles, student learning, and student engagement. The ability of students in retaining knowledge depends the way they understand the lesson. Moreover, a high level of engagement is not related to retention. Though students participate in class very well, it does not make students able to remember things that they have learned in their class after six months or one year of taking the research subject.

RECOMMENDATION

The researcher formulated this recommendation based on the result of the study. Educators may find meaningful approaches to improve students' knowledge retention, such as hands-on activities inside the classroom. Meaningful learning would help students retain their knowledge, especially if they were able to experience executing the tasks on their own. Department heads may also encourage teachers to undergo professional development programs such as seminars and training to enhance their teaching approach to research. Finally, future researchers may adopt a longitudinal approach to track students retention over extended periods, ensuring a clerear understanding of knowledge retention beyond six month to a year. This method allows respondents to communicate their thoughts more effectively, which leads to an improved understanding of material retention.

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