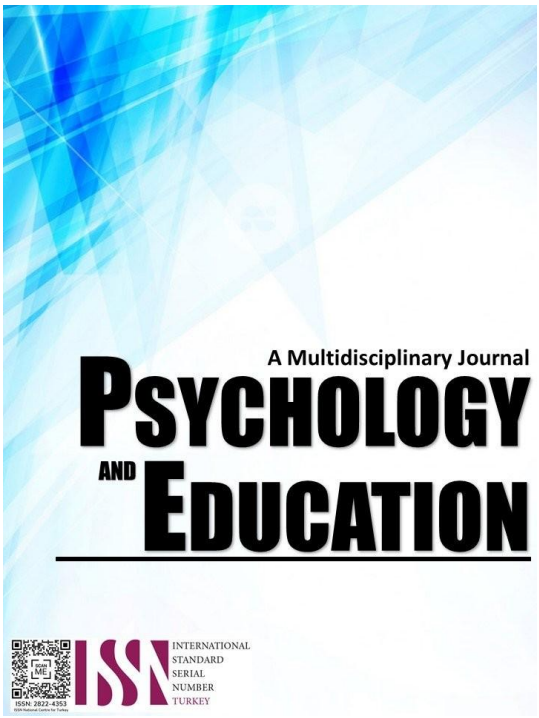
THE INFLUENCE OF TEACHERS' INSTRUCTIONAL COMPETENCE ON COGNITIVE FLEXIBILITY AMONG EDUCATION STUDENTS: AN EXPLANATORY INVESTIGATION



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Research Article

The Influence of Teachers' Instructional Competence on Cognitive Flexibility among Education Students: An Explanatory Investigation

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Abstract

The study aimed to examine the level of teachers' instructional competence and cognitive flexibility of education students. Also, it sought to determine the relationship between teachers' instructional competence and education students' cognitive flexibility. This study engaged a mixed-methods design, utilizing a sequential explanatory approach. The participants of the study were education students from all year levels. There were 287 students who were randomly selected for quantitative and 14 for the qualitative: 7 for in-depth interviews and 7 for focus group discussions, which were purposively selected. Based on the results of the study, it was determined that the level of teachers' instructional competence is very high. On the other hand, the level of cognitive flexibility is high. Also, the study's findings suggest that there is a significant relationship between teachers' instructional competence and cognitive flexibility of the education students. The results from the quantitative were confirmed by the qualitative probing, highlighting three essential themes: confirmed very high rating of teachers' instructional competence, confirmed high rating of cognitive flexibility, and confirmed relationship of teachers' instructional competence on cognitive flexibility. Based on the findings of the study, it is recommended that educators enhance their instructional competence by incorporating student-centered strategies that promote cognitive flexibility, such as inquiry-based learning and reflective activities. Schools should also support this by providing training on emotional intelligence, resilience, and problem-solving, as well as ensuring access to digital tools and a supportive learning environment. Lastly, future research is encouraged to further examine the specific teaching methods, emotional and environmental factors, and digital influences that shape students' cognitive flexibility.

Keywords: *teachers' instructional competence, cognitive flexibility, education students, mixed-methods, sequential explanatory, Philippines*

Introduction

Thinking in multiple ways and adapting to new circumstances is known as cognitive flexibility. It is essential as it aids individuals in adapting to changes and overcoming challenges. Individuals may find it challenging to alter their thoughts or behaviors when they go through challenging experiences, such as a traumatic event or persistently high levels of toxic stress. They might feel better, though, if they can practice and learn to think more freely. Conversely, students with lower cognitive flexibility faced challenges in adapting their thinking in demanding academic environments, which negatively affected their performance and decision-making (Soma, 2023; Karakuş, 2024).

In India, the cognitive flexibility of students, particularly in areas like critical thinking, problem-solving, and analytical reasoning, are facing significant challenges. Despite India's rapid economic growth and expansion in educational access, recent studies indicate a gap in the cognitive skills necessary for students to succeed in a globally competitive environment. It was revealed that a large percentage of rural students in India struggle with basic arithmetic and reading comprehension skills, indicating an underlying weakness in foundational cognitive abilities. This trend suggests that the educational system may not be effectively fostering critical cognitive skills, which are essential for higher education and employability (Annual Status of Education Report, 2022).

In the Philippines, particularly in Davao City, significant discrepancies are observed primarily in cognitive flexibility and English language proficiency, alongside academic motivation. While academic motivation influences engagement and success, the central issues are the discrepancies in cognitive abilities and English language proficiency. Some students exhibit strong cognitive skills and advanced English language proficiency, whereas others struggle with these areas, necessitating targeted support. Addressing these cognitive and language challenges is crucial for enhancing overall academic performance and student development (Bucay & Rosil, 2024).

The urgency of this study lies in its potential to enhance students' cognitive flexibility by identifying the effectiveness of teachers' instructional competence, which can be implemented in educational programs. This research is relevant to various stakeholders, including students, teachers, curriculum developers, and policymakers. Education students will benefit from improved instructional competence, helping them enhance their cognitive flexibility. Educators, in turn, can gain valuable insights in utilizing effective instructional techniques that address the diverse needs of their students.

More importantly, this study holds significant social value as it can provide a scholarly foundation for creating programs that enhance teachers' instructional competence, thereby promoting cognitive flexibility among Education students, especially in response to evolving educational demands. With this, findings of the study are great help to the large mass or body in the society.

While extensive research has explored the role of teachers' instructional competence in shaping various student outcomes, there remains limited empirical evidence on its specific impact on students' cognitive flexibility, particularly in the context of Education program. For example, studies conducted by Begum et al. (2023) titled "The Correlation between Cognitive Flexibility and Learning Strategies Adopted by Medical Students" which focuses on correlating the different learning strategies adopted and cognitive flexibility among medical students. Also, the study of Laniton (2022) titled "Teachers' Instructional Competence and Learners' School Engagement" which aimed to find out the relationship between teachers' instructional competence and students' learning engagement using descriptive-correlational research design. Moreover, these studies are different from this study as it focused on teachers' instructional competence of the Education students in accordance to their cognitive flexibility by a sequential explanatory study. Hence, the present study filled the gap that previous studies failed to examine and explore making new results and findings essential and significant in the field of teaching.

This study serves as a basis for the institution in implementing necessary program developments that address the specific needs of Education students, particularly in enhancing their cognitive flexibility. To ensure that the findings reach relevant stakeholders and contribute to educational practice, the results of this study will be disseminated through research presentations in academic forums, conferences, and seminars. In addition, the study is intended for publication in peer-reviewed journals to contribute to the broader body of knowledge in the field of education.

Research Questions

In this study, sequential explanatory mixed methods research was used in broadly examining the teachers' instructional competence and cognitive flexibility of Education students in Kapalong College of Agriculture, Sciences and Technology. Specifically, this sought to answer the following research questions.

1. What is the level of teachers' instructional competence and cognitive flexibility among Education students?
2. Is there a significant relationship between teachers' instructional competence and cognitive flexibility among Education students?
3. What are the standpoints of the participants on the salient points of the quantitative results?
4. How do quantitative results explain the qualitative results of the study?

Methodology

Research Design

This study utilized mixed methods research in which a researcher or team of researchers combined qualitative and quantitative methodologies. By integrating different elements of data gathering, analysis, and interpretation from both perspectives, this approach enables a more comprehensive understanding of the research problem. The combination of qualitative and quantitative insights enriches the scope and depth of the study, thereby reinforcing the findings and resulting in a more refined interpretation of the results (Johnson et al., 2007).

In conducting this study, the mixed-methods research design involved using both quantitative and qualitative approaches to gain a more comprehensive understanding of the relationship between teachers' instructional competence and cognitive flexibility of education students. Quantitative data was collected through surveys or tests to measure instructional competence and cognitive flexibility, while qualitative data were gathered through interviews or observations to explore students' and teachers' experiences in more detail. This combination allowed for a deeper and broader analysis of how teaching practices may influence cognitive flexibility among Education students.

Furthermore, this study employed the mixed-methods sequential explanatory design consists of two distinct phases: quantitative followed by qualitative. In this design, a researcher first collects and analyzes the quantitative (numeric) data. The qualitative (text) data are collected and analyzed second in the sequence and help explain, or elaborate on, the quantitative results obtained in the first phase. The second, qualitative, phase builds on the first, quantitative, phase, and the two phases are connected in the intermediate stage in the study (Ivankova et al., 2006).

In conducting this study, a sequential explanatory research design was utilized to gather first the quantitative (numeric data) followed by qualitative (text) data from education students consecutively. Surveys assessed students' perceptions of their teachers' instructional competence and their own cognitive flexibility (quantitative), while interviews explored their experiences and insights related to both teachers' instructional competence and cognitive flexibility (qualitative). After analyzing the data, the findings were presented by first reporting the quantitative results, followed by a discussion of the qualitative findings that help explain or expand on the quantitative outcomes. The final step involved integrating both sets of results to provide a more comprehensive understanding of how teachers' instructional competence influences the cognitive flexibility of the Education students.

Moreover, phenomenological research design seeks answers to research questions in a descriptive manner through interviews or observation of those closest to the phenomenon (Davison, 2013). Braun and Clarke (2013) assert that phenomenology is a method by which researchers focus on studying human experiences, including the way people conceptualize their lived, shared experiences. This

approach can be used to analyze individual cases or to develop cases from a small group of research participants.

In conducting this study, a phenomenological research design focused on understanding the lived experiences of Education students regarding their teachers' instructional competence and its impact on their cognitive flexibility. This approach involved conducting in-depth interviews to explore how students personally experienced and interpreted their teachers' teaching methods and how these influenced their ability to adapt their thinking. The goal was to gain deeper insights into the students' perspectives and how they made sense of their experiences related to instructional competence and cognitive flexibility.

Respondents

In this section, the distribution and profile in gathering quantitative and qualitative data from the participants and informants as well as respondents of this study were discussed. Additionally, the exclusion criterion was based upon the statuses of Education students and they must not be an irregular student of the said program on the academic year 2024-2025.

For the quantitative research method, it emphasized the objective measurements and the statistical, mathematical, or numerical analysis of collecting data through questionnaires and surveys by manipulating pre-existing statistical data using computational techniques. In the quantitative phase, there were 287 Education students who will respond to this study. These individuals are the sources of first-information as supporting evidence to examine the teachers' instructional competence and cognitive flexibility. Moreover, the Education students will answer the set of questions to be provided in the survey questionnaire with regards to the teachers' instructional competence and cognitive flexibility.

In qualitative research, subject selection was deliberated. Participants who were best enlighten the research questions and deepen understanding of the topic under study were chosen in this step. The subject sample must be able to recognize key aspects and perspectives of the phenomenon under investigation. In the study, there were seven (7) participants for the in-depth interview and another seven (7) for the focus group discussion. In addition, in selecting the qualified participants of the study, the following inclusion criteria were followed: (1) must be enrolled in Education program for the academic year 2024-2025; (2) could be chosen from any year-level freshmen, sophomore, junior, or senior; (3) could be male or female; (4) must have the willingness to join and participate in the study. On the other hand, the following exclusion criteria were followed: (1) must not be enrolled in Education program for the academic year 2024-2025; (2) must not be an irregular student of the said program on the academic year 2024-2025; (3) must not have the willingness to join and participate in the study.

Instrument

In identifying the level and status of teachers' instructional competence (TIC) and cognitive flexibility (CF), an adopted questionnaire from a published journal was used. Then, these questionnaires were contextualized in the current study according to its focus and context. After the researcher contextualized the research questionnaire, especially in the construct of each item under each variable, this was further validated and evaluated by external validators who are all experts in the field of language research. Later on, the suggestions and recommendations of the evaluators were followed thoroughly to make the research tool more reliable. Also, the researcher ensured that the questions stipulated in the questionnaire used basic English in order for the respondents to answer each question and comprehend the purpose of the research.

Teachers' Instructional Competence. The questionnaire for this variable is adapted from the work of Asis et al. (2023), which has four (4) indicators, namely: instructional delivery, classroom management, assessment, and personal competencies. The questionnaire adopted is composed of 40 items. The wording was adapted and simplified to make it more accessible for school students. The responses of the participants were rated from not competent (1) as the lowest and highly competent (5) as the highest.

Cognitive Flexibility. The questionnaire for this variable is adapted from the work of Dennis and Vander Wal (2010) which has two (2) indicators, namely: control and alternatives. The questionnaire adopted is composed of 20 items. The wording was adapted and simplified to make it more accessible for school students. The responses of the participants were rated from strongly disagree (1) as the lowest and strongly agree (5) as the highest.

In the qualitative phase, an interview guide was used, containing grand core questions and probing and supporting questions, which was used both in the in-depth interviews and focus group discussions. It was validated by external validators to check the construct of the questions, ensuring they measured what they intended to measure and would gather the necessary data for the study. Additionally, in this strand, the researcher used this validated interview guide to validate the results found in the quantitative phase of the study. The interview guide consisted of two parts: one for the letter of permission for the participants and the second for the interview proper.

Procedure

From the time when the researcher was done with the routing of the manuscript to its panelists, the research manuscript was submitted to the Research Ethics Committee of the KCAST to check whether the study followed the mandated protocol needed for ethical consideration and trustworthiness. The researcher also requested Ethics Clearance to conduct the study. After conforming to the recommendations as per protocol evaluation given by the Research Ethics Committee (REC) of the institution, the following stages were undertaken by the researcher in gathering the data needed for the study.

First, the researcher wrote a letter asking permission to conduct the study. A request letter was signed by the adviser and attached with an endorsement letter signed by the college president of Kapalong College of Agriculture, Sciences and Technology.

Meanwhile, before collecting data, the researcher conducted orientations with relevant personnel. These orientations aim to familiarize the personnel with the study's nature and purpose. The researcher provided informed consent forms to these individuals, who then distribute them to the respondents along with the researcher.

Following this, the researcher explained the study's goals and respondents' roles as outlined in the informed consent forms. After the orientation, respondents signed the forms, indicating their understanding of the study's purpose and their voluntary participation. After these essential and necessary preliminaries in conducting the study, discussed below are the different essential and significant measures in gathering the data both in the quantitative and qualitative phase of the study. By which, in the data gathering process, optimum confidentiality of data is assured.

In the quantitative phase, the researcher conducted the study on a face-to-face basis, personally distributing the survey questionnaire to the participants. To be specific with data gathering processes, below are the different steps to be taken by the researcher:

First, after the respondents signed the informed consent form, they were given the survey questionnaire, which contained different questions for the two variables, teachers' instructional competence (TIC) and cognitive flexibility (CF). In the questionnaire, the respondents do not need to include their name, as it is optional. They were also given ample time to complete answering the questions to ensure valid and reliable answers were obtained;

Second, after the respondents completely answer all the stipulated questions in the survey questionnaire, the researcher completely retrieved the questionnaires in preparation for the tallying process. Consequently, the respondents were given a token of appreciation as a form of gratitude for their voluntary participation in the study. Additionally, in the tallying of the responses, a format of tallying the data was provided by the researcher to her statistician for easy treatment of the data afterwards;

Third, after tallying the research data, the analysis and treatment of the data followed. The tallied data were given to the research statistician who was capable and knowledgeable in data analysis and data treatment;

Fourth, when the statistician returned the result of the data analysis and treatment, the researcher analyzed and interpreted the results. Of course, this was done with the help and guidance of the research adviser to ensure that the analysis done was truthful and correct, and;

Lastly, in the whole process of the data gathering, data treatment, and data analysis and interpretation, it is guaranteed that the data taken from the research respondents were kept confidential. All of the answered survey questionnaires were put in one box with a lock and a unique and strong pin code so that only the researcher could gain access to it. With these measures, it was guaranteed that no other person could access the gathered data.

When the results and findings of the quantitative phase were already available, the data gathering under the qualitative phase begins. The main purpose of the data gathering is to confirm and affirm results in the first phase through in-depth interviews and focus group discussions. In this phase, the researcher follows the following procedures:

First, since the respondents signed the informed consent before the conduct of the quantitative phase, the researcher chose 14 participants from the same sample to be part of the in-depth interview and focus group discussion.

Second, when the 14 participants were chosen and selected, another orientation was conducted. This orientation inform and educate these participants about the next stage of the research, fully informing them about their role in this stage of the research. In addition, in case any of the identified participants withdraw their participation during the orientation, the researcher respect and look for new participants and volunteers.

Third, after the orientation, a separate one-on-one interview with the first 7 informants started. This was conducted via face-to-face, Google Meet, over the phone, Messenger, or any platforms that the informants wish to use. After the in-depth interview with the 7 informants, the focus group discussion with the remaining 7 participants started. This was conducted face-to-face as agreed upon and convenient for the participants and was utilized in the whole discussion.

Fourth, after the interview process, the researcher transcribed all of the individual responses of the 7 informants in verbatim form. Also, a separate transcript was prepared for the 7 participants in the focus group discussion.

Fifth, when the individual transcript of all 7 informants was available as well as the transcript for the focus group discussion, the researcher gave each informant and participant a copy of this. This is for them to check and verify whether the transcript is correct or incorrect. In addition, if any of the participants wished to delete part of the transcript or add more responses, the researcher would conform and follow this.

Lastly, when the verified copy of the individual transcript from the 7 informants and the one from the focus group discussion is ready, the analysis of data, which is the thematic analysis, was followed.

Data Analysis

In this section, the data analysis, sequence, emphasis, and mixing procedures as well as figure of procedures, anticipated methodological issues, trustworthiness of the study, validity of instruments and ethical considerations in gathering quantitative and qualitative data from the participants and informants as well as respondents of this study are discussed.

The quantitative data was analyzed using descriptive statistics and Pearson-r. The following are the discussions for each of the statistical tools: (1) Mean was used to determine the level of teachers' instructional competence and cognitive flexibility of Education students to answer research questions or problem number 2; (2) Pearson-r was used to determine the significant relationship between teachers' instructional competence and cognitive flexibility of Education students; (3) Standard Deviation was used to measure how spread out the responses of the respondents are; (4) The survey data, which was collected, served as the basis for in-depth analysis. Upon retrieval of the questionnaires, the data were tallied and treated accordingly. The survey data were further analyzed using Statistical Package for the Social Sciences (SPSS) for both descriptive and inferential statistics. These statistical treatments were applied to ascertain the status of Education students.

In the qualitative phase, the data collected during the conduct of the interview was analyzed to come up with conclusions that affirm and support the findings in the quantitative phase. As explained, analysis of data in research involved summarizing the mass of data collected and presenting the results in a way that communicates the most important features of the study (Harding, 2013).

In the study, data analysis was done after the process of transcribing the results of the in-depth interview and focus group discussion among the participants. The researcher used coding and thematic analysis in analyzing the collected and gathered data. Further, in displaying and presenting the data, it was organized into different categories that have similar responses from the different participants. The process was called thematic analysis.

Regarding the qualitative data analysis, the researcher employed coding and thematic analysis. According to Braun and Clarke (2013), thematic analysis is a flexible data analysis plan that qualitative researchers used to generate themes from interview data. This involved examining the patterns and themes that emerged from the utterances or statements of the participants or informants during the one-on-one and focus group interviews. The themes were formulated with the purpose of analyzing the lived experiences of Education students' teachers' instructional competence and cognitive flexibility. The data were carefully analyzed to identify and extract relevant themes that shed light on the research objectives and provide insights into the participant's experiences in this context.

To familiarize the researcher with the data, she listened and transcribed the recorded interview of the participants and keep on reading it to identify similar answers given by the participants. After familiarizing the data, coding of the data began, of which the researcher used coding of the data that arrived and generated themes, ideas, and categories. Then similar passages of text were marked with a code label so that they can easily be retrieved at a later stage for further comparison and analysis.

After the codes were clustered together, the researcher labeled the clusters based on the meaning or relationships shared among the codes. Naming the codes was the next process involving the utilization of the labels created for the theme and providing a comprehensive name that describes the relationship or meaning conveyed in that specific theme.

Lastly, to enhance the reliability of the data, the researcher consulted the data analyst with expertise in the field and their research adviser for additional verification. The findings and interpretations were subsequently presented in tabular form to facilitate clearer understanding and detailed elaboration.

Ethical Considerations

These are set of principles that guide research designs and practices. Scientists and researchers must adhere to a certain code of conduct when collecting data from people (Bhandari, 2021).

To maintain the trust of the teacher education students at KCAST, this study placed paramount importance on their safety, anonymity, full protection, and confidentiality. Steps were meticulously taken to address these ethical considerations with the aim of upholding the participants' trust throughout the duration of the research.

The researcher scrupulously adhered to ethical principles, encompassing respect for individuals, beneficence, justice, securing informed consent, and preserving confidentiality, to guarantee the observance of ethical standards. These principles steered the execution of the study in a conscientious and considerate manner, with a focus on safeguarding the rights and welfare of the participants (Mack et al., 2005).

Respect for persons is a fundamental ethical principle that underscores the significance of treating research participants with politeness and consideration, while recognizing their independence in deciding their involvement in a study (Munhall, 2012 & Scott, 2013). This principle requires furnishing participants with comprehensive information about the study, ensuring their clear comprehension of the research, as well as any potential risks or benefits involved. Obtaining informed consent constitutes a pivotal component of abiding by this principle, signifying a voluntary agreement grounded in an informed comprehension. By upholding the principle of respect for persons, the researcher can guarantee that the study was conducted ethically and in a manner that respects the rights and autonomy of the participants.

In conducting this study, I provided participants with the opportunity to ask questions and give their consent voluntarily, fostering an environment where their opinions and contributions were valued. By prioritizing respect for individuals, I aim to create a trusting relationship between myself and the participants, ultimately enhancing the integrity of the research process.

Consent constitutes a pivotal element of research ethics, serving to demonstrate respect for research participants. Through the learning of informed consent, participants were comprehensively apprised of the aims and rationale of the research in which they are invited to engage. Written consent was diligently procured from each participant, affirming their willingness to partake in the in-depth interviews and focus group discussions. Additionally, participants received detailed information about the study's outcomes and discoveries, thereby upholding transparency and ensuring that they remained well-informed throughout the research process (Creswell, 2012).

In conducting this study, participants were furnished with permission and consent letters that comprehensively delineate the study's particulars, including its methods, design, procedures, benefits, and risks. These letters were designed to facilitate participants' comprehension of the study's nature and empower them to make informed decisions regarding their participation. Those who chose not to participate were free to do so without any obligation to provide explanations, and they received assurances that their data would be held in strict confidence. Furthermore, participants were informed of their right to receive the study's results. By adhering to these ethical guidelines, the study was conducted responsibly and respectfully.

Beneficence as an ethical principle, underscores the dedication to mitigating risks and optimizing the welfare of research participants. In this study, measures were taken to safeguard and shield the well-being of the participants. The confidentiality of the interviewees was meticulously preserved to avert any potential threats to their privacy. Additionally, all data files were securely stored and never left unattended or inadequately protected (Bricki & Green, 2007).

To align with the principle of beneficence, measures were implemented to preserve the anonymity and confidentiality of participants' responses and personal information. Participants and respondents involved were informed of the findings to help them improve and enhance their teachers' instructional competence and cognitive flexibility, as one of the benefits of the study. They were also given tokens of appreciation to show respect and generosity for their time given in the study. To mitigate and avoid potential risks, remote communication through a social media platform is opt for, avoiding face-to-face interactions with the participants. These precautions were undertaken to safeguard the participants' well-being and interests, underscoring the dedication to ethical research standards.

Confidentiality upholds through various techniques to protect the data, results, and findings, as well as to ensure the safety of participants. This encompassed concealing all personal identities of the participants and refraining from disclosing them. Furthermore, all materials, including audio records, encoded transcripts, notes, soft and hard copies of data, and other related documents, were disposed of immediately after the data analysis concluded (Maree & Westhuizen, 2007).

To protect the identity of the participants and ensure compliance with the Data Privacy Act of 2012, discrete coding was used to denote each participant's responses. This measure involved carefully phrasing any information that could potentially identify the participants in terms of their name, gender, ethnicity, or employment/location to avoid violating their anonymity. By using proper coding and other measures, the participants' identity were protected, and their privacy were respected.

Justice in the conduct of this study is upheld by ensuring that the rights of the participants who identified themselves as teacher education students were respected. Given that the study aims to investigate the teachers' instructional competence and cognitive flexibility of teacher education students, no rights of minor students were violated. To ensure fairness and equal opportunity for participation, the researcher utilized random sampling and purposive sampling techniques. Teacher education students were coerced into participating and were given the freedom to decline if they choose. In recognition of their contribution, they were duly credited for their involvement in the research, contributing to the overall success of the study. Additionally, justice was ensured by including only relevant utterances of the participants related to the research objectives and accurately transcribing them (Munhall, 2012; Scott, 2013).

In conducting this study, I ensured that all Education student respondents were treated equitably and fairly throughout the research process. I selected students without bias, ensuring a diverse representation of experiences related to teachers' instructional competence and cognitive flexibility levels within the group. I am committed to upholding justice by respecting all participants, valuing their contributions equally, and ensuring that no student was unfairly burdened or excluded. Additionally, my findings aimed to benefit the respondents by contributing to improvements in instructional practices that directly impact their cognitive flexibility.

Results and Discussion

This section presents the findings of the study based on the responses of the responses and the participants. The data shown in this section reflect the measures of TIC and CF of the education students based on the data. The order of the discussion is divided into two parts.

The first part is the quantitative phase. This part is based on the topics of the levels of TIC and CF of all education students. The second part is the qualitative phase. The discussion is presented based on the participants' perception of participants on the significant relationship of the variables and the thematic analysis of how the qualitative results expound the quantitative results of the study.

Quantitative Results

Level of Teachers' Instructional Competence and Cognitive Flexibility

Shown in Table 1 are the levels of the study's observed variables: Teachers' Instructional Competence and Cognitive Flexibility of Education students in Kapalong College of Agriculture, Sciences and Technology. Table 1 reveals the level of teachers' instructional competence and cognitive flexibility of Education students by utilizing descriptive statistics, specifically the mean and standard deviation. The mean sums up the average of the data given by the respondents, while the standard deviation indicates the spread of the distribution of data. The standard deviation in Table 3 shows values that are representing a homogeneity of responses from the participants. The independent variable, teachers' instructional competence gathered an overall mean of 4.29 with a level description of very high. This mean score indicates that the TIC of the instructors is always manifested. In this variable, all the indicators acquired the level description of very high with assessment having the highest mean of 4.31. While personal competencies gathered the lowest mean score among the indicators - having mean of 4.27 with a level description of very high.

Table 1. *Level of the Observed Variables*

Latent Variables/ Observed Variables	*Standard Deviation*	*Mean*	*Descriptive Level*
Teachers' Instructional Competence			
Instructional Delivery	0.52	4.28	Very High
Classroom Management	0.51	4.30	Very High
Assessment	0.54	4.31	Very High
Personal Competencies	0.56	4.27	Very High
Total	0.45	4.29	Very High
Cognitive Flexibility			
Control	0.62	3.88	High
Alternatives	0.57	4.20	High
Total	0.52	4.04	High

The standard deviation (SD) ranges from 0.51 to 0.56. The SD, which is lesser than 1.00, implies a less likely heterogeneous result and consistency of the responses. On the other hand, the dependent variable, cognitive flexibility, gathered an overall mean of 4.04 with a level description of "high". This mean score indicates that the said variable is oftentimes observed. In this variable, all of the indicators acquired a level description of "high". Meanwhile, alternatives level geared the highest mean score of 4.20 while the lowest mean score is control with a mean score of 3.88. The standard deviation (SD) ranges from 0.57 to 0.62. The SD, which is lesser than 1.00, means a less likely heterogeneous result and consistency of the responses. The data revealed that the independent variable is described as very high. This descriptive level indicates that the variable TIC are always manifested. Whereas, the dependent variable of the study, cognitive flexibility geared a high level which means it is oftentimes observed. The SD, which is lesser than 1.00, implies a less likely heterogeneous result and consistency of the responses.

Significant Relationship of Teachers' Instructional Competence and Cognitive Flexibility of Education Students

Table 2 shows the relationship between teachers' instructional competence on cognitive flexibility. It was revealed that r (287) = .515, p=.001 since the p-value (p=.001) is lesser than the level of significance (α=0.05), the null hypothesis is being rejected in this context. Thus, there is a significant relationship between teachers' instructional competence and cognitive flexibility of the education students.

Table 2. *Relationship Between Variables*

Variable	*Mean*	*R-Value*	*P-Value*	*Decision α=0.05*
Teachers' Instructional Competence	4.29	.515	<.001	Ho Rejected
Cognitive Flexibility	4.04			

**p<0.05 significant*

Qualitative Result

Profile of the Participants

Presented in Table 3 is the profile of the participants who were involved during the in-depth interview and focus group discussion. There were 7 participants in the IDI and 7 in the FGD – a total of 14 participants. The informants and participants were first-fourth year Education students in KCAST. There were twelve (12) female education students and two (2) male education students. In referring to the informants of this study, the students were given codes. This is deemed necessary in upholding ethical standards.

Table 3. *Profile of the Participants*

Pseudonym	*Gender*	*Year Level*
IDI 01	Male	1st year
IDI 02	Female	1st year
IDI 03	Female	4th year
IDI 04	Female	1st year
IDI 05	Female	3rd year

IDI 06	Female	2nd year
IDI 07	Female	2nd year
FGD 01	Female	3rd year
FGD 02	Female	3rd year
FGD 03	Female	2nd year
FGD 04	Female	2nd year
FGD 05	Female	3rd year
FGD 06	Male	2nd year
FGD 07	Female	2nd year

Standpoints of the Participants on the Quantitative Results Regarding the Level of Independent and Dependent Variables

Table 4 shows the standpoints of the participants on the qualitative results regarding the level of Teachers' Instructional Competence and Cognitive Flexibility.

The essential themes generated are as follows: the confirmed very high rating of TIC, and confirmed high rating of CF.

Table 4. *Standpoints of the Participants on the Quantitative Results*

Areas of Concern	*Essential Theme*	*Core Ideas*
Very High Rating of Teachers' Instructional Competence (TIC)	Confirmed Very High Rating of TIC	• Instructors are highly skilled, knowledgeable, and demonstrate effective instructional competence. • Instructors use diverse teaching approaches, engaging strategies, and differentiated instruction to cater students' learning needs. • The competence of the instructors impact students' learning outcomes, understanding, and engagement.
High Rating of Cognitive Flexibility (CF)	Confirmed High Rating of CF	• Students are adaptable in different teaching methods of the instructor and in different contexts. • Students can manage themselves to progress academically. • Students are resilient and open to learning opportunities.
Significant Relationship of TIC on CF	Confirmed Relationship of TIC on CF	• Reasons of Participants on their Confirmation on the Significant Relationship & Influence of TIC on their CF: • The ability of the instructors to deliver the lesson effectively influences the students to become more flexible and adaptable. • Effective teaching strategies help students become more adaptable and flexible thinkers. • Instructors guide students' learning beyond just delivering the lessons.

Confirmed Very High Rating of Teachers' Instructional Competence

The majority of Education students expressed that their instructors have very high level of teachers' instructional competence as their instructors are highly skilled, knowledgeable, and demonstrate effective instructional competence, use diverse teaching approaches, engaging strategies, and differentiated instruction to cater students' learning needs, and the competence of the instructor's impact students' learning outcomes, understanding, and engagement.

IDI 03 cited that most of their instructors are excellent in delivering lessons and teaching effectively. Having strong teaching skills, make it easier for students to understand the lessons. Also, explaining concepts clearly will ensure that students grasp the topics well. Thus, the way of excellent teaching keeps students engaged and encourages learning. Through that, she strongly agrees that their instructors are competent and effective in their teaching. She stated that:

For me, yes, nag agree ko because most especially sa atoa daghan tag instructors nga nindot sila magdeliver og lesson. So for me, nag agree gyud ko kay most of them, effective man pud ilahang mga gipang tudlo. (IDI 03-RQ1)

(For me, yes, I agree because, especially in our case, we have many instructors who are excellent at delivering lessons. So, I truly agree because most of them teach effectively.)

Moreover, FGD 06 agreed with the ratings, emphasizing that they accurately reflect the very high instructional competence of the instructors. This response emphasizes that the instructors are deliberate in ensuring that their instructions are clear and effectively applied in the learning process. Their instructors' primary role in the classroom is to impart knowledge to the students in order to understand concepts thoroughly. She mentioned that:

For me, I agree with these ratings which is teachers' instructional competence is very high {…}they make sure na dapat ang ilang instructions na gihatag inside the classroom is ma utilize sya and ilahang top goal man pud inside the classroom is to disseminate information and to provide students' knowledge that's why their instructional competence is for me very high. (FGD 06-RQ1)

(For me, I agree with these ratings, which indicate that teachers' instructional competence is very high. {…} they make sure that the

instructions they provide are properly utilized. Their primary goal in the classroom is to disseminate information and provide students with knowledge, which is why I believe their instructional competence is very high.)

Furthermore, IDI 04 stated her agreement with the very high ratings of the instructional competence of their instructors. She emphasized that their teachers are highly skilled and knowledgeable, making them more than capable of delivering lessons effectively. She also stated that their teachers are able to manage the classroom well, conduct assessments efficiently, and create a classroom environment that keeps students engaged without being overly strict. She clearly stated that:

I agree sa very high nga ratings because I know nga they are knowledgable, more knowledgeable enough to discuss their lessons that's why they know nga unsaon pag handle every sections, unsaon pag every assessment if unsaon pag kanang ma deliver ang ilang mga, kanang unsaon pag kuan sa atmosphere nga like sa classroom management nga unsaon nila pagdala nga dili kaayo makuan ang estudyante sailaha nga dili sila mahimong terror like I know nga they know jud. I know nga it's very high. (IDI 04-RQ1)

(I agree with the very high ratings because I know that they are knowledgeable, more than capable enough to discuss their lessons effectively. That is why they know how to handle each section, conduct assessments, and deliver their lessons properly. They also know how to manage the classroom atmosphere in a way that keeps students engaged without being too strict or intimidating. I truly believe they deserve a very high rating.)

In addition, IDI 02 asserted that their instructors use different teaching methods to make lessons more effective. They apply engaging strategies to keep students interested and prevent boredom in class. Also, they connect lessons to real-life situations, making learning more meaningful. By using various approaches, they ensure that all students understand the topics better. This shows that teachers adjust their teaching styles based on students' needs, which helps improve learning outcomes. She stated that:

Sige so, pag ang competence sa isa ka teacher, paghatag og instruction sa students kay mu agree ko aning very high kay saakoang mga instructors karon kay effective jud nila nga matudlo or madeliver ang mga topics and naa silay mga iyaiyahang mga strategies para dili mi ma boring gud sa klase and dili lang sila ga stick sa kung unsa lang ang naa sa topic, murag ginahaom pud nila sa true to life ang mga examples nila, so very high pud kung ako ang mag rate saila. (IDI 02-RQ1)

(Alright, so when it comes to a teacher's competence in giving instructions to students, I would rate it as very high. I agree with this because, based on my current instructors, they are very effective in teaching and delivering topics. They also have their own strategies to keep the class from getting boring. Additionally, they do not just stick to what is in the lesson; they relate their examples to real-life situations, making the lessons more engaging. So if I were to rate them, I would definitely give them a very high rating.)

Further, FGD 02 mentioned that their teachers use differentiated instruction to meet students' different learning needs. They adjust their teaching methods based on how students learn best. For example, they use visual aids for visual learners, group activities for collaborative learners, and discussions for those who learn through conversation. Using this approach greatly help all students understand the lessons more effectively. By using various strategies, teachers make learning more inclusive and engaging. She uttered that:

Okay, I agree, so one of the example is when our teachers use differentiated instructions. So, they adjust their teaching nga haom sa nagka laing-laing or the different learning styles of their students such as using visual aids, group activities, and of course discussion. (FGD 02-RQ1)

(Okay, I agree. One example is when our teachers use differentiated instruction. They adjust their teaching to suit the different learning styles of their students by using visual aids, group activities, and discussions.)

Also, IDI 05 expressed that their instructors use different teaching methods to help the students learn better. They do not stick to just one approach but combine various strategies to keep lessons engaging. By doing this, they ensure that all students, regardless of their learning styles, can comprehend the topics. Their ability to adjust their teaching makes learning more effective and enjoyable. This shows that their instructional competence is strong and well-suited to the needs of the students. She narrated that:

I agree with this result because as I have said earlier, the competence of the teacher in terms of instruction is really high or very high nga because naa jud silay skills nga makatudlo og tarong sa mga bata, dili lang isa ka method kundi gina integrate gyud nila kung unsa ang different kinds of approaches. So ilaha gyung gina try nga tanan needs sa students is ma meet, ang interest sa students kay ma catch {…} para tanan na students is ma accommodate, tanan na students kay makasabot, unya ang ilahang quality of delivery to the students is effective gyud. (IDI 05-RQ1)

(I agree with this result because, as I mentioned earlier, the teachers' instructional competence is indeed very high. They have the necessary skills to teach students effectively, and they do not just rely on a single method; instead, they integrate various approaches. They genuinely try to meet all the students' needs and capture their interests {…} to accommodate all students, ensuring that everyone understands the lessons. Their quality of lesson delivery is truly effective.)

Moreover, IDI 06 highlighted that a teacher's competence greatly affects how well students learn. When teachers give clear instructions and use good teaching strategies, students understand lessons better. A skilled teacher also makes learning more engaging, helping students stay focused and interested. If the teachers are very highly competent, students are more likely to succeed in their studies. This

emphasizes the ability of the teacher to manage the class and deliver lessons effectively plays a big role in students' learning. She said that:

For me, opo agree ko sa rating nga very high because kanang si teachers' instructional competence is dako jud kaayo siyag impact sa mga students because dira o mao na ang ugat nganong makatuon ang students. Therefore, kung effective kaayo ang pag kuan ni teacher in terms of dealing instructions or other matters, meaning kanang makaingon jud ta nga naa juy natun-an ang mga students kay as the rating diba, very high man jud siya, so meaning makaingon jud ta nga effective jud kaayo ang mga skills or kung gina unsa pag deal sa teacher ang klase or ang iyang pag tudlo sa klase. (IDI 06-RQ1)

(For me, yes, I agree with the very high rating because a teacher's instructional competence has a significant impact on students. It serves as the foundation for students' learning. Therefore, if a teacher is highly effective in delivering instructions and handling other matters, we can confidently say that students are truly learning. Since the rating is very high, it means that the teacher's skills and teaching strategies are indeed effective in managing the class and delivering lessons.)

In addition, FGD 03 expressed that teachers' expertise plays a key role in student learning. When teachers have strong teaching skills, they can clearly explain the lessons, which makes it easier for students to understand. Their knowledge and strategies help students to learn more effectively. Skilled teachers also create engaging lessons that keep students interested. This shows that a teacher's competence directly improves students' learning experiences and outcomes. She stated that:

I agree, kay mostly sa mga teachers naa jud silay kasanayan sa pag teach, that's why mas easy and effective ang learning sa mga students. (FGD 03-RQ1)

(I agree because most teachers have expertise in teaching, which makes learning easier and more effective for students.)

Additionally, IDI 07 emphasized the impact of teachers' instructional competence in which it plays a crucial role to students' success. Effective teaching methods help improve students' learning outcomes and engagement. This shows that the strong instructional competence of teachers positively impact students' academic performance. She mentioned that:

Yes, I agree with the ratings, sa ratings nga very high, it's because mag matter gyud always ang teachers' instructional competence sa outcome nga makuha sa mga students. (IDI 07-RQ1)

(Yes, I agree with the very high ratings because a teacher's instructional competence always plays a crucial role in the outcomes that students achieve.)

Lastly, FGD 04 also highlighted that the extensive experience of the teacher makes it easier for students to understand and apply their learning effectively. Experienced teachers know how to explain lessons clearly, making it easier for students to understand. Their teaching skills also help students stay engaged and more likely to achieve good learning outcomes. She pointed out that:

Sa akoang point is I agree kay most of the teachers have lots of experience of teaching and it's easy to catch-up para sa mga students tapos ma apply nila ang learning in way. (FGD 04-RQ1)

(From my point of view, I agree because most teachers have a lot of teaching experience, making it easier for students to catch up and apply their learning effectively.)

Confirmed High Rating of Cognitive Flexibility

The majority of Education students expressed that they have high level of cognitive flexibility as they are adaptable in different teaching methods of the instructor and in different contexts. Also, they asserted that they have the ability to manage themselves in order to progress academically. Moreover, they affirmed that they are resilient and open to learning opportunities. These responses are the most frequently cited reasons during the interview. Hereunder are the shared narratives of the participants:

IDI 03 shared her insight that they can easily adjust to different teaching methods used by their instructors. As they experience various teaching styles, they become more familiar with them and learn how to respond effectively. The ability of the students to adapt helps them handle new learning situations without much difficulty. Over time, they develop cognitive flexibility in learning, making it easier to follow different approaches in class. She mentioned that:

Yes, I agree because dali raman ta maka adapt gud sa mga different teaching styles sa atong mga instructors tapos didtoa ma anad rapud ta and dali rapud ta maka adjust sa mga new situations gud. (IDI 03-RQ2)

(Yes, I agree because we can easily adapt to the different teaching styles of our instructors. Over time, we get used to them, and we can quickly adjust to new situations.)

Further, FGD 03 noted that the experiences of many students nowadays can easily adjust to different teaching methods because they are exposed to various instructional strategies. The advancement of technology also helps them become more flexible in learning and adapting to changes. This exposure allows them to handle new teaching styles with confidence and ease. She said that:

I agree kay daghan students nowadays kay maka experience og different teaching methods or the technology is evolving na pud, so

kaya natuto sila maging mas adaptable {…} pag naka face sila ug mga new situation sa teaching strategies. (FGD 03-RQ2)

(I agree because many students nowadays experience different teaching methods, and technology is also evolving, which helps them become more adaptable {…} especially when faced with new teaching strategies and unfamiliar situations.)

Additionally, FGD 05 highlights the the role of cognitive flexibility in Education that demonstrate the adaptability of the students by adjusting to the different teaching methods and learning situations. With this, it can change their strategies to solve problems and modify their approach based on the instructor's teaching style. Also, it highlighted the ability of collaborating with different classmates, responding to feedback, and quickly adapting to new technologies. She stated that:

I agree with this rating. As an Education student, cognitive flexibility kay naga show siya when as an Education naga adapt ta ug new situations like changing strategies to solve a problem and I also adjust the different learning styles working with diverse group members and also responding to feedback or quickly learning new technologies. So in each case, it shift the thinking or approach to meet new challenges and improve learning. (FGD 05-RQ2)

(I agree with this rating. As an Education student, cognitive flexibility is demonstrated when we adapt to new situations, such as changing strategies to solve a problem. I also adjust to different learning styles, work with diverse group members, respond to feedback, and quickly learn new technologies. In each case, it involves shifting thinking or approaches to meet new challenges and enhance learning.)

Moreover, IDI 01 pointed out that cognitive flexibility helps Education students who continue their education have the ability to manage themselves academically. Since first-year education students must take an entrance exam, only those who pass can move forward. By the second year, those who remain have likely proven they can handle academic challenges. As they progress to the third and fourth years, they continue meeting requirements, showing their ability to adapt and succeed. He mentioned that:

Yes, because like what I said ganiha, education students like for the first year karon naa najuy entrance exam para musala tapos mostly mga 2nd year kay mga nahibilin ana kay feeling nako makapasar pud sila {…} hangtod sa 3rd year hangtod 4th year. (IDI 01-RQ2)

(Yes, because like I mentioned earlier, first-year education students now have to take an entrance exam as a screening process. By the second year, those who remain are likely the ones who passed {…} until the third and fourth years are also those who were able to meet the requirements.)

Also, IDI 04 emphasized that cognitive flexibility is crucial for Education students to manage responsibilities early. She agrees with the ratings because it is important for the students to develop these skills. If they delay this process, handling multiple instructors and harder lessons in the future will be more difficult. Developing these skills early makes it easier for them to progress academically. She said that:

I agree with these ratings kay para raman pud ni sa amoa kay if dili mi kabalo mag manage karon kanang murag gina baby-baby pami kay first year kunohay, how can we manage nga mu angat-angat man pud pananglitan second year nami, gusto pa didto nami mu adjust, didto pami makabalo unsaon pag manage every instructors namo nga kanang naga high man pud ang level sa amoang pag eskwela. (IDI 04-RQ2)

(I agree with these ratings because they are meant for our own development. If we do not learn how to manage now, especially since we are still being treated like first-year students, how can we handle things as we move up to the second year? If we only start adjusting later, it will be more difficult for us to manage different instructors, especially as the level of our education becomes more challenging.)

To add, IDI 07 highlighted even though there are many challenges as a student, she can handle it by using different strategies and techniques that work best for her. This means she knows how to adapt and find ways to overcome difficulties. By managing her studies well, she can continue to progress academically. She pointed out that:

Yes, I agree. I agree because as a student pud sa KCAST daghan kaayo og mga challenges as a student but kaya nako siya i handle through different strategies and techniques nga asa ko comfortable. (IDI 07-RQ2)

(Yes, I agree. I agree because, as a student at KCAST, there are many challenges, but I can handle them using different strategies and techniques that work best for me.)

Also, IDI 02 highlighted an example that high cognitive flexibility show students' resilience and adaptability during oral recitations. Even when unprepared, they can still respond using their own knowledge and opinions. This demonstrates cognitive flexibility because they can think quickly and adjust their answers based on what they know. Their willingness to participate, even without full preparation, shows they are open to learning and improving. She stated that:

So, pag abot sa mga respondents, sa amoa, kay mu agree ko. For example kay kanang naay oral recitations unya wala naka ready ang isa ka estudyante, so mag base siya sa iyahang sariling knowledge, mag base siya sa iyang sariling opinyon, and makaingon ko nga high iyahang cognitive flexibility kay bisag wala ka ready ang isa ka estudyante kay naa syay matun an nga bisag dili siya kuan kaayo sa topic nahaum pero naa syay matubag jud nga base saiyang sarili. (IDI 02-RQ2)

(So, when it comes to us as the respondents, I agree.For example, during oral recitations, if a student is not prepared, they will rely on their own knowledge and opinion. I can say that their cognitive flexibility is high because, even without prior preparation, they can still come up with a response based on their own understanding, even if it is not entirely aligned with the topic.)

Moreover, IDI 06 emphasized that a high rating in cognitive flexibility reflects students' strong critical thinking skills, which enable them to handle various challenges and continue developing over time. Their ability to adapt and improve over time shows continuous learning and growth. This highlights their resiliency to face difficult tasks and develop their thinking skills further. She pointed out that:

Opo, naga agree ko nga high rating siya ang cognitive flexibility. Meaning makaingon ta high rating man siya makaingon jud ta nga taas kaayo ug critical ability ang mga students in terms of sa mga bisan unsa nga mga butang or in dealing situations or unsa paman diha kay kay ang result man is high so meaning makaingon jud ta nga naa silay taas or naga patuloy nga naga develop ang ilang critical ability po. (IDI 06-RQ2)

(Yes, I agree that cognitive flexibility deserves a high rating. This means we can say that students have a strong critical ability when it comes to various situations or challenges. Since the results indicate a high rating, it suggests that their critical thinking skills are well-developed and continue to improve over time.)

Further, FGD 02 shares her experiences that cognitive flexibility is evident when they are challenged by their teacher with questions and activities that require flexible thinking. This helps them adapt to new learning methods, solve problems creatively, and apply knowledge in different ways. By engaging with open-ended questions and real-world problems, it enable students to develop critical thinking skills. Also, interdisciplinary learning further strengthens their ability to connect ideas, showing their resiliency and willingness to learn and grow in different situations. She pointed out that:

Yes, I agree since our teachers provide challenging questions and activities that encourage flexible thinking. Cognitive flexibility is highly evident in situations kung asan ang students kay required sila muadapt to new learning methods and of course to solve problems creatively or to apply knowledge in different context. {…} I have encountered teachers who encourage students to think critically by presenting open-ended questions and mga real-world problems. Another example ana is when teacher also integrate interdisciplinary learning. So, gina allow nila ang students to connect concepts from different subjects and apply them to real-world or real-life scenarios. (FGD 02-RQ2)

(Yes, I agree since our teachers provide challenging questions and activities that encourage flexible thinking. Cognitive flexibility is highly evident in situations where students are required to adapt to new learning methods, solve problems creatively, and apply knowledge in different contexts. {…} I have encountered teachers who encourage students to think critically by presenting open-ended questions and real-world problems. Another example is when teachers integrate interdisciplinary learning, allowing students to connect concepts from different subjects and apply them to real-life scenarios.)

Confirmation on the Relationship of TIC on CF

For the confirmation on the relationship of TIC and CF, these are the reasons mentioned by the participants: the ability of the instructors to deliver the lesson effectively influences the students to become more flexible and adaptable, effective teaching strategies help students become more adaptable and flexible thinkers, and instructors guide students' learning beyond just delivering the lessons.

IDI 05 emphasizes that a teacher's instructional competence significantly influences students' cognitive flexibility. When a teacher is skilled in delivering the lessons, students can better understand and adapt, even if the subject is difficult. On the other hand, if a teacher is not effective in presenting lessons, students may struggle to adjust, even in easy subjects. This shows that teachers play a significant role in helping students develop cognitive flexibility. Their teaching methods shape how well students can be able adapt to new ideas and learning situations. She elaborated that:

So mao na ni no nag-una una diay akong answer ganina. Naa jud syay relationship, naa jud syay significance, so kung ginaingon na kung ang teacher is instructionally competent siya, unya bisag unsa pa ka lisod sa subject kung instructional competent siya, kaya gyud nga sa student to cognitively be flexible compared to a teacher nga bisan pag unsa ka sayon ang iyang subject kung dili siya kabalo mu deliver, dili siya kabalo sa iyahang mga content, instructionally incompetent siya, syempre the student itself is maglisod pud to adapt or cognitively dili pud sila flexible kay syempre although muingon ta nga ang student jud dapat ang center sa learning, pero dako ug factor man jud ang teacher diba. Ang teacher man gud ang mu affirm kung tama ba or dili, ang teacher ang mangita ug paagi para ang bata kay makatuon, maka adapt sa lesson {…} So, naa gyud silay relationship, naa gyuy significance, importante gyud kaayo siya. (IDI 05-RQ3)

(So, I actually answered this earlier. There really is a relationship and significance between the two. If a teacher is instructionally competent, no matter how difficult the subject is, students can still be cognitively flexible and adapt to the lesson. On the other hand, if a teacher is not competent in delivering lessons, even if the subject is easy, students will struggle to adapt and may not develop cognitive flexibility. Even though we say that students should be at the center of learning, teachers still play a major role. The teacher affirms whether something is correct or not and finds ways to help students understand and adapt to the lesson {…} So, yes, there is a strong relationship and significance between instructional competence and cognitive flexibility. It is truly important.)

Additionally, FGD 06 highlights the significant role of teachers' instructional competence in shaping how students learn and adapt. When teachers utilize effective teaching strategies and manage the class well, students can benefit from it by becoming more engaged and responsive. The way students answer the questions, join discussions, and participate in lessons depends on how the teacher delivers instruction. He noted that:

I am in favor with the result given because for the part of the teachers, they give quality instructions, they manage us, and us students who responds to them can be benefited from the way they manage the class. {…} I believe there is a significant relationship kay the way mi mag answer sa mga questions, the way mi mag participate sa classroom or the way mi mag engage sa classroom, it's because of how they managed and how they delivered instruction inside the classroom po. (FGD 06-RQ3)

(I am in favor with the given result because, on the part of the teachers, they provide quality instruction, manage us effectively, and we, as students, benefit from the way they handle the class. {…} I believe there is a significant relationship because the way we answer questions, participate in class, and engage in discussions is influenced by how they manage the classroom and deliver instruction.)

Similarly, FGD 07 also expressed agreement about the result, explaining that the lessons used concisely and clearly by the teachers enable students to understand and absorb information more effectively. This helps students adjust to new learning situations and develop flexible thinking. Also, this shows that a teacher's teaching methods strongly influence the students' ability to be flexible and adjust to challenges. She stated that:

I am in favor with the result given coz as a student, teachers will excel or will teach us concise and clearly in a proper way that we as a student can learn and can absorb the lesson that they given. Then it has a significant relationship and if cognitive flexibility coz teachers did their best to teach the students to learn more and also they taught us how to grasp and how to learn it properly. (FGD 07-RQ3)

(I agree with the result given because, as students, we benefit when teachers teach clearly and concisely in a way that helps us understand and absorb the lessons effectively. There is a significant relationship with cognitive flexibility because teachers do their best to help students learn and also taught us on how to grasp and understand the lessons properly.)

Moreover, IDI 03 agree with the results highlighting that when teachers use different methods or strategies in teaching, such as lectures, hands-on activities, and technology, students learn to approach problems in various ways. This exposure trains their minds to adjust to new challenges and think critically in different situations. Thus, effective teaching strategies help students become more adaptable and flexible thinkers. She said that:

Yes, nag agree ko because kanang mga teacher man nga mag gamit og different strategies kay makatabang siya sa mga students nga maghunahuna gani ug daghan, mag think sila ba in various ways. For example kay ang teacher kay i blend niya ang mga traditional and kanang mag lecture siya pero i blend niya kana ganing mga traditional with hands on activities and kanang mga technology, so maka encourage siya sa mga students to be adaptable gani sila and didtoa ma develop ang ilahang flexible students to be adaptable gani sila and didtoa ma develop ang ilahang flexible thinking skills. (IDI 03-RQ3)

(Yes, I agree because teachers who use different strategies can help students think in various ways. For example, when a teacher blends traditional lectures with hands-on activities and technology, it encourages students to be more adaptable. This approach helps develop their flexible thinking skills, allowing them to process information in different ways and adjust to different learning situations.)

To add, IDI 04 shares her experience emphasizing that clear and effective teaching helps students adapt and think flexibly. When instructors deliver lessons well, students can easily understand and adjust to new topics. This leads to active participation in class, making learning more effective. As a result, strong teaching strategies help students develop adaptability in different academic situations. She elaborated that:

So I am favor with the result given because kuan if nice ang pag deliver sa instructor sa mga estudyante, then, dali rami ma adapt or dali ra namo masabtan {…} active mi sa iyahang discussion, then, mao to it's easier for us to manage about their respective gipanghandle nga mga courses. (IDI 04-RQ3)

(I am in favor with the result given because if the instructor delivers the lesson well, we can easily adapt and understand {…} and actively participate. As a result, we can effectively manage the courses they are handling.)

Also, FGD 03 voiced her agreement about the result, stating that effective teaching strategies help them adjust to new information and explore different problem-solving approaches. This leads to the development of adaptable thinking abilities that enhance their learning. Eventually, this flexibility enables them to successfully manage a variety of challenges. She noted that:

I agree pud because teachers shape students thinking and adaptability by exposing them to different learning methods. Sa pamamagitan ng iba't-ibang strategies sa pagtuturo, tinuturuan nila ang mga mag-aaral kung paano mag adjust sa bagong information at maghanap ng iba't-ibang solution sa mga problema. (FGD 03-RQ3)

(I also agree because teachers shape students' thinking and adaptability by exposing them to different learning methods. Through various teaching strategies, they teach students how to adjust to new information and explore different solutions to problems.)

Furthermore, FGD 05 highlighted the meaningful impact of teaching methods that greatly influence how students adapt their thinking and problem-solving skills. Effective strategies for teaching teach students how to adjust their solutions for multiple challenges. This helps them become more flexible in processing information and finding solutions. She elaborated that:

Yes, I am in favor with the result given because in the other words, the way teachers teach has a meaningful impact on how students can adapt their thinking and problem-solving skills. (FGD 05-RQ3)

Also, IDI 02 highlighted that teachers do more than just delivering the lessons; they guide students in their learning journey. Instead of simply providing information, teachers help students think critically and understand how to study effectively. This guidance allows students to take control of their own learning, making them more independent and flexible thinkers. When teachers support students in this way, they build a strong relationship that improves cognitive flexibility. She mentioned that:

Yes, mo agree ko ani nga result kay dako jud pud og impact, naa jud poy relationship ang pagtudlo sa maestra sa cognitive flexibility sa isa ka estudyante kay ang mga maestra, dili man pud sila ingon nga sila pud ang mag deliver sa mga dapat tun an pero naa sila dira para mu guide, and sa ing ana nga butang, ma asess ang isa ka student nga kanang makabalo ba kung unsa iyang buhaton ug iyang tun-an, ing ana. So naay relationship jud ang sa pagtudlo sa instructors ug sa students kay pinaagi sa mga instructors kay makabalo ang mga estudyante sa kung unsa ilang buhaton ug unsa ilang tun-an. (IDI 02-RQ3)

(Yes, I agree with this result because it has a significant impact. There is indeed a relationship between a teacher's instruction and a student's cognitive flexibility. Teachers are not just there to deliver all the lessons directly, but rather to guide students in their learning. In this way, students can assess their own learning process, knowing what to do and what to study. This shows that there is a clear relationship between instructors and students, as instructors help students understand what they need to learn and how they should approach it.)

To add, FGD 04 confirmed her agreement with the result, highlighting the role of the teacher in improving students' cognitive flexibility. Teachers do not just share knowledge but also teach students how to handle new information and solve problems in different ways. This guidance helps students become more flexible in their thinking, allowing them to adjust to changes and challenges. She uttered that:

For me po kay yes because kay ang teacher baya jud naga shape og minds sa students {…} ginatabangan sab nila ang mga students sa kung unsaon pag deal sa isa ka problema or kung unsaon pud nila paghatag og solution ana nga problema. (FGD 04-RQ3)

(I also agree because teachers shape students' thinking and adaptability {…} and they teach students how to adjust to new information and explore different solutions to problems.)

Lastly, IDI 07 pointed out that the teachers do more than just deliver lessons as they guide students in shaping their learning approach. The instructional competence of teachers helps students develop cognitive flexibility by teaching them how to balance and adjust their learning strategies. Instead of just receiving information, students learn how to think critically and adapt to different challenges. This guidance allows students to become more independent and capable of handling new ideas effectively. She mentioned that:

Yes, I agree nga naay relationship ang teachers' instructional competence ug ang cognitive flexibility of the education students kay mag matter man ang cognitive flexibility ni student and kung unsa ang teachers' instructional competence. So, dira man maka balance si student kung unsa ang iyahang buhaton. (IDI 07-RQ3)

(Yes, I agree that there is a relationship between teachers' instructional competence and the cognitive flexibility of education students because a student's cognitive flexibility depends on the teacher's instructional competence. It plays a significant role in helping students balance and determine how they will approach their learning.)

Data Integration of Salient Quantitative and Qualitative Findings

This paper employed a mixed methods design specifically utilizing an explanatory sequential approach. In Table 5, the joint display of the quantitative and the qualitative results is based on the data collated. When the two databases are brought together for analysis and comparison, as being carried out in this study.

As seen in the rightmost column, there are two natures of integration: connecting, supplemented by merging, and completed by confirmation. Integration through connecting occurs when one type of data links with another through the sampling frame. Since this study is explanatory sequential, samples in the qualitative strand were taken from the quantitative strand, and the interview guide was based on the salient points of the quantitative results. Integration through merging happens when the two databases are brought together for analysis and comparison, as being carried out in this study. The integration is completed with the fit of the data, which refers to the coherence of the quantitative and qualitative findings.

There are three possible outcomes: confirmation, expansion, and discordance. Confirmation occurs when the findings from both types of data confirm the results of the other. As the two data sources provide similar conclusions, the results have greater credibility. Expansion occurs when the findings from the two sources of data diverge and expand insights. In this study, the themes generated for a particular variable did not vary, so there is no further explanation needed. Meanwhile, discordance occurs if the qualitative and

quantitative findings contradict each other. Discordance is not applicable in this study since the findings did not contradict with each other and there are only two natures of integration: connecting, supplemented by merging, and completed by confirming.

Table 5. *Joint Display of Quantitative and Qualitative Results*

Research Area	*Quantitative Results*	*Qualitative Results*	*Nature of Integration*
Status of Teachers' Instructional Competence (TIC) & Cognitive Flexibility (CF)			
1.1 Status of TIC	Means of five indicators of TIC ranged from 4.27 to 4.31 with an overall mean of 4.29 or very high level which indicates the respondents evaluate TIC as always manifested.	Informants/Participants showed positive experiences on the five indicators considered as a priori themes: Instructional Delivery (ID), Classroom Management (CM), Assessment (A), and Personal Competencies (PC). Reasons for their confirmation are reflected in their qualitative standpoints.	Connecting -Confirming
1.2 Status of CF	Means of two indicators of CF are 3.88 and 4.20 with an overall mean of 4.04 or high level which indicates the respondents evaluate CF as oftentimes observed.	Informants/Participants confirmed the high rating on the two indicators of CF: Control (C) and Alternatives (A) in the qualitative phase thru IDI & FGD.	Connecting - Confirming
Relationship of TIC on CF	TIC has a significant relationship ($p<.001$) on CF basing on the p-value (R square= .515; $p=<.001$).	The participants/informants were affirmative on the relationship of TIC on CF. They stated the importance of the variable in the development of their CF as can be gleaned from their qualitative standpoints on the topic bearing out the theme confirmed significant relationship of TIC on CF.	Connecting - Confirming

Confirmed Level of TIC and CF. For the level of TIC, it is shown in the quantitative results, the mean of the three indicators ranges from 4.27 to 4.31. The results indicate that the independent variable is always manifested by the instructors. The qualitative data confirm the quantitative data. The participants showed positive responses on the four indicators: instructional delivery, classroom management, assessment, and personal competencies. Therefore, the nature of integration is connecting-confirming.

Further, for the level of CF, it is shown in the quantitative results that the overall mean of the dependent variable is 4.04. The results show that the respondents have a high level of CF, indicating that is oftentimes observed. The qualitative data confirm the quantitative data. The participants showed positive responses on the two indicators: control and alternatives. Thus, the nature of the integration is connecting-confirmation.

Relationships between Teachers' Instructional Competence and Cognitive Flexibility. The nature of the integration of the relationship between the quantitative and qualitative results indicates connecting- confirmation. The quantitative strand showed a positive correlation between the variables LIS and RC. This is confirmed in the qualitative results, where participants were affirmative on the influence of TIC on their CF. They verbalized the importance of the variable in the development of their CF as can be gleaned from their qualitative standpoints on the topic bearing out the theme confirmed significant relationship of TIC on CF. The qualitative data support and align with the quantitative results. The participants' acknowledgment of the significance of the variables merges with the statistical evidence. Moreover, a confirmation element is present as both the quantitative and qualitative data confirmed the relationships among the variables. Hence the nature of data integration is connecting-confirming.

Level of Teachers' Instructional Competence and Cognitive Flexibility

Teachers' Instructional Competence. The overall very high level of TIC results from the respondents' ratings on the following indicators, instructional delivery, classroom management, assessment, and personal competencies. The results denote that TIC is always manifested. This result aligns with the findings of Laniton et al. (2022), who similarly gained a very high or competent level of Teachers' Instructional Competence in their study particularly in Secondary School Teachers.

Also, the result of the study is aligned to the study of Pacuno and Sanchez (2020) which highlighted that those teachers demonstrated a very satisfactory level of instructional competence in various areas, including curriculum content knowledge, content delivery, lesson planning, student engagement, classroom management, and creating a conducive learning environment.

Moreover, the study by Quenikito (2022) revealed that the entrepreneurial skills of their students were significantly shaped by the instructional competencies of home economics teachers. Teachers maintained a balanced approach to education despite differences in background, demonstrating that effective teaching is more important for promoting student learning than demographics.

Another study conducted by Ubat et al. (2024) underscores that the instructional quality had the strongest correlation with students' interest, highlighting the need for effective teaching strategies to create a positive learning environment that enhances both engagement and academic performance. The study concludes that teachers' instructional practices, specifically classroom management, instructional quality, social emotional support, and cognitive engagement, play a crucial role in boosting students' confidence and interest in learning mathematics.

Cognitive Flexibility. Being the dependent variable of the study, CF geared a high rating. This skill was measured through the following indicators, control and alternatives. The results indicated that CF is oftentimes observed. This outcome resonates with the study conducted by Nakhostin-Khayyat et al. (2023), the capacity of the students to control their learning depends heavily on their cognitive flexibility. Their research showed that cognitive flexibility had a significant impact on these cognitive and emotional abilities, explaining 27% of the variance in self-regulation and 48% of the variance in resilience. Additionally, self-regulation mediates the relationship between cognitive flexibility and resilience, as demonstrated by structural equation modeling, highlighting the relationship of the attributes in students' academic and personal growth.

In addition, the results of research conducted by Esen et al. (2017) shows the facts that cognitive flexibility is predicted meaningfully in positive direction by five of the variables "achievement, general self-efficacy, academic self-efficacy, social self-efficacy and emotional self-efficacy". In the multiple regression analysis, it is found that five variables all together explain 34% of cognitive flexibility. Also, it is found in stepwise regression analysis that cognitive flexibility is predicted meaningfully by their two variables.

Further, as cited in Ateş-Ös and Bulut-Serin (2024), people with high degrees of cognitive flexibility are better able to manage stress and maintain control of the situation, according to research conducted by Demirtaş (2019). Also, the significance of cognitive flexibility in the development of adaptive behaviors through stress management has been highlighted (Murphy et al., 2012).

Akman (2024) also revealed in his study through correlation analysis results in which positive and meaningful relationships were found between optimism and cognitive flexibility, and it was found that university students with high optimism scores also have high cognitive flexibility levels. To determine how much cognitive flexibility predicts optimism, the researcher performed a simple linear regression analysis. The results revealed that cognitive flexibility accounts for 19.4% of the total variance in optimism.

Relationship of Teachers' Instructional Competence on Cognitive Flexibility of Education Students

One of the objectives of this inquiry is to determine the significant relationship of the independent and dependent variables. The independent variable which is the TIC and the dependent variable CF of the education students of Kapalong College of Agriculture, Sciences and Technology were found to have significant relationship.

The findings of this study confirm with the Sociocultural Theory by Vygotsky (1978), suggesting that students best develop their cognitive flexibility through interaction and support or guidance from their teachers or instructors. It emphasizes that teachers' instructional competence (TIC) can affect how students effectively develop their cognitive flexiblity (CF), in which they are able to manage and adapt to diverse situations in their environment, as well as to think critically.

Another theory that aligns with the results of this study is the Constructivist Theory by Bruner (1966), which posits that learning is an active process in which students build knowledge through engaging themselves in meaningful learning activities. This theory highlights the significance of teachers' instructional competence (TIC) in improving the students' cognitive flexibility (CF) by allowing them to discover new ideas, solve problems, think critically, and make them active in their learning. When teachers possess strong instructional competence, they create a learning environment wherein students are motivated to actively participate in the class and adapt to new ideas.

Lastly, Cognitive Flexibility Theory by Spiro et al. (1998) states that students develop their deeper knowledge and problem-solving skills when they are engaged in diverse and relevant learning experiences. Thus, when teachers employ effective and adaptable teaching strategies that meet the unique needs of their students, the learning becomes meaningful in which the students are encouraged to explore and develop their thinking skills in various perspectives and enhance their creativity, which are essential for the development of their cognitive flexibility.

Qualitative Strand

The thematic analysis conducted related to the qualitative data was aimed at elucidating the participants' viewpoints and perspectives on the issues that arose from the quantitative results. The analysis generated themes herewith presented related to teachers' instructional competence and cognitive flexibility.

Standpoints of Participants of the Quantitative Results Regarding the Level of Independent and Dependent Variables

This section provides a discussion of the standpoints of the participants on the salient results of the quantitative study regarding the

level of the two variables.

Confirmed Very High Rating of Teachers' Instructional Competence. The participants confirm the very high rating for TIC as obtained in the quantitative results of the study. This implies that the instructors in Education Department of KCAST are very competent in the ways of their teaching. The respondents also affirmed that their instructors always manifested their assessment through conducting pre-test and fair assessment, incorporating authentic assessments, formative and summative assessments, and other learning activities; the personal competencies are always manifested by the instructors through their ability to demonstrate professionalism, involve student interaction, and motivate students. This implication corresponds with the study of Mendoza and Bautista (2022) which evaluated and discovered that the instructional competency of Laguna Senior High School teachers was "Highly Proficient" in related fields. The' consistency of this findings supports the notion that teachers with excellent pedagogical and instructional abilities have a major role in effective student learning and indicates that instructional competence is a critical component of a high-quality education.

Aligned with this, Arombo (2023) highlighted in her study that master teachers are very competent in carrying out instructional competencies, including subject-matter expertise, classroom management, teaching methodology, assessment, and mentoring. The areas with the highest and lowest composite means are classroom management and mentorship, respectively.

Confirmed High Rating of Cognitive Flexibility. The quantitative findings revealing a high rating of cognitive flexibility (CF) were further elucidated through in-depth interviews and focus group discussions with participants. They expressed a common concern: their ability to adapt in different contexts had led to this high rating. These findings support the conclusions of Karakuş (2024) which indicates that university students demonstrate comparatively high levels of critical thinking skills and cognitive flexibility. Cognitive flexibility and a tendency for critical thinking were significantly positively correlated above the medium level. It was determined that cognitive flexibility was a substantial predictor of critical thinking dispositions, accounting for 40% of them and positively and significantly predicting them. Cognitive flexibility, which is closely linked to critical thinking, is exhibited by people who have a tendency toward critical thinking.

Similarly, Bedir et al. (2023) examined the relationship between cognitive flexibility and leisure boredom among students. The study found that individuals with high levels of cognitive flexibility experienced lower boredom. Additionally, a positive correlation was observed between cognitive flexibility and leisure satisfaction, whereas a negative correlation was found between cognitive flexibility and boredom. The findings suggest that individuals with high levels of cognitive flexibility tend to be more creative and productive, leading to enhanced enjoyment of their free time.

Standpoints of the Participants on the Relationship of Teachers' Instructional Competence on Cognitive Flexibility

Confirmed Significant Relationship of Teachers' Instructional Competence on Cognitive Flexibility. In the qualitative interview the students confirmed the relationship TIC on CF. This indicates that the students agreed that TIC has a significant relationship on the CF of the Education students. Based on what they have mentioned during the interview, through the effective use of TIC, students become more adaptable and flexible thinkers.

Although there are many studies in which the relation between teachers' instructional competence and other variables as well as cognitive flexibility and various variables, there are no studies that directly examine the relationship between teachers' instructional competence and cognitive flexibility. However, there are studies in the literature examining the relation between cognitive flexibility and some concepts that would affect teachers' instructional competence. For instance, in the study of Kaçay (2021) stated that empathetic tendencies of physical education teachers were important predictors of cognitive flexibility and teacher professionalism.

Furthermore, in the study conducted by Mercado (2022) revealed that teacher's instructional competence and students' academic fall in a satisfactory level. The result on correlation analysis found out that students' academic performance is substantially associated to teachers' instructional competence particularly in ICT Literacy, Assessment and Life skills. This analysis shows that when teachers lack on the ICT literacy skills needed to integrate technology into their teaching, teamwork and communication significantly affect student achievement. Likewise, the findings also indicate that when teachers' lack of use technology to increase efficiency and timeliness during formal and informal assessments and, in particular, to give students opportunities to develop moral decision making and behavior, tends to affect students' academic achievement.

Data Integration of Quantitative and Qualitative Results

Data integration generally merges in the explanatory sequential mixed methods since the two databases are brought together for analysis. Fetters, Curry, and Creswell (2013) stated four approaches in integration: connecting, building, merging, and embedding. The term connecting is commonly used for explanatory sequential design. The building is used in the exploratory sequential design. Merging, on the other hand, is frequently utilized in the concurrent or any design.

Embedding is used for the embedded design. Within the context of explanatory sequential design, the approach combines the fit data integration: confirmation, expansion, and discordance. Confirmation refers to the findings from both types of data confirming the results of the other. Expansion means that the findings from two sources of data diverge and expand insights. Lastly, discordance refers to having inconsistent results, contradicting, and disagreeing with each other. It could be noted in the joint display that all quantitative results are confirmed by the qualitative results.

Level of Teachers' Instructional Competence and Cognitive Flexibility. Integrating the quantitative and qualitative status variables showed connecting-merging the two results. The quantitative findings showed a very high level of teachers' instructional competence (TIC) while high for cognitive flexibility (CF). This means that the students confirmed that these variables were manifested. Thus, the nature of integration is connecting-confirmation. Specifically, the heightened level of Teachers' Instructional Competence indicates that instructors possess a strong inclination towards effective instructional competence, which proves beneficial as it fosters the students' cognitive flexibility. As they demonstrate diverse teaching approaches and strategies effectively, students become more adaptable and flexible thinkers in their learning experiences. This suggests that through teachers' instructional competence, students are better able to manage themselves by being adaptable in different teaching methods of the instructor and in different contexts, thus enhancing their cognitive flexibility.

Correlation of Variables. On the relationship between teachers' instructional competence (TIC) and cognitive flexibility (CF), it was revealed on the quantitative phase of the study that TIC has significant relationship with cognitive flexibility. On the quantitative phase, all responses from the participants expressed their confirmation that TIC has significant relationship on their CF, as they believed that through their teachers' effective delivery of the instruction, classroom management, assessment, and personal competencies could affect their cognitive flexibility in terms of their learning experiences.

The Sociocultural Theory pioneered by Vygotsky (1978) emphasizes the function interaction plays in a learner's cognitive growth. In the context of the study, this theory aligns with the significant relationship found between teachers' instructional competence (TIC) and cognitive flexibility (CF). According to Sociocultural Theory, teachers have the ability to control many factors in an educational setting, including tasks, behaviors, and responses. Thus, the study's results support the predictions of Sociocultural Theory by demonstrating the importance of TIC in enhancing CF.

Moreover, the Constructivist Theory, as proposed by Bruner (1996), suggests a relationship between teachers' instructional competence (TIC) and cognitive flexibility (CF) of the students. This theory proposes that learning is a dynamic process in which students respond to the instructional environment by developing new ideas based on their prior knowledge and new perspectives. Thus, the findings of the study support to the claim of this theory by revealing significant relationship between TIC and CF.

Lastly,the Cognitive Flexibility Theory, as developed by Spiro et al. (1988), suggests a relationship between teachers' instructional competence (TIC) and students' cognitive flexibility (CF). This theory emphasizes the role of instructional designers and educators in creating learning environments that engage students in developing deep knowledge and applying it to unstructured problems. In the context of this study, the theory supports the significant relationship between teachers' instructional competence (TIC) and students' cognitive flexibility (CF), reinforcing the findings of this research.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

First, the level of teachers' instructional competence is very high in terms of instructional delivery, classroom management, assessment, and personal competencies. Hence, this indicates that the indicators of teachers' instructional competence are always manifested by the instructors. Meanwhile, the cognitive flexibility gained a high rating in terms of control and alternatives, which indicates that the indicators are oftentimes observed by the education students.

Second, the thematic analysis of the qualitative data was done based on the responses gained through the conduct of in-depth interviews (IDI) and focus group discussions (FGD). The results in the quantitative phase about the level of teachers' instructional competence were confirmed during the conduct of the qualitative phase. The essential theme of the study was the confirmed very high rating of teachers' instructional competence (TIC). Also, the following were the core ideas that emerged: Instructors are highly skilled and knowledgeable and demonstrate effective instructional competence; Instructors use diverse teaching approaches, engaging strategies, and differentiated instruction to cater to students' learning needs; and the competence of the instructors impacts students' learning outcomes, understanding, and engagement.

Third, the qualitative phase confirmed the results in the quantitative phase about the level of cognitive flexibility, which gleaned a high rating. Education students shared their experiences with regard to their adaptive and flexible thinking skills in various situations. The essential theme of the study was the confirmed high rating of cognitive flexibility (CF). Core ideas that emerged are as follows: Students are adaptable in different teaching methods of the instructor and in different contexts; Students can manage themselves to progress academically; and Students are resilient and open to learning opportunities.

Fourth, from the responses of the participants, the results in the quantitative phase about the relationship of teachers' instructional competence and cognitive flexibility were confirmed through qualitative probing. Qualitatively, education students have been experiencing different situations from their instructors, which contribute to the way they enhance their adaptability and flexibility in thinking. The essential theme of the study was the confirmed relationship of teachers' instructional competence (TIC) and cognitive flexibility (CF). Among the core ideas that emerged are the following: The ability of the instructors to deliver the lesson effectively influences the students to become more flexible and adaptable; Effective teaching strategies help students become more adaptable and flexible thinkers; and Instructors guide students' learning beyond just delivering the lessons.

Lastly, to better understand the level of teachers' instructional competence and cognitive flexibility, the responses were analyzed thematically to confirm the quantitative results of the study. Both the findings from the two phases are integrated based on the nature plan. The level of teachers' instructional competence and cognitive flexibility based on the qualitative results shows that it confirmed with data gained from the quantitative phase. Both the quantitative and qualitative results of this study confirm that there is a significant relationship between the two variables: teachers' instructional competence (TIC) and cognitive flexibility (CF) emphasizing how the teachers deliver their instruction and handle the class can significantly affect how the learners develop their cognitive flexibility.

Based on the findings of the study, the following recommendations were proposed:

Since both the quantitative and qualitative results confirm a significant relationship between teachers' instructional competence and students' cognitive flexibility, it is recommended that educators continuously refine their teaching strategies to foster cognitive flexibility among students. With that, teachers may also incorporate student-centered approaches such as inquiry-based learning, reflective discussions, and problem-solving activities, which have been observed to enhance cognitive flexibility. By integrating these techniques into their instructional practices, teachers can create an engaging learning environment that encourages students to approach challenges with critical and flexible thinking.

Additionally, based on the qualitative phase results, which highlight the need to explore specific factors affecting cognitive flexibility, it is recommended that schools and administrators facilitate training and workshops on the role of emotional intelligence, problem-solving skills, and resilience in shaping students' cognitive flexibility. Schools may also continue to provide access to digital tools that promote cognitive flexibility, ensuring that students are exposed to diverse and dynamic learning experiences.

Furthermore, institutions should continuously foster a supportive learning environment by addressing emotional and environmental factors that may affect both instructional competence and students' ability to adapt to new learning situations. Also, given the significance of cognitive flexibility in education, students should take an active role in developing their adaptability. They may seek new learning strategies that integrate flexible thinking and problem-solving techniques, as well as to participate in academic activities such as debates, case studies, and interdisciplinary projects that challenge their ability to think from multiple perspectives. Students may continuously update their knowledge of digital learning tools, as these resources can aid in their cognitive development and ability to adjust to new learning demands. However, they should also learn to balance their reliance on technology to avoid over dependence on digital platforms for cognitive processing.

Lastly, since the study highlights gaps in existing literature regarding the direct relationship between teachers' instructional competence and cognitive flexibility, it is recommended that future researchers conduct further studies on this variables. Specifically, they may explore the effectiveness of specific teaching techniques in fostering cognitive flexibility, the role of emotional intelligence, problem-solving skills, and resilience in cognitive flexibility, and the impact of digital tools on students' ability to adjust to new learning environments. Further research may investigate as well the emotional and environmental factors influencing the relationship between instructional competence and cognitive flexibility to provide a more comprehensive understanding of this phenomenon.

References

Abad, M., Manalo, K. (2020). Instructional competence and faculty performance among maritime schools in Central Luzon. International Journal of Multidisciplinary: Applied Business and Education Research 1 (1): 44 – 53. doi: 10.11594/ijmaber.01.01.09

Adeleke, Taiwo & Temisanren, Olawunmi. (2024). Effective Instructional Delivery In Nigerian Public Universities: Challenges And Prospects.

Ahmad Irfan, Lukman & Marsigìt, Marsìgìt & Istiyono, Edi & Kartowagiran, Badrun & Retnawati, Heri & Kistoro, Hanif & Putranta, Himawan. (2021). Effective teachers' personality in strengthening character education. International Journal of Evaluation and Research in Education (IJERE). 10. 512-521. 10.11591/ijere. v10i2.21629.

Ahmad, N. (2022). What Is Cognitive Control? What Brain Area Supports Cognitive Control? Why is cognitive control important?

Akman, T. P. (2024). Cognitive flexibility as a predictor of optimism in university students. Education Mind, 3(2), 229-236.

Alegado, Rodel. (2023). Perceived Effects of Classroom Management Strategies on Students' Diversity Conditions. AIDE Interdisciplinary Research Journal. 2. 20-34. 10.56648/aide-irj. v2i1.15.

Algharaibeh, dr. salem. (2020). Cognitive flexibility as a predictor of subjective vitality among university students. Cypriot Journal of Educational Sciences. 15. 923-936. 10.18844/cjes. v15i5.5122.

Alyssa Broussard. May 28, 2024. 6 Types Of Assessments And How To Use Them Effectively To Inform Your Teaching

Al-Jbouri, E., Andrews, N. C. Z., Peddigrew, E., Fortier, A., and Weaver, T. (2023). Building elementary students' social and emotional skills: a randomized control trial to evaluate a teacher-led intervention. Sch. Ment. Health 15, 138–150.doi: 10.1007/s12310-022-09538-x

Amankwaa, L. (2016). Creating protocols for trustworthiness in qualitative research, Journal of Cultural Diversity, 23(3), 121-127.

Amsal, Mutiara & Munir, Munir & Rusman, Rusman & Sagita, Dony. (2022). Analysis of Student Understanding about Teacher Competency (Personal Competence). Al-Ta lim Journal. 29. 174-180. 10.15548/jt.v29i2.742.

Anney, V. N. (2014). Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria.

Arombo, C. (2023). Master Teachers-School Heads Designate's Instructional Competencies, Instructional Leadership Practices and Challenges. Psychology and Education: A Multidisciplinary Journal, 15(9), 886-903. http://doi.org/10.5281/zenodo.10406078

Asirit, L. L., Hua, J. H. & Mendoza, L. (2022). A closer look at neophyte teachers' instructional competence: A phenomenological study. International Research Journal of Science, Technology, Education, and Management, 2(2).

Asis, J.M.N, Caballes, D.G, & Ortiz, O.E. (2023). Instructional competence of public secondary school teachers in the district of Naic: Basis for instructional enhancement program. Polaris Global Journal of Scholarly Research and Trends, 2(1), 38-57. https://doi.org/10.58429/pgjsrt.v2n1a114

Ateş-Ös, A., & Bulut-Serin, N. (2024). Cognitive flexibility and belonging among university students: mediating role of adaptation: Research and Reviews. Current Psychology, 43(4), 3234-3242. https://doi.org/10.1007/s12144-023-04577-2

Beachboard, C. (2023). 5 Techniques to Promote Divergent Thinking.

Bedir, F., Önal, L., & Mızrak, O. (2023). Examining the relationship between cognitive flexibility and leisure boredom in students. CBÜ Beden Eğitimi ve Spor Bilimleri Dergisi, 18(1), 111-123.

Begum, Nazia & Udayakumar, Karthika & Ukkirapandian, Kavitha. (2023). The Correlation Between Cognitive Flexibility and Learning Strategies Adopted by Medical Students. Cureus. 15. 10.7759/cureus.47560.

Bhandari, P. (2021). Ethical Considerations in Research I Types and Examples.

Bibon, M.B. (2022). Teachers' Instructional Practices and Learners' Academic Achievement in Science. Contemporary Mathematics and Science Education, 3(1), ep22007. https://doi.org/10.30935/conmaths/11816

Boiliu, N. I., Intarti, E. R., & Lumbantoruan, J. H. (2021, June). Influence of the personal competence of teachers of Christian Religious Education on learning motivation in high school students in South Tangerang City. In 2nd Annual Conference on blended learning, educational technology and Innovation (ACBLETI 2020) (pp. 298-302). Atlantis Press.

Bondie, R., Dahnke, C., & Zusho, A. (2019). How does changing "one-size-fits-all" to differentiated instruction affect teaching? Review of Research in Education, 43(1), 336-362. https://doi.org/10.3102/ 0091732X18821130

Bricki, N. and Green, J. (2007) A Guide to Using Qualitative Research Methodology. https://fieldresearch.msf.org/handle/10144/84230

Bruner, J. S. (1966). Toward a theory of instruction (Vol. 59). Cambridge, MA: Harvard University Press.

Bucay, P. B., & Rosil, C. B. (2024). Academic Motivation and Cognitive Abilities as Predictors of English Language Proficiency among Senior High School Students. Asian Journal of Education and Social Studies, 50(6), 336–347. https://doi.org/10.9734/ajess/2024/v50i61418

Cai, D., Liu, S., Liu, J., Yao, L., & Jia, X. (2021). Mentoring and newcomer well-being: a socialization resources perspective. Journal of Managerial Psychology.

Centre for Education Statistics and Evaluation (2020). https://education.nsw.gov.au/about-us/education-data-and research/cese/publications/literature-reviews/classroom-management

Channa, Wali & Sahito, Zafarullah. (2022). Pedagogical Competencies Of Teachers And The Achievement Of Students: Explorations Of Best Practices Through A Literature Review. Webology. 19. 2927-2943.

Cheng, J., & Koszalka, T. (2016). Cognitive flexibility theory and its application to learning resources. (concept paper)

Clarke, Victoria & Braun, Virginia. (2013). Successful Qualitative Research: A Practical Guide for Beginners.

Creswell, J. (2003) Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 2nd ed.,Sage, Thousand Oaks, CA.

Creswell, J. W. (2008). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (3rd ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Boston, MA: Pearson.

Creswell, J. W., & Plano Clark, V. L. (2011). Designing and conducting mixed methods research. Thousand Oaks, CA: Sage.

Creswell, J. W., & Plano Clark, V. L. (2018). Designing and Conducting Mixed Methods Research (3rd ed.). Thousand Oaks, CA:

SAGE.

Dahms, M., Geonnotti, K., Passalacqua, D., Schilk, J. N., Wetzel, A., & Zulkowsky, M. (2007). The educational theory of Lev Vygotsky: An analysis.

Daniels, H. (2005). Introduction to Vygotsky. New York: Routledge.

Dennis, John & Vander Wal, Jillon. (2010). The Cognitive Flexibility Inventory: Instrument Development and Estimates of Reliability and Validity. Cogn Ther Res. 34. 241-253. 10.1007/s10608-009-9276-4.

Dela Fuente, J. A. (2021). Contributing factors to the performance of pre-service physical science teachers in the Licensure Examination for Teachers (LET) in the Philippines. Journal of Educational Research in Developing Areas, 2(2), 141-152. https://doi.org/10.47434/JEREDA.2.2.2021.141

Dela Fuente, J.A. (2021). Implementing inclusive education in the Philippines. College teacher experiences with deaf students. Issues in Educational Research, 31(1), 94-110. http://www.iier.org.au/iier31/dela-fuente.pdf

Dr. Caelan Soma, PsyD, LMSW | April 13, 2023. Cognitive Flexibility in the Classroom.

Drew, C. (August 3, 2023). 11 Cognitive Flexibility Examples. Helpful Professor.

Dovetail Editorial Team (20 February 2023). What is mixed methods research? Reviewed by Miroslav Damyanov

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs-principles and practices. Health services research, 48(6 Pt 2), 2134–2156. https://doi.org/10.1111/1475-6773.12117

Editorial Office, E. (2024, February 02). Worldview. In Encyclopedia. https://encyclopedia.pub/entry/54676

Elgeddawy, Mohamed & Abouraia, Mahmoud. (2024). Pragmatism as a Research Paradigm. European Conference on Research Methodology for Business and Management Studies. 23. 71-74. 10.34190/ecrm.23.1.2444.

Eliott, W. (2023). What is Divergent Thinking? Igniting the Spark of Creativity.

Esen, B. K., Özcan, H. D., & Sezgin, M. (2017). High school students'cognitive flexibility is predicted by self-efficacy and achievement. European Journal of Education Studies.

Florkin, J. (2024). Cognitive Flexibility: 7 Important Aspects on The Mind's Agile Adaptability.

Gepila, Emejidio. (2020). Assessing Teachers Using Philippine Standards for Teachers. Universal Journal of Educational Research. 8. 739-746. 10.13189/ujer.2020.080302.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. Nurse Education Today, 24(2), 105-112. doi: 10.1016/j.nedt.2003.10.001

Guba, E. G., & Lincoln, Y. S. (1989). Fourth generation evaluation. Newbury Park, CA: Sage.

Harding, J. (2013). Qualitative data analysis from start to finish. SAGE, London.

Hetland, A. (2023). Alternative Thinking. The Nation. https://www.nation.com.pk/24-Feb-2023/alternative-thinking

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. Field Methods, 18(1), 3–20. https://doi.org/10.1177/1525822X05282260

Johnson, R. & Onwuegbuzie, Anthony & Turner, Lisa. (2007). Toward a Definition of Mixed Methods Research. Journal of Mixed Methods Research, 1, 112-133. Journal of Mixed Methods Research. 1. 112 -133. 10.1177/1558689806298224.

Kaçay, Z. (2021). The Mediating Role of Cognitive Flexibility in the Effect of Empathic Tendency on Teacher Professionalism. International Journal of Psychology and Educational Studies 8 (1):124–134. doi:10.17220/ijpes.2021.8.1.167.

Kaushik, V. and Walsh, C.A. (2019) 'Pragmatism as a research paradigm and its implications for Social Work research', Social Sciences, 8(9).

Karakuş İ (2024) University students' cognitive flexibility and critical thinking dispositions. Front. Psychol. 15:1420272. doi: 10.3389/fpsyg.2024.1420272

Laniton, S. R., Corpuz, O. S., & Lumapenet, H. T. (2022). Teachers' Instructional Competence and Learners' School Engagement. Mazedan International Journal of Social Science and Humanities, 3(1), 68-72.

Laniton, Samson & Lumapenet, Husna & Corpuz, Onofre. (2022). Teachers' instructional competence and learners' school engagement. 3. 68-72.

Lin, C.E. (2021). Cognitive Flexibility. In: Volkmar, F.R. (eds) Encyclopedia of Autism Spectrum Disorders. Springer, Cham. https://doi.org/10.1007/978-3-319-91280-6_1991

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. Newbury Park, CA: Sage.

Lynch, David & Smith, Richard & Provost, Steve & Yeigh, Tony & Turner, David. (2017). The Correlation between 'Teacher Readiness' and Student Learning Improvement. International Journal of Innovation, Creativity and Change. 3. 1-12.

Mack, N., Woodsong, C., MacQueen, K. M., Guest, G. & Namey, E. (2005). Qualitative Research Methods: A Data Collector‟s Field Guide. USA: Family Health International

Maree K & Van der Westhuizen C 2007. Planning a research proposal. In: K Maree (ed.). First steps in research. Pretoria: Van Schaik.

Mbon, Usen & Omorobi, Garieth & Owan, Valentine & Ekpenyong, John. (2019). Analysis of the Quality of Educational Resources and Effective Instructional Service Delivery in Nigerian Universities.

Mendoza, J. J., & Bautista, S. C. (2019). Master Teachers' Leadership Practices, Instructional Competence and Performance of Senior High Teachers in the City Divisions of Laguna. Science and Education, 2(5), 107-122.

Mercado, H.A R. (2022). Instructional Competence and Students' Academic Performance in Senior High School. International Journal of Education Humanities and Social Science. ISSN: 2582-0745 Vol. 5, No. 02; 2022. https://doi.org/10.54922/IJEHSS.2022.0360

Mishra Tarc, A. (2021). Qualifying pedagogy: observations on a pedagogical encounter. Pedagogy, Culture & Society, 1-16.

Molina-Moreno P, Molero-Jurado MdM, Pérez-Fuentes MdC and Gázquez-Linares JJ (2024) Analysis of personal competences in teachers: a systematic review. Front. Educ. 9:1433908. doi: 10.3389/feduc.2024.1433908

Morse, J. M. (1991). Approaches to qualitative & quantitative methodological triangulation. Nursing Research, 40(2), 120–123. https://dx.doi.org/10.1097/00006199-199103000-00014

Moser, A., & Korstjens, I. (2018). Series: Practical Guidance to Qualitative Research. Part 3: Sampling, Data Collection and Analysis. European Journal of General Practice, 24, 9-18. https://doi.org/10.1080/13814788.2017.1375091

Munhall, P.L. (2012) Nursing Research: A Qualitative Perspective. 5th Edition, Jones & Bartlett Learning, Sudbury.

Nakhostin-Khayyat, M., Borjali, M., Zeinali, M., Fardi, D., & Montazeri, A. (2023). Self-regulation, cognitive flexibility, and resilience among students: A mediating analysis.

Ornstein, A. C., & Thomas, J. Lasley. (2000) Strategies for effective teaching.

Pacuno, N., & Sanchez, A. (2020). Teacher Instructional Competence and Learners Performance in Social Studies: Basis for Enhancement Program. JPAIR Multidisciplinary Research, 42(1), 111-139.

Polit, D.F., & Beck, C.T. (2014). Essentials of nursing research: Appraising evidence for nursing practice (8th ed.). Philadelphia, PA: Wolters Kluwer/Lippincott Williams & Wilkins.

Punie, Y. et al. (2019). Evidence of innovative assessment: Literature review and case studies.

Quenikito, D. (2022). Relationship of Teachers' Instructional Competencies on the Students' Entrepreneurial Skills in Home Economics. Psychology and Education: A Multidisciplinary Journal, 5(5), 302-317. https://10.5281/zenodo.7266416

Queroda, P. (2020). Instructional Competencies of Catholic School Teachers in Pangasinan, Philippines.

Rahayuningsih, S., Sirajuddin, S., & Nasrun, N. (2020). Cognitive flexibility: exploring students' problemsolving in elementary school mathematics learning. JRAMathEdu (Journal of Research and Advances in Mathematics Education), 6(1), 59-70. https://doi.org/10.23917/jramathedu.v6i1.11630

Sahakian, B.J., Langley, C., and Leong, V. (2021). IQ tests can't measure it, but 'cognitive flexibility' is key to learning and creativity. Published: June 23, 2021 4.40pm BST.

Sanchez, Alex. (2020). Teacher Instructional Competence and Learners Performance in Social Studies: Basis for Enhancement Program. JPAIR Multidisciplinary Research. 42. 10.7719/jpair.v42i1.807.

Saputra, Bayu & Solihatin, Etin & Muslim, Suyitno. (2022). Cognitive flexibility abilities in learning: A systematic review of the literature. Asian Journal of Educational Technology. 2. 54-58. 10.53402/ajet.v2i2.373.

Sawalhi, R., & Chaaban, Y. (2021). Student teachers' perspectives toward teacher leadership. Mentoring & Tutoring: Partnership in Learning, 1-19.

Scott, P. A. (2013). Ethical Principles in Health Care Research. In Curtis E. A. & Drennan J. (Eds.), Quantitative Health Research:

Issues and Methods (1st ed.). (p.77-90). Berkshire, England: Open University Press, McGraw- Hill Education.

Shan, Y. (2021) 'Philosophical foundations of mixed methods research', PHILOSOPHY COMPASS

Shenton, Andrew. (2004). Strategies for Ensuring Trustworthiness in Qualitative Research Projects. Education for Information. 22. 63-75. 10.3233/EFI-2004-22201.

Sire, J. W. (2004) Naming the Elephant: Worldview as a Concept. Intervarsity Press.

Spiro, R.J., Coulson, R.L., Feltovich, P.J., & Anderson, D.K. (1988). Cognitive Flexibility Theory: Advanced Knowledge Acquisition in Ill-Structured Domains. Technical Report No. 441.

Stueber, Alison. (2019). Research-based Effective Classroom Management Techniques: A Review of the Literature.

Tchiki Davis, Ph.D. (2021). How Cognitive Control Can Boost Well-Being. Posted May 3, 2021.

The Annual Status of Education Report (ASER) 2022. https://img.asercentre.org/docs/ASER%202022%20report%20pdfs/allindiaaser202217_01_2023final.pdf

The Wing Institute (2024). Instructional Delivery. https://www.winginstitute.org/teacher-compentencies-delivery

The Wing Institute (2024). Classroom Management. https://www.winginstitute.org/teacher-compentencies-management

Tontus, Omer. (2020). Concept of Assessment and Evaluation.

Ubat, J. T., Ogatis, P. B., Samonte, R. W., Celestial, S. B. & Villalon, G. U. (2024). Teachers' Instructional Practices vis-à-vis Students' Interest in Learning Mathematics. Journal of Interdisciplinary Perspectives, 2(12), 335-343. https://doi.org/10.69569/jip.2024.0511

Visto, J., Zaluaga, Z. R. & Bucar, J. D. (2024). English Language Assessment Tools in The Modular Distance Learning: Maintaining Academic Integrity and Validating Student Outcomes. International Journal of Multidisciplinary: Applied Business and Education Research, 5(6), 2142-2150. http://dx.doi.org/10.11594/ijmaber.05.06.17

Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press.

Winstone, N. and Boud, D. (2020). Universities should learn from assessment methods used during the pandemic – and cut down on exams for good. University of Surrae. https://bit.ly/3TI8Kvh

Yambi, Tomas & Yambi, Caluyua. (2020). Assessment And Evaluation In Education.

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