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Unpacking of Learning Competencies on Academic Performance in Grade 4 Science

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A B S T R A C T

This study determined the relationship between unpacking learning competencies and academic performance in Grade 4 Science, utilizing a mixed-method approach. All Grade 4 teachers and school heads in Balagtas District served as respondents for the survey questionnaire. Stratified sampling determined the sample size for gathering data on academic performance. Statistical analyses, including central tendency for unpacking level and perception of least mastered skills, alongside Spearman's rho and Pearson's r, were used to explore relationships. Findings revealed a high level of awareness and knowledge among educators regarding unpacking competencies, with frequent integration into teaching practices. On the contrary, the academic performance in Grade 4 Science is described as satisfactorily average. Challenges identified include time constraints and complexities in competency alignment. Recommendations include prioritizing key competencies and conducting extensive training. Furthermore, the study emphasized the importance of fostering collaboration among educators to share best practices and address challenges collectively. While no significant relationship was found between unpacking competencies and academic performance, a significant negative relationship was observed with the identification of least mastered skills. This underscores the necessity for systematic unpacking processes to address educational challenges comprehensively, highlighting the need for ongoing professional development to support student learning needs effectively.

Keywords: Unpacking of Learning Competencies, Grade Four Science, Academic Performance, Awareness, Deconstruct

Introduction

A huge change has happened in the system of education under the new normal system which has created a huge impact and changes in the system of education rapidly. With lockdowns and social distancing measures in place, traditional in-person classes were disrupted. Educational institutions quickly transitioned to alternative delivery mode of learning, creating modules and learning activity sheets, utilizing online platforms, video conferencing tools, and other digital resources to continue teaching. These changes are considered a big challenge for all the personnel in the school throughout of the entire country. To address this challenge the Department of Education (DepEd) has initiated a series of training courses, seminars and workshops in different platforms just to provide a proper instruction that will guide all school personnel all over the country.

These challenges also open a great opportunity to build and establish a pedagogy that provide quality education. The rapid and landslide effect of the changes after the pandemic really shows that all educators and other stakeholders are unguarded by this scenario that brought uncertainties to all schools and educational institutions because of the short span of time of implementation of DepEd Order No. 12, s. 2020 which imposes the adoption of the Basic Education Learning Continuity Plan for the school year 2020-2021 in the light of the COVID-19 Public Health Emergency. This DepEd Order mentioned the general rules and guidance for implementing different alternative learning modalities in response to the need to continue education despite the restrictions imposed by COVID-19 crisis. Hence, the flexibility of the educational institution is challenged to create suitable and effective programs and guidelines which are designed to fit into the new normal education and continue to give quality education under the new normal scheme of education.

One of the ways of the Department of Education (DepEd) to cater the curriculum needs of the Filipino learners is the reconstruction of all the learning competencies into the most-essential learning competencies (MELC) which is designed to teach the most vital learning competencies that is to be achieved by the learners. This is to address the challenges brought by pandemic and at the same time, ensure that pupils learn their lessons.

After revising, editing, merging, and expanding the learning competencies, they have become broad and complex. As a result, implementers, particularly teachers, find it challenging to implement them effectively, since a revised learning competency is introduced. It is evident that teachers require training or workshops to ensure the successful implementation of these changes and facilitate effective learning.

According to David *et al.* (2021), school leaders are forced to adapt to and negotiate the tides of internal and external influences at times of unprecedented situation, complexity, and uncertainty, such as the worldwide response to the 2020 pandemic, to achieve the best positive outcome for the students and

the school community. Thus, schools in the entire country adopted the Most Essential Learning Competencies (MELC) as mentioned and given emphasis in the DepEd Order No. 012, s. 2020, "Adoption of the Basic Education Learning Continuity Plan (BE-LCP) for school year 2020-2021" and monitored its effective implementation to address the challenges in the basic education. But this action began with another uncertainty to all educators under the teaching field up to the present. The MELCs perhaps is misunderstood by the teachers because the learning competencies currently used in the schools are not unpacked.

Now, under the new normal mode of face-to-face, teachers struggling to unpack learning competencies occur and are seen vividly. The learning gaps or challenges faced by teachers include difficulties in teaching the broad competencies within a limited timeframe, uncertainties about efficient and effective teaching strategies, and a lack of clarity on where to begin in order to emphasize essential competencies.

Competency-based education (CBE) in K-12 schools is a systems-change approach intended to re-shape traditional understandings of what, when, where, and how students learn and demonstrate academic content knowledge and skills (Casey & Sturgis, 2018; Levine & Patrick, 2019; Lopez et al., 2017).

CBE holds the promise of providing students with a more accurate, comprehensive, and realistic sense of what they will be able to do upon course or program completion. It also has the potential to provide faculty with more structured thinking concerning what they are trying to teach, and perhaps a better sense of how students will learn best. (Hooper et al., 2014)

Thus, CBE makes sure that school institutions are properly guided with the appropriate learning competencies that must be dispensed as designed in the curriculum. As spiral progression movement is applied, each learning competencies are detached to its general content so that learners will learn first the basic and specific competencies induced from a broad content. These basic and specific learning competencies will provide an accurate, comprehensive and realistic learning if applied effectively. This means that, the competencies which are dissected into smaller pieces of learning will be implemented and learned easily compared to a compact competency that is expected to be taught in a short period of time.

On the other hand, identifying the least mastered skills in Grade 4 Science through a comprehensive analysis of continuous assessments is a crucial step in targeted instructional planning and student support. These least mastered skills represent areas where students are struggling or experiencing difficulties in understanding and applying scientific concepts. By pinpointing these specific areas of weakness, teachers gain valuable insights into where students require additional instruction, practice, and support. Once the least mastered skills are identified, teachers can implement various interventions tailored to address these specific areas of need. One such intervention involves the unpacking of the Most Essential Learning Competencies (MELC). Unpacking these competencies involves dissecting the components of a specific topic within a lesson that requires improvement and development. Through teaching and targeting these unpacked learning competencies in Grade 4 Science, teachers can identify specific areas within a competency that may require more attention. This targeted approach allows for personalized and differentiated instruction to address the diverse needs of students. The goal is to provide students with multiple opportunities to engage with the content, receive personalized feedback, and master the essential skills required for success in Grade 4 Science. In addition, unpacking learning competencies allows teachers to clearly define and articulate specific learning objectives. This clarity ensures that both teachers and students have a precise understanding of what needs to be achieved.

According to Vander et al. (2022), when implemented effectively, competency-based education (CBE) promotes high levels of learning for every student. That is why the researcher also wants to determine with the aim of the study whether there is a significant relationship between the unpacking of learning competencies and the academic performance of learners in Grade 4 Science.

The study also wants to ascertain the competence of the teachers in unpacking the learning competencies in Grade 4 Science so that the difficulties of teachers in unpacking the learning competencies will be identified easily. Also, this study features the challenges encountered by the teachers in unpacking so that best practices or techniques on how to properly utilize these learning competencies can be provided by school administrators.

Theoretical Framework

Social Learning Theory of Albert Bandura which hypothesizes that individuals learn not only through direct experiences but also through observing and modeling the behavior of others within their social environment, provides a valuable lens through which to examine the impact of unpacking learning competencies on the teaching and learning process. It specifically highlights the importance of modeling and imitation in the learning process. As teachers unpack learning competencies, they serve as models for students, demonstrating how to break down and comprehend intricate topics. Students, in turn, imitate these strategies as they navigate their own learning journey.

Moreover, teachers, as primary influencers, act as models for students in the process of unpacking learning competencies. Through their instructional practices, teachers provide a blueprint for breaking down complex topics, clarifying essential components, and demonstrating effective learning strategies.

Social Competence theory, on the other hand, supports the idea that collaborative learning enhances overall competence. In the context of unpacking learning competencies, collaboration among educators facilitates a collective understanding of how competencies can be broken down and effectively communicated to students. By incorporating principles of social competence into educational practices, teachers can create a collaborative and supportive learning environment that maximizes the effectiveness of unpacking competencies for student success.

However, Constructivism theory also aligns closely with the principles of Social Competence Theory, as both emphasize collaborative learning, effective communication, and peer interaction in the learning process. Constructivism posits that learners actively construct their understanding and knowledge through experiences and interactions. Unpacking learning competencies in accordance with this theory provides students with opportunities for active

engagement, fostering deeper understanding and retention of scientific concepts. Thus, both theories highlight the importance of social interactions and the active construction of knowledge through engagement with others.

Moreover, utilizing Bloom's Taxonomy in unpacking learning competencies can have a significant impact on academic performance in the context of Grade 4 Science education. This hierarchical framework categorizes cognitive processes into levels of complexity, ranging from simple recall to higher-order thinking skills such as analysis and synthesis. Unpacking learning competencies can help educators design instructional activities that target specific levels of Bloom's Taxonomy, promoting deeper conceptual understanding and improved academic performance. For instance, unpacking learning competencies related to scientific inquiry may involve breaking down the overarching goal into smaller, more achievable objectives at different levels of Bloom's Taxonomy.

Conceptual Framework

According to Hye (2023), true innovation in education should be achieved through individual learners' self-innovation, not top-down government-led innovation. In other words, innovation in education begins when learners communicate with the surrounding world based on their knowledge and experience and acquire self-organization skills. That is why the learner's academic performance's significant relationship to unpacking of learning competencies was determined by the researcher.

The use of the Most Essential Learning Competencies (MELCs) is highly utilized in terms of learning resources content validity, congruency of the lesson plan, alignment of the assessment, budget of time, and appropriateness of learners' activities and learning approaches. Thus, science teachers may evaluate the activities being provided to their students through monitoring and evaluation (Magno, 2022). This approach helps teachers refine their teaching method and enhance the learning experience for the students. It also revealed that there is a high relationship between the status of the utilization of the MELCs and the level of learning development of Grade Six pupils (Zalun, 2023).

Sistermans (2020) stated on the other hand that, as problem- and case-based learning put students in the center and focus on competency and skills development, rather than content knowledge, these learning approaches appear to be suitable for merging with competency-based education, which also focuses on skill and competency development. As a general concept, problem- or case-based learning is suitable for merging with competency-based education, as both approaches focus on skill and competency development, thus will lead to better academic performance.

Furthermore, when learners are fully aware of their learning process, their control over their own learning and personal capacity for self-regulation will be enhanced which will eventually influence academic performance in the subject (Cruz, 2022). Other than this, Montalbo (2022) found out that, inclusion of some other variables such as learning styles and teachers' teaching styles, may be considered to identify other factors that may influence the student's academic performance in science in this new normal. Thus, the unpacking of learning competencies as one of the teaching styles was assessed to see if it may affect the students' academic performance.

The features of learning competencies in terms of awareness, knowledge, competence and application to teaching-learning, the least mastered skills and the academic performance in Grade 4 Science are included as inputs in this study, which evaluates whether there are significant relationships among these areas. This comparison indicates that there are gaps and obstacles, as well as a higher relationship between unpacking learning competencies on the academic performance in Grade 4 Science that can be spread district wide (Balagtas District).

Independent Variables   Dependent Variable

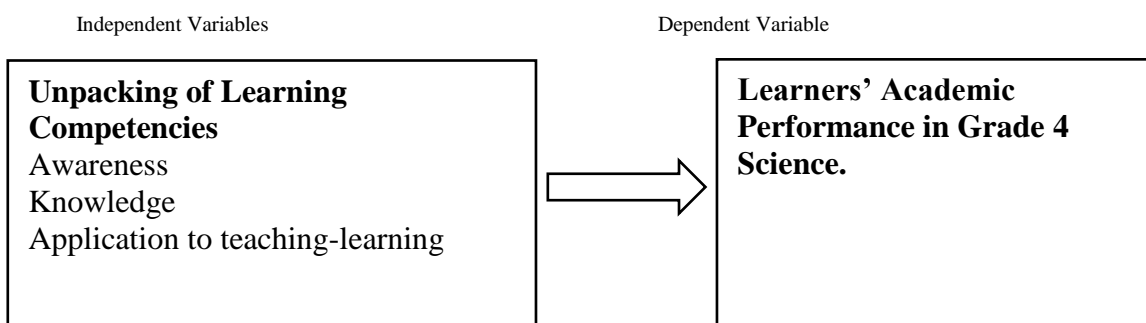| **Unpacking of Learning Competencies** Awareness Knowledge Application to teaching-learning	→	**Learners' Academic Performance in Grade 4 Science.**

Figure 1. Paradigm of the Study

The research paradigm, as illustrated in Figure 1, denotes the independent and dependent variables about the unpacking of learning competencies and academic performance in Grade 4 Science. The IV-DV Model is a functional graph that identifies the independent and dependent variables.

Statement of the Problem

This study aimed to determine the relationship of the competence of teachers on unpacking of learning competencies on addressing the least mastered skills and academic performance of learners in Science.

Specifically, this study sought answer to the following questions:

1. How may the profile of the respondents be described in terms of:

    1.1 Position/Designation

    1.2 Age;

    1.3 Length of service; and

1.4 Have attended training about unpacking of learning competencies?

2. How may the level of unpacking of learning competencies by the teachers and school heads be described in terms of:

    2.1 awareness;

    2.2 knowledge; and

    2.3 application to teaching-learning?

3. How may the least mastered skills in Grade 4 Science be described in terms of:

    3.1 content; and

    3.2 skills to be developed in Science?

4. How may the academic performance in Grade 4 Science during the first quarter be described?

5. Is there a significant relationship between the teachers' level of unpacking learning competencies and the learners' academic performance in Grade 4 Science?

6. Is there a significant relationship between the level of unpacking of learning competencies and least mastered skills in Grade 4 Science?

7. What are the challenges encountered by the teachers in unpacking of learning competencies in grade 4 Science?

8. What plan of activities may be crafted based on the findings of the study?

Hypotheses

Based on the formulated research problem and research questions, the following research hypotheses were developed:

1. There will be no significant relationship between the teachers' level of unpacking learning competencies and least mastered skills in Grade 4 Science.

2. There will be no significant relationship between the teacher's level of unpacking learning competencies and the learners' academic performance in Grade 4 Science.

METHODOLOGY

Research Design

The research design used in this study is a mixed-method approach, integrating both quantitative and qualitative methodologies to provide a comprehensive understanding of the relationship between the unpacking of learning competencies and the academic performance of Grade 4 pupils in Science. The initial phase of the research involved the collection of quantitative data. This quantitative data includes assessments of the academic performance of Grade 4 pupils in Science, evaluating their proficiency in grasping the unpacked learning competencies. Additionally, some quantitative data was gathered through the Likert scale incorporated into the survey questionnaire to capture the teachers' perceptions regarding their awareness, knowledge and application to teaching-learning of the unpacking process.

Once the quantitative data is analyzed, the research transitioned to the qualitative phase. Qualitative data was collected through a survey questionnaire that contains open-ended questions. This segment of the research aimed to delve into the nuanced perspectives, experiences, and insights of teachers regarding the unpacking of learning competencies. By allowing teachers to express their own perceptions in a more qualitative manner, the research sought to uncover additional layers of understanding that complement the quantitative findings. This mixed-method design ensures a comprehensive exploration of the research questions, offering both statistical insights and rich qualitative narratives that collectively contribute to a thorough analysis of the unpacking process and its impact on academic performance.d

Respondents and Sampling

The respondents of the study covered the public elementary schools from Balagtas District of Bulacan. The population of the study comprised of school heads, Grade 4 teachers and pupils from the public elementary schools in Balagtas District in Bulacan.

The sampling method used for acquiring data on the teachers' competence in unpacking learning competencies is purposive sampling since the teacher respondents were selected with a purpose that the respondent teaches Grade 4 Science. Thus, 33 Grade 4 teachers from 12 schools in Balagtas District

served as respondents of the study and is requested to answer the questionnaire for quantitative and qualitative data collection of the study. Total enumeration sampling was used for school head respondents, with a total of 12 school head respondents.

On the other hand, stratified random sampling since used in this study since the population of Grade 4 students in Balagtas district was divided into strata(schools). Also with that, every grade 4 students from the school was given an equal chance of being selected. Horton M. (2021) states that the sampling is simple and less biased.

Regarding pupil respondents, with a population totaling 1,103, a sample size of 264 pupils was calculated using Slovin's formula, ensuring a 5% margin of error. The researcher randomly selected Grade 4 pupils from this computed sample size. The distribution of the calculated number of pupil respondents for each public elementary school in the Balagtas District is illustrated in Table 1.

Table 1.

Distribution of Student Respondents of the Study

School	Population of Grade 4 Learners (1,103)	Sample Size of Grade 4 learners (294)
Balagtas Central School	135	36
Balagtas Heights Elementary School	61	16
Borol 1st Elementary School	145	39
Borol 2nd Elementary School	56	15
Dalig Elementary School	21	6
Francisco Balagtas Memorial School	131	35
Longos Elementary School	39	10
MCR Elementary School	143	38
Northville VI Elementary School	136	36
San Juan Elementary School	53	14
Santol Elementary School	133	35
Sulok Elementary School	50	13

Instruments

The researcher used a survey-questionnaire to examine the correlation among teachers' awareness, knowledge, and application to teaching-learning about unpacking learning competencies.

The questionnaire included a scoring scale, specifically a Likert scale commonly utilized in surveys and assessments to gauge respondents' opinions or perceptions. Each number on the scale corresponds to the level of the teachers' awareness, knowledge or application to teaching-learning with a particular statement. Additionally, the same questionnaire contains open-ended questions that elicit detailed and open-ended responses from school head and teacher respondents to obtain a rich qualitative narrative containing perspectives, experiences, and insights of teachers regarding the unpacking of learning competencies.

Data Gathering Procedure

The researcher secured the requirements for data gathering as stated in Memorandum No. 9, s.2022. A formal letter of consent asking permission to conduct the study in the school was sent to the Schools Division of Bulacan for the approval of the Schools Division Superintendent and followed-up approval from the district office of the Public Schools District Supervisor. A copy of the authorized request, as well as the letter request, was delivered

to the school heads of the 12 public elementary schools and the respondents of the responsive school. The researcher obtained authorization from each school head to acquire the 1st quarter grades of the Grade 4 pupils for the school year 2023-2024 and to conduct a survey with the Grade 4 teachers of the school regarding their stand on unpacking the learning competencies in Science. With the approval of school heads, the researcher was able to gather the first quarter grades of Grade 4 pupils in science for the school year 20223-2024 to establish the significant relationship between the unpacking of learning competencies and learners' academic performance in Grade 4 Science. Afterward, a survey questionnaire was distributed to the Grade 4 teachers to gather data for quantitative and qualitative design.

In addition, to comply with ethical considerations in the research conducted to safeguard the respondents' identities, the study did not include names, addresses, or other personal information so that unfavorable criticism due to misinterpretation of data would be avoided and not used in unexpected or irresponsible ways, aside from a perceived lack of acknowledgment when data was accessed without consent and proper authority.

Data was handled carefully such that only the researcher and the data analyst from Bulacan Agricultural State College have analyzed it to avoid the unauthorized transfer of data. After finalizing the paper, the researcher kept only the data until the full completion of the study. The researcher did not keep any copy of the respondents' data.

Data Analysis

The quantitative data was collected from the Grade 4 teachers after the first quarter. All gathered data from the first quarter grade in Science 4 were recorded carefully in tables, analyzed, and interpreted accordingly based on the results in the statistical treatment. The grades of Grade 4 pupils in the first quarter were statistically analyzed with the Spearman Correlation Coefficient to determine if they had a significant relationship with the unpacking of learning competencies. Pearson Correlation Coefficient was also used for the relationship between unpacking of learning competencies and least-mastered skills in Grade 4 Science.

For qualitative data, which was gathered using survey-questionnaire with open-ended questions, content analysis was used. The results listed which were supported with cited related studies, provide new insights beyond the information gained from the separate quantitative results. The responses of the school heads and Grade 4 teachers served as the baseline data for the proposed plan of activities to address the challenges encountered by the teachers in the unpacking of learning competencies in Grade 4 Science.

Ethical Considerations

This research poses no anticipated risks to potential respondents, and all data collected is anonymous, ensuring respondent confidentiality. With this, respondents were not identifiable. The survey procedures and questions utilized in this study would not cause probable offense or harm to individuals from any cultural background, and they would not be perceived as stressful, distressing, or intrusive.

The researcher guarantees that respondents received comprehensive information about the study's objectives, procedures, potential risks, and benefits. Respondents were asked to provide voluntary and informed consent before participating. Teacher-respondents were explicitly informed of their right to withdraw from the study at any point without facing adverse consequences.

To safeguard the confidentiality of collected data and protect respondents' identities, strict measures were implemented. Thorough data anonymization was conducted, removing any identifying information from transcripts and research reports.

The researcher maintained the integrity of the collected data throughout the study. Measures are taken actively to prevent both data fabrication, involving the creation of false data, and data falsification, encompassing the alteration or manipulation of data to achieve specific outcomes. Should any concerns or errors regarding data integrity be reported, they will be addressed promptly.

In compliance with Republic Act No. 10173, commonly referred to as the Data Privacy Act of 2012, information provided to complete the questionnaire and statements made during unstructured interviews are treated with utmost privacy.

RESULTS AND DISCUSSION

This chapter presents the results, analyses, and discussions of the interpretation of the data gathered for this study.

Based on the results and discussions of this research, the findings are summarized accordingly. The study examined various characteristics of respondents, including their position or designation, age, length of service, and trainings attended. In terms of position or designation, teacher III was the most common category among respondents, accounting for 44.44%, followed by school heads at 26.66%. Among school heads, the majority were in the age range of 37-43, while among teachers, the largest group fell in the age range of 44-49. Notably, none of the school heads were below the age of 27. A significant portion of both school heads (50%) and teachers (45.45%) had been in service for 11-20 years. Furthermore, the majority of school heads (91.67%) attended trainings on the unpacking of learning competencies, compared to 66.67% of teachers. These findings provide insights into the demographics and professional development experiences of educators in the study.

Moreover, other findings provide comprehensive insights into various aspects of unpacking learning competencies on academic performance in Grade 4 Science. Both school heads and teachers demonstrated a very high level of awareness and knowledge regarding unpacking of learning competencies, indicating familiarity, understanding, and active involvement in the process. This awareness translated into practical application, as both groups frequently incorporated unpacked competencies into their teaching practices, including lesson planning, budget-of-work creation, and curriculum analysis. On the

contrary, most students performed at average levels during the first quarter of the school year 2023–2024, which needs further improvement in student outcomes.

Remarkably, while there was no significant relationship between the level of unpacking learning competencies and academic performance, a significant negative relationship was observed between unpacking competencies and the identification of least mastered skills, suggesting that higher levels of unpacking were associated with a lower perception of skills being least mastered.

It is also emphasized in the result that educators encountered challenges in the process of unpacking learning competencies. Time constraints appeared as a prominent issue, requiring collaborative planning and peer feedback to optimize efficiency and resource allocation. Additionally, the time-consuming nature of unpacking, coupled with the need for up-to-date knowledge and proficiency in subject matter, highlights the importance of comprehensive training and ongoing professional development initiatives. Lack of clarity and the presence of repetitive competencies highlight the need to prioritize essential competencies. Furthermore, complexities in competency alignment, differentiation, and standards adherence require a collaborative approach, utilizing feedback and embracing continuous improvement.

Relationship between the Teacher's Level of Unpacking Learning Competencies and the Learners' Academic Performance in Grade 4 Science

Table presents the results of a test examining the significant relationship between respondents' ability in unpacking learning competencies and the academic performance of Grade 4 students in Science. The table displays the calculated Rho-value, corresponding p-value, decision outcome, and verbal interpretation based on statistical analysis used by the researcher to assess whether the level of instructional preparation, particularly in unpacking learning competencies, influences students' academic performance in Grade 4 Science.

Table 1

Test of Significant Relationship between Teacher's Level of Unpacking Learning Competencies and the Learners' Academic Performance in Grade 4 Science

			Rho-value	p-value	Decision	Verbal Interpretation
teacher's level of unpacking learning competencies	learners' performance	academic	0.31	0.04	Accept Ho	Not Significant

Legend: <0.01 = significant

A Rho-value of 0.31 indicates a weak positive correlation. This means that as the teachers' level of unpacking increases, there is a slight tendency for students' academic performance to also increase. However, the strength of this correlation is categorized weak.

This implies that while there is a tendency for student performance to improve alongside teachers' proficiency in unpacking learning competencies, the association is not very powerful or strong. Despite that, a weak correlation doesn't necessarily mean there's no effect. Other factors might also influence students' academic performance.

For an instance, Al Husaini & Shukor (2022) revealed that low entry grades, family support, accommodation, student gender, previous assessment grade, student internal assessment grade, GPA, and students' e-learning activity are the most significant factors influencing students' academic performance. Moreover, a study by Acharya *et al.* (2020) investigated how factors like school resources, facilities, and the overall school climate could affect student performance. A study by Lee & O'Donnell (2018) examined the impact of technology integration and online learning on student achievement. A variety of studies have established that students' academic performance is influenced by many different existing factors.

The p-value which is 0.04, represents the probability of observing a relationship between the two variables: the unpacking of learning competencies and students' academic performance in Grade 4 Science. In this case, 0.04 is greater than the common significance level of 0.01. This intends to accept the null hypothesis (Ho), which states that there's no significant relationship between the two variables. Based on the p-value, it's not possible to conclude a statistically significant relationship between teachers' level of unpacking and students' science performance at the chosen significance level (0.01).

There might be a slight tendency for students to perform better when teachers unpack learning competencies more effectively. However, the data isn't strong enough to say conclusively that unpacking directly causes improvements in students' science achievement.

Relationship between Teacher's Level of Unpacking Learning Competencies and the Least Mastered Skills in Grade 4 Science

Table 2 introduces the results of a statistical analysis examining the relationship between teachers' proficiency in unpacking learning competencies and Grade 4 students' mastery of essential skills in Science. The table displays the calculated r-value, corresponding p-value, decision outcome, and verbal interpretation.

Table 2

Test of Significant Relationship between the unpacking of learning competencies and least mastered skills in Grade 4 Science

	r-value	p-value	Decision	Verbal Interpretation

teacher's level of unpacking learning competencies	least mastered skills	-0.67	0.00	Reject Ho	Significant

Legend: <0.01 = significant

Based on the result, an r-value of -0.67 indicated a moderately negative correlation. Negative means that as the level of unpacking increases (teachers breaks down competencies into specific objectives), the least mastered skills (areas where students struggle) tend to decrease. The strength of the correlation is reasonable, suggesting a clear trend but not a perfect one-to-one relationship.

In the case of the p-value, which is 0.00, this value is extremely low and less than the common significance level of 0.01. This means the null hypothesis (Ho) was rejected thus it can be concluded statistically that there is a significant relationship between the unpacking of learning competencies and least-mastered skills.

In summary, there was significant negative correlation between teacher unpacking and least mastered skills. This implies that when teachers effectively unpack learning competencies, students tend to have fewer areas of difficulty (least mastered skills) in Grade 4 Science. When teachers unpack competencies, they identify the specific skills and knowledge students need to master. This allows for the development of focused instruction that directly addresses those specific needs (Lipsey et al., 2018).

This finding highlights the potential benefits of unpacking for improving student learning outcomes. Well-unpacked competencies provide a clear framework for designing effective assessments that measure student mastery of specific knowledge and skills (William and Black, 2021).

However, though this study shows a correlation, it does not definitively prove that unpacking directly causes a reduction in least mastered skills. Abril *et al.* (2020) suggest that fostering interest can enhance motivation and learning outcomes. Maghfiroh *et al.* (2019), also explored internal factors impacting academic performance, including a lack of motivation. On the other hand, Glass et al. (2016) came up with a positive association between smaller class sizes and student achievement, particularly in elementary and middle school. Johnson *et al.* (2018) also found that smaller class sizes have a positive impact on student outcomes, particularly for low-income students. Thus, other factors like student motivation or class size also play a role or it is also possible that teachers tend to unpack learning competencies more for topics they anticipate students will find challenging. According to Tomlinson (2017), breaking down learning objectives into smaller, more manageable steps, can be particularly helpful for challenging topics.

Challenges Encountered in the Implementation of Unpacking Learning Competencies During Teaching-learning

The variety of responses related to teacher readiness, complexity and clarity, focus on essential learning., time constraints and pressure, competency and training challenges, alignment and standards complexity, and limited professional development and resources are gathered.

Complexity and clarity emerged as prevalent challenges, with educators dealing with the complicated nature of competencies and the lack of clarity in the unpacking process. According to one respondent, *"There are repetitive competencies anchored in the same learning area"* (Morada, 2024). Similarly, another respondent stated that one of the challenges encountered in unpacking learning competencies is the complexity of the competencies (Morada, 2024). This complexity is intensified by limited professional development opportunities and resources, which hinder educators' ability to effectively translate learning objectives into classroom practice. These objectives can be challenging to break down into specific and measurable steps for student learning (Guskey, 2017).

In the case of time constraints and pressure, the occurrence of this theme highlights the prevalent issue of limited time within the educational landscape. According to Coburn (2018), when educators feel overburdened by standardized testing and prescribed curriculum, they may have less flexibility to implement new approaches. Thus, educators struggle to balance the demands of unpacking competencies with other responsibilities.

Additionally, ensuring alignment with educational standards proves to be a complex task, further complicating instructional planning and implementation. As one of the respondents stated, *"Ensuring that the unpacked competencies align with educational standards can be complex"* (Morada, 2024). Tomlinson (2021) emphasized the challenge of pacing curriculum to ensure all unpacked competencies within a standard could be adequately addressed in the allotted timeframe.

Lastly, teacher readiness emerges as a crucial factor, highlighting the importance of equipping educators with the necessary knowledge and skills to successfully implement unpacking processes in teaching practice. When teachers are well-prepared, they can confidently implement unpacking processes in their classrooms (Fullan et al., 2023).

In summary, these findings emphasize the critical importance of addressing challenges related to educators' professional development and resources, as well as the complexity and clarity of the deconstruction process, to enhance the effectiveness of implementing unpacking learning competencies in teaching practices.

Suggestions or Tips for Improving the Qualifications of Unpacking Learning Competencies in Teaching and Learning

The suggestions for improving the qualifications of unpacking learning competencies in teaching and learning reveal a balanced distribution across time allocation and prioritization, collaborative planning and training, knowledge proficiency and mastery, and feedback and continuous improvement.

The most prevalent response is the importance of feedback and continuous Improvement. This could involve processes like peer review of unpacked learning competencies. Teachers can review each other's work, providing constructive feedback on alignment, clarity, and depth of understanding

(Guskey, 2017). In addition, Popham (2023) emphasized that by analyzing student learning outcomes, teachers can identify areas where their unpacking may need to be refined to address student needs more effectively.

On the other hand, the importance of time allocation and prioritization implies that teachers struggle with the time demands of unpacking learning competencies effectively. Prioritizing unpacking for essential competencies and focusing planning efforts can help educators maximize their limited time (Fullan *et al*., 2021). Thus, it emphasizes the need for strategies to manage time efficiently or to allocate sufficient dedicated time for this crucial process.

Respondent responses varied, with one teacher stating, *"By adopting a collaborative approach leveraging learning taxonomies, educators can enhance qualifications of unpacking learning competencies"* (Morada, 2024). This response about collaborative planning & training highlights the value of collaboration among educators in planning and unpacking learning competencies. The emphasis on training indicates a need for professional development opportunities focused on equipping educators with the necessary skills to unpack learning competencies effectively as one of the teacher respondents suggests conducting extensive training on the unpacking of learning competencies (Morada, 2024).

Another is knowledge, proficiency and mastery. According to Guskey (2021), teachers with a strong grasp of the curriculum can effectively utilize these resources to unpack competencies comprehensively. Similarly, teachers with a strong understanding of the curriculum can ensure their unpacking reflects the intended scope and sequence of learning (Marzano and Kendall, 2019). It emphasizes the importance of ongoing learning and knowledge development for educators.

In summary, these findings imply that there is a need for a very comprehensive approach to improving teacher qualifications by unpacking learning competencies. By highlighting the importance of time allocation and prioritization, collaborative planning and training, knowledge proficiency and mastery, as well as feedback and continuous improvement as recommendations given by the respondents, educators can be empowered to translate curriculum into effective classroom practices that enhance student learning. Similar to the study of Mavrommatis *et al*. (2021) which suggests that collaborative learning communities can be effective in improving teacher skills in unpacking learning competencies.

Proposed Action Plan on Unpacking of Learning Competencies

Table 14.

Proposed Action Plan on Unpacking of Learning Competencies on Academic Performance in Grade 4 Science

Activity	Objectives	Persons' Involved	Time Frame	Expected Output
Seminar-workshop and training about unpacking the learning competencies in grade 4 Science.	To train the grade 4 teachers how to unpack learning competencies in science effectively	-School Head -Grade 4 Science teachers	Before the beginning of the class or school year.	Teachers' mastery of unpacking the learning competencies
LAC session that provides sufficient time every quarter to unpack the learning competencies.	To unpack the learning competencies efficiently	-School Head -Head Teachers -Grade 4 Science teachers	1st quarter to 4th quarter	Unpacked learning competencies in each quarter.
Continuation of Table 14				
Benchmarking	To learn and gain effective strategies from other colleagues through their expertise	-School Head -Grade 4 Science teachers.	1st quarter	Application of the best practices of elementary schools in the district
Consistent feedbacking upon checking of teachers' lesson plans or daily lesson logs.	To ensure the quality and effectiveness of unpacked learning competencies in grade 4 Science	-School Head -Grade 4 Science teachers	1st quarter to 4th quarter	Daily lesson plan or lesson log with properly unpacked learning competencies

The results of the study revealed that there is limited professional development and resources, a complicated nature of competencies and a lack of clarity in the unpacking process. Also, teacher readiness as well as time constraints and pressure were identified as challenges in the district. Hence, a proposed action aims to sustain the school resources in the district.

The first objective is to train the grade 4 teachers how to effectively unpack learning competencies in Science by providing seminar-workshops, and trainings. Effective PD programs should move beyond generic workshops and provide teachers with opportunities to develop the knowledge and skills necessary to unpack learning competencies and translate them into classroom instruction (Yoon and Park, 2020). So it must be emphasized that before

the beginning of the school year, teachers must undergo seminar-workshops, and trainings to be able to attain the necessary skills to unpack learning competencies.

The second objective is to effectively unpack the learning competencies in grade 4 Science through LAC Sessions. According to Harris and Chapman (2020), by working together, teachers can leverage their collective expertise to improve student learning. Thus, LAC sessions every quarter will allow collaboration among teachers to identify and address instructional challenges such as the unpacking of learning competencies.

The third objective, on the other hand is to learn and gain effective strategies from other colleagues with benchmarking. Bryk et al. (2019), emphasized in their study the effectiveness of "networked improvement communities," where schools collaborate to share best practices and learn from each other in fostering innovation and improvement. With this, the best practices regarding the unpacking of learning of competencies could be applied as well across elementary schools in the district.

Lastly, ensure the quality and effectiveness of unpacked learning competencies in grade 4 Science by providing consistent feedback upon checking teachers' lesson plans or daily lesson logs. Guo (2020) emphasized the need for actionable feedback, providing specific suggestions for improvement alongside acknowledging strengths.

Conclusion

Based on the findings of this study, there was no significant relationship found between unpacking competencies and academic performance of the learners in Grade 4 Science. Remarkably, a significant negative relationship was found between the level of unpacking competencies and identifying least mastered skills.

Recommendations

Based on the conclusions of the study, the following recommendations are hereby presented:

1. The school may implement targeted seminar-workshops or training programs on unpacking learning competencies to ensure educators have the latest knowledge and strategies.

2. The school may share best practices and enhance the unpacking process, addressing time constraints.

3. Future researchers may consider the implementation of the proposed action plan through action research.

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