Utilization of Gagne's Information Processing Model: Basis for Development of Instructional Materials in Teaching Teacher and the School Curriculum

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ABSTRACT

This study focused on the utilization of Gagne's Information Processing Model to enhance instructional materials and improve teaching effectiveness in the Teacher and School Curriculum. Using a descriptive-developmental-evaluative research method, the study analyzed various instructional materials, including textbooks, workbooks, and teacher-made resources, to assess their effectiveness in promoting student learning. It also examined the strategies employed by teachers, such as formal and informal assessments, portfolio assessments, and project-based assessments, to evaluate student performance. The study further explored the medium used to reinforce students' skills, which included traditional resources and digital tools. Data analysis from pretest-posttest results revealed that students initially scored below the 75 percent mastery level. However, after the introduction of Gagne's model, there was a significant increase in students' competency levels, with most students exceeding the 75 percent threshold. The study concluded that Gagne's Information Processing Model played a crucial role in improving students' mastery of the subject. It recommended the broader use of Gagne's model in educational settings and suggested further studies to explore its potential in different teaching contexts.

Keywords: Assessment, Competency, Curriculum, Instructional materials, Performance.

INTRODUCTION

Context And Rationale

In the Philippine's setting, addressing the various problems that the 21st century education faces today is really a tremendous challenge for the department of education down to schools. These problems may hinder students from succeeding in their own perspective. Some problems that affect student's competence in professional education learning in the Philippines are too much exposure to technology usage (e.g Facebook, Twitter, Instagram, computer games, and the like). Limited sources of instructional materials and other learning applications in the government schools, teachers' competence in teaching professional education in the current curriculum of OBE (e.g non-professional education teacher and master's degree teachers), some seasoned teachers hinder themselves from using technology and other forms of social media in their teaching (e.g power point presentations, video clips, simulation teaching, etc.,), and assessment tools are not properly made and utilized by some teachers particularly in public schools. Consequently, the budget for education sector has always been a big problem and issue.

The Polytechnic University of Philippines Taguig Campus, where the researcher is currently teaching, some 3rd year education students particularly taking Teacher and School Curriculum subject in 2nd semester are starting to decline their interest in studies. They give most of their attention in playing computer games and logging in into their social accounts. They also spend their time in "groupings" which is supposedly about peer practice of a subject activity outside the school. But that grouping turned out to be a simple peer gathering for chatting, movie marathon, and other unproductive activities. In view of the varying problems related to the teaching of professional education and challenge the higher education, the researcher came up with the study that would lead to the development of the proposed GIP Instructional Materials for reinforcement activities of students at Polytechnic University of Philippines Taguig Campus.

Innovation, Intervention/ Strategy

One of the learning techniques that guided this study is Gagné's Information Processing Model of Teaching, which served as a theoretical basis for the development and production of instructional materials. This model emphasizes how learners receive, process, store, and retrieve information during the learning process. By applying this framework, instructional materials can be systematically designed to support students in understanding concepts, organizing information, and mastering the necessary academic and cognitive skills required in professional education. The model highlights the importance of presenting learning experiences in a structured and sequential manner, allowing students to progress from basic understanding to higher levels of comprehension and application. In this context, the use of well-developed instructional materials becomes essential in facilitating effective learning and ensuring that students are actively engaged in the learning process.

The integration of Gagné's model in the development of instructional materials also reinforces the role and responsibility of teachers as facilitators of learning. One of the key duties of educators is to prepare and utilize varied instructional materials that are appropriate to the needs, abilities, and learning styles of their students. Effective instructional materials help bridge the gap between theoretical concepts and practical understanding, making complex topics easier to comprehend. When teachers employ diverse and carefully designed materials, they can enhance students' interest, motivation, and participation in the learning process. In professional education courses such as The Teacher and School Curriculum, the use of relevant instructional materials enables learners to better understand curriculum concepts, instructional planning, and teaching strategies, thereby strengthening their preparation for future teaching practice.

Furthermore, instructional materials contribute significantly to simplifying complex educational concepts and making lessons more engaging and meaningful. The use of visual aids, structured learning modules, activity-based materials, and contextualized examples can help students process information more effectively. These materials support active learning by encouraging critical thinking, reflection, and interaction among learners. As a result, instructional materials not only improve comprehension but also promote deeper understanding and retention of knowledge.

To strengthen the conceptual and theoretical foundation of this study, several related works and scholarly publications from both local and international authors were carefully reviewed. These sources provided insights into instructional materials development, teaching strategies, and effective learning models that support student-centered education. Only studies and literature that were directly relevant to the objectives of the research were included. The review of these related works helped establish a strong basis for the development of the proposed instructional materials and ensured that the study is grounded on established educational theories and practices.

On Cognitive Learning as Basis for Intervention

The development of instructional materials for the subject The Teacher and Curriculum is strongly supported by various learning theories and instructional design principles that emphasize meaningful and effective learning experiences. According to Richard E. Mayer and Roxana Moreno (2020), instructional designers should approach learning from a cognitive perspective rather than merely focusing on the delivery of content. This viewpoint highlights the importance of understanding how learners process, organize, and retain information. In the development of instructional materials, this principle encourages educators to design learning resources that support cognitive engagement, promote understanding, and facilitate knowledge construction rather than simply presenting information. For a subject like The Teacher and Curriculum, this means that instructional materials should include structured explanations, guided activities, reflective tasks, and opportunities for learners to analyze and apply curriculum concepts in authentic educational contexts.

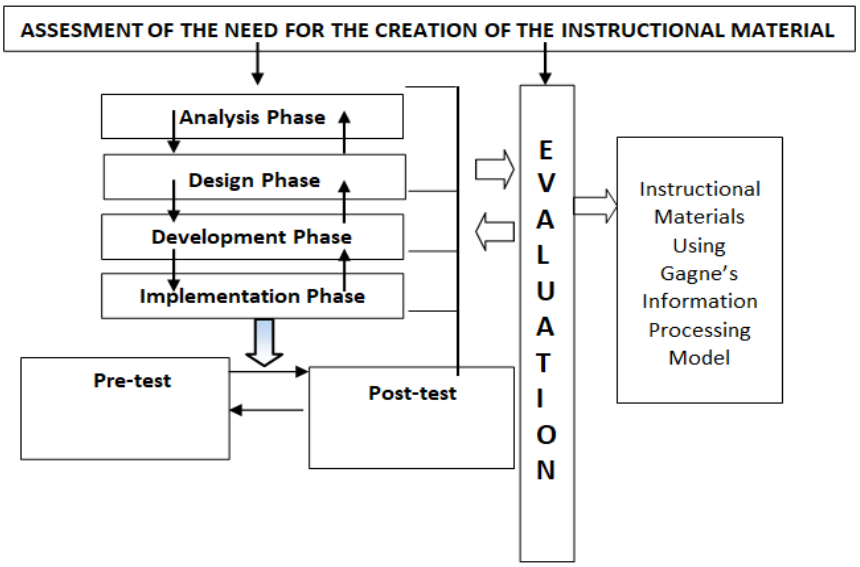
Similarly, Larson (2020) emphasized the importance of using a conceptual model that helps identify learning gaps in order to ensure mastery of essential knowledge and skills. This model supports the development of a comprehensive system of instructional intervention and lesson reinforcement. Through diagnostic evaluation and continuous assessment, teachers can determine areas where students have trouble and provide appropriate instructional support. In relation to instructional material development, this approach encourages the creation of competency-based materials that address specific learning needs. Such materials guide teachers in providing structured activities, reinforcement exercises, and problem-solving tasks that help learners strengthen their understanding of curriculum principles and teaching strategies.

Another theoretical foundation relevant to instructional material development is David Ausubel's Meaningful Reception Theory (2002). This theory explains how learners acquire large amounts of meaningful information through verbal or textual instructional materials commonly used in formal education. According to Ausubel, learning becomes meaningful when new information is connected to existing knowledge within the learner's cognitive structure. He described learning processes such as superordinate, representational, and combinatorial learning, which occur when students organize and integrate new concepts with previously learned ideas. A central concept in this theory is subsumption, where new knowledge is anchored to relevant prior knowledge in a meaningful, rather than memorized, manner.

In the context of developing instructional materials for The Teacher and Curriculum, these theoretical perspectives highlight the importance of designing materials that are logically organized, conceptually connected, and cognitively engaging. Instructional materials should therefore include clear explanations, concept mapping, examples, reflective questions, and application activities that help students relate curriculum theories to real teaching practices. By integrating these cognitive and conceptual approaches, instructional materials can effectively support deeper understanding and meaningful learning among future educat On students Learning Style for Intervention

In the development of instructional materials, understanding students' learning styles is crucial to creating effective and engaging resources. Andress (2017) conducted a study on the learning styles of second-year students at the Integrated School of Muntinlupa and found that the majority of respondents were global learners, with most being visual learners. The study also revealed a significant relationship between learning styles and academic performance in Science and Technology, indicating that students' preferred ways of processing information can influence their understanding and mastery of subject matter. Based on these findings, it was recommended that teachers incorporate more visual learning materials, such as diagrams, charts, illustrations, and other graphic aids, to better align instruction with the students' learning preferences.

Applying this insight to the development of instructional materials for The Teacher and Curriculum, it becomes evident that instructional resources should be designed to cater to diverse learning styles, particularly visual learners, to enhance comprehension and retention of information. Visual materials can help students grasp complex curriculum concepts, organize information logically, and apply knowledge in practical teaching scenarios. By integrating images, concept maps, flowcharts, and other visual representations into instructional materials, educators can create more engaging and effective learning experiences. Ultimately, considering students' learning styles in the design of instructional materials ensures that teaching is responsive, inclusive, and aligned with the goal of maximizing academic performance and mastery of competencies.



METHODOLOGY

Flow Chart for the Development of Instructional Materials Using Gagne's Information Processing

Model in Teaching Teacher and School Curriculum

On Instructional Material in Its Development

Excellence and quality in education are often measured in terms of student outcomes and the attainment of competencies. According to Ramiso (2015), educational excellence is demonstrated through tangible outputs, meaning that learners are able to achieve the competencies for which the institution is accountable. The effectiveness of teaching and learning is therefore assessed based on the number of students who successfully attain these competencies. To facilitate this achievement, students must be provided with access to instructional materials that are varied, diverse, and aligned with their learning needs. Such resources may include video lessons, computer-assisted learning modules, interactive tools, and a wide range of teaching strategies and environments. The use of these materials is critical because learners have different learning preferences and cognitive processing abilities, and the appropriate variety of instructional approaches ensures that all students can achieve mastery of essential skills. The real measure of quality education lies in the observable outcomes; an educated student should demonstrate specific competencies, develop a well-rounded set of skills, and cultivate talents that contribute to self-fulfillment and a sense of personal worth.

In the context of higher education in the Philippines, institutions are continuously striving to improve the quality of education. Andress (2015) emphasized this commitment through the rationale for the Instructional Material for Successful Learning Program (SISLP), which was conceptualized in response to the observed failure of the bridge program. The SISLP aims to introduce innovative techniques for assessing and ensuring mastery in every learning area. For instance, a training workshop conducted in Olongapo City from April 18 to 22 focused on enhancing teachers' skills in test analysis, interpretation, and the development of intervention materials for remediation and enrichment. This initiative underscores the importance of providing teachers with the tools and knowledge necessary to create instructional materials that address gaps in student learning and support mastery of competencies.

The development of instructional materials for The Teacher and Curriculum course for BSED students at PUP Taguig Campus can be strategically aligned with Gagné's Information Processing Model of Teaching, which provides a structured framework for facilitating learning. Gagné's model emphasizes the sequential processing of information, where learners are guided from initial attention and reception of information to higher-order application and mastery. In this approach, instructional materials are not merely vehicles for content delivery; they are designed to engage cognitive processes, enabling learners to acquire, organize, and apply knowledge effectively. By integrating Gagné's nine instructional events, materials for The Teacher and Curriculum can be crafted to first gain learners' attention, clearly state learning objectives, stimulate recall of prior knowledge, present content in meaningful segments, guide learning through examples and prompts, elicit learner performance, provide immediate feedback, assess mastery, and enhance retention and transfer of knowledge.

Applying this model, diverse instructional materials—including visual aids, conceptual diagrams, video lectures, case studies, and interactive activities—can be systematically developed to ensure that BSED students at PUP Taguig not only access information but also process it effectively to achieve competency. For instance, video lessons and multimedia presentations can capture attention and provide contextualized examples, while guided exercises and reflective tasks can stimulate active engagement and facilitate recall of prior knowledge. Concept maps and flowcharts can help students organize complex curriculum concepts, and performance tasks can provide opportunities for learners to demonstrate mastery under realistic conditions.

Furthermore, instructional materials developed using Gagné's model support the principles of mastery learning emphasized in the SISLP and Ramiso's framework for educational quality. By systematically addressing the sequence of cognitive events, instructional resources ensure that learners are exposed to multiple modalities and modes of teaching, catering to diverse learning styles and needs. This comprehensive approach enhances the likelihood that students will achieve desired competencies, demonstrating both knowledge and the ability to apply it in practical teaching scenarios. The materials also provide mechanisms for assessment, remediation, and enrichment, reflecting the ethical and professional responsibility of educators to ensure that all students succeed.

Ultimately, the integration of Gagné's Information Processing Model into the development of instructional materials for The Teacher and Curriculum fosters excellence and quality in education at PUP Taguig. It

ensures that learning is structured, systematic, and responsive to student needs, promoting mastery, competence, and meaningful outcomes. By designing instructional resources that guide students through cognitive processes, the university provides learners with the tools to not only acquire knowledge but also develop the skills, confidence, and self-worth necessary for successful teaching and lifelong learning.

Research Questions

This research is steer to apprehend the upshots and dynamic function of the proposed Instructional Materials using Gagne's Information Processing Model in Teaching Teacher and School Curriculum at Polytechnic University of Philippines Taguig Campus and its effect on their academic achievement.

The following are the specific problems that this study endeavors to answer:

1. How do teacher-respondents' assess the proposed instructional material in terms of:

1.1 Comprehensiveness

1.2 Coherence

1.3 Sense making

1.4 Adaptability and

1.5 Relevance

2. What are the levels of competencies of student-respondents in the specific areas of Teacher and School Curriculum as revealed by the diagnostic test using the 75% level of mastery as criterion reference before the utilization of Gagne's Information Processing Mode?

3. What are the levels of competencies of the Student-respondents in the specific areas in Teacher and School Curriculum by the result of the pretest- posttest using the 75% level of mastery as criterion reference before and after utilizing Gagne's Information Processing Model?

4. What are the percentage gains based on the level of competencies of the student- respondents in the specific areas between the result of the Pre-test and Post-test using the 75% level of mastery as criterion reference after utilizing Gagne's Information Processing Model in Teaching Teacher and School Curriculum?

5. What is the level of significance between the pretest and posttest results after the utilization of the instructional materials in teaching the Teacher and Curriculum subject to BSED students at PUP–Taguig Campus?

ACTION RESEARCH METHOD

Research Design and Population

This study employed the descriptive-experimental research method, which is particularly suitable for determining the conditions and effectiveness of educational interventions. In this context, the descriptive-experimental method allowed the researcher to systematically examine the proposed instructional materials in The Teacher and School Curriculum, including their features, assessment strategies, and the mediums used to reinforce learning, as implemented by teacher-respondents. The method also enabled the researcher to identify which lessons should be included in the proposed instructional materials for the second semester of the 2024-2025 academic year, the specific skills that BSED students should develop, the procedures for designing, writing, and validating the intervention materials, and ultimately, the means by which the effectiveness of the instructional materials could be evaluated. The research relied on a researcher-made questionnaire to collect

accurate and targeted information regarding the usability, comprehensiveness, and applicability of the instructional materials, as well as the appropriateness of the reinforcement strategies employed by the teachers.

The study specifically focused on the development, evaluation, and reinforcement strategies of instructional materials for third-year Bachelor of Secondary Education students at PUP Taguig Campus. These instructional materials were designed to support teachers and students in navigating the full scope of The Teacher and School Curriculum. The features of the instructional materials, the assessment strategies used to monitor learning, and the reinforcement methods applied by teachers were carefully documented. Data gathered from questionnaires helped the researcher examine the effectiveness of the materials, ensuring they were aligned with intended learning outcomes. The study also involved task analyses of competencies not yet mastered by students, which were revealed through a diagnostic test administered as part of the research. The results of this diagnostic test highlighted specific areas where students struggled, allowing the researcher to focus the instructional materials on targeted remediation and reinforcement, ensuring that all learning activities were relevant, focused, and designed to develop competencies systematically.

Sampling Procedure

To ensure that data collection was precise and meaningful, purposive sampling was utilized. Eighty-three third-year BSED students enrolled in The Teacher and School Curriculum were selected as respondents because of their direct experience with the instructional materials previously used in the course. Their participation provided critical insights into the usability, effectiveness, and alignment of instructional materials with learning objectives. Additionally, five professional education teachers were purposively chosen as expert evaluators. These educators assessed the materials based on key criteria, including comprehensiveness, coherence, sense-making, adaptability, and relevance, providing professional recommendations for improvement. Their expertise in curriculum design and instructional strategies ensured that the materials were pedagogically sound, structured appropriately, and capable of supporting student mastery of competencies.

Analysis Phase

The instructional materials developed in this study comprehensively covered all major topics within The Teacher and School Curriculum, ensuring holistic preparation of future educators. These topics included The Teacher as a Person in Society, Philosophy of Education Concepts, Formulation and Practice, Teaching as Your Vocation, Mission, and Profession, The Teacher in the Classroom and Community, The 21st Century Teacher, Linkages and Networking with Other Organizations, Global Education and the Global Teacher, Technology and Innovative Teaching, The Professionalization of Teaching, and the Code of Ethics for Professional Teachers (Republic Act 4670 and Presidential Decree No. 1006). The materials were organized sequentially to provide a structured pathway from theoretical understanding to practical application, allowing students to connect concepts meaningfully to real-world teaching contexts. Each topic was presented with the dual objective of fostering intellectual understanding and developing the practical skills required of professional educators.

Design Phase

In the development of these instructional materials, the research was grounded in Gagné's Information Processing Model of Teaching, which provided a comprehensive framework for designing learning experiences that actively engage cognitive processes. Gagné's model emphasizes nine instructional events that guide learners from initial attention to long-term retention and transfer of knowledge. These events include: (1) gaining attention, (2) informing learners of objectives, (3) stimulating recall of prior learning, (4) presenting the content, (5) providing guidance, (6) eliciting performance, (7) providing feedback, (8) assessing performance, and (9) enhancing retention and transfer. By structuring instructional materials according to these events, the researcher ensured that learners progressed systematically, moving from basic comprehension to mastery and application of competencies. The model served as a blueprint for aligning learning activities, instructional strategies, and reinforcement techniques with cognitive processes, thereby facilitating meaningful learning.

Developmental Phase

The instructional materials were designed to incorporate diverse learning modalities and reinforcement strategies, fully aligned with Gagné's model. Multimedia resources such as video lessons, interactive exercises, visual aids, and guided activities were included to engage multiple sensory channels, reinforce comprehension, and improve retention. These materials were tailored to address learning gaps identified through the diagnostic test, allowing for targeted remediation and enrichment. For instance, competencies not yet mastered were reinforced through structured exercises, practice tasks, and application-based activities. The materials also included mechanisms for formative and summative assessment, providing opportunities for both teachers and students to monitor learning progress, give feedback, and adjust strategies accordingly.

The integration of Gagné's model in the development of instructional materials also ensured that the content was learner-centered, scaffolded, and sequentially organized. Attention-grabbing elements such as case scenarios, reflective questions, and interactive simulations were incorporated at the beginning of lessons to capture student engagement. Learning objectives were explicitly stated to guide students in understanding what they were expected to achieve. Prior knowledge was activated through review activities and concept mapping, allowing learners to connect new information to existing cognitive frameworks. Instructional content was carefully sequenced and presented in manageable segments, while guidance and modeling were provided through examples, demonstrations, and teacher-led explanations. Opportunities for practice and performance were embedded throughout, allowing students to apply concepts, demonstrate mastery, and receive immediate feedback. Finally, activities that promoted retention and transfer ensured that learning extended beyond the classroom and could be applied to real teaching situations.

The assessment strategies incorporated within the instructional materials were carefully designed to evaluate both cognitive understanding and skill application. Formative assessments included quizzes, exercises, and performance tasks, providing immediate feedback and identifying areas requiring reinforcement. Summative assessments measured mastery of competencies, ensuring that learning outcomes aligned with course objectives. The materials also emphasized continuous reflection and self-assessment, encouraging learners to monitor their own progress and develop critical thinking skills. Reinforcement strategies included supplemental exercises, video tutorials, and guided practice tasks, allowing students to revisit concepts and strengthen understanding.

By combining student feedback, expert evaluation, and structured instructional design principles, the proposed instructional materials provide a comprehensive, coherent, and adaptable learning resource for BSED students. The materials not only deliver information but also actively engage learners' cognitive processes, promote mastery learning, and support competency development. Topics are presented logically, allowing students to connect theoretical concepts to practical teaching applications. The integration of multimedia resources, interactive exercises, and guided practice ensures that learners can engage with content meaningfully, apply skills, and develop professional competence.

Ultimately, the proposed instructional materials for The Teacher and School Curriculum aim to prepare BSED students at PUP Taguig Campus to become competent, reflective, and professional educators. By grounding the materials in Gagné's Information Processing Model, the study ensures that students are provided with structured, scaffolded, and engaging learning experiences that promote mastery of competencies and readiness for real-world teaching. The materials support holistic development, encouraging students to apply knowledge, cultivate critical thinking, and demonstrate professionalism in classroom and community contexts. Through this carefully designed approach, the instructional materials serve not only as a resource for learning but also as a tool for developing confident and skilled future teachers capable of meeting the demands of contemporary education.

Research Questionnaires

Before the development of the proposed instructional materials for teaching The Teacher and School Curriculum, the researcher conducted a comprehensive and in-depth review of related literature and previous

studies relevant to the topic of the research. This process was undertaken to establish a strong theoretical and conceptual foundation for the study and to identify existing approaches, strategies, and best practices in instructional materials development. The analysis of these scholarly works helped the researcher determine the appropriate content, structure, and design needed to enhance the effectiveness of the proposed instructional materials.

To further support the development of the instructional materials, the researcher also gathered insights from teacher respondents who are currently teaching or have experience in handling the subject. Their opinions, suggestions, and professional experiences were carefully considered to ensure that the materials would be practical, relevant, and responsive to the learning needs of students. This collaborative input contributed significantly to the improvement and refinement of the instructional materials.

In addition, an Instructional Materials Assessment Questionnaire for The Teacher and School Curriculum was developed to evaluate the key features of the instructional materials. The questionnaire focused on assessing materials in terms of comprehensiveness, coherence, sense-making, adaptability, and relevance. To ensure the validity and reliability of the research instrument, the questionnaire underwent expert validation. Two doctorate degree holders with expertise in instructional materials development reviewed the content and structure of the instrument, while one statistician evaluated the questionnaire for its statistical soundness, reliability, and the clarity and comprehensiveness of the research questions used for effective data gathering.

Ethical Considerations

The development of instructional materials must adhere to ethical standards that ensure fairness, transparency, and alignment with established educational policies and learning outcomes. In the Philippine educational system, DepEd Order No. 39, s. 2004 establishes a clear guideline regarding the minimum performance standard in evaluating student achievement under the Basic Education Curriculum (BEC). The policy mandates that a score of 75% serves as the minimum level required for a student to demonstrate mastery of the expected competencies in any subject area. Learners who achieve this score or higher are considered to have met the learning standards and are therefore regarded as having passed the subject. Furthermore, the policy strictly states that no grade transmutation should be applied, and that all scores must be recorded and interpreted as percentage units. These provisions highlight the importance of honesty, accuracy, and accountability in assessing student performance. In relation to the development of instructional materials, these ethical standards guide educators in designing learning activities, assessments, and evaluation tools that are directly aligned with competency-based expectations and measurable learning outcomes according to Cox (2007) further emphasized the importance of clearly defined objectives in achieving mastery learning. According to Cox, every learning task should begin with clearly articulated objectives that describe the expected performance of learners. These objectives should be observable and measurable to ensure that student performance can be accurately assessed. In addition, the conditions under which students demonstrate mastery should be explicitly stated within the instructional objectives. These conditions provide context and define the environment or constraints under which learners are expected to perform. The criteria for acceptable performance must also be clearly identified, indicating the level of achievement expected from the learners. Such criteria may include measures of speed, accuracy, or quality of performance. Importantly, these criteria should be communicated to both teachers and students to maintain transparency and fairness in the teaching-learning process. Cox also adopted the principles of Mager in providing guidelines for writing specific and well-structured instructional objectives, which serve as a foundation for the development of effective instructional materials.

Similarly, Duka (2006) highlighted the significance of grade marks in interpreting learning outcomes, particularly in Science education. According to Duka, the success or failure of the teaching-learning process is often reflected in the grades achieved by students after instructional activities have been completed. These grades serve as indicators of whether the established criteria and learning objectives have been successfully attained. Consequently, grade outcomes may be used to evaluate the effectiveness of a program or instructional system, as they provide measurable evidence of students' mastery or non-mastery of the targeted competencies. In the context of instructional materials development, this perspective emphasizes the ethical

responsibility of educators to design learning resources and assessment strategies that accurately reflect the intended learning goals and support meaningful student achievement.

Percentage

This statistical procedure will be used in identifying the least mastered skills through the transmutation of the scores. The scale is as follows for determining the level of mastery of skills.

Range	Qualitative description	Meaning
75-100	Mastered	The students attained the expected competencies after instruction
0-74	Least Mastered	The students did not attain the expected competencies after instruction

In the assessment of the Proposed Instructional Materials using Gagne's Information Processing Model in teaching Teacher and School Curriculum the scale will be:

Scale	Description	Explanation
4.00-5.00	Fully	This means that the instruction materials meet 91-100 percent of the criteria.
3.50-4.49	Very much	This meansthat the instructional materials Meet 81-90 percent of the criteria
2.50-3.49	Much	This means that the instructional material meets 70-80 percent of the criteria
1.50-2.49	Not much	This means that the instructional material meets 50-69 percent of the criteria
1.00-1.49	Not at all	This means that the instructional Material did not meet criteria

In this study, an instructional material should be in scale of 4.00-5.00 to be considered as acceptable to develop the required competence. According to Miller (2006). An instructional falling on this level is considered to help students master the competencies expected of them.

Weighted Average

The weighted average will be utilized in answering the questions that pertains to assessment of Proposed Instructional Materials using Gagne's Information Processing Model in teaching Teacher and School Curriculum. Weighted average takes into account the proportional relevance of each component, rather than treating each component equally.

Scale	**Weighted Average**	**Interpretation**
5	4.50-5.00	Outstanding
4	3.50-4.49	Very Satisfactory
3	2.50-3.49	Satisfactory
2	1.0-2.49	Fair
1	1.00-1.49	Poor

t-Test

This statistical tool was used to determine whether there were significant differences in the mean gain scores of students' specific and general skills in the Teacher and School Curriculum subject. A one-tailed test was

applied to compare the pretest and posttest results, allowing the researcher to examine whether the instructional intervention led to a significant improvement in students' performance.

DISCUSSION OF RESULTS

This chapter focuses on the analysis and interpretation of data collected from teacher respondents and the results of diagnostic and summative tests administered to the students. The study addresses the specific research problems in a sequential manner, presenting data in tabular forms accompanied by textual explanations for clarity and interpretation. In connection to the development of instructional materials, this section evaluates the effectiveness of the materials in enhancing student learning outcomes. It is organized under major headings, including specific and general gain scores, the significant differences in mean scores on competencies before and after the use of instructional materials, and the acceptability of the materials. Furthermore, it examines key features of the instructional materials—comprehensiveness, coherence, sense-making, adaptability, and relevance—to determine how well they support students in achieving the target mastery levels. This analysis provides insights into the functionality, usability, and impact of the instructional materials in promoting meaningful and competency-based learning.

Assessment of Instructional Materials

The assessment of the instructional materials was conducted after collecting the questionnaires. Five professional education teachers handling Teacher and School Curriculum and three experts in instructional material development were asked to evaluate the materials' reliability and validity based on five criteria: comprehensiveness, coherence, sense-making, adaptability, and relevance, using a five-point scale. Collected data were organized in tabular form, and each criterion was analyzed statistically through the weighted average to determine overall effectiveness. The results, which highlight the strengths and areas for improvement of the instructional materials, are presented in the succeeding tables for clear interpretation.

Comprehensiveness. To determine the comprehensiveness of the topics covered, the teacher- respondents were asked regarding their assessment.

Table1. Summary Assessment of the Features of Instructional Materials as to Comprehensiveness, Coherence, Sense Making, Adaptability and Relevance

Indicators	Weighted Average	Descriptive Rating	Rank
Comprehensiveness	3.81	Very Much	1
Coherence	2.62	Much	3
Sense Making	2.46	Not Much	5
Adaptability	2.81	Much	2
Relevance	2.61	Much	4

As presented in table 1, the indicators of comprehensiveness topics covered by the existing materials that meet 89 percent of the criteria of the materials covered the required learning competencies to be developed, facts and information are updated and the learning activities are varied, Generally, the grand mean of 3.81 indicates that the existing instructional materials meet the criteria set for comprehensiveness of contents **very much.** This simply means that the existing instructional material, as to comprehensiveness, satisfied 81 to90 percent of the criteria. According to the respondents, their assessment is based on their notion that the reference books they are using passed the standards prescribes by the professional teachers since it is the one being used by teachers and the students, additionally, it should be noted that the learner took the information from written text of the visual representation and the auditory description given by the teacher into his sensory memory, Baddely(2002)

Coherence. Knowing the lesson conforms to the development of competencies is important and the teachers handling the subject were asked to assess it. Their answers are on the next table.

It can be gleaned from the table that of the six indicators as regard coherence of the instructional materials enumerated; four of them meet 70-80 percent of the criteria as much. This included the objectives and goals of

the course to be developed, the core skills are related to the development of the concept, and the materials do not distract the attention of the students but contribute to the development of interest in the lesson. Two items, the activities are within the students' level of understanding, and the activities are presented in a logical manner and were described as not much with equal weighed average of 2.30 the obtained grand weighted mean of 2.62 indicates a **much** rating for coherence, which that instructional materials meet 70 to 80 percent of the criteria.

Sense Making. Functionally of the lesson is important to be developed in formal classrooms so the respondents were asked to assess the instructional materials on this respect. Their responses are on the succeeding table.

Table shows the assessment of the teacher-respondents to the instructional materials as to sense making. It can be noted from table 4 that the indicator as to sense making that the meet criteria **much** was the activities promote higher order thinking skills. It garnered a weighted average of 2.46. The other enumerated indicators of sense making only meet 50 to 69 percent of the criteria described qualitatively as **not much**

Data in the table indicates the weaknesses of the instructional materials as to sense making as revealed by the mean rating given by the teachers. They said that all while all lessons must be developed through student centered activities, that is, they must learn how to learn new concepts by themselves as the core contention of the syllabus, which is not achieved are considered vague and abstract in nature.

Adaptability. To know whether the instructional materials are adaptable to the students conceptual and skills development, the teacher-respondents were asked assess this aspect. The data on their responses were on Table 4

Materials as to Adaptability

Table 1 revealed that the indicator of adaptability the materials are available for use fully meet 91 tp 100 percent of the criteria. The indicators task begins from simple going to the complex understanding of the concept, the activities are focus on the skill to be developed, the materials can be used for reinforcing skills, and the directing are clear and will lead the development of the skills all received a **much** description, which means that they meet 70 to 80 percent of the criteria.

The general weighed average of 2.81 qualitatively described as **much** simply means that the existing instructional materials meet 70 to 80 percent of the criteria of adaptability.

Evidently, the adaptability of the instructional materials was in the average level based on the ratings of the respondents. They all conglomerated that the skill development must be practical for the students to perform. In addition, since reference books being used in schools fall short of the standards because of the budgetary deficit, the instructional materials are haphazardly made. Thus, they are weak in the sense of adaptability.

Relevance. Concept and skill development leading to their mastery must be congruent with the way lessons are presented and developed thus, the teacher- respondents were asked to assess the instructional material they use on this aspect. Their answers are on **Table 1.**

As presented in the table. Three indicators namely the materials are presented systematically, the procedures are congruent to the aims, and the activities/exercises promote mastery of the competencies meet the criteria **much.** They received a weighted average of 3.00 for the first and second 2.85, respectively. This means that these three indicators of relevance meet 70 to 80 percent of the criteria. On the other hand, the indicators that the activities/ exercises helped in the development of the intended skills and task decomposition clearly observed through the procedures only meet the criteria for relevance 50 to 69 percent. They garnered a weighted average of 2.00 and 1.95 respectively and described it as **not much**

The grand weighted mean of 2.61 signifies that the existing instructional materials meet 70 to 80 percent of the criteria for relevance.

Conspicuously, relevance is only on the mid-level based on the assessment of the teachers and for the

respondents the instructional materials must be relevant to the objectives of the subject. They also mentioned the difficulty they had been encountering in simplifying scientific skills so that the students could learn the concept well and master the desired learning competencies. They all consider the fact that learning professional education should be exposed to the students from simple going to the complicated lessons in which reference books that they are using could not provide because the explanations are very short and not comprehensive for the student to understand well. Also, lack of examples is another problem according to them.

Table 2 Levels of Competencies of Student-respondents in the Specific Learning Areas of THE TEACHER AND THE SCHOOL CURRICULUM Using 75% Level of Mastery as Criterion Level Before Utilization of Instructional Materials

Topics	**Frequency of Scores using 75% criterion**	**Percentage**	**Mastered**
Code of Ethics for Professional Teacher Republic Act 4670	49	59%	Least Mastered
Presidential Decree No. 1006	56	67%	Least Mastered
The Professionalization of Teaching Basic Laws on the Professionalization of Teaching	59	70%	Least Mastered
Other Education and Teacher-Related Law	58	69%	Least Mastered

It can be gleaned that the four topics of Teacher and School Curriculum before the Utilization of Instructional Materials out of 83 students there are 49 below 75% criterion for with 59% in Code of Ethics for Professional Teacher Republic Act 4670 results for least mastered skills, 56 learners for Presidential Decree No. 1006 with 67% below mastery, 59 learners in The Professionalization of Teaching Basic Laws on the Professionalization of Teaching topic with 70% below mastery level and 58 learners for Other Education and Teacher-Related Law with 69% below mastery level.

Table 3 Levels of Competencies of Student-respondents in the Specific Learning Areas of THE TEACHER AND THE SCHOOL CURRICULUM Using 75% Level of Mastery as Criterion Level After Utilization of Instructional Materials

Topics	**Frequency of Scores using 75% criterion**	**Percentage**	**Mastered**
Code of Ethics for Professional Teacher Republic Act 4670	75	90	Mastered
Presidential Decree No. 1006	71	85	Mastered
The Professionalization of Teaching Basic Laws on the Professionalization of Teaching	75	90	Mastered
Other Education and Teacher- Related Law	74	89	Mastered

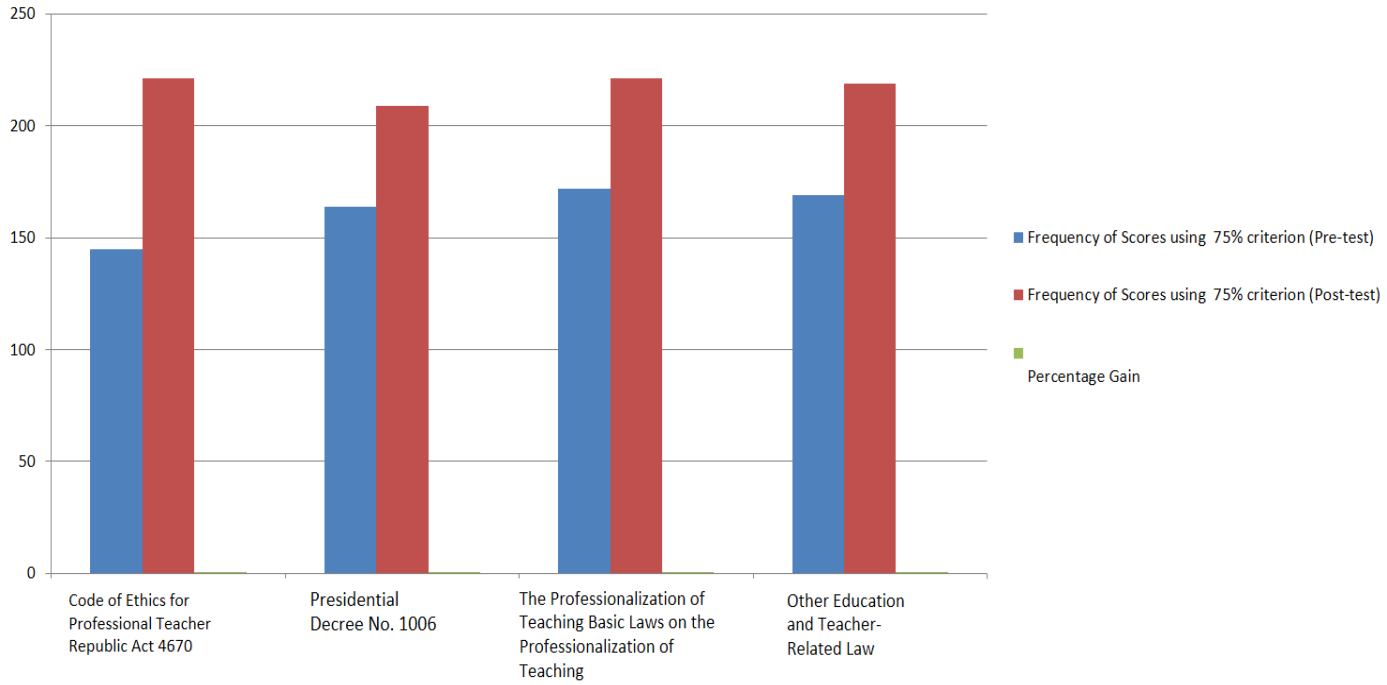
Base on the result of post-test using 75% Level of Mastery as Criterion Level after Utilization of Instructional materials it can be seen that there are 75 learners above 75% criterion reference with 90% level of mastery in Code of Ethics for Professional Teacher Republic Act 4670 , Presidential Decree No. 1006 there are 71 learners with 85% level of mastery, while in The Professionalization of Teaching Basic Laws on the Professionalization of Teaching there are 75 learners above 75% criterion with 90% level of mastery and 74 learners above 75% criterion with 89% level of mastery in Other Education and Teacher-Related Law .

Table 4 Percentage Gains of Student-respondents in the Specific Learning Areas of THE TEACHER AND THE SCHOOL CURRICULUM Using 75% Level of Mastery as Criterion Level After Utilization of Instructional Materials

Topics	**Frequency of Scores using 75% criterion (Pre-test)**	**Frequency of Scores using 75% criterion (Post-test)**	**Percentage Gain**
Code of Ethics for Professional Teacher Republic Act 4670	49%	90%	52%
Presidential Decree No. 1006	56%	85%	27%

The Professionalization of Teaching Basic Laws on the Professionalization of Teaching	59%	90%	28%
Other Education and Teacher-Related Law	58%	89%	30%
Mean	55.5%	88.5%	33%

Figure 4.1 Comparison of Score before and after Utilization of Instructional Materials



Using the percentage on the level of competencies of the student-respondents in the specific areas between the result of the Pre-test and Post-test using the 75% level of mastery as criterion reference after utilization of instructional materials, it can be seen that there are 52% learning gains between the results of pretest and post-test in Code of Ethics for Professional Teacher Republic Act 4670 , 27% learning gains in Presidential Decree No. 1006 while there are 28% learning gains and 30% learning gains in The Professionalization of Teaching Basic Laws on the Professionalization of Teaching after utilization of Instruc

Table 5 Level of Significance in the Specific Learning Areas of THE TEACHER AND THE SCHOOL CURRICULUM Using 75% Level of Mastery as Criterion Level After Utilization of Instructional Materials

Utilization of Instructional Material	Pretest		Postest		Degrees of Freedom	Alpha (@	t value	Critical value
	Mean	Variance	Mean	Variance				
	17.59036	304.9398	40.74699	1661.566	164	0.05	-4.7290	1.65

The statistical results indicate the effectiveness of the instructional materials utilized in teaching the specific learning areas of the *Teacher and Curriculum* subject for BSED students. The pretest mean score of 17.590 with a variance of 304.9398 shows that students initially had a relatively low level of knowledge and understanding of the subject matter before the intervention. After the implementation of the instructional materials, the posttest mean score increased significantly to 40.74699, with a variance of 1661.566, indicating a substantial improvement in students' performance and mastery of the lessons.

To determine whether the improvement was statistically significant, a one-tailed t-test was conducted with 164 degrees of freedom and an alpha level of 0.05. The computed t-test value of -4.7290 was compared with the critical value of 1.65. Since the absolute value of the computed t-value (4.7290) is greater than the critical

value (1.65), the null hypothesis is rejected. This indicates that there is a significant difference between the pretest and posttest scores of the students.

The findings therefore suggest that the instructional materials were effective in enhancing the specific learning skills and academic performance of BSED students in the Teacher and Curriculum subject. The significant increase in the mean scores demonstrates that the materials contributed positively to students' understanding, engagement, and learning outcomes after their implementation.

CONCLUSION AND RECOMMENDATIONS

This study focused on the development and use of the Gagne's Information Processing Model: Basis for Development of Instructional Materials in teaching THE TEACHER AND THE SCHOOL CURRICULUM. This study was participated by senior high school teachers and five hundred eighteen students who were selected through purposive sampling procedure.

The descriptive-developmental-evaluative method of research was employed in this study. Data on assessment of existing instructional materials were taken from the questionnaire made by the researcher and the data for the pretest and posttest for students' level of mastery of skills.

Simple percentage, mean, and t test of significant difference were some of the statistical tools utilized for the interpretation of data.

Based on the data presented and interpreted in Chapter 3, the researcher consolidated the following to answer the specific questions raised in this study.

The instructional materials being developed are assessed as "Very Much" in terms of comprehensiveness, "Much" in terms of coherence, adaptability, and relevance, and "Not Much" in terms of sense making.

The students-respondents' levels of competencies in the different areas of THE TEACHER AND THE SCHOOL CURRICULUM are considered "Mastered" since the scores are above the 75 percent level of mastery criterion reference after the use of the Gagne's Information Processing Model. The students-respondents' levels of competencies in the different areas are considered "Mastered" since the scores are above the 75 percent level of mastery criterion reference after the use of Gagne's Information Processing Model.

The general levels of competency of the student-respondents after the use of the instructional material reach the above mastery level of criterion and there was a significant difference in the scores of the student-respondents in the specific levels of competencies before and after the use of the Information Processing Model. The specific and general gain scores of the respondents are acceptable based on the 75 percent criterion reference, and the utilization of the Information Processing Model is effective since the posttest scores are higher than 75 percent criterion level and from the notable improvement of the scores obtained from the pretest.

A well-prepared Gagne's Information Processing Model as basis for the development of Instructional Materials can increase BSED students' level of mastery in the different skill areas of The Teacher and the School Curriculum.

Based on the conclusions, the researcher offers the following

1. The Professional Education Teachers should utilize the Gagne's Information Processing Model as basis for the development of Instructional Materials since its effectiveness in helping students achieve the 75 percent level of mastery is already established.

2. The school administration through the Head of Academics in PUP-Taguig Campus must encourage teachers to develop Instructional Materials that could improve competency levels for other programs.

3. A follow-up study should be conducted on the subjects of this study to ensure that their academic

competencies are developed and improved.

4. The study should be tried out using bigger samples in other schools and Localities.

Work Plan And Timelines

	Activity	Date
Pre- Implementation	1. Conduct of pre- assessment test	First Week of Dec. 2024
	2. Gathering of data	Second Week of January 2025
	3. Design assessment tool and lesson plan	Third Week of March 2025
Implementation Proper	4. Validate assessment tool and lesson plan	First Week of April 2025
	5. Conduct of lecture using the lesson plan	Second Week of April 2025
	6. Monitor student progress	May 2025
Post Implementation	7.Conduct of Post-test	First week of June 2025

Plans For Dissemination

Initially, the pilot study of this research is 3rd year education students taking The Teacher and School Curriculum of second semester. To further validate the results of this study, all campuses offering the same subject will be included. This research may be recommended for campuses -wide use level.

Statements And Declarations

1. **Funding Details:**

All research funding was self-supported by the author for the purpose of conducting this study.

2. **Disclosure Statement:**

The authors hereby declare that there are no competing interests to disclose in relation to this study.

3. **Ethical Approval:**

The authors confirm that the ethical standards for this research were strictly adhered to. No participants were harmed during the conduct of study.

4. **Declaration of Generative Artificial Intelligence (AI) in Scientific Writing:**

AI tools, specifically ChatGPT, were employed to review grammatical correctness and assess the comprehensiveness of phrasal grammar rules used in the manuscript. However, the authors maintain full responsibility for the overall accuracy, integrity, and content of the study.

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