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To cite this article:

Ramirez, I. A. L. (2020). Teaching preparedness of pre-service teachers: Perception to practice. *International Journal of Studies in Education and Science (IJSES)*, 1(1), 15-35.

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Abstract

It is expected from the teacher education institution to shape pre-service teachers in responding to the innovations of the 21st century – implementing life-long learning, guaranteeing the standard of education, and coaching of people for prosperous skilled activities. Thus, the study identified the gaps between theory and practice that might have huge and vital impacts on their professional growth, possible benefits, and challenges to develop and guarantee more efficient and comprehensive teaching-learning practices for all. The study made use of phenomenological research design, specifically descriptive design using narrative analysis. The validated instrument (Questionnaire) were distributed to the respondents (n=45; Secondary Pre-service Science Student Intern) and a purposive sampling was utilized on selected Tertiary Education Institutions. Thematic analysis was applied. Several gaps emerged between theory and practice of pre service science teachers which may have vital impacts for our future educators.

Keywords: Preservice teachers, Theory, Practice, Gaps, Science education, Teaching preparedness

Introduction

It is expected from the teacher education institution to shape pre-service teachers in responding to the innovations of the 21st century – implementing life-long learning, guaranteeing the standard of education, and coaching of people for prosperous skilled activities. Concerns in arguing that there are dangers in developing instructors where abundant theory and little about practice. Actually, the division between theory and practice is nearly similar with teacher training programs, with Dewey noting the problem as way back as the early 1900s.

John Dewey (1934) grounded two of his stylish and his instructive ways of thinking on a theory of experience, with suggestions for lighting up a portion of the procedures that students utilize in gaining from their experiences. Dewey (1963) perceived that, while all students undeniably have encounters in classrooms and schools, everything relies on the nature of the experience which they have. Learning experiences are rooted from the statement of two ideals – continuity and interaction. Continuity means experiences; an individual has willpower to influence the future, both in positive and negative ways. Interaction, on the other hand is the situational outcomes on one's choice. As it were, the present situation is a component of the association concerning the past happenings and the present circumstances. For example, the experiences of an exercise will

depend on how the teacher arranges as well as facilitates the topics, in addition to the past understanding of comparable exercises and teachers.

At the national level, the need to create quality teachers is stipulated in RA No. 7722, Undergraduate Teacher Education in Higher Education Institutions (HEIs) constantly prepares prospective teachers of fundamental training area to satisfy their jobs and duties and supports quality education. In other words, teacher education institutions have the responsibility of producing globally competitive future educators who are relevant to educational community. The primary objective incorporates teacher education program that caters the needs for satisfaction in knowledge, skills, and attitude.

Further, studies on pre-service teachers are very minimal, where in fact much attention is needed. This should be highlighted as a growing concern of teacher preparation programs as it will become useful in solving practical problems as the gap concerning theory and practice in the program is widening. It was constantly indistinct for a teacher training program to characterize a hypothetical element of teaching practice. The least difficult methodology was: you will learn hypothesis during lectures and will at that point apply it on practice.

Through preceding batches of pre-service science teachers, some of the encounters expressed as difficulties include varied experiences such as tensions; different suppositions, convictions and originations of instructing and learning; fundamental comprehension of the auxiliary school culture and setting for educating and learning; collaboration with understudies; familiarity with showing abilities and systems; intelligent intuition during the underlying phases of the pre-service academic program, and functional educating resources. It points out that finishing the teacher training course in science, pre-service teachers are expected to comply with required skills and competencies in order to deal with the on-going adaptations in the 21st century classroom environment. If their competencies as teachers are adequately developed, they may be prepared to commence their roles as competent teachers. The aim of the study is to identify the gaps between theory and practice of pre-service science teachers. Results of the study may profit the Teacher Education Institutions as it may embrace real practices and reflects the needs of pre-service teachers on specific teaching characteristics. In connecting with the pre-service teachers theory and standards of teacher training, it winds up evidently that teacher instruction must draw in with the pre-service teachers' earlier understanding, developing discernments, their theoretical settings and their convictions and benefits of teaching.

Literature Review

Teaching advancement and teacher preparation program need to highlight on the best way to equip pre-service teacher and the method for improving the quality of education. Teacher preparation has been ceaselessly examining for the most ideal methods for preparing future educators to be best in the real classroom environment. It is progressively being urged to concentrate on creating in future educators who can be globally competitive.

Training today's pre-service teachers to be well-equipped educators can be a tedious job. Facilitators of teacher

trainings are challenged to craft learning that meaningfully integrates content and pedagogy to nurture the improvement of twenty-first century skills with the advancement as well as the fast-changing technologies to prepare future educators for a technology-driven, knowledge society (Gurgenidze, 2018; Lock & Redmond 2010; Uslu, 2020; Uslu, & Ersan, 2020). Hence, the environment, to which these educators or teachers in the future is dependent on the rigid training and impactful preparation they will achieve in the present.

For a long time, teachers including some expert educators are deciding how they can design successful and productive exercises. In the Philippine setting, it is compulsory for instructors to prepare lesson plans, convey them and evaluate students' learning (Rodriguez & Abocejo, 2018) which is crucial in deciding the requirements, qualities and shortcomings of student teachers toward lesson planning. Assessing the different challenges of students facilitate as to how teachers can address their students' concern in formulating strategies and solutions when caught in any lesson planning circumstances (Franklin & Stephens 2008).

Numerous researchers additionally proved that lesson plans are vital in giving a successful learning condition (Rusznayak & Walton, 2011). Also, Vdovina and Gaibisso (2013) demonstrated how a lesson design made instructors having a system for conveying to the learners a certain "learning goals". To include objectives, content, and assessment, just as actual lesson plan may be executed and evaluated (Jacobs, Martin & Otieno, 2008).

Lesson planning connects requirements of the educational program and course books with what are introduced in the classroom (Lee, Chen, & Khum, 2009). The teacher ought to likewise give clear, understandable, and exact guidelines, give fitting and clear solutions to students' request, utilize the classroom proficiently, be vigorous and dynamic while teaching, do support exercises in accordance with his or her showing esteems, give time, powerful and precise constructive criticism, enhance the learning encounters, make information concrete through distinctive and precise precedents, make of resources and tolls, and give the learners chances to comprehend learning.

The significant job teachers have in instructive frameworks expects teachers to furnish specified learning as well as skills. Instructor competencies are noted to be complex. Currently, instructor characteristics can be grouped into two: general instructor practices and educating abilities. Some broad instructor characteristics are the capacity to think about individual differences, set a case for the learners worth as wells as regard the learners, provide learners an important spot during the procedure, control the learners, strategize the exercise adequately, also actualize through adaptability, utilize the class period proficiently, be updated about the content, certain, and eager to adapt and progress (Borich, 2014; Demirel, 2011; Özçelik, 2010; Sönmez, 2008).

Choy et al. (2013) expressed that planning the lesson mirrors the instructors' understandings of topic, just as the manner in which resources to be utilized, as affected by the level to which the instructor is educated in terms of the learners' prior learning as well as the subjects to cover. In lesson planning, it can be perceived on the means pre-service teachers can change knowledge to actual comprehension. Moreover, preparation empowers pre-service teachers to thoroughly consider the specified topic, means to deliver, as well as assessing the learners

(Ruys, Keer, & Aelterman, 2012). In any case, pre-service teachers need involvement; especially during the planning and sorting out different exercises (Nilsson, 2009).

Further, some pre-service teachers confirmed having gone a long way in acquiring experiences and learning their lessons preparation for classroom teaching (Keengwe, 2012; Rodriguez & Abocejo, 2018). If a teacher begins with a well-defined targets of intended outcomes, authentic assessments can be rightfully achieve, reflective of what they teach and what learning they could expect from their students (Stiggins, 2008). Successful outcomes will then follow when teachers are able to make a clear learning objective towards smooth delivery of the entire lesson (Department of Education and Training, 2017). However, some research findings divulged that pre-service teachers could hardly make clear learning objectives, where their lessons could not produce the desired results once they mismatch assessment with the learning objectives (Rodriguez & Abocejo, 2018).

Methodology

Research Design

The study identified the gaps between theory and practice as that might have huge and vital impacts on their professional growth, possible benefits, and challenges to develop and guarantee more efficient and comprehensive teaching-learning practices for all. The study utilized phenomenological research design, specifically descriptive design using narrative analysis. The term narrative analysis includes a procurement of data which mainly depend on collected or expressed words or visual interpretation of respondent. Narrative or stories happen when at least one speaker participates in sharing and describing an encounter or occasion. Hence, this was utilized in identifying the gaps between theory and practice.

Participants

The respondents for the said study were the Secondary Pre-service Science Student Intern. A purposive sampling was utilized in choosing the respondents in selected three (3) State Universities. A total of 45 pre-service science teachers were chosen from State Universities.

Research Environment

The study was conducted at the selected Teacher Education Institutions in the Philippines. The selected Universities have their own Laboratory Schools which served as the training ground of the education students during their teaching internship.

Research Instrument

To identify the gaps between theory and practice, the researcher used a questionnaire with open-ended questions where pre-service teachers expressed their leanings, before and after teaching internship. The said questionnaire

was also validated by three professors from the different universities in the Philippines.

Data Analysis

In determining the gaps between theory and practice, the process of Colaizzi was used to provide assistance in extracting, organizing, and analyzing such narrative dataset. The following steps represent Colaizzi process for phenomenological data analysis (Sanders, 2003). 1. Each transcript should be read and re-read in order to obtain a general sense about the whole content. 2. For each transcript, significant statements that pertain to the phenomenon under study should be extracted. These statements must be recorded on a separate sheet noting their pages and lines numbers. 3. Meanings should be formulated from these significant statements. 4. The formulated meanings should be sorted into categories, clusters of themes, and themes. 5. The findings of the study should be integrated into an exhaustive description of the phenomenon under study. 6. The fundamental structure of the phenomenon should be described. 7. Finally, validation of the findings should be sought from the research participants to compare the researcher's descriptive results with their experiences.

Results and Discussion

Six gaps emerged from the responses of the pre-service science teachers concerning the gaps between theory and practice.

Gap 1: Lesson Planning

Based on the responses of the pre-service teachers, one of the gaps between theory and practice is lesson planning.

Overall Planning

Pre-service teachers emphasized the gaps regarding the overall planning of the lesson. This includes the format to be used (*School B, Participant 10; School C, Participant 11*), making of the objectives (*School A, Participant 2 & 7; School C, Participant 3; School B, Participant 7*), the strategies to be utilized (*School C, Participant 8 & 9*), as well as the instructional materials (*School B, Participant 2; School C, Participant 3 & 8; School A, Participant 7 & 4*), others consider it also as guide in teaching (*School A, Participant 1; School B, Participant 12*) as shown in the responses below:

“I’ve learn that as a teacher, you should have the strong commitment and dedication in everything that you do especially in making a lesson plan. The objectives must be stated correctly, it must be specific, concise, attainable, and time bounded.”(School A, Participant 2)

“Before I really thought that lesson planning is easy but after my internship I’ve realized that your lesson plan needs a lot of thinking, look for resources and stuff cause after all that will serve as your guide throughout the whole teaching experience.” (School B, Participant 2)

“Make more concise and clear objectives, plan everything and if possible, do mock teaching and test your IMs. Always bear in mind that the lesson plan holds the meat and flow of the lesson and the class.”
(School C, Participant 3)

“Before making a lesson plan, I had learned that all parts of the lesson plan must be delivered to the learners. There are also some objectives and competencies that needs to be followed accordingly. After teaching internship, I had learned that not all parts of the lesson plan is delivered because of time constraints.” (School C, Participant 5)

“You should read and plan ahead of time to avoid any problem so that it will be more organized. Also considering the objectives and availability of the materials” (School A, Participant 7)

“Before I’ve learned in lesson planning that you should have a complete mindset on how or will you do your lesson properly. But after internship in teaching you should write in advance and understandable manner your lesson so that at the end of the day you will able to achieve the objectives and tasks given.”
(School B, Participant 7)

“I have learned that when you have to teach, you have to ready all your IMs and your lesson plans and your mind to deliver the topic. Also, I learned that I have to finish my work before time or 2 days before time so that I am confident.” (School A, Participant 4)

“it is important to have a plan before teaching. The flow must be considered. The content, strategies, and the materials must be prepared if possible a day before demonstration.” (School C, Participant 8)

“HOTS questions should be ask to students all the time, every after activity, discussion or etc. There should be assessment or question to ask to the students. Before introducing the discussion, the teacher should conduct a review after the activity. The students should be clueless about the discussion. All questions from the start of the class should be answered in the discussion.” (School C, Participant 9)

“Before internship, I learned about how to write a detailed lesson plan. After internship, I learned how to make a 7E lesson plan which is more suitable for the young generations.” (School B, Participant 10)

“I was able to know other lesson plan formats which are seemingly different from what we used to follow in ILS” (School C, Participant 11)

“Lesson planning is very significant, for it provides a direction to teachers or guidelines and helps us to be prepared at all time.” (School A, Participant 1)

“I believed that lesson plan is a tool used in order to guide the teachers in their discussion. I learned that

lesson planning is an important tool for me in order to guide me on my discussion, and it helps me on my proper discussion.” (School B, Participant 12)

Diversity of Learners

Another emphasis made by the pre-service teachers is the diversity learners which need to be considered in making the lesson plan.

“Need to integrate various activities that would suit the learners” (School C, Participant 2)

“Lesson planning is more on theories and will remain a theory unless it is carried out during class proceedings. There is no perfect lesson plan for all sections in a single grade which means the teacher can just vary the approach and strategy in carrying out the learning objectives. Whereas, 1st section is good in making assumptions and theories close to the correct answer while students in lower level or in different curriculum need adjustments and new approach to cope with the lesson” (School A, Participant 3)

“I’ve learned that lesson planning must not be that idealistic. It should be SMART. It must be attainable and it needs to consider the students’ capabilities.” (School C, Participant 4)

“Before, I only based on the theories that have been taught from our teacher in which acting that we have this and those student behavior. But along my journey as ST, I learned that lesson planning will vary depends upon the classroom situations and controlling the standard is very important.” (School A, Participant 5)

“I have learned that in lesson planning, the lesson should be written in a clear and understandable manner; it should be carried out in an actual school situation; includes the learning resources needed for the lesson; the learning outcomes should be clear, concise, and easily understood; variety of activities and methods/techniques are used, student’s needs, interests and abilities are achieved; and the content is sufficient and appropriate to the level of the students.” (School C, Participant 7)

“In lesson planning, I have learned before that having or applying varied strategies is important in order to cater the interest of the diverse learners after teaching internship, I realized that in lesson planning we really need to identify what kind of learners i will be teaching so that an appropriate activity will be applied” (School A, Participant 10)

“Prior to my teaching internship, my lesson planning was too ideal to be carried out in the actual teaching classroom situation. However, after exposure to the actual teaching field, I have come to learn that, more often than not, students need longer time in doing my activities. I have also learned to simplify the activities so that students can understand them easier.” (School C, Participant 13)

Results revealed that primary pre-service teachers are aware of the importance of lesson planning; though, some difficulties were found during the planning. It may indicate that even if pre-service teachers have gained theoretical knowledge about lesson planning, it does not necessarily mean that such knowledge is translated into practice. The transition of the theories and principles into application, planning and implementation requires actual experience by the pre-service teachers.

Pre-service teachers claimed that access to instructional materials, students' interests and abilities, and teacher experience proved crucial to lesson planning skills development (Ramirez, 2019). As claimed, literature cited that lesson planning is a challenging and demanding process that comprises contextual understanding and pedagogical skills, to include the capacity in using critical thinking skills (Setyono, 2016). Consequently, when a theory is to be transformed to best practice over the long term, feed backing, sharing, and observing by experts are essential (Wallace et al., 2008). Therefore, mentor teachers and teacher educators may collaborate in helping pre-service teachers prepare competent lesson plans by letting them optimize teaching experiences towards transformative learning outcomes.

Gap 2: Pedagogical Skills

From the answers of the pre-service teachers, another gap between theory and practice is the pedagogical skills.

Varied Strategies

Pre-service teachers highlighted the gaps regarding the different strategies employed during actual practice teaching; where what they learned in theory phase was entirely different in the actual practice teaching. These include the learner-centered strategy (*School A, Participant 2*), the use of ICT (*School C, Participant 7 & 8*), and other varied strategies (*School A, Student 3, 4, 5, & 11; School B, Participant 4, 10, & 11; School C, Participant 2, 3, & 13*). Below are the responses:

"I've learn that strategies to be employ must be student-centered. The students should be an active participant during the teaching and learning process. The knowledge must come from the students and you as a teacher will just act as a facilitator."(School A, Participant 2)

"The pedagogical skills I've used during my internship vary accordingly to give opportunities for every learner who is/are in different modes of teaching. The teaching skills must involve good communication skills at all times, particularly in English language. Though some learners will insist MTB instruction, incorporate it with the second language (L2)" (School A, Participant 3)

"Motivations are essential to capture the younger learners. It is a need to learn different teaching strategies for the actualization of the lesson plan because there are a lot of different learners." (School C, Participant 2)

"Before I have no strategies in teaching like I don't know what to do after I realize that I did some

strategies in order my class not to get bored and learned more.” (School A, Participant 4)

“There are a lot of ways in teaching the students. All we need to have is patience in teaching.” (School B, Participant 4)

“It is better to always update yourself with the necessary pedagogical skills that would suffice the needs of the class and the school.” (School C, Participant 3)

“I have learned how to relate things, contextually in which what your topic must relate to their life situations and it is very important as a teacher” (School A, Participant 5)

“I have learned that in pedagogical skills, one should provide clear information about objectives, bibliography, tutorials, contents and assessment tools/methods in the subject's curriculum. We can integrate or use ICT to efficiently deliver the lesson. We should be objective and respectful to our students and facilitate them through student-teacher interaction.” (School C, Participant 7)

“The delivery of the lesson must be considered. ICT is helpful in the delivery of the lesson. Teaching must somehow be modern or student centered and maintains an objective and respectful position with students.” (School C, Participant 8)

“Before internship, I only learned about the concepts in pedagogical skills. After internship, I encountered real-life worked that enhances my pedagogical skills. It makes me a better person and a better teacher with a better mind and heart that sympathizes the students. (School B, Participant 10)

“Before internship, lots of strategies were introduced to us. But in the actual teaching internship, I usually use same strategies due to lack of time and materials in the lab. Instead of having demonstration/experiment, I used videos to supplement the topic.” (School A, Participant 11)

“I have learned how to establish a learning environment which is conducive in learning also I have acquired the knowledge of making my classroom more effective in creating a worry free environment.” (School B, Participant 11)

“I learned that cultivating a good teacher-student relationship is vital for optimum learning experience. In addition, it is important to set classroom rules at the beginning of the school year and to constantly reinforce these because students tend to forget the rules.” (School C, Participant 13)

Diversity of Learners

Pre-service teachers also made mention on the adjustment of pedagogy due to the diversity of learners.

“Before internship we were taught what is ideal but after internship we have learned that everything

depends on the students.” (School B, Participant 3)

“Before internship, I always inclined my knowledge about pedagogical skills with theories I learned during my study group journey. When I am exposed to real teaching, somehow these theories are applicable but you need always to think and consider the abilities of the students. You need to adjust your teaching skills from one student to another student.” (School C, Participant 4)

“Before, teaching strategy must be student centered but after teaching I had learn that teaching strategy must be balanced between the learners and the teacher.” (School C, Participant 5)

“Pedagogical Skills is somewhat useful since it helps me to remember the different practices inside school premises and understand the art of teaching that is very important in dealing diverse students.” (School A, Participant 7)

“Pedagogical skill is a must in teaching. It must be cultural sensitive and also varied.” (School A, Participant 9)

“Be more prompt to the details to the topic. I make sure that my student really learns from the discussion. Assessment in every after activity is observed. I should maintain the interest of the students from the start and to the end of the discussion, I use variety of learning style that fit or appropriate to my student.” (School C, Participant 9)

“Before my internship we had our demo and my classmates serve as my students, and it all went well but after the internship and I am on the actual students were there are different attitudes beliefs and characteristics. It is also hard to adjust, since they are the ones who will serve as an example to my future students and believe that I am ready.” (School B, Participant 12)

Results show that pre-service teachers were challenged to use a variety of pedagogical skills in order to teach. While their central undertaking is to simplify learning, pre-service teachers must organize information as well as manage several challenges concerning the learners. Also, pre-service teachers considered the learners diversity; such distinction of teaching approaches as to students’ diverse necessities, specific modifications on different learning strategies, to include their manifold dimension. It may be deduced that pre-service teachers ideally distinguish and were capable of using the theoretical foundations on pedagogy and of course, familiar specific instructional techniques on a real classroom scenario. They were able to translate these sets of competencies into actual teaching activities and that classroom experience and reflection on practices leads to teaching effectiveness. In light of the foregoing, learners have distinctive learning methods, various attitudes about instructing and learning, and various dimensions of scholarly improvement (Felder & Brent, 2015). It is extremely hard for any instructor to adjust his or her encouraging styles to the students' learning methods, however on the off chance that the person succeeds, the scholastic execution will rise, bit by bit getting to be steady after sometime (Lurea et al., 2011). Thus, understanding on how best to support the pre-service teachers’

pedagogical skills development in teacher education may perhaps be necessary to produce quality teachers and improving student outcomes.

Gap 3: Communication Skills

Communication skill is one of the gaps that emerged from the responses of the pre-service science teachers.

Diversity of Learners

From the responses, it was noted that pre-service teachers attuned their communication skills from the diversity of the learners:

“I have learned that in real-world setting in teaching, mostly of the students do not easily understand English language as a medium of instruction. It’s okay to use or communicate the students using English especially those who are in first section. We can still use that language but not all the time.” (School A, Participant 10)

“After our teaching internship, I realized that using English language all the time is not so efficient especially when you are dealing with students in remote areas who have difficulties in English. In that manner, you have to fit in and translate ideas in the way they could understand.” (School A, Participant 11)

“It is important to know your student's capability in terms of understanding English language so that you as a teacher can manipulate or shall we say we could find ways on how to communicate to them without barriers.” (School A, Participant 1)

“Communication skills must be properly used depending on the sets of students. There are students who can understand English while some cannot.” (School C, Participant 1)

“I’m quite confident with my communicating skills not until I’ve done my internship. Cause you have to make adjustments so that your students will truly understand you.” (School B, Participant 2)

“I’ve learned in communication skills before that as long as you teach your lesson properly or orderly to the students. But then after teaching internship I’ve realized that you should be able to know your standards by not just talking or speaking in English but, you should adjust your self by talking their vernacular language to understand.” (School B, Participant 7)

Speech Fluency

There were also some pre-service teachers who were very particular with their communication skills, especially during their teaching internship:

"I've learned that as a teacher you must be careful in everything you say. For instance, the voice must be modulated, clear and loud. As well as avoiding grammatical errors when speaking. (School A, Participant 2)

"We must be confident enough to speak in front of your students. Avoid stuttering and mannerisms. And always interact and communicate with your students." (School A, Participant 7)

"I have learned in communication skills that we should be articulate, fluent, accurate and comprehensible in communicating to our students. We should modulate our voice and maintain it." (School C, Participant 7)

"Modulated and clear voice. Correct pronunciation and spelling. Simplify to the very least the words which will be used in the discussion. Unlock unfamiliar terms. Ask the students regarding on their familiarity of the terms and not assuming that everyone understood them." (School B, Participant 11)

Accrual Learning

On the brighter, there were also pre-service teachers who gained confidence (*School A, Participant 5 & 13; School B, Participant 1 & 10; School C, Participant 5*), and make good relationship after teaching internship (*School C, Participant 12 & 13*):

"Before the way I speak in front there is still a little shy part in me, but after my internship I was able to gain confidence each day and now I could see myself that I was able to develop it more." (School B, Participant 1)

"I have learned that communication skill is very important tool to teach in any learning situations. Before my ST, I am very shy speaking English, but along the way, those fear had fade away and I was able to handle public communications." (School A, Participant 5)

"Before teaching internship, my communication skill is really not that good especially in front of many people that sometimes it could affect my confidence level but after teaching internship, I can say that I improved a lot but need to work a little in connecting to the students." (School C, Participant 5)

"Before internship, my legs would crumble when talking in front of a crowd. After internship, I manage to have more confident, roam around the classroom and asks students well." (School B, Participant 10)

"Before, my communication skills are quite hard for me. At first, I got shy to communicate with other people but after my teaching internship my communication skills goes so well. It enhances my capabilities on communicating especially to my students." (School A, Participant 13)

"I have learned that communicating orally/verbally to your students makes teaching more meaningful

because there is a connection between the students and teacher.” (School C, Participant 12)

“A good command in the English language and verbal communication helps students perceive the teacher as firm. Moreover, it is important to be able to deliver/communicate ideas clearly in order to have harmonious relationship inside the classroom.” (School C, Participant 12)

Based from the responses, aside from gaining confidence, pre-service teachers were cautious to the appropriate words that were used, the association between means of communication, and the suitability of their presentation and to the level of learners which they are teaching. Likewise, pre-service teachers transform the usage of everyday language that may bring students to communicate in and out of the classroom. It may imply that pre-service teachers did not only have the satisfactory communication skills needed, but also have the ability to hold discussions that allow students to learn.

Pre-service teachers learn and applied adaptive strategies to overcome the challenging situations (Ramirez, 2018). The effectivity of teacher communication has been seen to be connected with teacher integrity and supposed that teacher competence as well as influence student performance (Rink, 2010). Effective communication has been correlated with minimum need for disciplinary interruption (Gillies, 2014). Thus, programs for developing communication competence to skill enhancement may be arranged to pre-service teachers.

Gap 4: Classroom Management

Another gap emerged out of the responses of pre-service science teachers is the classroom management.

Classroom Management Strategy

Almost all of the pre-service teachers responded that classroom management is the most difficult when it comes to teaching. Aside from setting of rules (*School A, Participant 3 & 9; School C, Participant 5 & 7*), there were also some strategies used by pre-service teachers in managing their classes (*School A, Participant 2, 4, & 5; School B, Participant 4, 5, & 6; School C, Participant 9*). Shown are the responses:

“Classroom management starts with rules and regulations a teacher has imposed inside the classroom. It must be agreed upon both by the learner the teacher so there will be no regrets when policies were transgressed and punishments must be done. A teacher should be a role model at all so his/her students will just follow what she/he does.” (School A, Participant 3)

“Before I will start the lesson, the first that a teacher must do is to check the classroom environment. It must be conducive to learning to avoid misbehavior of students. On the other hand, as a teacher, you must set rules and regulations to be implemented inside the classroom.” (School A, Participant 2)

“Classroom management is a lot easier if you keep in touch with the students.” (School B, Participant 4)

“For classroom management, before I don’t know how to manage like they were too noisy but after that I did some strategies to minimize those. (School A, Participant 4)

“I have learned in the classroom management by observing the behavior of my students. It is not easy to handle classroom management if you’re in a last section, but this taught me to consider the factors that they prefer to. In this ways, everything is manageable.” (School A, Participant 5)

“It’s about the attitude that matters, if you’re respectful enough, students will be able to respect you, and they will follow whatever you say” (School B, Participant 5)

“Before teaching internship I had learned that classroom management must be agreed between the teacher and the student especially classroom rules. You also need to think the appropriate techniques depending on what grade level, which I had learned after teaching internship and handling different grade level.” (School C, Participant 5)

“Before I thought classroom management is an easy task, but when I started doing practice teaching it was not really easy at all. Student attention often is small when they are not interested in the subject or even in the person, they tend to do something else. Teacher should show to the class that she/he should be respected by employing routines for better classroom management.” (School B, Participant 6)

“Classroom management is the most challenging part in teaching. You have to consider the learning environment and use various instructional strategies and programs to maintain the interest of the students in the lesson. You should establish rules, and procedures to maintain the orderliness of the class.” (School C, Participant 7)

“I should make sure that students are prepared before I start the discussion. I should impose classroom rules before conducting a class. I should call student randomly so that all the student will listen to the discussion. Call the attention or call the students who are making unnecessary noise and ask question to that student regarding the discussion. Misbehavior should be taken attention.” (School C, Participant 9)

“Classroom management is one of the sole problem in the classroom, what I just did us that as a teacher you must be true to the words you said to them, like the of rules and regulation without bending the rules. Another, the student must see the authority and respect in you so that they will follow rules. lastly, show professionalism.” (School A, Participant 9)

Diversity of Learners

An emphasis was also made with regards to the diversity of students. The responses of the pre-service teachers are shown below:

“Students are very diverse and without classroom management, it is very hard to impart your knowledge.

So I learned that you have to manage them by imparting varied strategies that could catch their attention and can focus on the lesson.” (School A, Participant 1)

“One class is different from the other class. Classroom management is proportional with pedagogical skills. If your teaching style is not appropriate in teaching, it is also expected that your students will not pay their attention, which means you need also to improve your classroom management.” (School C, Participant 4)

“I have learned that classroom management is not that easy since there are diversity of learners. As a teacher you must set some rules and be flexible enough in dealing such different situations.” (School A, Participant 7)

“I’ve learned in classroom management before that It is just an easy task. But after internship I’ve realized it is one of the most difficult to handle. Since you are able to handle different or diverse student in class.” (School B, Participant 7)

“Given a diverse set of students, not just in looks but also terms of personality/attitude, it had turned me to be more firm but understanding facilitator.” (School C, Participant 11)

The above comments showed that the pre-service science teachers tried in maintaining the proper order and proper classroom conduct by using various methods considering the differences of the learners. Additionally, from the reactions of the pre-service teachers, it may be inferred that classroom management approaches vary in the ways they perceive students behavior and in the style they approach teaching and adjusting student behavior.

As reported, it is recognized that for effective learning environments to happen, classroom management may be interweaved with effective teaching that is appealing and significant (Gore et al., 2007). Thus, some form of training in classroom management for pre-service teachers, especially research-based classroom management practices may be established.

Gap 5: Personal Attribute

One more gap emerged out of the responses from the pre-service teachers was personal attribute.

Established Teaching Attitude

All of the pre-service science teachers were able to learn and improve not only their teaching skills but also their attitude. Below are the responses:

“I also consider their individual capability so I always treat them fair and ofcourse as they respect me I also respect them as well.” (School A, Participant 1)

“As a teacher, you must learn to love your students. You must give an equal opportunity for all to be an active participant in the class. You must have high patience, dedication and passion for teaching.” (School A, Participant 2)

“I’ve learned that teaching is beyond imparting knowledge, but it is a mission to care, love, understand, and value your student as well.” (School A, Participant 8)

“Attitude is very important in the teaching world” (School A, Student 11)

“It’s really not hard when it comes to dealing with kids. But when I had my internship I’ve learned to control my emotions.” (School B, Participant 2)

“Our students are always looking up to us as model or as role model and we need to act based on the way we wanted them to react.” (School B, Participant 3)

“I learned that students vary in any field, I learned that each of them are unique so as a future teacher you need to know how to have patience and dedication.” (School B, Participant 8)

“You need to act professionally at all times. Joking can be applied but you need learn when to do it and how to do it. Teachers must be friendly but business-minded.” (School C, Participant 4)

“Before teaching internship I’m really not considerate type of person but then I had learn after my teaching internship that not all my students can pass their papers on time so I need to be more considerate and patience.” (School C, Participant 5)

“I was able to extend my level of patience, expand time management and responsibilities.” (School C, Participant 6)

“A teacher’s job goes beyond normal working hours; thus, it is important to have passion or learn to love the teaching profession. In the job, there are days when you are very stressed out that is why one should learn to cheer up oneself and to have a positive outlook. Smiling to everyone you encounter in school will make the job easier.” (School C, Participant 14)

Diversity of Learners

Pre-service teachers also embraced the diversity and the individuality of their learners, as shown in the responses below:

“I got the urge to learn and understand my students’ individuality. I tend to think more of each of their capabilities. It’s always them.”(School C, Participant 2)

“I also consider their individual capability so I always treat them fair and of course as they respect me I also respect them as well.” (School A, Participant 1)

“I’ve learned that you should be fair to your students since they have different attributes. Always understand them and always ask them what’s the matter. You don’t have to scold them just understand the way they act and speak. And if you have seen any misconception, you should advice and comfort them.” (School A, Participant 7)

“Always show concerns and appreciation to individual differences. Encourage every student to actively participate. Student must feel the sense of belongingness.” (School C, Participant 8)

It can be observed that pre-service teachers are acquainted with the relationship and the specific social interactions approach to be established with the students. Overall, pre-service teachers on this study reported positive personal attribute. This apparent attitude of passionately positive individuals is promising for the profession. In addition, it may be deduced that pre-service teachers’ character traits, when used suitably, may become advocates for optimal student learning, and thus are vital to teaching-learning process and teacher-student communication.

As conveyed, personality has shown to be related to job satisfaction and, in certain circumstances, also correlates with job performance (Judge, Heller, & Mount, 2012). Thus, teacher education may need more emphasis on the personal developments involving in producing a professional pre-service teacher; to which, teacher training programs may include a well-grounded stability concerning the intellectual and emotional scopes of the pre-service teachers.

Gap 6: Professional Attribute

From the responses of the pre-service teachers, professional attribute came out as one of the gaps.

On Being Professional

Most of the pre-service teachers expressed how practice teaching taught them to act as professionals in front of the students. This can be supported from the answers below:

“A student intern must show/act professionally so that students will look at the teacher as a role model.” (School C, Participant 1)

“Don’t just stop being professional at school but also outside. Student might see you every day even on weekends/ non-class days and they see you as a model. Professionalism us within a teacher’s grasp; no one can dictate him/her. It is always an advice to maintain student gap with teacher.” (School A, Participant 3)

“You must be professional at all times no matter what is the circumstance.” (School B, Participant 4)

“Teacher should maintain professionalism in or out of school. Teacher could be friendly to her students outside but should be firm and authoritative inside the classroom. Teacher should be dedicated and motivated to work.” (School C, Participant 7)

“I have learned that professional attribute are really important especially on how professional you handle your students and your work.” (School B, Participant 9)

“I should act and respond in a professional way, everything should be proper my emotions my limits should be observe. I should be detail oriented. I should prioritize the things I need to prioritize. I should be more competent and flexible. Be more responsible with my work.” (School C, Participant 9)

“A teacher should always be professional and must maintain good ethical behavior at all times; whether it is interacting with students, parents, or co-teachers.” (School C, Participant 13)

“Before, I learned to be professional in all the way even I haven’t experience working with other people but in my teaching internship journey being professional taught me to develop respectfulness in every people or in every individual.” (School A, Participant 13)

Setting Boundary

On the other side, pre-service teachers also stressed the boundary between a pre-service teacher and the learners. The below responses states it:

“You should always put boundaries between you and your students.” (School C, Participant 4)

“We need to act at least a small gap between the students especially inside the classroom to maintain authority as a teacher.” (School B, Participant 3)

“As a teacher, you must maintain professional distance to the students, interact with students but not too much.” (School A, Participant 9)

“Before internship, I thought I could do anything with my students. After internship, I realized I should be friendly that should maintain a thin line of being their teacher. (School B, Participant 10)

“Settling boundaries is a must. During my earlier days in teaching students asked about my FB, and based on what I have observed students who know about your life aside from being a student teacher tend to go beyond.” (School B, Participant 14)

Based from the responses, pre-service teachers reported considerable confidence for creating and maintaining a

professional and ethical learning environment. Most of them were equipped with useful skills, particularly from authentic experiences with the teaching internship, which can be associated with the situation prevailing in a real teaching-learning situation. It has been claimed that, clear self-esteem and possession of a developing professional identity are essential circumstances that may help pre-service teachers commendably apply strong theoretical knowledge acquired from teacher education programs into actual situations in the future (Bennett, 2013). And that professionalism is the outcome of a process of action-reaction in refining professional competence, principles, character and knowledge (Evetts, 2013). Thus, the practice of teacher professionalism may be seen as an essential requirement to pre-service teachers as such awareness to the rapid changes of the educational system and their roles to be played to produce qualified teachers in the future. At pre-service teacher level, allowing pre-service teachers to self-report their learning may add to this evidence.

Indeed, the theories determine the strategies and techniques based on the belief on how pre-service teachers learn and consequently, affect the choice of teaching methods. However, there is certain learning during their practice teaching that most likely to take place because it happens either when there is practice of knowledge in really life situations or through authentic experience (Ramirez, 2018). According to Peercy (2012), the theory-practice gap in the teaching profession linked to varied understanding of teacher education among teachers. These student-teacher complaints are associated with short teaching practice and mismatch between what is taught at the university and what they ought to do during their practical training (Gießler, 2009). Therefore, practice with research-based theories in the teaching profession may culminate constructive effects.

Conclusion and Recommendations

Six gaps emerged between theory and practice of pre service science teachers: lesson planning, pedagogical skills, communication skills, classroom management, personal attribute, and professional attribute. These findings also produced noteworthy implications particularly to the teacher education institutions as well as to the forthcoming pre-service teachers. It may somehow afford a practical guide that may greatly inspire the teacher education institutions, precisely curriculum experts and the teacher education admiration, and integrate more approach in actual teaching and learning frameworks.

While the overall findings revealed favorable insights of the pre-service teachers toward the teacher education program, it cannot be repudiated that the findings have also provided significant inputs that can be used to enhance the implementation of the teacher education program, thus the following are the recommendations:

1. Existing strategies and policies of the teacher education program of the Teacher Education Institutions may be revisited and improved with the utilization of Teacher Education Development Action Plan for Pre-service Teachers in order to make the curriculum more responsive to the needs of the profession and for its effective and efficient implementation.
2. Pre-service teachers may also be involved in crafting, implementing, and assessment of the program for them to develop that sense of ownership and accountability in the implementation of the program. They may also be given comprehensive support during the tenure in order for them to be fully equipped and be competitive in their respective teaching careers.

3. For future researchers, another study may be conducted to investigate the factors that influence pre-service teachers' teaching competence. Also, a further investigation on the same aspect may be done with wider scope of respondents which include different field of specialization.

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