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Strengthening Innovation And Research Through Meaningful And Tangible Activities In Teaching

Dr. Leovigildo Lito D. Mallillin[1*] Jocelyn B. Mallillin[2] Randolf M. Cammayo[3] Fenita L. Dalupang[4] Evangeline D. Cuntapay[5] Daisy Z. Tarayao[6] Jane B. Collado[7] Mary Grace D. Largo[8]
[1]Free Lance, Research Specialist
[2]Master Teacher, San Bartolome High School
[3]Master Teacher, Alfreda Albano National High School
[4]Master Teacher, San Pablo National High School
[5]Head Teacher, Enrile Vocational High School
[6]Teacher, Bungad Elementary School
[7]Teacher, San Gabriel Elementary School
[8]Jose Corazon De Jesus Elementary School

ABSTRACT

Innovation is recognized increasingly the development and catalyst for different educational institutions. It is the key factor to promote innovation, creativity, and entrepreneurship through curricula and promote innovation through research and development.

The study aims to identify the strength of research innovation in a meaningful and tangible activities in the area of sustainable development of teaching, innovation for teaching and development, teaching strategy development and learning, and learning competency of students.

The study employs the descriptive research method and design because it is inherent simplicity, flexibility and utility in diverse research and innovation context. The subjects of the study are the professional teachers and lecturers in various educational institutions and are expert in their field of specialization. The study comprised 76 respondents only.

Results show that learning is made relevant by applying situation to their lives, take a deeper interest in the subject and become more engaged in their learning and make students learn empathy, compassion and develop healthy relationship throughout their lives that will lead to passionate and engaged adults in terms of sustainable development of teaching, provide innovation for teaching and development that will empower student to become lifelong learners who are agent of change in terms of innovation for teaching and development, provides a useful teaching strategy and communication about student development in terms of teaching strategy in development and learning, and make learning competencies for combination of knowledge, skills, and attitudes that students develop and apply for successful learning, living, and working in terms of learning competency of students.

Keywords: *Strengthening innovation of research, tangible activities in teaching, sustainable development of teaching, innovation for teaching and development, teaching strategy development and learning, and learning competency of students*

INTRODUCTION:

Rationale of the Study

Innovation is increasingly recognized as a catalyst for development of the different educational institutions. The school is a key factor to promote innovation, creativity, and entrepreneurship through curricula and promote innovation through research and development. This approach is often framed within the context of the various school institutions. The various school institutions can also promote innovation more broadly for specific benefit of the community or society. Though various schools often struggle to develop curriculum due to the present pandemic, they sustain to have a smooth flow of education for the welfare of their students. It examines the innovation and strength of the research knowledge management practices and school innovation in the context of service in the educational system. It provides a mediating role of knowledge and application in the strength of the research and innovation practices. It develops a conceptual model in positive and meaningful tangible activities through knowledge generation, sustainable development, competency in teaching, strategy, knowledge storage, knowledge diffusion, knowledge application, and school innovation, Ode, & Ayavoo, [1].

On the other hand, innovation of research through meaningful and tangible activities tend to develop on the focus of the role of innovation on the improved system in the educational system to be globally competent where it produces quality graduates in preparation for the students career path. It develops innovation to determine the interactions and capabilities of school educational system in a poweful and dynamic diversity. Innovation fosters, promotes, and develops the learners pose and solves problems with the use of technology. It manipulates the activities of students to become more creative and innovative learners since students are the center of learning. It calls attention to the importance of nurturing creativity in school environment and the need to introduce teaching practice that could foster creative processes in regular school activities. In addition, schools allow development of creativity skills for contributing to critical thinking, problem solving, autonomy, and collaboration. Nevertheless, it seems that there are still only few initiatives in teacher training program related to fostering creativity and numerous calls to develop such program. It explains prospective teachers in school to identify strength, innovation of research through development of creativity. The teachers explain activities

where students' creativity could be fostered by the use of digital tools and other physical resources. The perspective reinforces the importance of introducing the use of various tangible activities and manipulatives in digital and palpable formats and may further encourage students in designing their own piece of artwork. Regardless of where students obtain the inspiration from, they can use background knowledge and plenty of integrated skills frothier brainstorm processes, constructions and designs, Donevska-Todorova, Lieban, & Gonçalves, [2].

Moreover, the development of the school carries out training and research activities in response not only to the demand of the school but also to the need of marginalized and less-empowered community in the society. It recognizes the need to generate new and relevant knowledge and innovation that responds to the need of students but also the need to build the capability of communities to absorb new knowledge. The school is increasingly asked to play generative role to ensure sustainable development. The numerous efforts to improve the contribution of the current educational system to meaningful sustainable development is a challenge in the school setting. It provides a changing landscape innovation in a new form that emerges the organization and management of the school. It discusses the potential benefits of research for innovation management that will provide closeness to living emergent system, generate rich insight as well as knowledge for both rigorous theory development and change in practice. It involves a complex collaborative organizational construct and challenges the process on reflexive and progressive. It addresses the challenges and assists in navigating the multitude of process, role, and outcome associated that will strengthen the research and innovation in exploring tacit aspect of practice and process in the emergent or shifting study context to transform practice through intervention, Ollila, & Yström, [3].

Furthermore, the focus of much training in the strength of innovation and research in various tangible activities are misaligned with the need of teachers and society. Despite several efforts to build research capacity within various schools in the country, there are still insufficient efforts focused on building a wider research culture beyond the ladderized education in focusing attention on the wider developmental role of school through enabling graduates to become better critical thinkers and innovators. The educational system sets to increase training in a neglected area of research and innovation studies. It promotes high-quality research and networking through conference opportunity, small collaborative research grant, online forum, and new curriculum development in the area of innovation and development. It adopts a low-cost approach and focuses on the analysis of innovation activities. The efforts are being mobilized to align research and innovation processes and products with societal values and needs, and to create mechanism for inclusive priority setting and knowledge production. A central concern is how to foster culture of responsible research and innovation. It highlights the generic aspect of teaching aimed at invoking a sense of care and societal obligation, and provides a set of exemplary cases of research and innovation related teaching. Teaching should nurture the student capacity in terms of practical wisdom, practical ethics, or administrative ability in order to act virtuously and responsibly in context which are often characterized by uncertainty, contention, and controversy, Mejlgaard, et.al., [4].

Research Question

1. What is the strength of research innovation through meaningful and tangible activities in the area of
   a. Sustainable development of teaching,
   b. Innovation for teaching and development,
   c. Teaching strategy development and learning, and
   d. Learning competencies of students?

Proposed Innovation, Intention and Strategy

The strength and innovation of research through meaningful and tangible activities tend to develop on the focus of the role of the improved system in the educational system to be globally competent where it produces quality graduates in preparation for student career path. It develops innovation to determine the interaction and capability of school educational system in a poweful and dynamic diversity. Innovation fosters, promotes, and develops the learners pose and solves problems with the use of technology. It manipulates the activity of students to become more creative and innovative learners since students are the center of learning, therefore the innovation, intention, and strategies are as follows:

Sustainable development of teaching:

A common issue in executing education for sustainable development is the systematic approach. Teachers do not have to be familiar with one another's work and good ideas often are not shared. Sustainability education may come down to individual teachers, making it that much more vulnerable. It contributes in the field of competency in the area of sustainability research effort and needs to be put into operationalizing sustainability competency and developing tools to measure and evaluate students and educators competency development, Cebrián, Junyent, & Mulà, [5].For that reason, it could be a good idea to implement the continuous quality improvement model for sustainability education through:

a. **Planning**. This is the first step to integrate environmental issue into the curriculum. These include contents, methods, and learning targets. It is also important to ensure adequate resources such as teaching material and teacher skills and knowledge.
b. **Doing and Performing**. This is the next step in teaching need to offer relevant and current information on sustainable development, including environmental issues, social/economic problems, the impact of human behavior on the environment, human and natural environment, along with possible solution and prevention.
c. **Checking and Evaluating**. The goal is to systematically implement education for sustainability, the development of education and evaluation becomes crucial. Regardless of whether the school is considering sustainability or has already integrated. It inessential to review provision on a regular basis and to consider whether the main point of

sustainability is being consolidated effectively. The review might focus on two primary contexts: the classroom and the whole school system.

d. **Acting and Improving.** It is time to create new target and determines targets, it can be helpful to look at ways to improve learning contents, teaching methods, and teaching resources to start with. Furthermore, good practices and ideas can be shared between teachers.

Innovation for teaching and development

The biggest challenge for any teacher is capturing the attention of students, and conveying ideas effectively enough to create a lasting impression. Implement and innovate ideas that make the classroom experience much more lovable for students. It is a period where they provide the quality and productiveness realization into process of education. The program for training personnel and program of developing the school education provides idea about getting high productiveness by using innovation in the education process, Shuhratovich, [6]. Here are some innovative ideas that will help reinvent the teaching method and make the classes more interesting.

1. Develop innovation for teaching to include finding better ways of doing something and new ways to look at problems inside the classroom.
2. To develop innovation on problem of teaching management program, research solution and create an advertising plan to promote solution with the help of the school to come up with better improvement of teaching innovation and development in accordance to the latest trend of teaching.
3. To develop innovation on the application of project-based learning as another approach for spurring innovation and creative thinking. Instead of working on a single project in a subject class, and project-based learning combine multiple discipline in one project. It promotes active and deeper learning.
4. To develop innovation that involves designing the community, creating a government and educational system, describing their neighborhood, outlining employment, deciding on the climate for the community, and identifying technology views.
5. To develop innovation that combines all various disciplines. They learn about their current government and community by contrasting them with the ideal society they create.

Teaching strategy development and learning

The development and learning rely on the teaching strategy that highlights student strengths and weaknesses in particular area of development and learning. It provides breakthrough of teacher education and involves students and teachers in switching perspective and role in engaging a collaborative and experiential learning to generate insight for new teaching strategy in a life-long learning process, Yang, & Kuo, [7].Many teachers and educators allow to clearly and concisely discuss the area in which students are able to demonstrate the ability to make a plan and to support student continued growth through the following innovations.

1. **Creative Teaching**. It helps to stimulate tool for creativity like playful games or forms of visual exercises that will excite young minds and captures student interest. This is a time-tested method to identify every young student creative ability and encourage creative contribution. Bring aspect of creativity into all subjects.
2. **Audio & Video Tools**. Incorporate audio-visual materials to supplement textbooks during class sessions. These can be models, filmstrips, movies, pictures, info graphics or other mind mapping and brain mapping tools. Such tools will help student imagination thrive and grow. These methods will not only develop the ability to listen but will also help to understand the concept better.
3. **Real-World Learning**. Infusing real-world experiences into proper instruction will make teaching moment fresh and will enrich classroom learning. Relating and demonstrating through real-life situation will make the material easy to understand and easy to learn. It will spark their interest and get the learners excited and involved.
4. **Brainstorm**. When you have multiple brain focusing on one single idea, you are sure to get numerous ideas and will also involve everyone into the discussion. These sessions will be a great platform for students to voice their thoughts without having to worry about right or wrong.
5. **Classes Outside the Classroom**. Some lessons are best learned, when they are taught outside the classroom. Organize field trips that are relevant to the lesson or just simply take student for a walk outside of the classroom. Students will find this as fresh and exciting. Without taking much effort, they will learn and remember what you teach them.

Learning competency of students

An innovation in learning occurs in a specific teaching and learning context, improving upon the implementation of the standard practice or introducing a new practice, thus achieving greater learning outcome. Learning and innovation skills increasingly are being recognized as the skills that separate students who are prepared for increasingly complex life and work environment in the 22ndcentury, and those who are not. A focus on creativity, critical thinking, communication, and collaboration is essential to prepare student for the future. Students who lack self-regulation strategy may fail to comprehend or connect ideas in their pre-class learning, which could lead to ineffective learning outcome during in-class activities. It tends to be successful learners to plan and reflect on their learning, they need more explicit instruction on how to monitor their own learning, Zheng, Ward, & Stanulis, [8].

1. **Communicate Clearly**. Articulate thoughts and ideas effectively using oral, written and nonverbal communication skill in a variety of form and context. Listen effectively to decipher meaning, including knowledge, value, attitude, and intention. Use

communication for a range of purposes (e.g. to inform, instruct, motivate, and persuade). Utilize multiple media and technology, and know how to judge their effectiveness.

2. **Collaborate with Others**. Demonstrate ability to work effectively and respectfully with diverse team. Exercise flexibility and willingness to be helpful in making necessary compromise to accomplish a common goal. Assume shared responsibility for collaborative work, and value the individual contribution made by each team member.
3. **Think Creatively**. Use a wide range of idea creation technique like brainstorming. Create new and worthwhile idea for both incremental and radical concept. Elaborate, refine, analyze, and evaluate their own idea in order to improve and maximize creative effort.
4. **Work Creatively with Others**. Develop, implement, and communicate new idea effectively. Be open and be responsive to new and diverse perspective, incorporate group input and feedback into the work. Demonstrate originality and inventiveness in work and understand the real world limit to adopt new idea.
5. **Implement Innovation**. Act on creative idea to make a tangible and useful contribution to the field in which the innovation will occur.

Research Method:

The study employs the descriptive research method and design because it is inherently simple, flexible and utilizes in diverse research and innovation context. However, the application of descriptive research is sometimes critiqued in scientific rigor. This design is very transparent and credible type of approach. It clearly constitutes what a descriptive research design from the range of other method. It provides an overview of the descriptive research, orientates to the underlying philosophical perspective and key characteristic that defines the approach and identifies the implication for school practice and policy. It provides insight to the practical application of descriptive research at all stage of the design process and identifies the critical element that should be explicit when applying the approach. It enhances the information available to the researchers who wish to use the descriptive approach, influencing the standard of how this approach is employed in the present study, Doyle, McCabe, Keogh, Brady, & McCann, [9].

Participants of the Study:

The subjects of the study are the professional teachers and lecturers in various educational institutions and are expert in their field of specialization. They are experienced lecturers and teachers in the innovative of tangible activities of teaching. The study comprised 76 respondents only.

Sources of Data Information:

After the formulation of the research title, the researchers gathered information from various books, magazines, browses in the internet about the importance of the topic where the questionnaire is formulated. A set of questionnaire is made for the gathering of information and data on strengthening innovation and research through meaningful and tangible activities in teaching. It establishes the standard and guideline, providing cloud technology through an open and decentralized infrastructure, develops and certifies to the highest standard of interoperability and data security that can be trusted by all concerns, supported by a robust ethical and legal framework that is compliant, establishes a proper environment for the training of new generation of data and stimulates research and innovation in transnational collaboration through public and private initiatives, Aarestrup, et.al, [10].

Analysis of Data:

Table-1: Sustainable Development of Teaching

Indicator	WM	I	R
1. Make learning relevant by applying situation to their lives, take a deeper interest in the subject and become more engaged in their learning.	4.74	SA	1.5
2. Drive active learning where students will become more invested in their education when they are able to make a difference in the world.	4.71	SA	3
3. Inform and engage students to provide them about thinking and practicing of being civically engaged and globally aware of learning.	4.68	SA	4
4. Global perspective where it grappled the idea of students and engaged in active problem solving where they can connect their learning to real-world problems that can help to broaden their minds.	4.61	SA	5
5. Students learn empathy, compassion and develop healthy relationship throughout their lives that will lead to passionate and engaged adults.	4.74	SA	1.5
Average Weighted Mean	**4.69**	**SA**	
Standard Deviation	**2.17**		

Table 1 presents the weighted mean and corresponding interpretation on sustainable development of teaching among the respondents.

As noted in the table, it shows that rank 1 is shared by the two indicators which are “Make learning relevant by applying situation to their lives, take a deeper interest in the subject and become more engaged in their learning” and “Students learn empathy, compassion and develop healthy relationship throughout their lives that will lead to passionate and engaged adults, with weighted mean of 4.74 or Strongly Agree. This means that innovation on research through sustainable development is essential that will help the respondents to become matured in their future. Rank 2 is “Drive active learning where students will become more invested in their education when they are able to make a difference in the world”, with weighted mean of 4.71 or Strongly Agree. This shows that innovation in teaching will explore students in their learning process. Rank 3 is “Inform and engage students to provide them about thinking and practicing of being civically engaged and globally aware of learning”, with weighted mean of 4.68 or Strongly Agree.

This will help student to be engaged in their learning process. The least in rank is "Global perspective where it grappled the idea of students and engaged in active problem solving where they can connect their learning to real-world problems that can help to broaden their minds", with weighted mean of 4.61 or Strongly Agree. The AWM=4.69 or Strongly Agree in the sustainable development of teaching. It requires a sustainable development among educators to motivate in various competencies in providing the desired level of sustainable and development in teaching from various educational institutions, Leal Filho,et. Al., [11].

Table-2: Innovation for teaching and development

Indicator	WM	I	R
1. It involves constant collaboration with student teaching and development based on their learning needs.	4.70	SA	2
2. There is a direction in the classroom because students are driving the instruction of innovation and direction.	4.61	SA	4.5
3. Innovation for teaching and development empowers student to become lifelong learners who are agent of change.	4.75	SA	1
4. It explains the outdated thinking of how to design a school based learning that will lead to better performance relevant to student interest and career path, personalized to their aptitude and ability, and responsive to their culture and identity.	4.62	SA	3
5. It encourages teachers and students to explore, research and use all the tools to uncover something new that will help student develop their creativity and their problem solving skill.	4.61	SA	4.5
Average Weighted Mean	**4.66**	**SA**	
Standard Deviation	**2.16**		

Table 2 presents the weighted mean and corresponding interpretation on innovation for teaching and development among the respondents.

As gleaned in the table, rank 1 is "Innovation for teaching and development empowers student to become lifelong learners who are agent of change", with weighted mean of 4.75 or Strongly Agree. This shows that creativity of teaching will assist student to learn more. Rank 2 is "It involves constant collaboration with student teaching and development based on their learning needs", with weighted mean of 4.70 or Strongly Agree. This shows that innovation of teaching is based on the need of student in their learning process. Rank 3 is "It explains the outdated thinking of how to design a school based learning that will lead to better performance relevant to student interest and career path, personalized to their aptitude and ability, and responsive to their culture and identity", with weighted mean of 4.62 or Strongly Agree. This shows that innovation of teaching has been designed on the curriculum based on the ability of students. The least in rank is shared by the two indicators which are "There is a direction in the classroom because students are driving the instruction of innovation and direction" and "It encourages teachers and students to explore, research and use all the tools to uncover something new that will help student develop their creativity and their problem solving skill", with weighted mean of 4.61 or Strongly Agree. This is the reason why innovation of teaching is being developed. The AWM=4.66 or Strongly Agree on innovation for teaching and development. It develops a continues competency in teaching that will be addressed in the educational system in the panorama of teaching innovation, Garzon, Martínez, Ortega, Marin & Gomez [12].

Table-3: Teaching strategy in development and learning

Indicator	WM	I	R
1. It highlights a student strength in particular area of development and learning.	4.68	SA	4
2. It provides a useful teaching strategy and communication about student development.	4.78	SA	1
3. It allows teaching strategy to clearly and concisely discuss the area in which student is able to demonstrate his or her ability and allows to make a plan and support on continues growth.	4.72	SA	2.5
4. It creates teaching strategy and development of learning among the learners in various domains of learning.	4.72	SA	2.5
5. It provides alternative learning process on the academic performance of students.	4.63	SA	5
Average Weighted Mean	4.71	SA	
Standard Deviation	2.17		

Table 3 presents the weighted mean and corresponding interpretation on teaching strategy in development and learning among the respondents.

As shown in the table, rank 1 is "It provides a useful teaching strategy and communication about student development", with weighted mean of 4.78 or Strongly Agree. This shows that students are given a chance to communicate on their development of learning as part of the strategy in teaching. Rank 2 is shared by the two indicators which are "It allows teaching strategy to clearly and concisely discuss the area in which student is able to demonstrate his or her ability and allows to make a plan and support on continues growth" and "It creates teaching strategy and development of learning among the learners in various domains of learning", with weighted mean of 4.72 or Strongly Agree. This shows that teaching strategy is based on the domains of learning which is important in the learning process of students. The various domains are designed to explore the knowledge of students and participate in various activities inside the classroom, Mallillin, [13]. Rank 3 is "It highlights a student strength in particular area of development and learning", with weighted

mean of 4.68 or Strongly Agree. This shows that teaching strategy highlights the learning and development of students. The least in rank is "It provides alternative learning process on the academic performance of students", with weighted mean of 4.63 or Strongly Agree. Teaching strategy will assist in the performance of students in their academics. The AWM=4.71 or Strongly Agree on the teaching strategy in development and learning. Teaching strategy is an evidence base of cooperative learning. It is structured to support the process of learning of students. It provides the effective learning of students in their academic performance, Abramczyk, & Jurkowski, [14].

Table-4: Learning competency of students

Indicator	WM	I	R
1. Learning competencies are combination of knowledge, skills, and attitudes that students develop and apply for successful learning, living, and working.	4.74	SA	1
2. Learning competencies emphasize aspect of learning that apply within and across all subject areas.	4.66	SA	2
3. It provides promotion of learning competency and development to streamline the expression of the competency of student.	4.64	SA	3.5
4. It provides students use and develops competency when they encounter unfamiliar or challenging situation.	4.59	SA	5
5. Competencies help students draw and build upon what they know, how they think and what they can do through subject-area content and learning experiences.	4.64	SA	3.5
Average Weighted Mean	4.65	SA	
Standard Deviation	2.16		

Table 4 presents the weighted mean and corresponding interpretation on learning competency of students among the respondents.

As observed in the table, rank 1 is "Learning competencies are combination of knowledge, skills, and attitudes that students develop and apply for successful learning, living, and working", with weighted mean of 4.74 or Strongly Agree. This shows that competency is a combination of various skills, attitude, and knowledge that will develop learning competency. Rank 2 is "Learning competencies emphasize aspect of learning that apply within and across all subject areas", with weighted mean of 4.66 or Strongly Agree. This shows that learning competency will be applied to all various subjects in the curriculum of the various educational institutions. Rank 3 is shared by the two indicators which are "It provides promotion of learning competency and development to streamline the expression of the competency of student" and "Competencies help students draw and build upon what they know, how they think and what they can do through subject-area content and learning experiences", with weighted mean of 4.64 or Strongly Agree. This shows that learning competency will promote a streamline and development of the performance of students on the various learning experiences and contents. The least in rank is "It provides students use and develops competency when they encounter unfamiliar or challenging situation", with weighted mean of 4.59 or Strongly Agree. This is the great challenge a teacher will experience in their teaching process. The AWM=4.65 or Strongly Agree on the learning competency of students. The learning competency influences the teachers in the integration of their professional skills in technology and belief that focuses on student learning process and enhancement, Mallillin, Carag, Mallillin, & Laurel, [15].

Work Plan and Timeliness:

Teaching innovation is very essential in various activities for student learning process. It contributes to the facilitation and strategy in the innovation and curriculum of the various educational institutions. It provides dilemma in the implementation of the generated knowledge to reflect in the teachers difficulties that hinders in the curriculum development innovation to facilitate the collaborative formative strategy for educational change. The work plan and timeliness is as follows:

1. Sustainable development of teaching

Make learning relevant by applying situation to their lives, take a deeper interest in the subject and become more engaged in their learning and make students learn empathy, compassion, and develop healthy relationship throughout their lives that will lead to passionate and engaged adults. It provides teachers curricula in all various subjects to encourage and collaborate the sustainable development issues, Sund, & Gericke [16].

2. Innovation for teaching and development

Provide innovation for teaching and development that will empower student to become lifelong learners who are agent of change. It transforms the resources efficiently on the educational system skills and enhances the learning and teaching innovation and capability, Supermane [17].

3. Teaching strategy in development and learning

Provides a useful teaching strategy and communication about student development. It provides classroom practices in development of learning that assist educators to address the individual variability, support resilience, and adversity in school to find positive pathway of learning of students, Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher [18].

4. Learning competency of students

Make learning competencies for combination of knowledge, skills, and attitudes that students develop and apply for successful learning, living, and working. It confirms the necessity of the implementation of the competency based of learning of students experience and content, Pool, Jaarsma, Driessen, & Govaerts [19].

Plans for Dissemination and Utilization:

1. Sustainable development of teaching

There must be global perspective where it grappled the idea of students and engaged in active problem solving where they can connect their learning to real-world

problems that can help to broaden student minds. It advocates the potential need of the sustainable development in education potential for various academic programs to enhance the attitude of student in their sustainable development, Nousheen, Zai, Waseem, & Khan [20].

2. Innovation for teaching and development

There must be a direction in the classroom because students are driving the instruction of innovation and direction and to encourage teachers and students to explore research and use all the tools to uncover something new that will help student develop their creativity and their problem solving skills. It imposes a sustainable development in complex system in cognitive challenge on student learning process and innovation. It uses the simulation to convey pedagogical tool in the innovation for teaching and development, Prado, Arce, Lopez, García, & Pearson [21].

3. Teaching strategy in development and learning

There must be an alternative teaching strategy in development and learning that provides alternative learning process on the academic performance of students. It provides open approaches to efficient learning for various educational institutions in the classroom setting justified by pedagogical consideration on the needs and potentials of the learners, teacher educators, potential constraints, strengths, and insecurities from content, Baur, & Emden [22].

4. Learning competency of students

There must be learning competency that provides students use and develops when they encounter unfamiliar or challenging situation. It provides framework for literacy assessment of student development and competency that constitutes the dimension as to action, critique, attitude, and knowledge, Chan, & Luo [23].

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