

Innovation Skills of Secondary Teachers: Trajectory for Technical Assistance

Ryan R. Pecson

Bataan Peninsula State University

Corresponding Author : Ryan R. Pecson rrpecson@bpsu.edu.ph

ARTICLE INFO

Keywords: Innovation Skills, Secondary Teachers, Technical Assistance

Received : 25 August

Revised : 25 September

Accepted: 26 October

©2025 Pecson: This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

Teachers must be highly competent in innovating the teaching and learning process to revolutionize education. The study examines the innovation skills of secondary teachers (ideation, improvisation, and implementation, the differences in their innovation skills, and the technical assistance provided to improve these skills. The study employs a descriptive survey design to assess the innovation skills of 100 randomly selected public secondary school teachers in junior high schools. A researcher-made survey questionnaire, reviewed by experts, has a reliability alpha value of 0.8443 and is used as the data-gathering tool. Descriptive statistics (mean and standard deviation) and inferential statistics (F-test/ANOVA) are used to analyze the data gathered. Results indicate that secondary teachers possess strong innovation skills ($M=3.39$; $SD=0.89$), particularly in the ideation stage. Still, there is a significant difference in their practices of the said skills ($p<0.05$), leading to the development of a technical assistance plan to support continuous innovation and collaboration among educators.

INTRODUCTION

Nowadays, the need for teachers to be adaptive, creative, and innovative has become more crucial than ever. Addressing the holistic needs of 21st-century learners (Pecson, 2014) and effectively utilizing tools to meet curriculum standards (Pecson, 2020) are critical responsibilities for teachers.

The curriculum's emphasis on developing learners' creative skills necessitates teachers to create educational innovations (Hatsanmuang & Sanrattana, 2023) and be knowledgeable about innovative instructional activities (Queroda, 2018). Innovation in education plays a vital role in improving access, quality, relevance, and management, ultimately leading to enhanced learning outcomes and environments, often through contextualization and indigenization (Llego, n.d.). With that, teachers should use creative and innovative methods to apply 21st-century skills in their respective classrooms (Magno et al., 2016).

Teachers' innovation skills can significantly improve instructional delivery, content, pedagogy, materials, and assessment. Moreover, the development of innovation projects can provide promotional incentives for teachers. With the onset of flexible learning delivery and constant curricular changes, Soderlund (2020) reiterated that teachers need to stay adaptive and up-to-date with the educational shift.

In this context, assessing the innovation skills of secondary teachers is of great importance. It contributes to the goals of Philippine education in cultivating learners' 21st-century skills, with creativity being one of the most essential skills to acquire. More so, it helps school heads or principals to perform their mandates to introduce innovative modes of instruction to achieve higher learning outcomes (Republic Act No. 9155), and the primary education sector is required to develop creative thinking among learners (Republic Act No. 10533). Consequently, this effort supports the fulfillment of Sustainable Development Goal (SDG) No. 4, which focuses on providing quality education.

With those insights, the present study analyzes the innovation skills of secondary teachers as a trajectory for developing a technical assistance plan. It specifically explores the following: the innovation skills of secondary teachers can be assessed in terms of ideation, improvisation, and implementation; the significant differences in the innovation skills of secondary teachers; and the provision of technical assistance for secondary teachers to facilitate continuous innovation.

LITERATURE REVIEW

Innovation Skills of Teachers

Innovation skills, which include creativity, critical thinking, and complex problem-solving abilities, are vital for devising and implementing practical solutions to real-world challenges (Eich, 2024). These skills enable individuals to generate novel ideas, analyze complex situations, and develop innovative solutions that address pressing issues. To foster these essential skills in the educational setting, supporting and empowering teachers is crucial.

To enhance teachers' innovation skills and meet learning demands, it is crucial to identify motivating factors and provide targeted support (Fatimah, 2019). In the Philippines, the Professional Standards for Teachers (PPST)

emphasize the importance of using strategies that promote creative thinking in Content Knowledge and Pedagogy (DepEd Order No. 42, s. 2017). By employing such strategies, teachers can inspire learners to develop new ideas and learning outputs, fostering a classroom culture of innovation and creativity. Additionally, providing ongoing professional development opportunities and encouraging collaboration among teachers can further enhance their innovation skills and improve student learning outcomes.

Innovation in Education

Innovation in education is a powerful driver for enhancing school efficiency and productivity, ensuring that students acquire the necessary skills and knowledge to meet current and future industry demands (Fuad et al., 2020). In today's rapidly changing world, it is essential for teachers to continually innovate and foster learning and innovation skills within their instructional practices (Paison et al., 2017). Teachers can empower students to become lifelong learners and effective contributors to society by fostering creativity, critical thinking, and complex problem-solving skills.

Understanding the benefits of using educational advancements is essential to ensure innovation in educational activities. Innovation plays a significant role in transforming learning environments, curricula, teacher roles, and teacher training (Findikoğlu & İlhan, 2016). Governments, educators, and researchers have recognized the importance of innovation in education and addressed the topic in policy briefings. They have also developed models for curriculum innovation and the integration of sustainability competencies (Lambrechts & Hindson, 2016). By embracing innovation and incorporating it into various aspects of education, teachers can create a more engaging, practical, and future-oriented learning experience for students.

The previous literature examined indicates that the innovation skills of creativity, critical thinking, and complex problem-solving are crucial to support teachers in responding to the complexities and demands of today's learning environment and today's learners. There is strong evidence that targeted support for teachers, in the form of collaborative and professional development opportunities, is important to help teachers develop skills that will facilitate innovative spaces for learning. National education standards and research from a global perspective are supportive of instructional practices that promote imaginative thinking and the inclusion of new practices in curriculum and teacher education. Revising education to increase the capacity for innovation in education is a systemic commitment to support teachers, ensuring classrooms are a new space to provide engaging and empowering educators and students to be adaptable, collaborative, and forward-thinking learners. Hence, there is a need to clearly examine how teachers in the local context cultivate their innovative skills to revolutionize the delivery of quality education aligned with national and global standards.

METHODOLOGY

The descriptive survey research design was employed to effectively describe the innovation skills of secondary teachers in terms of ideation, improvisation, and implementation. Technical assistance was provided by comparing the teachers' responses to these skills.

The study involved 100 public secondary school teachers in junior high schools, who were randomly selected using the fishbowl technique to participate in the survey. This randomization ensured a diverse and representative sample, allowing for more reliable and generalizable findings.

The study employed a researcher-made survey questionnaire with one section about assessing secondary teachers' innovation skills in terms of ideation, improvisation, and implementation. The *Ideation* part describes the ability of teachers to generate new and creative ideas to enhance teaching. The *Improvisation* part describes the ability of teachers to adapt and modify teaching methods to fit the needs of students and the situation. The *Implementation* part describes the teachers' ability to implement new ideas and methods and evaluate their effectiveness for continuous improvement. To ensure content validity, the instrument was reviewed by three experts from the Department of Education, consisting of two master teachers and a supervisor. A dry run with twenty teachers was conducted to establish reliability, resulting in a reliable alpha value of 0.8443. This value demonstrated good internal consistency, confirming the reliability of the survey questionnaire for use with the target respondents.

In gathering data, highest ethical standards were considered, including the seeking of informed consent, maintaining the anonymity of the respondents' identity, maintaining confidentiality of data gathered, and following the respondents' prescribed schedule and modality for the survey.

Descriptive and inferential statistics were applied to analyze the collected data. The assessment of secondary teachers' innovation skills, encompassing ideation, improvisation, and implementation, was analyzed using mean and standard deviation. Furthermore, to determine whether there was a significant difference in the innovation skills of secondary teachers, the F-test/ANOVA was employed.

RESEARCH RESULTS

Assessment of the Innovation Skills of Secondary Teachers

Table 1. Innovation Skills of Secondary Teachers

Items	Mean	Std. Deviation	Descriptive Equivalent
A. Ideation	3.86	0.49	Always
1. I think of creative and/or new ideas, processes, resources, and practices to improve instruction.	3.86	0.49	Always
2. I plan for better instruction based on the benchmark of ingenious ideas, processes, resources, and practices of	3.85	0.50	Always

other educators, practitioners, and institutions.			
3. I think of intervention or remediation based on the solicited feedback from learners and colleagues.	3.88	0.48	Always
B. Improvization	3.18	0.95	Often
1. I develop my own ways of improving the delivery of instruction aligned to the learners' needs and the situations they are in.	3.30	0.92	Always
2. I create learning resources out of the available materials, equipment, and tools in the community.	2.82	0.99	Often
3. I adopt different teaching styles, strategies, modalities, etc., and develop my own, if necessary, based on the learners' needs and classroom situations.	3.12	0.97	Often
C. Implementation	3.22	0.92	Often
1. I utilize and transform adopted and/or developed ideas, processes, and materials into meaningful teaching-learning experiences.	3.30	0.92	Always
2. I contextualize instruction based on learners' individual differences and prevailing local ideas, resources, and culture in the community.	3.15	0.97	Often
3. I evaluate the quality and effectiveness of the implementation of adopted and/or developed ideas, processes, and materials for continuous improvement.	3.20	0.86	Often
Composite	3.39	0.89	Always

Table 1 presents the results of the survey on the innovation skills of secondary teachers. The skills are categorized into Ideation, Improvization, and Implementation. The Ideation domain received the highest mean score (Mean=3.86; SD=0.49) rated as always, indicating that teachers always think of creative and new ideas to improve instruction. The Improvization domain (Mean=3.18; SD=0.95) is rated as often, indicating that teachers often develop their ways of improving instruction and adopt different teaching styles based on learners' needs and classroom situations. The Implementation domain (Mean=3.22; SD=0.92) is rated as often, indicating that teachers often utilize and transform adopted ideas into meaningful teaching-learning experiences and evaluate their effectiveness for continuous improvement. The composite score for all domains is 3.39, with a standard deviation of 0.89, indicating that teachers always exhibit innovation skills in their instructional practices. The results

suggest that secondary teachers have strong innovation skills, particularly in the Ideation domain.

Comparison of the Innovation Skills of Secondary Teachers

Table 2. Significant Difference in the Innovation Skills of Secondary Teachers

Variable	Mean	SD	F-value	p-value	Remarks	Decision
Ideation	3.86	0.49	24.29	0.00	Significant	Reject H ₀
Improvisation	3.08	0.97				
Implementation	3.22	0.92				

Table 2 presents the results of the Analysis of Variance (ANOVA) test conducted to determine if there is a significant difference in the innovation skills of secondary teachers in terms of ideation, improvisation, and implementation. The results show a significant difference in the innovation skills of secondary school teachers ($F=24.29$, $p<0.00$). The p-value of 0.00 is less than the significance level of 0.05, indicating that the null hypothesis (H₀) can be rejected. This means there is a significant difference in the innovation skills of secondary teachers based on the variable being tested. The Ideation skills (Mean=3.86; SD=0.49) of teachers are highest compared to their improvisation skills (Mean=3.08; SD=0.97) and implementation skills (Mean=3.22; SD=0.92).

Technical Assistance for Secondary Teachers for Continuous Innovation

Table 3. Proposed Technical Assistance for Secondary Teachers for Continuous Innovation

Phase	Activities	Persons Involved	Time Frame	Resources		Success Indicators
				Materials	Sources of Funds	
Planning	Conduct needs assessment, identify areas for improvement, develop technical assistance plan	School administrators, teachers, curriculum specialists	2 months	Meeting rooms, office supplies, assessment tools	School budget, grants	Completed needs assessment report, technical assistance plan
Implementation	Conduct training workshops, provide coaching and mentoring, monitor progress	Teachers, instructional coaches, curriculum specialists	6 months	Training materials, equipment, coaching and mentoring resources	School budget, grants	Improved innovation skills of teachers, increased student engagement and achievement
Evaluation	Conduct surveys, focus group	Teachers, school administrators	1 month	Survey tools, meeting	School budget, grants	Feedback report on the effectiveness of

	discussions, analyze data, provide feedback	, curriculum specialists		rooms, office supplies		technical assistance, recommenda- tions for improvement
--	--	-----------------------------	--	------------------------------	--	---

The study's output is a technical assistance plan designed to support secondary teachers in their continuous innovation of teaching practices. By providing technical assistance in a structured and planned manner, teachers are more likely to adopt new teaching strategies and techniques, improving student outcomes. The plan is divided into three phases: planning, implementation, and evaluation.

In the planning phase, a needs assessment is conducted to identify areas for improvement in teachers' innovation skills. School administrators, teachers, and curriculum specialists work together to develop a technical assistance plan that addresses these needs. The completion of a needs assessment report and a technical assistance plan is the success indicator for this phase.

During the implementation phase, training workshops are conducted, and teachers receive coaching and mentoring to enhance their innovation skills. Teachers, instructional coaches, and curriculum specialists work together to monitor progress and ensure that the technical assistance plan is implemented effectively. The success indicators for this phase are improved teacher innovation skills and increased student engagement and achievement.

In the evaluation phase, surveys and focus group discussions are conducted to gather feedback on the effectiveness of the technical assistance plan. Teachers, school administrators, and curriculum specialists collaborate to analyze the data and offer recommendations for improvement. The success indicator for this phase is a feedback report on the effectiveness of technical assistance and recommendations for improvement.

DISCUSSION

The survey results on the innovation skills of secondary teachers revealed that they exhibit strong skills in ideation, often thinking of creative and new ideas to improve instruction. Teachers also frequently develop ways to improve instruction and adopt different teaching styles based on learners' needs and classroom situations, indicating strong improvisation skills. In terms of implementation, teachers often utilize and adapt adopted ideas into meaningful teaching and learning experiences, evaluating their effectiveness to drive continuous improvement. Overall, secondary teachers consistently exhibit innovation skills in their instructional practices, with particular strength in ideation. This finding aligns with the literature that emphasizes the importance of innovation skills in education, particularly in addressing real-world challenges and fostering effective solutions (Eich, 2024), continuously improve instruction (Paison et al., 2017) and learning environments (Findikoğlu & İlhan, 2016).

Moreover, the data indicate a significant difference in the innovation skills of secondary school teachers. Specifically, the results show that teachers have significantly different ideation skills than their improvisation and implementation skills. Therefore, the null hypothesis can be rejected, indicating

a significant difference in the innovation skills of secondary teachers based on the variable being tested. This finding is consistent with the Professional Standards for Teachers (PPST) in the Philippines, which emphasizes the use of varied strategies that promote creative thinking and innovation in the classroom (DO No. 42, s. 2017) and 21st-century skills and essential life skills (DepEd Order No. 21, s. 2019; DepEd Order No. 10, s. 2024), as well as competency-relevant instruction (RA No. 10533), which should be idealized and implemented.

The study developed a technical assistance plan for secondary teachers to support continuous innovation in teaching. The plan consists of three phases: planning, implementation, and evaluation. A needs assessment is conducted in the planning phase, and a technical assistance plan is developed. In the implementation phase, training workshops are conducted, and coaching and mentoring are provided to teachers. In the evaluation phase, feedback is gathered on the effectiveness of the technical assistance plan. The success indicators for each phase include completing a needs assessment report and a technical assistance plan, improving teachers' innovation skills, and increasing student engagement and achievement. Resources for the plan include the school budget and grants. School administrators, teachers, and curriculum specialists are involved for improved collaboration. The proposal of the said output supports the literature that highlights the significance of innovation in education for enhancing school efficiency and productivity and ensuring that students acquire the necessary skills and knowledge to meet current and future industry demands (Fuad et al., 2020).

CONCLUSIONS AND RECOMMENDATIONS

The data reveal the following conclusions: (1) secondary teachers exhibit strong innovation skills, particularly in ideation, with the ability to think creatively and develop new ideas to improve instruction; (2) there is a significant difference in the innovation skills of secondary teachers, with ideation skills being significantly higher than improvisation and implementation skills; and (3) the study develops a technical assistance plan, consisting of planning, implementation, and evaluation phases, to support continuous innovation in teaching and improve collaboration among school administrators, teachers, and curriculum specialists.

Based on the mentioned conclusions, the following recommendations can be made: (1) continue to encourage and support the promotion of innovation skills among secondary teachers through professional development opportunities and recognition of innovative practices; (2) provide targeted training and support for improvisation and implementation skills to address the significant difference in these areas; and (3) implement the technical assistance plan to promote continuous innovation and collaboration among school administrators, teachers, and curriculum specialists through an extension project.

The study results have several implications for promoting quality education (SDG No. 4). Firstly, the strong ideation skills of secondary teachers can be leveraged to develop innovative teaching strategies and improve instruction.

Secondly, the significant difference in innovation skills highlights the need for targeted training and support for teachers to improve their improvisation and implementation skills. Lastly, the technical assistance plan can promote continuous innovation and collaboration among school administrators, teachers, and curriculum specialists, improving teaching practices and student outcomes.

ADVANCED RESEARCH

The study is limited to a specific number of respondents from a particular department (i.e., junior high school), where the data are presented generally, which may not capture specific innovation practices within each area of specialization. Moreover, the data gathered focuses solely on quantitative data, which may limit the holistic presentation of information, as mixed-methods research can do. Hence, the researcher recommends cascading similar research endeavors to a wider range of respondents and locales, and supplementing qualitative data or conducting mixed-methods research. Additionally, the developed plan may be further validated and implemented through an applied/basic research approach.

ACKNOWLEDGMENT

The researcher extends heartfelt appreciation to the public junior high school teachers who generously participated in the survey and to the expert-validators from the Department of Education for their invaluable contributions to this study.

REFERENCES

- DepEd Order No. 10, s. 2024. *Policy guidelines on the implementation of the Matatag Curriculum*. July 23, 2024. https://www.deped.gov.ph/wp-content/uploads/DO_s2024_010.pdf
- DepEd Order No. 21, s. 2019. *Policy guidelines on the K to 12 basic education program*. August 22, 2019. https://www.deped.gov.ph/wp-content/uploads/2019/08/DO_s2019_021.pdf
- DepEd Order No. 42, s. 2017. *National adoption and implementation of the Philippine professional standards for teachers*. https://www.deped.gov.ph/wp-content/uploads/2017/08/DO_s2017_042-1.pdf
- Eich, D. J. (2024). *Innovation skills for the future: Insights from research reports*. <https://www.innovationtraining.org/innovation-skills-for-the-future/>
- Fatimah. (2019). Teachers' capacity to make learning innovation based on 21st century skills in elementary schools. *Advances in Social Science, Education and Humanities Research*, 418, 118-122.
- Findikoğlu, F., & İlhan, D. (2016). Realization of a desired future: Innovation in education. *Universal Journal of Educational Research*, 4(11), 2574-2580.
- Fuad, D. R. S. M., Musa, K., & Yusof, H. (2020). Innovation in education. *Journal of Educational Research and Indigenous Studies*, 2(1).
- Hatsanmuang, N., & Sanrattana, W. (2023). Empowering teachers' learning to develop innovative skills for students. *World Journal of Education*, 13(2), 56-67. <https://files.eric.ed.gov/fulltext/EJ1392692.pdf>

- Lambrechts, W., & Hindson, J. (Eds.). (2016). *Research and innovation in education for sustainable development*. Environment and School Initiatives – ENSI. https://rcenetwork.org/portal/sites/default/files/public_resource/CoDeS_research-book_web.pdf
- Llego, M. A. (n.d.). *DepEd guidelines on conducting a project for innovation in school*. <https://www.teacherph.com/deped-project-for-innovation-in-school/>
- Magno, G. C., Bardemorilla, N. G., & Pecson, R. R. (2016). Student teachers and cooperating teachers' practices in the 21st century classroom: Developing 21st century skills among learners. *International Journal of Social Science and Humanities Research*, 4(3), 539-546.
- Paison, A., Chookhampaeng, C., & Jansang, A. (2015). Teachers' learning and innovation skills development: Challenge and changing based on professional learning community. *Asian Social Science*, 11(27), 115-119.
- Pecson, R. (2020, April 10). *Self-learning kit in improving the academic performance of senior high school students*. <https://ssrn.com/abstract=3572917> or <http://dx.doi.org/10.2139/ssrn.3572917>
- Pecson, R. R. (2014, June 1). *Localization and contextualization in teaching K-12 social studies*. <https://ryanramoletepecson.blogspot.com/2014/06/localization-and-contextualization-in.html>
- Queroda, P. G. (2018). Perceived knowledge and skills of teachers in innovative instructional activities. *Southeast Asian Journal of Science and Technology*, 3(1).
- Republic Act No. 10533: An act enhancing the Philippine basic education system by strengthening its curriculum and increasing the number of years for basic education, appropriating funds therefor and for other purposes*. <https://www.officialgazette.gov.ph/2013/05/15/republic-act-no-10533/>
- Republic Act No. 9155: An act instituting a framework of governance for basic education, establishing authority and accountability, renaming the Department of Education, Culture and Sports as the Department of Education, and for other purposes*. <https://www.officialgazette.gov.ph/2001/08/11/republic-act-no-9155/>
- Soderlund, A. (2020). *Implementing 21st century learning and innovation skills in classrooms*. Master's thesis, Northwestern College, Iowa. https://nwcommons.nwciowa.edu/cgi/viewcontent.cgi?article=1268&context=education_masters