



Perceived Differences in Course Learning Outcomes Between Science Interns and Cooperating Teachers

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Abstract

This study aims to examine the differences between science interns' perceptions of their course learning outcomes and their cooperating teachers' evaluations to better understand gaps in self-assessment and inform strategies for improving teacher preparation and mentoring practices. The data for this study were collected from 228 science interns and 219 cooperating teachers from selected universities and colleges in Region XI, Philippines, through face-to-face and online surveys via Google Forms. An adapted standardised questionnaire was used to assess specific course learning outcomes, including critical thinking, communication, career and teamwork, global understanding and citizenship, and academic development and educational success. A quantitative descriptive research design was employed, and purposive sampling was used to select the respondents. Subject matter experts reviewed the questionnaire to ensure content validity, and a pilot test confirmed its reliability (Cronbach's alpha = 0.856). Data were analysed using the weighted mean and the paired t-test. Results showed that both science interns ($M=4.52$, $SD=0.3$) and their cooperating teachers ($M=4.32$, $SD=0.43$) reported high levels of attainment for the assessed learning outcomes. The paired t-test indicated a statistically significant difference between the two groups' ratings ($t = 31.224$, $p = 0.00$), with cooperating teachers' evaluations slightly lower than interns' self-assessments. These findings suggest that while interns generally perceive themselves as performing well, cooperating teachers provide a more conservative perspective. Establishing clear and consistent evaluation criteria and providing targeted feedback can help align perceptions, enhance self-awareness, and support professional development of science interns.

Keywords: Course Learning Outcomes aAttainment, Internship, Education

Introduction

Preparing effective teachers goes beyond teaching content. It depends on how pre-service teachers are evaluated and guided. Research shows that mentors often give higher scores than university supervisors, leading to inconsistent assessments (Nel, 2025). Interns may struggle with self-efficacy, while cooperating teachers balance competing responsibilities, complicating

supervision (Plopino & Carbonell, 2025). Self-assessment can promote growth but may mislead without clear guidance (Kilic & Saglam, 2023).

Meanwhile, practitioner feedback, whether affirming, restrictive, or emotionally charged, shapes how interns view their own performance relative to their mentors' perspectives (Tubal et al., 2025). These challenges highlight a critical need for

structured, reflective, and aligned evaluation practices that effectively support the professional development of future teachers.

Student interest in a teaching career significantly influences learning outcomes and overall success (Arif et al., 2022). In addition, Dela Fuente (2021) highlighted that the success of pre-service teachers in professional examinations is important for both individuals and the institutions that grant their degrees, as it reflects the quality of education provided.

Critical thinking skills are essential for addressing the challenges of the 21st century, enabling individuals to effectively analyse evidence, make reasoned judgments, and understand interconnected systems, thus facilitating problem-solving and decision-making (Farillon, 2022).

Furthermore, the development of collaborative communication skills in academic settings enhances graduates' employability (Lewis, 2021; Rosselot-Merritt & Bloch, 2020; Blakeman & Taylor, 2019). Consequently, the findings of Hidayatulloh and Ashoumi (2022) indicated that both communication and collaboration skills independently and concurrently impacted students' readiness for work.

In education, careers entail teaching and collaborating with peers, administrators, and parents to foster an optimal learning environment. Teamwork involves coordinating a group of skilled individuals towards a shared goal, operational objective, and effective self-management (Ifechi et al., 2022); and it is the sum of the abilities of the individuals who make up the team (Lee, 2021). Meanwhile, well-defined career goals empower university students to self-regulate their learning and concentrate their efforts throughout their academic journey (Floris et al., 2023).

Moreover, Bernardo et al. (2022) revealed that Filipino students' positive attitudes toward global citizenship education are influenced by their environmental concerns, willingness to participate in related

activities, sense of connection with the world, willingness to address littering, and engagement in class leadership voting.

The final indicator, academic development and educational success, as described by Boholano et al. (2021) centres on learners' knowledge, understanding, and ability to succeed. With support and instructional guidance, successful learners can construct meaningful and coherent representations of knowledge over time (Lucas & Corpuz, 2020).

Additionally, learners' achievement across all disciplines is a significant focus in education, with motivation, as emphasised by Wang and Guan (2020), being a critical factor that can lead to various positive outcomes. Promoting social and emotional competencies, such as emotional management, goal attainment, empathy, relationship-building, and decision-making, is crucial for academic and life success (Mahoney et al., 2020).

This study is anchored in the Input–Environment–Output model proposed by Astin (1993), which emphasises the interdependence of student inputs, environment, and outputs. Student *inputs* include characteristics and backgrounds such as demographics and academic preparedness; the *environment* refers to academic programmes, extracurricular activities, and support services; and *outputs* include outcomes such as academic achievement, personal development, and career success. Examining the perceived differences in course learning outcomes attainment between science interns and their cooperating teachers provides insights into the alignment between pre-service teachers' self-assessments and mentor evaluations.

The study's primary aim is to determine the level of course learning outcomes attainment in terms of critical thinking, communication, career development and teamwork, global understanding and citizenship, and academic development and educational success among science interns and their cooperating teachers. Second, the study aims to determine whether

there is a significant difference in perceptions of course learning outcomes attainment between science interns and cooperating teachers. Third, the study hypothesises that there is no significant difference in course learning outcomes attainment between science interns and cooperating teachers.

Methodology

Respondents of the Study

The study's respondents were the BSED science interns of AY 2023-2024 from selected universities and colleges in Region XI, Philippines, and their corresponding cooperating teachers. Only 228 actively participating science interns out of the total population of 254, along with 219 cooperating teachers, were qualified to participate in the survey.

Based on Raosoft computation, the recommended sample size for the given population was 154; therefore, the 228 science interns and 219 cooperating teachers in this study were highly acceptable since they were more than the recommended sample size.

Furthermore, purposive sampling was used to identify the respondents from each selected higher education institution since the researcher purposely chose BSED science interns and corresponding science cooperating teachers for this study. Only those qualified and willing to participate in the survey were considered. Accordingly, this sampling technique was appropriate for this study, based on the ideas of Vijayamohan (2024) and Nikolopoulou (2022), that the sample was collected based on specific requirements that fit the study's objectives.

Materials/Instruments

Aligned with the quantitative research design, the researchers used a structured questionnaire for data collection. To determine the level of course learning outcomes attainment, as assessed by both science interns and cooperating teachers, the researchers used an adapted questionnaire from the work of Prentice and Robinson (2010), which consisted of 25 items grouped

into five learning outcomes factors, with five items assigned to each factor: critical thinking, communication, career and teamwork, global understanding and citizenship, and academic development and educational success.

Since the study was conducted in different contexts and involved different respondents, the validity and reliability of the questionnaire were carefully considered. The instrument underwent expert validation, and the validators' suggestions and recommendations were incorporated into the final version of the questionnaire. A pilot test was conducted with 30 randomly selected respondents from non-participating schools to assess the instrument's internal consistency. The computed Cronbach's alpha coefficient was 0.856, indicating good reliability according to Zakariya (2022).

For data analysis, the weighted mean was used to determine the level of attainment of the course learning outcomes as perceived by the respondents. At the same time, an independent-samples t-test was used to examine significant differences in perceptions between science interns and their cooperating teachers. The following scale was used to interpret the results: 1.00–1.79 (very low), 1.80–2.59 (low), 2.60–3.39 (moderate), 3.40–4.19 (high), and 4.20–5.00 (very high).

Design and Procedure

The study employed a quantitative descriptive research design. As Creswell (2014) describes, this design aims to provide a numerical description of trends, attitudes, or opinions within a population by studying a sample. This approach is appropriate since it is commonly used in survey research to collect data that can be statistically analysed to identify patterns and generalisations.

After securing permission and approval for the study, the data were gathered through a validated survey questionnaire administered via both face-to-face and online platforms. Then, the researcher ensured that respondents were fully aware of the study's

purpose and their role as part of the ethical procedures.

The researcher reached out to the respondents through social media and then verified their email addresses using data generated from the Google Forms. Meanwhile, printed copies were distributed to those who responded face-to-face, including cooperating teachers.

The protection of respondents' privacy and security, including their identity and confidential information, was ensured by strictly following the guidelines of R.A. 10173, also known as the Data Privacy Act of 2012. Furthermore, all data collected were used solely for research purposes. Subsequently, the dataset underwent thorough cleaning, organisation, and preparation for a series of statistical analyses.

The weighted mean was utilised to determine the level of course learning outcomes attainment of science interns and their corresponding cooperating teachers. T-test was used to compare the means of pre-service science teachers and cooperating teachers' course learning outcomes and to determine whether there was a significant

difference between the two groups.

Results and Discussion

Level of Students' Course Learning Outcomes Attainment as Perceived by Science Interns and Cooperating Teachers

Table 1 presents the level of course learning outcomes attainment as perceived by BSED science interns and their cooperating teachers in terms of critical thinking, communication, career and teamwork, global understanding and citizenship, and academic development and educational success.

The overall mean of 4.42 is described as very high. This means that these outcomes are consistently demonstrated by the interns.

The similar perceptions of the two groups suggest strong alignment in how students' performance is viewed, indicating self-awareness among pre-service teachers and validation from their cooperating teachers.

Furthermore, the overall standard deviation is 0.39, showing that participants had generally similar and positive responses.

Table 1 Level of Students' Course Learning Outcomes Attainment as perceived by Pre-service Science Teachers and Cooperating Teachers.

Course Learning Outcomes	Science Interns		Cooperating Teachers		Total		Descriptive Level
	Mean	SD	Mean	SD	Mean	SD	
Critical Thinking	4.48	0.53	4.23	0.55	4.36	0.55	Very High
Communication	4.51	0.50	4.34	0.52	4.43	0.52	Very High
Career and Teamwork	4.44	0.55	4.35	0.50	4.40	0.53	Very High
Global Understanding and Citizenship	4.55	0.48	4.33	0.51	4.44	0.51	Very High
Academic Development and	4.60	0.42	4.35	0.49	4.48	0.47	Very High

Educational Success							
Overall	4.52	0.31	4.32	0.43	4.42	0.39	Very High

As found, academic development and educational success have the highest mean value of 4.48, which indicates that attainment in this domain is consistently evident.

It implies that science interns are able to see the connections between their academic learning in college and real-life experiences, set specific professional development goals, regularly reflect on their teaching practices to identify areas for personal and professional growth, and are determined to apply for teaching positions driven by their passion for delivering quality science education to diverse learners.

The result accords with the study of Magulod (2019) that students' academic performance reflects their learning experiences, considering both intellectual and non-intellectual factors, including learning style preferences, which contribute to more effective learning experiences.

On the other hand, critical thinking has the lowest mean of 4.36 among the course learning outcomes, yet it remains categorised as very high. This indicates that course learning outcomes attainment in terms of critical thinking is consistently evident.

This implies that science interns are able to employ critical thinking to analyse complex scientific concepts and theories in depth and apply logical reasoning and problem-solving strategies effectively when faced with scientific challenges.

The findings align with Farillon (2022), who emphasises that strong critical thinking skills are essential for addressing the challenges of the 21st century. These skills enable individuals to analyse evidence effectively, make reasoned judgments, and understand interconnected systems, thereby facilitating problem-solving, decision-making, creativity, and curiosity, and are pivotal for academic, career, and lifelong achievements.

Significant Difference in the Level of Students' Course Learning Outcomes Attainment as Perceived by Cooperating Teachers and Practice Science Teachers

Table 2 presents the significant difference in the level of course learning outcomes attainment as perceived by cooperating teachers and practice science teachers.

Table 2 Significant Difference in the Level of Course Learning Outcomes Attainment Perceived by Science Interns and Cooperating Teachers.

Students' Course Learning Outcomes	<i>t</i>	<i>p</i>	Decision for H_0	Interpretation
Critical Thinking	23.123***	.000	Rejected	Significant
Communication	13.828***	.000	Rejected	Significant
Career and Teamwork	3.320 ^{NS}	.069	Failed to reject	Not Significant

Global Understanding and Citizenship	20.780***	.000	Rejected	Significant
Academic Development and Educational Success	34.798***	.000	Rejected	Significant
Overall	31.224***	.000	Rejected	Significant

It is reflected that the overall *t*-value of 31.224 and *p*-value of .000 indicates that there is a significant difference in the overall ratings of course learning outcomes attainment.

This difference highlights a trend where cooperating teachers rated pre-service science teachers positively, but generally more conservatively than the pre-service science teachers rated themselves.

This implies that cooperating teachers hold slightly different standards or criteria for evaluating these competencies. The result affirms the ideas of Tubal et al. (2025) that practitioner feedback, whether affirming, restrictive, or emotionally charged, shapes how interns view their own performance relative to mentors' perspectives.

The notable evaluation disparities between cooperating teachers and science interns can be ascribed to variations in expectations, evaluation standards, and experiences. Furthermore, the result agrees with the point of Duignan (2024) that this may be attributed to the Dunning-Kruger effect, where new or less experienced teachers may overestimate their classroom management or teaching skills.

Conclusion

Based on the study's findings, it can be concluded that the attainment of course learning outcomes, as perceived by science interns and cooperating teachers, was very high across all domains, including critical thinking, communication, career and teamwork, global understanding and citizenship, and academic development and

educational success. A significant difference was found between the perceptions of interns and cooperating teachers, indicating variations in self-assessment and evaluation standards. This underscores the importance of clear communication, consistent evaluation criteria, and structured feedback to align perceptions and support professional growth.

The findings also align with Astin's Input-Environment-Output Model, demonstrating how the internship environment, mentorship, and practical experiences influence the development of course learning outcomes, particularly in areas such as critical thinking, which benefit from enhanced environmental support.

Recommendations

Although overall course learning outcomes attainment was very high, critical thinking emerged as a relative area of weakness. To strengthen science interns' critical thinking skills, teacher education programmes should integrate inquiry-based learning, problem-solving tasks, and reflective teaching activities throughout the internship.

Cooperating teachers should model higher-order questioning, encourage open-ended discussions, and provide constructive feedback on reasoning and evidence-based thinking. Incorporating critical thinking rubrics into lesson planning and post-teaching reflections can further support consistent skill development.

Additionally, structured feedback mechanisms should be implemented to foster

open dialogue regarding learning outcomes and evaluation criteria, ensuring alignment between interns' self-assessments and cooperating teachers' evaluations, and promoting professional growth.

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