Demonstration of a mixed-methods illuminative evaluation: the case of a sports and exercise academic program

Demostración de una evaluación iluminativa de métodos mixtos: el caso de un programa académico de deportes y ejercicio

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How to cite in APA

Nozaleda, B., Arao, H. F., Dayag-Tungpalan, M., Saquing, J., Ramos, C., & Casauay, D. (2025). Demonstration of a mixed-methods illuminative evaluation: the case of a sports and exercise academic program. *Retos*, *67*, 244–256. https://doi.org/10.47197/retos.v67.110124

Abstract

Introduction: In sports and exercise science education, ensuring that curricular components translate into practical skills is particularly critical. Higher education programs often struggle to align their instructional design with the actual learning experiences of students.
Objective: This study aimed to evaluate the alignment between the instructional system (intended program design) and the learning milieu (implemented experiences) of a sports and exercise science academic program, demonstrating an innovative mixed-methods illuminative evaluation framework.
Methodology: A three-phase sequential mixed-methods design was employed. Qualitative interviews with stakeholders were first conducted to identify key program components and themes. A survey instrument was developed based on these qualitative insights and underwent content validation. Finally, the validated survey was administered to current students and alumni, and the data were analyzed using Importance–Performance Analysis.
Results: The evaluation found that in-class program elements – including teacher preparation, learning activities, and learning environment – were regarded as highly important and were delivered effectively, indicating strong alignment between the program's design and student experiences. In contrast, the on-the-job training component showed lower perceived importance and weaker performance.
Discussion: These findings mirrored prior research in showing that well-prepared instructors and supportive learning environments enhance student engagement and learning outcomes. The results underscored the persistent challenge of bridging theoretical instruction with practical application in higher education.
Conclusions: The study provided actionable recommendations to strengthen the OJT segment of the curriculum and introduced a novel mixed-methods evaluation model. This integrated approach offered alternative assessment of the program and can serve as a blueprint for future evaluations.

Keywords

Illuminative evaluation; mixed-methods research; importance-performance analysis; sports and exercise; evaluation.

Resumen

Introducción: En la educación en ciencias del deporte y el ejercicio, garantizar que los componentes curriculares se traduzcan en habilidades prácticas es particularmente crítico. Los programas de educación superior a menudo tienen dificultades para alinear su diseño instruccional con las experiencias reales de aprendizaje de los estudiantes.
Objetivo: Este estudio tuvo como propósito evaluar la alineación entre el sistema instruccional (diseño programático previsto) y el entorno de aprendizaje (experiencias implementadas) de un programa académico en ciencias del deporte y el ejercicio, demostrando un marco innovador de evaluación iluminativa con enfoque mixto.
Metodología: Se empleó un diseño secuencial de métodos mixtos en tres fases. Primero, se realizaron entrevistas cualitativas con las partes interesadas para identificar los componentes clave del programa y sus temas principales. Posteriormente, se desarrolló un instrumento de encuesta basado en estos hallazgos cualitativos, el cual fue sometido a validación de contenido. Finalmente, la encuesta validada se administró a estudiantes actuales y egresados, y los datos fueron analizados mediante el Análisis de Importancia-Desempeño.
Resultados: La evaluación reveló que los elementos del programa dentro del aula – incluyendo la preparación docente, las actividades de aprendizaje y el entorno de aprendizaje – fueron considerados de gran importancia y se implementaron de manera efectiva, lo que indica una fuerte alineación entre el diseño del programa y las experiencias de los estudiantes. En contraste, el componente de prácticas profesionales mostró una menor percepción de importancia y un desempeño más débil.
Discusión: Estos hallazgos coinciden con investigaciones previas que indican que los docentes bien preparados y los entornos de aprendizaje de apoyo favorecen el compromiso estudiantil y los resultados de aprendizaje. Los resultados resaltan el desafío persistente de vincular la instrucción teórica con la aplicación práctica en la educación superior.
Conclusiones: El estudio proporcionó recomendaciones concretas para fortalecer el segmento de prácticas profesionales dentro del currículo e introdujo un modelo novedoso de evaluación con métodos mixtos. Este enfoque integrado ofreció una alternativa de evaluación del programa y puede servir como modelo para futuras evaluaciones.

Palabras clave

Evaluación iluminativa; investigación de métodos mixtos; análisis de importancia-desempeño; deporte y ejercicio; evaluación.

Introduction

One challenge among higher education institutions nowadays is the effective transformation of their graduates as human resources. Many tracer studies have shown that a significant percentage of graduates are employed in jobs that do not align with their academic degrees (Rogan & Reynolds, 2016; Helyer, 2011). This misalignment raises concerns about whether higher education institutions are adequately preparing their students for the industry (Behle, 2020; Chan,2016). One contributing factor to this phenomenon is the gap between the desired instructional outcomes and the actual learning experiences provided by universities (Resch & Schrittesser, 2023; Herbert et al., 2020).

In few state universities in the Philippines, one of the programs offered is the Bachelor of Science in Exercise and Sports Science (BSESS). The BSESS program aims to equip students with the knowledge and skills necessary for careers in sports science, fitness, and physical education (Nozaleda & Mabborang, 2023; Florentino, 2023). Despite its comprehensive curriculum, several issues have been identified within the program. For instance, many graduates are found working in fields unrelated to their degree (Sales-Velasco, 2021; Kuehn & Hecker, 2018), and a number of currently enrolled students are pursuing additional education units to become teachers. This raises questions about the students' awareness and understanding of the program they enrolled in and whether the program effectively meets their career aspirations and industry needs.

Furthermore, the Bachelor of Physical Education with a Major in Sports and Wellness Management is the parent degree of the BSESS program. Despite considerable curricular modifications during the course of the more than six years since the transition, the program has not undergone major changes. There has never been a thorough, formal evaluation of the program conducted. For instance, the following questions don't have any systematic or clear information in response: What kinds of learning and teaching activities are often carried out by teachers and students in order for the students to eventually meet the learning outcomes? Which program aspects make learning easier for students and which ones make things harder? Which parts provide challenges, and which ones help reach the learning outcomes? What steps may be taken to lessen potential problems and, if needed, enhance the program? Addressing these questions is critical to ensuring that the program aligns with the professional demands of the industry and enhances graduate employability.

This study proposes that the disconnect between the instructional system (ideal program design) and the learning milieu (students' actual learning experiences) may be a key factor underlying the employment problem. When the instructional system fails to align with the learning milieu, students may not acquire the competencies or readiness needed for their desired careers. By systematically examining this alignment, the study seeks to provide actionable insights for improving program outcomes and addressing the employment challenges faced by graduates. Such is emphasized in the study of Gutiérrez-Conejo et.al (2021) and Vergara Tapia et.al (2022). To achieve this, this paper proposes a novel mixed-methods framework grounded in illuminative evaluation, originally conceptualized by Parlett and Hamilton (1972). Illuminative evaluation emphasizes a holistic understanding of educational programs by examining the interplay between the instructional system (the ideal design) and the learning milieu (actual implementation and experiences). This methodological approach offers a descriptive, context-sensitive lens that is particularly suited to analyzing the nuanced dynamics of academic programs in diverse educational settings. It is a qualitative approach that provides an understanding of educational programs by examining the interaction between the instructional system and the learning milieu (Gunio, 2021).

The central contribution of this paper lies in the methodological innovation of integrating illuminative evaluation with importance-performance analysis (IPA) to assess the congruency between program components and the actual performance of the program. This proposed framework operationalizes congruency as the alignment between the perceived importance of program components (reflecting the instructional system) and their actual performance (reflecting the learning milieu).

Firstly, the instructional system can be identified through qualitative research methods like interviews. These interviews can provide in-depth insights into the instructional strategies, materials, and approaches used by educators, as well as the experiences and perceptions of the students. By systematically analyzing the interview data, patterns and themes can emerge that highlight the key components of the instructional system and can be transformed to survey items. Once validated, the instrument can

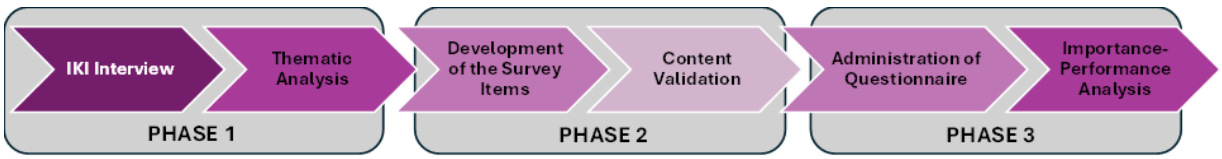
be analyzed using Importance-Performance Analysis (IPA). In IPA, importance defines the instructional system, while performance defines the learning milieu. The development of the IPA Matrix involves plotting the importance of various instructional components against their performance levels. This matrix can reveal areas where the instructional system is effectively supporting the learning milieu and areas where improvements are needed (Angelito & Binasoy, 2023; Martilla & James, 1977). The IPA Matrix provides a visual representation of the congruency between the instructional system and the learning milieu. For example, components that are deemed highly important but are underperforming highlight discrepancies that need to be addressed to enhance the overall educational experience. Conversely, components that perform well but are considered less important might indicate areas where resources could be reallocated more effectively.

In conclusion, by combining qualitative insights with quantitative validation and analysis, the mixed-method framework not only illuminates the complex interplay between instructional systems and learning milieus but also provides actionable insights for stakeholders. As this paper attempts to introduce a novel approach of illuminative evaluation, a discussion of the research protocol is highlighted including the instrumentation and the integration of quantitative and qualitative findings. A demonstration of the Importance-Performance Analysis framework is also highlighted in this study

Method

In this study, a mixed-method approach was employed, grounded in the principles of illuminative evaluation. This evaluation model examines the interactions between instructional systems and learning environments. The methodology aimed to provide an in-depth evaluation of the Bachelor of Science in Exercise and Sports Science (BSESS) program by investigating the congruency between program components and learning outcomes. To accomplish this, we applied sequential exploratory research design, integrating both qualitative insights and quantitative validation through Importance-Performance Analysis (IPA). This structure allowed us to leverage qualitative data to inform the development of a quantitative instrument, which then provided a broader assessment of program performance. Figure 1 below presents the methodology flow, illustrating the structured sequence and interconnected phases that guided the study.

Figure 1. Process Flow of the Mixed Method Framework.



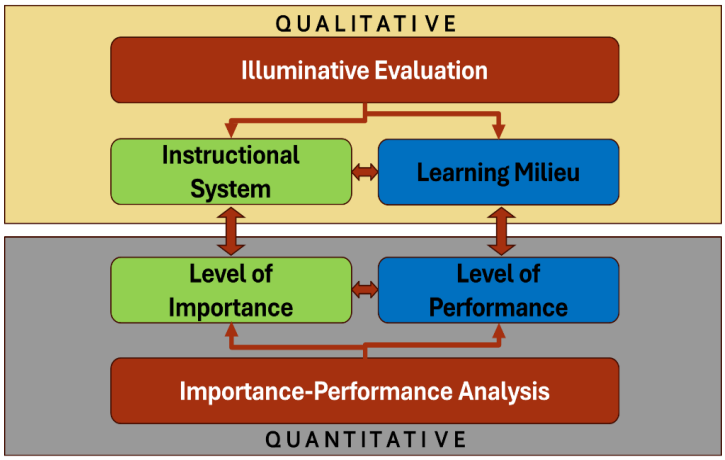
Research Design

This study utilized a mixed-method research design in the illuminative evaluation of the Bachelor of Science in Exercise and Sports Science (BSESS) program. Particularly, it employed sequential exploratory research design. In illuminative evaluation, the primary goal is to examine the congruency of the instructional system to the learning milieu. The said evaluation model was originally designed for qualitative data collection methods. However, this study attempted to apply a mixed-method framework to achieve the goal of illuminative evaluation shown in Figure 2.

The said framework represents a mixed-methods research design that integrates qualitative and quantitative approaches to evaluate an educational program. The framework is structured into two main components: Illuminative Evaluation and Importance-Performance Analysis. The illuminative evaluation provides an information of the instructional system, and those insights inform the development of the quantitative measures used in the Importance-Performance Analysis. It is argued that the level of importance of the defined factors of the BSESS program can speak of the instructional system while the

level of performance of the same factors is reflecting the learning milieu. Through importance-performance analysis, the congruency between the instructional system and the learning milieu can be determined.

Figure 2. Mixed Methods Framework of the Study



Essentially, there were three phases of this study. The first is the qualitative phase. The researcher gathered data through individual interviews of key informants. The ultimate goal of the interview was to derive a description of the instructional system of the Bachelor of Science in Exercise and Sports Science program. The second phase if the development of the survey instrument. Through content analysis, meaningful units are extracted from the interviews of the key informants and grouped according to themes. The meaningful units served as the statements for the scale of the instructional system. Lastly, the third phase of this study was the formal administration of the questionnaire to the respondents. The questionnaire was modeled using importance-performance analysis.

Locale and Participants of the Study

This study was conducted at a state university in the Philippines. For the first phase, six key informants were selected for the in-depth individual interviews. It should be noted that the key informants are selected based on the following inclusion criteria: Had experience either as a teacher or student; Had experience of working or studying at a university or industry offering a similar program; and actively engaged in sports and exercise. The table below shows the contextual background of the key informants:

Table 1. Profile of the Key Informants.

IKI	Profile
Key Informant 1 (KI1)	○ BSESS professor ○ Graduate of a private university in NCR. ○ Currently on a study leave for a PhD in Sports Nutrition
Key Informant 2 (KI2)	○ Program chair of the BSESS program ○ Graduate of a master's degree in a private university.
Key Informant 3 (KI3)	○ Student of the BSESS program from SY 2022-2023 but decided to shift to another program. ○ Chose BSESS as priority course.
Key Informant 4 (KI4)	○ Graduate of the BPE program ○ Owner of a fitness center. ○ Mentors OJT students
Key Informant 5 (KI5)	○ PE teacher abroad ○ Graduate of the BPE-SWM program
Key Informant 6 (KI6)	○ Relatively new teacher of the BSESS program ○ Graduate of a private university in NCR.

Lastly, the respondents for the survey component were selected from among current students and alumni of the Bachelor of Science in Exercise and Sports Science (BSESS) program at the university. The sampling frame included all students currently enrolled in the program and alumni who graduated within the past three years to ensure that the sample reflected both recent and ongoing perspectives.

Convenience sampling was employed due to logistical constraints, such as limited accessibility to a comprehensive list of alumni and the need for voluntary participation. To mitigate potential biases associated with convenience sampling, efforts were made to reach a diverse group of participants by disseminating the survey through multiple channels, including university mailing lists, alumni networks, and official social media platforms. Ultimately, 210 respondents completed the survey, comprising approximately 30% of the target population. While we recognize that convenience sampling may limit generalizability, the sample size and demographic diversity provide valuable insights into the perceptions of the BSESS program's instructional system.

This study serves as a proposed mixed-method approach for illuminative evaluation, and future studies could build upon this methodology by employing probability sampling techniques or ensuring a larger, more representative sample to enhance generalizability. This would further strengthen the quantitative component of the mixed-method framework and its application in academic program evaluations.

Instrumentation

The first phase of this study utilized interview schedule. It contains 8 questions that generally aims at creating an image of an ideal instructional system. The first question orients the key informants of the intended learning outcomes of the program. This is done in order to direct the key informants to a shared concept of the program.

As previously mentioned, the responses from the interviews were transcribed and the meaningful units were identified to form the statements in the survey questionnaire. Some of those responses and their corresponding survey items is shown in a joint display in table 2. The final instrument is a two-dimensional questionnaire that aims to elicit the perception of the respondents on the level of importance and performance of the instructional system. The statements are rated using a 5-point Likert scale with 1 as the lowest rating and 5 as the highest rating.

Table 2. Joint display of interview responses and survey items.

Interview Responses	Survey Items
"…the major subjects should require students do their own research in the field."	The program includes opportunities for research and independent study in sports and exercise sciences.
"Lessons must be taught using a collaborative teaching strategy."	My teachers employ collaborative learning inside the classroom.
"…kulang yung equipment natin sa gym. Kasi dapat [ka]pag major yung subject, need ng laboratory…"	The fitness gym is equipped with enough and functional equipment.
"Classrooms, number one. Siyempre basic yun."	The school has enough learning spaces for learners, such as classrooms.
"The teachers must have some sort of a specialization in sports and exercise."	My teachers have specializations, such as exercise physiology, sports management, and nutrition.

The validity of the instrument was evaluated using item-level content validity index (I-CVI). Three experts of the program were invited to rate the instrument. Prior to the calculation of the I-CVI, the ratings were recoded as 1 (scale of 3 or 4) or 0 (scale of 1 or 2). The experts in agreement were calculated by just getting the sum of the ratings provided by all experts for each item, for example, the experts in agreement for the first item (1 + 1 + 1) = 3. Meanwhile, the I-CVI was calculated by dividing the number of experts in agreement to the number of experts, for example, the I-CVI of first item is 3 divided by 3 experts that is equal to 1. It should be noted that for three to five experts, the acceptable cut-off score of I-CVI is 1 (Polit & Beck, 2006; Polit et al.,2007). The results of the I-CVI that showed that all items are relevant to the construct intended to be measured. Furthermore, the instrument has a Cronbach's alpha value of 0.83 which suggests high internal consistency.

Data Analysis

In the first phase of the study, single layer thematic analysis was used. It involved three phases. The first phase is becoming familiar with the data. The second phase is extracting the meaningful units. The third phase involves thematizing the meaningful units. Although, it must be noted that there are already predetermined themes based on the interview questions. However, some answers from the respondents to a question may be classified under another theme.

In the third phase of the study, descriptive statistics, including means, were calculated to summarize the demographic information, level of importance and performance of the instructional system. Furthermore, the importance-performance analysis (IPA) matrix was created by plotting the mean importance scores against the mean performance scores for each item in the questionnaire. The matrix was divided into four quadrants: (1) High Importance – Low Performance, (2) High Importance – High Performance, (3) Low Importance – Low Performance, and (4) Low Importance – High Performance. The level of importance and level of performance was compared using Wilconxon signed ranks test. This is done to determine if the level of importance is congruent to the level of performance. Furthermore, the results of the IPA were used to identify areas of improvement and to provide recommendations for the program.

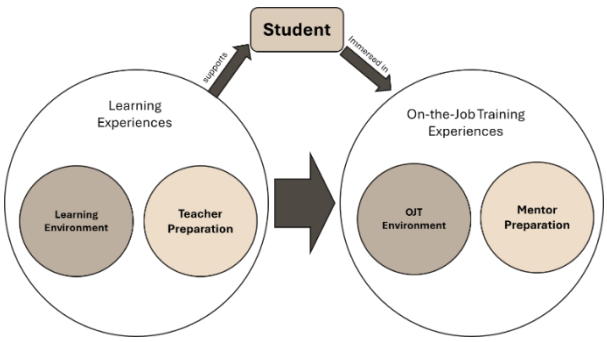
Results

The Instructional System

The evaluation of the Bachelor of Science in Sports Science and Exercise program through interviews with six stakeholders, including faculty members, alumni, and industry partners, yielded valuable insights into the ideal instructional system for the program. From the analysis of the interviews, the instructional system (Figure 3) was visualized into two main dimensions: in-school experiences and on-the-job training (OJT) experiences. Each dimension encompasses critical components related to the learning environment and the preparation of educators and mentors.

Firstly, the in-school experiences are integral to shaping the foundational knowledge and skills of the students. These experiences are divided into three primary elements: the learning environment, learning experiences, and teacher preparation. The learning environment within the program plays a pivotal role in the educational journey of the students. From the responses during the interview, it encompasses the physical infrastructure, access to resources, and the overall atmosphere conducive to learning. One faculty member noted, "For the program to really work, a well-equipped learning environment with access to modern facilities and resources is very important... it provides students with hands-on experiences and practical knowledge..."[KI1]. Meanwhile, teacher preparation is another critical element within the in-school experiences. One interview participant said that “The quality of education is significantly influenced by the competency and preparedness of the faculty” [KI6]. Furthermore, one alumnus shared, "Mga teachers na well-prepared and updated sa latest trends and knowledge in sports science kasi marami na pong bago ngayon sa industry"[KI4]. Lastly, the learning experiences of the students are a vital component that bridges theoretical knowledge with practical application. These experiences include activities such as laboratory work, practical demonstrations, and interactive sessions that translate theories into practice. One participant has this to say, “Lessons must be taught using a collaborative teaching strategy. [KI3]".

Figure 3. Graphic Illustration of the Instructional System of the BSESS Program.



Moving on, it is apparent from the responses of the key informants that the off-school experiences (OJT) are very essential in the program. They agreed that OJT experiences bridge the gap between theoretical knowledge and practical application. Similar with the in-school experiences, the off-school experiences are divided into the OJT environment, mentor preparation, and OJT learning experiences.

Specifically, the environment in which students undertake their OJT is crucial for the practical application of their skills. One key informant mentioned, "Noong ako nag OJT, we were deployed in rehabilitation centers at hindi lang isa, nadeploy din kami sa ibang mga lugar na relevant sa field namin."[KI6]. A faculty member mentioned, “We should be partners, the mentors. Our competencies should match.” [KI2]. This is reinforced when one said, “Dito sa Thailand, nagtra-training kami ulit para pag may mga students kami, updated kami…”[KI5]. Lastly, the learning experiences during OJT are vital for validating and enhancing the knowledge gained in the classroom. These experiences provide students with the opportunity to apply theoretical concepts in practical settings, thereby reinforcing their learning. One industry partner remarked, "The hands-on experience during my OJT was invaluable. It allowed me to see how the theories I learned in school applied in real-life situations"[KI4].

In summary, the ideal instructional system for the Bachelor of Science in Sports Science and Exercise program, as derived from the interviews, emphasizes the importance of both in-school and OJT experiences. Within the school, a conducive learning environment, well-prepared teachers, and enriching learning experiences are crucial. In the OJT context, a supportive environment, skilled mentors, and practical learning experiences are key. The integration of these elements can lead to a holistic educational experience that effectively prepares students for their future careers in sports science and exercise.

Level of Importance and Performance of the Instructional System

One of the objectives of this study is to determine the level of importance and performance of the instructional system reduced to items in a survey. The evaluation of the learning experiences within the Bachelor of Science in Sports Science and Exercise program is showed in the succeeding tables. The data revealed that students and alumni placed high importance on opportunities for research and independent study, as well as the availability of sports courts within the school premises. These elements received mean importance scores of 4.35 and 4.38, respectively, indicating their critical role in the students' educational journey. Despite the high importance placed on these elements, the performance scores were slightly lower, suggesting a gap between expectations and delivery. For instance, while the availability of sports courts was rated highly in performance (Mean Performance = 4.38, SD = 0.85), opportunities for research and independent study had a marginally lower performance score (Mean Performance = 4.29, SD = 0.91). Conversely, the bottom two indicators in terms of importance were the presence of visiting professors and the use of performance-based assessments, with importance scores of 4.24 and 4.25, respectively. Interestingly, the performance scores for these indicators were relatively close to their importance scores, indicating a moderate alignment between expectations and actual experiences. This pattern suggests that while these elements are not viewed as highly critical, the program performs adequately in these areas.

Moreover, in terms of the respondents’ assessment of the learning environment, the highest-rated items in terms of importance were the presence of a fitness gym or center inside the school (Mean Importance = 4.45, SD = 0.91) and the availability of sports courts (Mean Importance = 4.38, SD = 0.89). These elements also received high performance ratings, with sports courts scoring 4.38 (SD = 0.85) and fitness gyms scoring 4.28 (SD = 0.92). This alignment suggests that the program successfully meets the expectations of students in these areas. In fact, one faculty member stated, "The availability of sports facilities is a cornerstone of our program, providing students with the necessary tools to excel"[KI2]. However, the indicators related to the fitness gym's equipment and the laboratories' measurement devices had lower importance scores (4.14 and 4.20, respectively) and correspondingly lower performance scores (4.26 and 4.23, respectively). This discrepancy highlights an area for potential improvement. As one student mentioned, “…kulang yung equipment natin sa gym. Kasi dapat [ka]pag major yung subject, need ng laboratory…”. This feedback suggests that while the basic facilities are in place, ongoing investment is needed to maintain and enhance these resources.

Lastly, for in-school experiences, teacher preparation emerged as a critical component of the instructional system, with high importance placed on teachers being updated with current trends in sports and exercise (Mean Importance = 4.37, SD = 0.98) and demonstrating a commitment to teaching (Mean Importance = 4.40, SD = 0.90). These indicators also received strong performance scores. On the other hand, indicators such as teachers being members of certifying bodies like CSCS (Certified Strength and Conditioning Specialist) and possessing mastery of the subject matter received lower importance scores (4.22 and 4.24, respectively) but had relatively high performance scores (4.29 and 4.34, respectively).

This indicates that while these attributes are highly regarded by the teachers, they are not seen as critical as other aspects of teacher preparation relative to the students' perceptions.

In a similar vein, the evaluation of the On-the-Job Training (OJT) components of the Bachelor of Science in Sports Science and Exercise program revealed significant insights into the students' and alumni's perceptions regarding their practical training experiences. Firstly, the highest-rated indicators in terms of importance were related to the quality and structure of the OJT experience itself. Specifically, the indicators "The On-the-Job Training experience is well-organized and aligns with the program's learning outcomes" and "I receive adequate support and supervision during my On-the-Job Training" received mean importance scores of 3.21 and 3.18, respectively. However, the performance scores for these indicators were only marginally higher, indicating a gap between the importance placed on these elements and their actual implementation. For instance, the performance scores were 3.24 for the organization of the OJT experience and 3.19 for support and supervision during OJT.

Conversely, the lowest-rated items in terms of importance were related to the specific settings of the OJT. Indicators such as "The On-the-Job Training is done in physical rehabilitation facilities" and "The On-the-Job Training is done in hospitals" received lower importance scores (2.99 and 2.92, respectively). These settings were also rated lower in performance, with scores of 3.07 and 3.04, respectively. Interestingly, one student said that "Sabi ni dean pre-med ung course naming but as I look at it, it didn't feel as relevant to my career goals compared to other settings like fitness centers." Importantly, the quality and preparation of OJT mentors also emerged as a significant area of focus. The importance of having knowledgeable and specialized mentors was rated moderately high, with mean importance scores of 3.17 and 3.15 for mentor knowledge and specialization, respectively. Performance scores were slightly higher, indicating that while students generally find their mentors to be competent, there is still room for improvement.

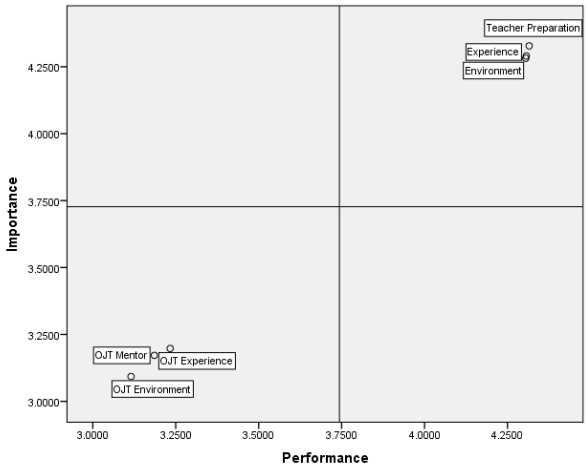
Importance-Performance Analysis Matrix

The Importance-Performance Analysis (IPA) matrix illustrated in Figure 4 provides a visual representation of the relationship between the importance and performance of various components of the instructional system in the Bachelor of Science in Sports Science and Exercise program. This analysis is crucial for identifying areas where the program excels and areas needing improvement, thereby informing stakeholders and decision-makers about necessary interventions.

In the "Keep Up the Good Work" quadrant, elements of the instructional system such as teacher preparation, learning experiences, and the learning environment are prominently positioned. These components are highly valued by students and alumni, and they are also performing well. For instance, teacher preparation is highlighted as a critical strength, with students appreciating the faculty's commitment to staying updated with the latest trends. This alignment between high importance and high performance indicates that the faculty's efforts in professional development are effective. Similarly, the learning experiences within the school are both highly valued and well-implemented. The learning environment, including facilities such as sports courts and fitness gyms, is another area that performs well and is considered important.

Conversely, the "Low Priority" quadrant includes components such as the OJT mentor, OJT experience, and OJT environment, which are perceived as less important and have relatively low performance. While OJT mentors are important for guiding students during their practical training, this aspect is perceived as less critical compared to other components of the program. This result may imply that there may be inconsistencies in the quality of mentorship, which could be addressed through better mentor training and support. Importantly, the OJT experience, although essential for the practical application of classroom knowledge, is also perceived as less critical overall. The low performance in the organization and support of the OJT program indicates a need for improvements to enhance its effectiveness and better align it with students' expectations.

Figure 4. IPA Matrix of the Instructional System



In summary, the IPA matrix reveals that while the instructional system shows strong alignment within the school's environment, off-school experiences, particularly the On-the-Job Training (OJT), warrant further attention. The lower performance and mixed qualitative feedback on OJT highlight a gap in how these experiences align with program expectations and learning outcomes. Some students feel lost or unsupported during their OJT, indicating a need for more structured guidance and clearer objectives. Improving these off-school experiences involves reassessing how they are integrated into the overall educational framework. The program could benefit from establishing more robust support mechanisms, such as stronger mentoring systems, clearer expectations for both students and partnering organizations, and enhanced alignment between OJT objectives and the program's learning outcomes. Ensuring that these experiences are as well-structured and supportive as the on-campus components will help bridge the gap between in-class learning and real-world application.

Discussion

The findings of this study provide significant insights into the instructional system of the Bachelor of Science in Exercise and Sports Science (BSESS) program, particularly the dual dimensions of in-school and on-the-job training (OJT) experiences. The results emphasize critical components of learning, including the environment, teacher preparation, and experiential learning opportunities, and reveal disparities between perceived importance and actual performance. This section interpret these findings considering related studies and theoretical perspectives that explain the observed trends.

The emphasis on hands-on learning and practical applications in both in-school and OJT experiences aligns with experiential learning theory (McCarthy, 2014; Bergsteiner, 2010) which suggests that learning occurs through a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Research by Lomardi et al. (2021) found that students who engage in active learning environments develop better problem-solving skills and higher levels of competency in their respective fields. The preference for collaborative teaching strategies and interactive lessons, as highlighted by the respondents, supports the findings of Bores-Garcia et al. (2021), who emphasized that cooperative learning enhances student engagement and knowledge retention. Similarly, a study by Finlay et al. (2022) on sports science education indicated that students benefit significantly from environments that integrate both theoretical and practical experiences, ensuring they are well-prepared for industry demands.

The observed gap between the importance and performance ratings of certain elements, such as opportunities for research and independent study, can be linked to expectation-confirmation theory (Chou et al., 2012), which suggests that discrepancies between expected and actual experiences lead to varying levels of satisfaction. According to Shapiro et al. (2017) and Da Wan et al. (2015), students often expect higher levels of institutional support in research-related activities, and when these expectations are not met, it leads to dissatisfaction and perceived deficiencies in the academic program. This is consistent with the findings in this study, where respondents identified research opportunities as highly important

but noted that existing resources and support structures did not fully meet their needs. Similarly, the availability of sports facilities, while generally rated highly in performance, still showed gaps in equipment availability, which is a concern echoed in the study of Black et al. (2019) and Merxhani & Ibraimi (2024), who found that sports science programs require continuous investment in state-of-the-art facilities to maintain their relevance and effectiveness.

Teacher preparation emerged as a critical factor influencing the instructional system, with respondents placing high importance on faculty members being up-to-date with sports science trends. This aligns with the findings of Kyriakides et al. (2013), who argued that teacher quality is the most significant factor affecting student learning outcomes. The pedagogical content knowledge (PCK) framework (Gudmundsdottir & Shulman, 1987) also provides insights into why teacher preparation is crucial. PCK suggests that effective teaching requires both deep content knowledge and pedagogical strategies to convey that knowledge effectively. Studies by Gokhan (2023) further emphasize that faculty professional development, particularly in rapidly evolving fields like sports science, plays a key role in ensuring the curriculum remains aligned with industry advancements. The findings of this study support these arguments, as respondents expressed the need for teachers to be continuously trained and updated on new knowledge and trends in sports science education.

The findings also reveal that while OJT is considered essential, there are notable areas for improvement, particularly in organization, mentorship, and alignment with student career aspirations. Research by Dublin et al. (2023) on work-integrated learning indicates that for OJT programs to be effective, they must be structured, well-supervised, and aligned with student career trajectories. Situated learning theory (Lave & Wenger, 1991) also explains why OJT experiences are crucial, as it posits that learning is most effective when it occurs in authentic, real-world settings. The moderate importance scores for specific OJT settings, such as rehabilitation centers and hospitals, suggest that students may not always perceive their placements as directly relevant to their professional goals. A study by Hay & Barab (2001) and Hansford & Ehrich (2006) found that inconsistencies in mentorship and practical training environments often lead to gaps between expected and actual learning outcomes, which was also reflected in the findings of this study. Respondents noted that some OJT experiences did not fully prepare them for the careers they intended to pursue, indicating the need for better coordination between academic institutions and industry partners.

The Importance-Performance Analysis (IPA) matrix highlights key areas where the program excels, such as in-school experiences and teacher preparation, while identifying areas requiring further attention, particularly OJT organization and mentorship. These findings align with previous research that suggests experiential learning opportunities must be well-integrated into educational programs to maximize student preparedness. Studies by Stewart (2021) highlight that mentorship quality significantly influences students' perceptions of their practical training experiences. This supports the finding that while OJT is valued, inconsistent mentorship and lack of clear objectives create challenges for students. Addressing these issues requires refining OJT structures, enhancing mentor training, and strengthening industry partnerships.

Conclusions

This study introduces a mixed-methods framework for program evaluation, integrating illuminative evaluation with importance-performance analysis (IPA). Using the Bachelor of Science in Exercise and Sports Science (BSESS) program as a case study, the framework demonstrates how congruency between the instructional system and the learning milieu can be assessed by aligning the perceived importance of program components with their actual performance.

The illuminative evaluation of the Bachelor of Science in Exercise and Sports Science (BSESS) program reveals a generally positive alignment between the instructional system and the learning milieu in terms of in-school experiences. The high importance and performance ratings for teacher preparation, learning environment, and practical learning experiences suggest that these components are effectively supporting student learning and development. The qualitative data corroborate these findings, with students and alumni praising the hands-on activities, well-equipped facilities, and knowledgeable faculty.

However, the evaluation also identifies significant gaps in the on-the-job training (OJT) components. The OJT experience, mentor preparation, and OJT environment received lower importance and performance scores, indicating that these areas do not meet student expectations as effectively as the in-school components. Qualitative feedback further highlights the need for more structured guidance and support during OJT, as well as improvements in the relevance and quality of OJT placements.

Acknowledgements

The researchers would like to express their sincere gratitude to everyone who contributed to the successful completion of this study. Their heartfelt thanks go to the alumni and student respondents who generously shared their time and insights, providing invaluable data that made this study possible. They are also grateful to their colleagues and mentors who provided constructive feedback and academic guidance. Special acknowledgment is given to the university and campus administration and research office for their assistance in facilitating the funding and data collection process.

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