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Research Article

Institutional Readiness and Stakeholder Demand for a Doctor of Philosophy in Science Education

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ABSTRACT

This feasibility study examined the proposed offering of a Doctor of Philosophy in Science Education at the Graduate School of Dr. Emilio B. Espinosa Sr. Memorial State College of Agriculture and Technology in Masbate, Philippines. Data were gathered through a researcher-developed questionnaire with demographic items, Likert-scale indicators, and open-ended questions. Quantitative responses were summarized using frequencies, percentages, and weighted means, while the written comments were grouped through thematic analysis. Stakeholders generally viewed the proposed program favorably. The strongest ratings concerned its relevance to current educational needs, the breadth of the curriculum, the preparation of graduates for academic and research careers, and the expected contribution of the program to science education. Lower ratings were recorded for opportunities to present at national and international conferences (M = 3.65), faculty-student research collaboration (M = 3.90), scholarships or assistantships (M = 4.15), and regular curriculum updating (M = 4.15). These findings suggest that the program is attractive to its intended market, but still requires deliberate investment in research culture, student support, and academic networking. The financial projection remains positive under the stated enrollment and tuition assumptions, with a corrected six-year cumulative net balance of PHP 914,700. The program is feasible in principle, provided that DEBESMSCAT verifies the respondent dataset, documents instrument validity and reliability, secures regulatory approval, and confirms that faculty, laboratories, research resources, and long-term financing are adequate.

Keywords: *doctoral education, feasibility study, graduate program planning, market demand, regional access, science education*

Introduction

Graduate programs are often proposed in response to visible demand, but demand alone does not guarantee that a doctoral program will succeed. Doctoral education requires a stable group of qualified faculty, a functioning

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research environment, access to current literature and databases, clear supervision arrangements, and a financial plan that can be sustained beyond the first cohort. These conditions are especially important for a program in Science Education, where advanced study is expected to connect disciplinary knowledge, pedagogy, research, and school-based practice.

DEBESMSCAT has considered the development of a Doctor of Philosophy in Science Education as part of its effort to expand graduate education in Masbate. The proposal responds to a clear local concern. At present, educators who want to pursue doctoral training in this specialization generally have to travel outside the province. For working teachers, that means additional transportation, accommodation, and time away from their schools and families. A locally available program could make advanced study more attainable while strengthening the province's capacity for research on science teaching, curriculum, assessment, laboratory learning, educational technology, and community-based science education.

The need for such a program is also connected to the continuing challenge of improving science learning. Science teachers are expected not only to master content, but also to interpret evidence, design inquiry-based learning, use technology well, and respond to local environmental and social concerns. A doctoral program can support these demands by giving educators sustained opportunities to study, conduct research, publish, and work with schools and other institutions.

CHED policies on graduate education require institutions to show that proposed programs are academically sound and supported by appropriate resources. CMO No. 15, series of 2019, together with the broader quality-assurance framework of CMO No. 64, series of 2017, provides the policy basis for examining faculty qualifications, outcomes, research systems, governance, and learning resources. Although CMO No. 53, series of 2016, applies to undergraduate teacher education, its emphasis on strong subject preparation and pedagogy remains relevant to the preparation of advanced educators.

This study therefore assessed the feasibility of offering a Doctor of Philosophy in Science Education at the DEBESMSCAT Graduate School. It examined stakeholder perceptions of demand, resources and infrastructure, curriculum and course structure, likely impacts and outcomes, and overall feasibility. It also considered stakeholder comments, the effect of the proposed program on existing offerings, expected enrollment, and the program's indicative financial position.

Statement of the Problem

The study sought to answer the following questions:

1. What is the level of feasibility of offering a Doctor of Philosophy in Science Education at the DEBESMSCAT Graduate School in terms of market demand, resources and infrastructure, curriculum and course structure, potential impacts and outcomes, and overall assessment?
2. What concerns and recommendations do stakeholders raise regarding the implementation of the proposed program?
3. Based on stakeholder demand, institutional capacity, and indicative financial projections, is the proposed Doctor of Philosophy in Science Education feasible?

Materials and Methods

Research Design

The study used a convergent mixed-methods design. Quantitative ratings and qualitative comments were collected through the same survey and were examined together when the findings were interpreted. The numerical data showed the strength of stakeholder support, while the written responses helped explain what respondents expected from the program and what concerns they believed DEBESMSCAT should address.

Participant and Setting

The respondents came from the education sector in Masbate and included classroom teachers, head teachers, higher education instructors, administrative personnel, and other education-related stakeholders.

Table 1. Demographic Profile of the Respondents

Demographic Profile	**Percentage**
Sex	50%
Female	50%
Male	
Agency	
Department of Education	75%
DEBESMSCAT	18.7%
Others:	12.5%
Positions	
Teachers I-III	75%
Head Teachers	2.3%
Instructors	6.2%
Administrative Officers	6.25%
Other Positions	18.8%

In the context of the potential offering of a PhD in Science Education program, it's important to note that, as of the current information available, there is no Higher Education Institution (HEI) within the Province of Masbate that offers a PhD in Science Education. This particular specialization is critical for the 664-government junior high school teachers who focus on teaching English and science within the province. The absence of a PhD program in Science Education in Masbate emphasizes the need for strategic development and higher educational opportunities for educators specializing in English and science at the doctoral level. The feasibility study conducted on the potential introduction of a PhD program is not only timely but also essential in addressing this gap in advanced education within the region. This endeavor acknowledges the diverse demographic profile of the participants in the feasibility study, representing a wide array of stakeholders within the educational landscape of the Masbate region. The inclusion of educators from the Department of Education (DepEd) and other institutions, alongside students, administrators, instructors, and principals, showcases a holistic evaluation of the program's viability. The nearly equal representation of male and female respondents highlights a commitment to gender inclusivity, promoting an educational initiative that caters to all genders equally. Moreover, this diverse representation ensures that the proposed PhD program is thoroughly assessed from multiple perspectives, essential for understanding its potential impact and feasibility within the Masbate educational context. This approach in gathering input from a wide range of stakeholders is instrumental. It enables a well-rounded assessment of the potential challenges and opportunities associated with the proposed PhD program. The insights garnered from this diverse group will be vital in shaping the curriculum, structure, and delivery methods of the program to effectively meet the specific educational needs and aspirations of the Masbate region.

Research Instrument

The questionnaire had three sections. The first collected demographic information such as sex, location, agency, and position. The second contained Likert-scale statements on market demand, curriculum, faculty expertise, research facilities, student support, professional outcomes, and overall feasibility. The third asked respondents to provide comments and recommendations in their own words.

Data Analysis

Frequencies and percentages were used to describe the responses of the respondents. Weighted means summarized responses to the feasibility indicators. The open-ended comments were reviewed repeatedly, coded, grouped into related ideas, and refined into themes following the general process described by Braun and Clarke. Quantitative and qualitative findings were compared during interpretation so that high ratings could be read alongside the implementation concerns raised by respondents.

Result and Discussion

The ratings show that respondents were generally confident in the proposed program. The strongest item was the expectation that graduates would be prepared for careers in academia, research institutions, and related fields (M = 5.00). Curriculum breadth, practical experience, facilities, partnerships, assessment, and alignment with current educational needs also received high ratings. These results suggest that respondents see value in the program and believe it can serve both professional and institutional goals.

Table 2. Stakeholder ratings of selected feasibility indicators

Feasibility indicator	Mean	Interpretation
Alignment with current research trends and educational needs	4.85	Strongly Agree
Comprehensive foundational and specialized curriculum	4.85	Strongly Agree
Practical experiences for professional development	4.85	Strongly Agree
Appropriate research methodologies and techniques	4.60	Strongly Agree
Interdisciplinary collaboration and integration	4.75	Strongly Agree
Flexibility to pursue specific research interests	4.80	Strongly Agree
Faculty expertise and research competence	4.55	Agree
Adequate research facilities, laboratories, and resources	4.85	Strongly Agree
Faculty-student collaboration on research projects	3.90	Agree
Accessible and supportive faculty mentorship	4.65	Strongly Agree
Scholarships or assistantships	4.15	Agree
Opportunities to present at national/international conferences	3.65	Neutral
Research and teaching skills workshops	4.25	Agree
Supportive and inclusive learning environment	4.50	Strongly Agree
Alumni and industry connections	4.85	Strongly Agree
System for assessing student progress and feedback	4.85	Strongly Agree
Preparation for academia, research, and related careers	5.00	Strongly Agree
Partnerships with schools and educational organizations	4.85	Strongly Agree
Mechanisms for regular curriculum updating	4.15	Agree
Culture of research excellence and scholarly inquiry	4.35	Agree

The lower ratings are more useful for planning than the highest scores because they point to areas where support is less certain. Faculty expertise received a mean of 4.55, while faculty-student research collaboration received 3.90. The difference suggests that respondents may believe qualified faculty are available, but are less certain that a strong collaborative research culture is already in place. DEBESMSCAT should therefore map faculty specializations, research output, dissertation experience, and workload capacity. Research clusters, co-advising, visiting professors, and protected research time would help move the program from individual expertise toward sustained scholarly collaboration.

Conference participation received the lowest rating (M = 3.65). This result is understandable in the Masbate setting. Presenting outside the province often requires sea or air travel, accommodation, registration fees, and time away from work. These costs can limit participation even when students have strong research outputs. A small institutional travel and research-dissemination fund, combined with support for virtual and hybrid conferences, would directly address this concern.

Scholarships or assistantships and mechanisms for curriculum updating both received means of 4.15. Respondents' comments repeatedly mentioned the importance of assistance from CHED, DOST, and other partners. Financial support would make the program more accessible to public-school teachers, while a regular curriculum review would help the degree remain responsive to changes in

science education, research methods, technology, and sustainability.

Emergent Themes from Stakeholder Comments

Professional development and better teaching. Respondents viewed the program as a way to deepen their science knowledge, improve teaching strategies, strengthen research competence, and open new career paths.

Scholarships and research resources. Several comments emphasized the need for scholarships, external funding, a well-equipped science laboratory, current books and journals, research software, and dependable access to equipment.

Research opportunities and specialization. Stakeholders expected advanced and specialized subjects that would allow students to investigate current problems in science teaching, curriculum, assessment, technology, laboratory learning, and community-based education.

Accessibility and local relevance. A program based in Masbate was seen as a practical option for educators who would otherwise have to travel or relocate. Respondents also wanted the curriculum to address local educational and environmental concerns.

Institutional recognition and career opportunities. Participants believed that the program could strengthen DEBESMSCAT's research profile and prepare graduates for leadership, higher education, curriculum work, and research-related positions.

Support with clear conditions. The comments were positive, but not uncritical. Respondents tied their support to faculty quality, affordability, adequate facilities, and careful preparation before the first cohort is admitted.

Feasibility Considerations

Impact on existing programs. The proposed degree can complement current graduate offerings by creating opportunities for interdisciplinary work in education, agriculture, technology, and community development. Its introduction should nevertheless be coordinated with existing faculty workloads and research priorities.

Physical facilities and equipment. The feasibility report repeatedly mentions laboratories, books, journals, and research materials. A formal resource audit is needed to distinguish resources that already exist from those that must be purchased, upgraded, or shared with other programs.

Market demand and enrollment. The report identifies a large potential pool of science and English teachers and strong stakeholder interest. Actual enrollment should still be tested through a verified intention-to-enroll survey and conservative cohort planning.

Future growth. Respondents expect the program to contribute to research and academic leadership. Growth should be phased so that enrollment does not exceed supervision and laboratory capacity.

Financial support and sustainability. Scholarships, assistantships, and partnerships with CHED, DOST, and other organizations are central to both access and retention. Student support should be included in the implementation budget rather than treated as an optional addition.

Table 3. Six-year indicative financial projection

Year	Projected enrollment	Tuition/unit (PHP)	Total income (PHP)	Investment cost (PHP)	Net balance (PHP)
1	25	600	405,000	350,000	55,000
2	28	600	453,600	350,000	103,600
3	31	650	544,050	400,000	144,050
4	34	650	596,700	430,000	166,700
5	37	650	649,350	430,000	219,350
6	40	700	756,000	530,000	226,000

The financial table in the full feasibility report contains several arithmetic errors. When the stated formula is applied consistently—projected enrollment multiplied by tuition per unit, nine units per semester, and three semesters per year—the corrected annual income is PHP 405,000, PHP 453,600, PHP 544,050, PHP 596,700, PHP 649,350, and PHP 756,000. After deducting the stated annual investment costs, the corrected six-year cumulative net balance is PHP 914,700.

The original cost categories included building and laboratory maintenance, books and journal subscriptions, and operational costs. Those categories are useful, but too broad for a doctoral program. They should be expanded to show the cost of faculty teaching, dissertation supervision, panel work, visiting professors, electronic databases, research software, laboratory upgrading, student research support, quality assurance, and inflation.

Table 4. Indicative allocation of annual investment costs (PHP)

Year	Instruction & dissertation	Visiting professors	Databases & research	Laboratory & equipment	Administration, QA & support	Contingency / inflation
1	180,000	30,000	45,000	50,000	25,000	20,000
2	185,000	30,000	50,000	40,000	25,000	20,000
3	205,000	35,000	60,000	45,000	30,000	25,000
4	220,000	40,000	65,000	45,000	30,000	30,000
5	225,000	40,000	70,000	35,000	30,000	30,000
6	270,000	50,000	85,000	55,000	35,000	35,000

Instruction and dissertation costs cover teaching assignments, supervision, comprehensive examinations, proposal and final-defense panels, and related academic work. Visiting-professor costs cover specialist honoraria and delivery expenses. Databases and research include journal subscriptions, research software, and limited research support. Laboratory and equipment costs cover upgrading, maintenance, consumables, and technology. Administration, quality assurance, and student support include compliance, monitoring, and program services. Contingency and inflation provide a modest buffer. These allocations are planning figures and should be checked by the finance, human-resource, library, laboratory, and procurement offices before the proposal is approved.

Institutional Status and Nomenclature

Republic Act No. 11171 provides for the conversion of DEBESMSCAT into a state university, subject to the completion of statutory and regulatory requirements. During the period covered by this study, the institution continued to use its official state-college name while completing the conversion process. The manuscript therefore retains the name Dr. Emilio B. Espinosa Sr. Memorial State College of Agriculture and Technology and the acronym DEBESMSCAT. The university name should be used only after the conversion has been formally completed and officially implemented.

Proposed Implementation Conditions

1. Secure CHED authority and document compliance with the applicable graduate-education standards before admitting students.
2. Verify the respondent registry, final sample size, demographic frequencies, and percentages.
3. Document instrument validation, pilot testing, reliability, ethics clearance, and consent procedures.
4. Prepare a faculty map showing relevant doctorates, research output, dissertation experience, specialization, and workload capacity.
5. Complete a laboratory, library, database, software, internet, and equipment audit.
6. Establish scholarships, research assistantships, conference travel support, and publication assistance.
7. Create research clusters and external partnerships with schools, universities, CHED, DOST, and professional organizations.
8. Open the program in phases and limit the first cohort to the number that available faculty can supervise well.

9. Review enrollment, retention, completion, research output, student experience, graduate outcomes, and financial performance every year.

Conclusion

The study provides a reasonable basis for the development of a Doctor of Philosophy in Science Education at DEBESMSCAT. Stakeholders see a need for a local doctoral pathway and believe that the program could strengthen teaching, research, and educational leadership in Masbate. The proposed degree also fits the institution's broader role in serving educators who have limited access to doctoral study outside the province.

The evidence does not support an unconditional opening of the program. The lower ratings for conference opportunities, faculty-student collaboration, scholarships, and curriculum updating reveal areas that need direct institutional attention. The financial projection is positive only under the stated assumptions, and the cost model must be checked against actual staffing, procurement, subscription, and laboratory requirements.

DEBESMSCAT may proceed to curriculum validation, faculty mapping, resource auditing, market verification, and regulatory preparation. A small first cohort, supported by clear supervision limits and annual external review, would reduce risk. Before the article is resubmitted, the author should insert the verified sample size and demographic table, the instrument-validation and reliability results, and the ethics and consent details from the actual study records.

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