Journal of Education and e-Learning Research
Vol. 10, No. 4, 645-656, 2023
ISSN(E) 2410-9991 / ISSN(P) 2518-0169
DOI: 10.20448/jeelr.v10i4.5043

Outcome-based education in open and distance learning

Marion Cresencio

Polytechnic University of the Philippines, Sta. Mesa, Manila, Philippines.
Email: macresencio@pup.edu.ph

Abstract

Colleges and universities worldwide envision global excellence by providing the best education to their students. The Philippine universities started to implement outcome-based education to fulfill worldwide quality education standards. The purpose of this study is to identify the effectiveness of outcome-based education and the extent of its implementation in a Philippine university through open and distance learning. The effectiveness of outcome-based education and its extent of implementation are measured through the three identified areas such as the presentation of learning outcomes, assessment evidence and teaching and learning activities. The respondents consisted of graduate students for the academic year 2022-2023. Descriptive statistics such as the net agreement rating and the net implementation rating were used. The findings reveal a high agreement rating on the effectiveness of outcome-based education which means that there is an effective and excellent implementation of outcome-based education in open and distance learning. Meanwhile, there is a significant difference in the assessment among programs on the implementation of outcome-based education in open and distance learning. The Philippine University may sustain its effective implementation of outcome-based education and may serve as a model for other educational institutions by providing continuous support to faculty in the form of training and scholarships. These faculties are the major implementers of instructions.

Keywords: Assessment evidence, Intended learning outcomes, Open and distance learning, Open university system, Outcome-based education, Teaching and learning activities.

Citation | Cresencio, M. (2023). Outcome-based education in open and distance learning. *Journal of Education and E-Learning Research*, *10*(4), 645–656. 10.20448/jeelr.v10i4.5043
History:
Received: 14 June 2023
Revised: 29 August 2023
Accepted: 20 September 2023
Published: 11 October 2023

Publisher: Asian Online Journal Publishing Group

Funding: This study received no specific financial support.
Institutional Review Board Statement: The Ethical Committee of the Polytechnic University of the Philippines, Sta. Mesa, Manila, Philippines has granted approval for this study on 13 March 2023 (Ref. No. UREC-2023-0202).
Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Contents

Contribution of this paper to the literature
The study's findings show that respondents understood the value and significance of OBE in real-life settings resulting in a high net agreement rating on the effectiveness of OBE. There is a large disparity in the application of OBE among graduate programs due to the different assessment criteria employed by schools.

1. Introduction

According to the Organization for Economic Cooperation and Development's (OECD) Programme for International Student Assessment (PISA) findings issued in December 2019, the Philippines scored lowest among 79 countries in reading literacy and second lowest in both mathematics and scientific literacy. These findings highlight the importance of overcoming obstacles and differences in obtaining adequate education in the Philippines. The PISA findings demonstrate the global quality and equality of learning outcomes allowing policymakers and teachers to benefit from policies and practices implemented (San Juan, 2019).

Education's primary purpose throughout its development as a public institution has been to serve all areas of life and society. A representation of such efforts can be recognized in the Open University System (OUS) which offers Open and Distance Learning (ODL) (Seaman, Allen, & Seaman, 2018). The first establishment of the OUS began at a Philippine university in 1990 which still follows the key ideas of a minimum education requirement and a long-distance approach to education. This approach is not only limited to undergraduate programs but also to graduate studies such as Masters in Business Administration (MBA) and Masters in Education Management (MEM) which give advantages to students who cannot study traditionally.

However, technological improvements and changes have resulted in a broader market in which individuals must achieve greater educational requirements which led to numerous educational institutions developing different means to teach future professionals. The Philippine education system has introduced different approaches that aim to produce well-efficient, productive and knowledgeable citizens to meet the competitive standards of the modern world. According to 2012 report by the Philippine daily inquirer, more research on different approaches to teaching and learning is still needed for more successful graduates who will meet the standards of industries through quality education provided by schools making the goal of producing globally competitive individuals a standard.

The goal of this study is to discover the level of agreement on the effectiveness of Outcome-Based Education (OBE) and the extent of its implementation in Philippine university graduate programs. This study will provide new avenues for either rethinking or establishing OBE in open and distance learning in higher education institution worldwide allowing it to flourish and grow even more.

Enrollment in the ODL of the United States increased from 29.7% in 2015 to 31.6% in fall 2016 (Seaman et al., 2018). Such results imply that there is steady growth in distance learning. According to Zawacki-Richter and Anderson (2014), ODL is also a growing system in terms of research. The common themes of what is studied in ODL have been mapped from the 1980s to 2014s by Zawacki-Richter and Naidu (2016). The following topics were widely explored between 2010 to 2014: interactions between students and learning, technological design and the advent of MOOCs (Massive Open Online Courses). Since OBE is only briefly mentioned in the most recent mapping of studies in ODL, this research presents a unique opportunity to bring out a significant contribution about the effectiveness of OBE in ODL.

ODL is a system designed to support a long-distance form of study but it is still a system with issues that will need to be addressed. According to Arinto (2016), key issues that surround it are in its implementation and continuous development because of problems within the system but rather at the micro level of faculty members who refuse to adapt to new forms of technological advancements and pedagogical developments. Musingafi, Mapuranga, Chiwanza, and Zebron (2015) make an effort to define three forms of challenges common in the ODL of the Zimbabwe Open University: (1) Individual challenges which include time constraints, access to Information and Communication Technology (ICT), finance, support from employers and travel constraints during face-to-face examinations. (2) Instructional challenges that range from ineffective and delayed feedback to the actual delay of grading which all contribute to the issue of unable to move forward in the curriculum. (3) Institutional challenges which can be summarized as a lack of student support. Difficulties in ODL may be noticed at the micro level where both students and teachers have specific challenges such as financial and time limits or a complete lack of willingness to improve the system. This continues to the macro level where the institution struggles to implement the system and provide help to students. The study will take these issues into consideration in order to give a comprehensive analysis of OBE in ODL.

Outcome-Based Education (OBE) has recently been a topic in the Indian higher education system. National accrediting agencies emphasize the need to evaluate program outcomes. The assessment of program based on outcomes is thought to be advantageous in promoting higher education (Suji Prasad, Thangatamilan, Sureshkumar, & Revathi, 2023). OBE is viewed as a technique to deliver high-quality education and aids in the accomplishment of organizational objectives in accordance with predetermined quality objectives (Guggari, Okoye, & Abraham, 2023).

OBE has been used for almost a century because educationalists have emphasised the need of understanding learners' qualities throughout the learning process. This educational framework attempts to make sure that students have the qualities needed to succeed in both their academic and personal endeavors. Graduate qualities are predetermined and high-level skills that students should develop through their experiences and education. These characteristics have many relationships between the courses and serve as predictors of a graduate's future talents. Achievability is the indicator of these qualities (Mahrishi, Jain, & Hosseini, 2023). Spady (1994) explains the acquisition of knowledge as an outcome of the learner's education which describes the essence of teaching and learning, i.e. to plan teaching events and to ascertain the extent of the learner's knowledge. He emphasizes the preparation of schools and universities for their course curriculum to be well-designed, referring to OBE as a philosophy and a plan that implements radical and systemic changes in learning for the students to become ready for their post-school life.

According to the Zamir, Abid, Fazal, Qazi, and Kamran (2022) study from 2023, the OBE system has advantages that can help future students learn better. The transition from non-OBE to OBE has proved the new

educational system's superiority in terms of student learning, topic delivery and teaching approach. Similarly, according to Chiang, Zhang, and Cheng (2022), the core of today's educational strategy for linking classrooms and the workplace is outcome-based education techniques.

The Philippine Government's attempt at a variety of educational methodologies from the Basic Education Curriculum (BEC) to Understanding by Design (UBD) serves as the starting point for the study's scope and motivation. As the Philippine education has adopted the K-12 elementary and high school program as well as OBE at the tertiary and graduate levels in accordance with the commission on higher education's Memo No. 46 series of 2012, the country has made a historical transformation in its educational system.

This study assumes that the ODL is now integrating the technology into its programs. The problem is that no research has been undertaken on the extent to which the system is being applied in ODL.

Some of the theories that relate to OBE are the theories of pragmatism (a philosophy that emphasizes usefulness while underplaying the value principle). In pragmatists' view, whatever works in practice as well as what is useful is of most importance. Students should be able to practically apply what they learn in the classroom. On the other hand, the theory of social reconstructivism is a philosophy aimed at social transformation that encourages students to work together in the classroom. One of its critical outcomes is that students should be able to successfully demonstrate their ability to work effectively as members of a team, group, organization or community.

Another relevant theory is the theory of opportunity which is linked with the philosophy that all students can learn and succeed but not at the same pace and time. The theory maintains that everyone has the potential to learn. How learning takes place depends on the instruction. In OBE, learning depends on the strategies that educators apply in their classroom practices. In OBE, students should be active participants in the teaching and learning. One of the outcomes of OBE is that students should work effectively with others as members of a team, group, organization or community. This outcome links to the view of learning as a social process. Students are encouraged to work together. However, the researcher used a combination of the open framework designed by Gurukkal (2020) and Patiño and Cresencio (2020) which discuss three concepts of outcome-based education such as intended learning outcomes, assessment evidence and teaching and learning activities.

2. Literature Review

2.1. Intended Learning Outcomes

Intended Learning Outcomes (ILO) are crucial factor in the implementation of OBE and instructors possess a vital role in this educational process since they are inevitably responsible for unpacking the contents of a program to ensure that students have an understanding of how they will use the lessons in real-life situations.

ILOs commence their development cycle with course outcomes where the major purpose is to create new knowledge through problem-solving and critical thinking. However, the graduate attributes become the major goal for the development of ILOs for actual measurable results. On the macro level, program-specific outcomes have a deeper focus on domain-specific fields such as the humanities, social sciences, mathematics, etc. What is measured will vary depending on the program but some examples of what is anticipated are: Gurukkal (2020) research writing applied mathematics skills, science-tech knowledge and inventive skills. Graduate attributes are necessary in order for any educational institution to succeed after OBE.

ILOs must be developed in the context of the open university taking into account the issues that come with open and distance learning. University of the UK developed the ILOs into four headings: (1) Knowledge and understanding are expected from the students at the end of the course or program. (2) Key skills that include communication, use of information technology, and self-learning. (3) Cognitive skills that enable students to think critically and analyze methodologies. (4) Subject specific skills that varies from program to program (Edwards, 2015). The main issue was not the development nor the implementation but the maintenance of the ILOs at the Open University (OU). All of these required support from information technology, an effort in module development and the full dedication of the staff which improved management and engagement with the learning outcomes of the OU.

The idea of Spady (1994) gives a clear picture that students' learning can be more effective and meaningful when they are well directed about the outcomes they can achieve by the end of the lesson or course. Students clearly perceive themselves after completing the course goals with effective learning outcomes. Studies that focus on raising (systematically too) low teacher expectations for students in general or for specific (groups of) students may reveal important information that correlational studies are unable to provide. Furthermore, this study may shed light on the potential for avoiding or reversing the detrimental impacts of (too) low (or skewed) expectations on student achievement and to stimulate the beneficial benefits of higher teacher expectations (De Boer, Timmermans, & Van Der Werf, 2018).

As of the start of this research, there is no disclosure of what ILOs they are already using in open and distance learning within the framework of OBE. To explore the Philippine university, open and distance learning and discover to what extent its programs and curricula implement ILOs and OBE.

2.2. Assessment Evidence

Teachers are required to prepare assessment tasks to find out if the students have achieved the objectives of the course.

OBE is used to increase the employment of graduates by training them in domain-specific skills. Evaluation is essential for assessing how effectively students learn. There are resources available for continual evaluation such as assignments, periodical quizzes and different assessment methods. Alternative assessment procedure may be specific to the course being taught and help students meet programme objectives.

OBE must measure outcomes rather than content. Formative assessment occurs throughout the teaching and learning process whereas summative assessment is used to make a judgment on the achievement of an outcome. Authentic assessment is interwoven with learning because learners are considered active participants in the learning process. Integrated assessment evaluates many outcomes at the same time using a variety of assessment

methodologies and tools. A capstone module is an appropriate technique for including summative, authentic and integrated assessment. The goal of such a module is to integrate the learning that has occurred throughout the program. A well-designed portfolio will achieve the instructional goal of engaging learners in higher order cognitive tasks such as contemplation and creativity. On the other hand, ODL has distinct connotations in different contexts. In a third-world environment where infrastructure cannot be assumed, various options for portfolio presentation must be provided, including non-venue-based evaluation and a driving force in ODL assessment. Furthermore, all assessments are completed electronically in order to protect the environment and improve student service (Le Roux, 2013).

The fundamental distinction and key to outcome-based assessment is the teacher's capacity to present a realistic simulation or approximation of the situation in which learning outcomes will be required or used. Role-playing, gaming, demonstration teaching and micro-teaching are some examples. The outcome-based assessment uses criterion-based standards. These standards provide the yardstick to be used in evaluating the learner's performances by describing the different levels of performance that may be expected most acceptable, very acceptable, acceptable, barely acceptable and unacceptable. Some examples of assessment tools are observation guides, interview guides, checklists, end-of-chapter or unit tests, journals, peer critiques, performances or demonstrations, portfolios, rubrics, written assignments, self-assessments, reflection essays and standardized tests (Navarro, 2015).

Recently, OBE techniques have piqued people's interest. The results of the learning phase indicate the knowledge acquired and demonstrate the student's capacity for learning. The effects of OBE are carefully investigated through the use of evaluation and assessment methods. This method significantly improves students' capacity for learning and builds upon their foundational knowledge. Students have learned the course with interest in gaining comprehensive knowledge (Anitha, Shubha Rao, and Jayarekha, 2023).

According to Posecion (2015), if teachers want to reform student learning, they must modify the assessment process aimed at teaching students how to solve issues. He also cites the features of OBE assessment that can be used in considering the methods of measuring student learning a) criterion-references, b) emphasizes student's performance or final output, c) uses varied and frequent assessment techniques and d) uses both formative and summative assessment.

Spady (1994) emphasizes authentic assessments as measures of real learning. What the students can do or perform after learning the lesson provides them with actual skills.

2.3. *Teaching and Learning Activities*

Instructors should plan for the curriculum to assure an outcome-focused course of education. This implies that the teacher should first determine the teaching measures that will be instituted for the students to encourage meaningful learning.

Outcome-based education simply conveys that learners should be purposefully guided. The results determine what is to be taught, what and how these are to be assessed, ensured by quality and how teaching develops or fosters proficiency in the needed outcome. In addition, the majority of the authors concurred that OBE is a strategy that encompasses sufficient evaluation of planning and training for the learners to attain the required outcomes (Spady, 1994).

The research of Nawi, Phang, Abd Rahman, and Khamis (2022) on " maintaining the quality of the master's degree programme" discusses practices for quality assurance of program based on OBE. The program's curriculum structure focuses on giving more in-depth and advanced knowledge and practices which generates more effective educators and open and remote learning for students worldwide.

OBE as a teaching model incorporates a student-centered approach. This teaching technique not only increases students' willingness to learn but also improves their academic achievement. Furthermore, the strategy has resulted in significant advances in students' general quality, autonomous learning capacities and capacity for invention. The effectiveness of this method of instruction has received positive feedback from both graduates and employers who recognised its commitment to improving teaching quality and promoting long-term educational growth. Furthermore, this model can be used to improve college education by developing students' abilities and ethical standards (Hu, Mao, Fu, Wu, & Zhou, 2023).

Oceania studied the dialectical interaction between their local and global policies, curricula, teaching and learning responses through the implementation of curriculum initiatives like OBE and new platforms for curricular delivery like ODL to show how Oceania's intricate relationships between the land, ocean, topography and people have a significant influence on local educational responses to external factors (Cobb, Fa'avae, & Joskin, 2022).

According to Nichol, De Klerk, Nel, Van Zyl, and Hay (2014), designing an educational programme in mental health for general practitioners show that online remote learning using electronic learning and little formal learning was favored as a style of instruction. The curriculum's subject matter was determined by the experts that participated in the Delphi research. A comprehensive program that demonstrates awareness of the interfaces between the various role-players, OBE and distant learning was designed using the recommendations and conclusion of the Delphi panel.

Florida (2018) observed the readiness and implementation of OBE in the performing colleges i.e. the college of education, the college of science and the college of engineering. Results showed that the faculty is well-prepared for the introduction and implementation of OBE to a large extent. There is a substantial distinction in the willingness and execution of OBE in the different colleges. Thus, these findings became an encouragement for this research to be conducted to confirm results that can shed light on the importance of actual performance and what the students can do or perform as a result of students' highest learning outcomes.

In the context of the Open University System (OUS) which uses open and distance methods, there is a requirement to use teaching methodologies that account the use of ICT. Valverde-Berrocoso, Fernández-Sánchez, Revuelta Dominguez, and Sosa-Díaz (2021) mention that in pre-COVID-19 education, ICT has only been used in a basic manner and as such educators were not prepared to use ICT at the time where open and distance learning was widely used during the pandemic. However, the OUS has been using such tools prior the pandemic and in this

study it will be hypothesized that with the OUS, having expertise in the subject of ICT is able to successfully implement OBE.

2.4. Purpose of the Research

The study aims to find out the effectiveness of OBE and its extent of implementation by the Philippine university OUS Graduate Programs with the directive of the Philippine Commission on Higher Education (CHED) to adopt the OBE framework to help meet the global standards of quality education.

The findings of this study will serve as a foundation for future researchers to plan and provide an appropriate retooling programme as well as to develop a proficiency level to achieve efficient implementation of OBE in a Philippine university, ODL graduate programs and other colleges and universities in the world that implement the same approach to education.

This study sought to answer the following questions:

1. What is the respondents' level of agreement on the effectiveness of OBE in terms of
   1.1. Learning outcomes.
   1.2. Assessment evidence.
   1.3. Teaching and learning activities.
2. What is the assessment of the respondents on the level and extent of the implementation of OBE in open and distance learning in terms of:
   1.1 Learning outcomes.
   1.2 Assessment evidence.
   1.3 Teaching and learning activities.
3. Is there a significant relationship between the assessment of the level of agreement on the effectiveness of OBE and its level of implementation in ODL?
4. Is there a significant difference in the assessment among the graduate school programs in terms of the levels of implementation of OBE in ODL?

3. Methodology

3.1. Research Design

The method used in the research is a descriptive method wherein the quantitative data is gathered through survey questionnaires and disseminated through Microsoft forms for determining the level of agreement on the effectiveness of OBE and the extent of its implementation.

3.2. Participants

The study was conducted at a Philippine university, ODL graduate school programs for the academic year 2022-2023. Table 1 shows the respondents to the study.

Table 1. Respondents of the study

Clustered programs	Population	Number of respondents
Doctor of business administration (DBA)	8	5
Doctor in education management (DEM)	36	22
Doctor of engineering management (DENG)	55	27
Doctor of public administration (DPA)	10	4
Master in business administration (MBA)	97	33
Master of arts in communication (MAC)	42	16
Master in education management (MEM)	97	52
Master of science in information technology (MSIT)	15	7
Master of public administration (MPA)	118	43
Master of science in construction management (MSCM)	121	49
Total	599	258

The respondents to the survey were graduate students from ten different graduate programmes at a Philippine institution as shown in Table 1. The total number of graduate students in a Philippine university, ODL for the academic year 2022-2023 is 599. Using a finite population and multi- stage sampling, 235 graduate students served as respondents to the study.

3.3. Instrument

A researcher-made instrument was used to gather data based on the OBE literature and studies. The items in the questionnaire were carefully reviewed by the researcher and the content was validated by experts.

Cronbach alpha was used to identify the level of reliability of the questionnaire. Similarly, the researcher first conducted a study in a similar setting. Additionally, the study used sampling procedures and no items in the questionnaire were changed. However, the research done was isolated to ten graduate programs of a Philippine university in its ODL. The study was tested on forty three respondents and showed that the Cronbach alpha of the overall questionnaire is 0.9570 which gives excellent results.

The questionnaire checklist consists of three identified areas of OBE: (1) learning outcomes (2) assessment evidence and (3) teaching and learning activities with fifteen items per area for a total of 45 items.

The questionnaire consisted of two parts: Part I for the profile of graduate students which is composed of age, sex and course or program and part II for the assessment on the level of agreement on the effectiveness of OBE and assessment on its extent of implementation using the five-point Likert scale with description presented below:

3.4. Data Analysis Framework

The researcher obtained ethical clearance from a Philippine university's research ethical committee prior to the study's conduct to assist in data collection. The questionnaires were administered to all expected graduate student respondents using Microsoft Forms. Each graduate student was emailed about their voluntary participation in the study. The data gathered were automatically tabulated, interpreted and analyzed.

Data were processed using the software, Statistical Package for the Social Sciences (SPSS). The following statistical tools were used: Descriptive statistics such as the net agreement rating was used to identify the assessment of graduate students on the level of agreement on the effectiveness of OBE. On the other hand, descriptive statistics such as the net implementation rating were used to identify the extent of OBE implementation. Moreover, Somer's Delta was used to identify the significant relationship between the assessment of the level of agreement on the effectiveness of OBE and the level of implementation of OBE in open and distance learning. A comparative analysis was also performed using the Kruskal-Wallis test to determine if the different graduate school programs were significantly different in terms of the level of implementation of OBE. If a significant difference was identified, a post-hoc Dunn's test was used to specifically check where the difference was among the programs.

4. Results and Discussions

This section discusses the data gathered, its analysis and interpretation from questionnaires completed by the graduate students about the level of agreement on the effectiveness of OBE and the level of implementation of OBE in open and distance learning.

Table 2. Assessment of agreement on the effectiveness of outcome-based education

Areas of OBE	Agree	Disagree	Net agreement rating
Learning outcomes	98.06%	1.94%	96.12%
Assessment evidence	96.51%	3.49%	93.02%
Teaching and learning activities	98.06%	1.94%	96.12%

Note: Interpretation: 70+: Excellent, 50 - 69: Very good, 30 - 49: Good, 10 - 29: Moderate, 0 - 9: Neutral.

4.1. The Level of Agreement on the Effectiveness of Outcome-Based Education

Table 2 shows the overall highest net agreement ratings of 96.12% both for learning outcomes and teaching and learning activities. Similarly, assessment evidence shows a high net agreement rating of 93.02%. Respondents believe that beginning the lesson with a clear picture of what is important for students to be able to perform successfully and integrating student learning into real-life situations are some of the most effective methods of achieving learning outcomes.

Similarly, using performance-based assessments such as oral presentations, simulations and other research activities to get a more comprehensive feedback on student performance using authentic assessment such as project and portfolio making to make students perform real-life tasks and regarding assessment as criterion-referenced by measuring the students work with the set criteria are good strategies of assessment towards authentic learning of students. On the other hand, using different media and materials to create enriched teaching or learning context, choosing the teaching method and the learning activities that could best achieve desired outcomes, restructuring the curriculum, assessment and practices to reflect the achievement of high order thinking skills and mastery and creating an environment that motivates students to accept more responsibility for their own learning are believed to be effective teaching and learning strategies towards students' meaningful learning. The findings reveal that respondents highly and excellently agree on the effectiveness of OBE in open and distance learning.

This result justifies the studies of Gurukkal (2020) and Posecion (2015) that OBE excels in providing learners with the necessary tools and skills to develop new knowledge through critical thinking and problem solving. The findings also conform to the idea of De Boer et al. (2018) and Hu et al. (2023) that OBE effectively incorporates a student-centered approach and teachers' higher expectations lead to positive students learning. Additionally, it proves that in open and distance learning, OBE can be an effective restructuring tool for identifying authentic learning outcomes, assessments and teaching and learning activities.

Table 3. Assessment of the extent of implementation of outcome-based education

Areas of OBE	Agree	Disagree	Net implementation rating
Learning outcomes	98.06%	1.94%	96.12%
Assessment evidence	95.35%	4.65%	90.70%
Teaching and learning activities	98.06%	1.94%	96.12%

Note: Interpretation: 70+: Excellent, 50 - 69: Very good, 30 - 49: Good, 10 - 29: Moderate, 0 - 9: Neutral.

4.2. The Extent of Implementation of Outcome-Based Education

Table 3 reveals the results in terms of the implementation of OBE in open and distance learning. Learning outcomes and teaching and learning activities have the highest net implementation ratings of 96.12%. Assessment evidence has a high net implementation rating of 90.70. It is believed that designing a curriculum with clearly established outcomes aiming at helping students achieve high standards to promote successful learning, planning the lesson with the end in mind and identifying what learners can actually do with what they know and have learned are highly implemented in open and distance learning. On the other hand, the respondents agree that organizing the assessments to make sure that students' learning ultimately happens, using authentic assessment and allowing students to practice self-assessment and revisit past performances are highly implemented in ODL. Similarly, the respondents agree that creating desirable teaching and learning environments that would bring about the desired changes in the learners, using different media and materials to create enriched teaching or learning context, choosing the teaching method and the learning activities that could best achieve desired outcomes and creating an environment that motivates students to accept more responsibility for their own learning

are highly implemented in ODL. The findings reveal that OBE is highly implemented in open and distance learning.

According to Florida (2018), OBE is implemented in the different colleges and university which proves the success of Memo No. 46 series of 2012 by the Philippines Commission on Higher Education as the mandate has been followed not only by the colleges but also by open and distance learning. This implication can also be interconnected with the good performance of a Philippine university which made the university known for providing quality education to its students which is reflected in the recent survey of JobStreet (2022) wherein 45% of the 550 companies preferred this Philippine university graduates over other universities.

Table 4. Correlation analysis between the level of agreement on the effectiveness of OBE and Implementation of OBE.

Areas of OBE	Correlation coefficient	P-value
Learning outcomes	0.814	0.000
Assessment evidence	0.919	0.000
Teaching and learning activities	0.874	0.000

4.3. Relationship between the Assessment of the Level of Agreement on the Effectiveness of OBE and the Level of Implementation of OBE

Table 4 exhibits the outputs that addressed the aim of examining the relationship between the assessment of the level of agreement on the effectiveness of OBE and the level of its implementation in open and distance learning. Among the three indicated areas of OBE, assessment evidence turned out to contain the highest correlation coefficient which was reflected at 0.919. Furthermore, the positive value suggests that the two variables were similar in terms of direction. In other words, OBE is an effective concept that facilitates learning, the degree to which it is implemented tends to be more apparent. In terms of significance, it can also be observed that all areas showed a p-value of 0.000 which was less than the significance level of 0.05. Pursuant to the statistical rule, the null hypothesis was rejected claiming that the relationship between each area and the level of implementation of OBE was significant.

The significant relationship between the effectiveness of OBE and the implementation of OBE implies that the implementation of OBE can be dependent on how the university regards the effectiveness of OBE. The study shows a very great extent of OBE implementation.

The series of regular seminars and training conducted in the university about OBE made the students and teachers aware of the importance and effectiveness of OBE which is also reflected in the high implementation of OBE in open and distance learning (Florida, 2018).

Table 5. Significant differences among the graduate school programs in terms of the levels of implementation of OBE.

Areas of OBE	Kruskal-Wallis H	Df	P-value
Learning outcomes	16.757	9	0.053
Assessment evidence	19.272	9	0.023
Teaching and learning activities	9.657	9	0.379

4.4. Significant Differences among the Graduate School Programs in Terms of the Levels of Implementation of OBE in Open and Distance Learning

Table 5 provides the results of the comparative analysis which was conducted in accordance with the objective of comparing the levels of implementation of OBE among the different graduate school programs in terms of three specific areas such as learning outcomes, assessment evidence and teaching and learning activities. Since the data obtained were measured on an ordinal level, the Kruskal-Wallis test was applied which is the non-parametric counterpart of the Analysis of Variance (ANOVA). According to the table below, assessment evidence was the only area with a p-value of 0.023 which was clearly below the significance level of 0.05. In this regard, the null hypothesis was rejected concluding that at least one pair of programs was significantly different. On the other hand, the remaining two areas identified as learning outcomes and teaching and learning activities both had p-values that were greater than the level of significance reflected at 0.053, and 0.279, respectively. This follows that despite the numeric variations in learning outcomes and teaching and learning activities, the levels of implementation in these two areas were statistically equal.

4.5. The Difference in Level of Implementation of OBE among Programs

Table 6 extends the results shown in the preceding table. It had been statistically demonstrated that the different graduate school programmes had substantial disparities in terms of OBE implementation levels, it was necessary to further scrutinize the comparisons by doing a post hoc analysis known as the Dunn's Test. Each possible pair of programmes was listed in the table below to see if a significant difference was found for each outcome. According to the findings, DBA and D. ENG differed significantly in terms of implementation level as indicated by the p-value of 0.036. Together with the mentioned pair were DBA and DEM with a p-value of 0.030, MBA and D. ENG with a p-value of 0.012, MBA and DEM with a p-value of 0.011, MBA and MSIT with a p-value of 0.021, MSCM and D. ENG with a p-value of 0.029, MSCM and DEM with a p-value of 0.025, and MSCM and MSIT with a p-value of 0.039. Since the identified pairs had p-values that were less than the significance level of 0.05, it was found that the levels of implementation were different among the graduate school programs mentioned and another set of programs that were paired.

To further test the difference in the implementation of OBE among programs in the assessment evidence, Post -Hoc Dunn's Test was used.

Table 6 summarizes the significant difference in the implementation of OBE in assessment evidence among programs which shows that there is a significant difference in the implementation between DBA and DENG with a .036 level of significance, DBA and DEM with a 0.030 level of significance, DBA and MSIT with a .023 level of

significance, MBA and DENG with a 0.012 level of significance, MBA and DEM with .11 level of significance, MBA and MSIT with a .021 level of significance, MSCM and DENG with a 0.029 level of significance, MSCM and MEM with a .025 level of significance and MSCM and MSIT with .039 level of significance.

Table 6. Post Hoc analysis for assessment evidence using Dunn's test.

Program	Test statistic	P-value
DBA-DPA	-19.050	0.670
DBA-MBA	-24.785	0.438
DBA-MC	-29.894	0.381
DBA-MSCM	-33.361	0.286
DBA-MEM	-51.723	0.097
DBA-MPA	-54.486	0.083
DBA-D. Eng	-68.096	0.036
DBA-DEM	-71.55	0.030
DBA-MSIT	-88.871	0.230
DPA-MBA	-5.735	0.871
DPA-MC	-10.844	0.771
DPA-MSCM	-14.311	0.679
DPA-MEM	-32.673	0.344
DPA-MPA	-35.436	0.308
DPA-D. Eng.	49.046	0.169
DPA-DEM	52.5	0.147
DPA-MSIT	-69.821	0.094
MBA-MC	-5.109	0.801
MBA-MSCM	-8.576	0.567
MBA-MEM	-26.938	0.069
MBA-MPA	-29.701	0.054
MBA-D. Eng	43.311	0.012
MBA-DEM	46.765	0.011
MBA-MSIT	-64.087	0.021
MC-MSCM	-3.467	0.856
MC-MEM	-21.829	0.251
MC-MPA	-24.592	0.207
MC-D. Eng.	38.203	0.069
MC-DEM	41.656	0.057
MC-MSIT	-58.978	0.051
MSCM-MEM	18.362	0.166
MSCM-MPA	21.125	0.129
MSCM-D Eng.	34.735	0.029
MSCM-DEM	38.189	0.025
MSCM-MSIT	55.51	0.039
MEM-MPA	-2.763	0.840
MEM-D. Eng.	16.373	0.300
MEM-DEM	19.827	0.241
MEM-MSIT	-37.148	0.166
MPA-D. Eng.	13.610	0.405
MPA-DEM	17.064	0.328
MPA-MSIT	34.385	0.205
D. Eng.-DEM	3.454	0.857
D. Eng.-MSIT	-20.775	0.462
DEM-MSIT	-17.321	0.549

The significant difference in implementation among these programs is due to the different orientation of programs on how OBE assessments are prepared both for performance-based tests and written activities considering the expectations of every graduate program. Some programs are focused on performance-based activities while others are focused on written activities. Programs may also have different criteria for giving assessments. This could be the reason for the difference in the implementation of OBE in the area of assessment evidence. Gurukkal (2020) mentions that the framework of OBE specifically its intended learning outcomes will always depend on the program requirements and will either range from research writing, applied mathematics, technological expertise or innovations.

5. Conclusion and Recommendations

5.1. Conclusion

The study's findings indicate that there is a high degree of agreement on the efficacy of OBE in all categories including learning outcomes, assessment evidence and teaching and learning activities.

It is concluded that there is a significant relationship between the agreement on the effectiveness of OBE and the extent of its implementation in open and distance learning. Similarly, there is a significant difference in the assessment of graduate students among programs in the implementation of OBE.

5.2. Recommendations

With the high level of agreement on the effectiveness of OBE in all areas including learning outcomes, assessment evidence and teaching and learning activities, it is recommended that the ODL consider all indicators of OBE to sustain or meet the international standards of quality education.

On the other hand, with the high level of agreement on the implementation of OBE in ODL, it is recommended to sustain its effective implementation of OBE and consider providing continuous support to faculty in the form of training and recommendations for scholarships for those undertaking graduate studies as these faculties are the major implementers of OBE. Similarly, with the high level of agreement on the effectiveness of OBE and its implementation, the Philippine university, the ODL may serve as a model for other educational institutions in the implementation of OBE through the conduct of national or international conferences, seminars or training.

It is also recommended that the university have a common orientation on OBE through information exchange among programs so that they are attuned to the different trends and issues in OBE implementation.

The researcher suggests further study on the following: (a) assessment of the level of readiness in OBE and extent of OBE implementation by faculty in other colleges and universities and (b) assessment of the understanding of OBE concepts and principles in other educational institutions.

List of Abbreviations

Outcome-Based Education (OBE).
Open and Distance Learning (ODL).
Open University System (OUS).
Polytechnic University of the Philippines (PUP).
Masters in Business Administration (MBA).
Masters in Education Management (MEM).
MOOCs (Massive Open Online Courses).
Basic Education Curriculum (BEC).
Understanding by Design (UBD).
Intended Learning Outcomes (ILO).
Open University (OU).
Information and Communication Technology (ICT).
Doctor of Business Administration (DBA).
Doctor in Education Management (DEM).
Doctor of Engineering Management (D.ENG).
Doctor of Public Administration (DPA).
Master in Business Administration (MBA).
Master of Arts in Communication (MAC).
Master in Education Management (MEM).
Master of Science in Information Technology (MSIT).
Master of Public Administration (MPA).
Master of Science in Construction Management (MSCM).

References

Anitha, H. M., Shubha Rao, V., & Jayarekha, P. (2023). Attainment of program outcomes in outcome-based education: A case study with operating systems course in lecture notes in networks and systems. *Information and Communication Technology for Competitive Strategies, 615*, 1–12. https://doi.org/10.1007/978-981-19-9304-6_1

Arinto, P. B. (2016). Issues and challenges in open and distance e-learning: Perspectives from the Philippines. *International Review of Research in Open and Distributed Learning, 17*(2), 162-180. https://doi.org/10.19173/irrodl.v17i2.1913

Chiang, J. L., Zhang, Z. H., & Cheng, H. C. (2022). *Supporting qutcome-based education assessment and evaluation-educational technology solution of a data visualization framework*. Paper presented at the 2022 IEEE 5th International Conference on Information Systems and Computer Aided Education, ICISCAE 2022, 219–224.

Cobb, D. J., Fa'avae, D., & Joskin, A. (2022). Locating the "sea of Islands" within an Ocean of globalization: Examining the global–local dialect in Oceania. *In International Perspectives on Education and Society, 43B*, 121–139. https://doi.org/10.1108/S1479-36792022000043B007

De Boer, H., Timmermans, A. C., & Van Der Werf, M. P. (2018). The effects of teacher expectation interventions on teachers' expectations and student achievement: Narrative review and meta-analysis. *Educational Research and Evaluation, 24*(3-5), 180-200. https://doi.org/10.1080/13803611.2018.1550834

Edwards, C. (2015). Learning outcomes at the Open University. Quality Enhancement Series. In (pp. 15). Milton Keynes: Open University.

Florida, J. U. (2018). *Readiness in outcomes-based education (OBE) and its implementations at polytechnic university of the Philippines: Inputs for retooling program*. Retrieved from https://ojs.aaresearchindex.com/index.php/AAJMRA/article/view/3483

Guggari, S., Okoye, K., & Abraham, A. (2023). Review of challenges and best practices for outcome based education: An exploratory outlook on main contributions and research topics. *In Lecture Notes in Networks and Systems, 649*, 621–639. https://doi.org/10.1007/978-3-031-27499-2_58

Gurukkal, R. (2020). Outcome-based education: An open framework. In (Vol. 7, pp. 1-4). India: New Delhi, India: SAGE Publications Sage.

Hu, A., Mao, X., Fu, C., Wu, M., & Zhou, S. (2023). Engineering curriculum reform based on outcome-based education and five-color psychology theory. *Sustainability, 15*(11), 1-20. https://doi.org/10.3390/su15118915

JobStreet. (2022). *PUP tops employers' choice survey*. Retrieved from https://www.jobstreet.com.ph/career-advice/article/pup-tops-employers-choice-survey

Le Roux, P. (2013). *Closing the distance in ODL - e-portfolio assessment*. Paper presented at the Proceedings: DMS 2013 - 19th International Conference on Distributed Multimedia Systems.

Mahrishi, M., Jain, P. K., & Hosseini, S. (2023). Towards assessment and attainment of engineering graduate attributes in outcome based education OBE. *2023 Future of Educational Innovation-Workshop Series Data in Action, FEIWS 2023*, 1–7. https://doi.org/10.1109/IEEECONF56852.2023.10104817

Musingafi, M. C., Mapuranga, B., Chiwanza, K., & Zebron, S. (2015). Challenges for open and distance learning (ODL) students: Experiences from students of the Zimbabwe open university. *Journal of Education and Practice, 6*(18), 59-66.

Navarro, R. L. (2015). Outcomes-based basic and higher educations. *The Professional Teacher*, *4*(2), 10-16.
Nawi, N. D., Phang, F. A., Abd Rahman, N. F., & Khamis, N. (2022). *Maintaining the quality of the master's degree programme in physics education at Universiti Teknologi Malaysia*. Paper presented at the AIP Conference Proceedings, *2542*, 060009.
Nichol, R. J., De Klerk, B., Nel, M. M., Van Zyl, G. J., & Hay, J. F. (2014). Designing an educational programme in mental health for general practitioners in South Africa. *South African Journal of Psychiatry*, *20*(1), 5. https://doi.org/10.4102/sajpsychiatry.v20i1.487
Patiño, Y. C. M., & Cresencio, M. A. (2020). *Implementation of outcome-based education (OBE) at graduate school: Input for competency standard development*. Retrieved from https://www.psychosocial.com/article/PR280091/15833
Posecion, O. T. (2015). Outcomes-based learning and outcomes-based assessment. *The Professional Teacher*, *4*(2), 33-35.
San Juan, R. (2019). *Philippines lowest in reading comprehension among 79 countries*. Retrieved from https://www.philstar.com/headlines/2019/12/03/1974002/philippines-lowest-reading-comprehension-among-79-countries
Seaman, J., Allen, E., & Seaman, J. (2018). *Grade increase: Tracking distance education in the United States Babson survey research group*. Retrieved from https://eric.ed.gov/?id=ED580852
Spady, W. G. (1994). *Outcome-based education: Critical issues and answers*. Retrieved from https://eric.ed.gov/?id=ED380910
Suji Prasad, S. J., Thangatamilan, M., Sureshkumar, R., & Revathi, P. (2023). Assessment of program outcomes in outcome based education through students' co-curricular activities. *Journal of Engineering Education Transformations*, *36*(4), 58–64. https://doi.org/10.16920/jeet/2023/v36i4/23115
Valverde-Berrocoso, J., Fernández-Sánchez, M. R., Revuelta Dominguez, F. I., & Sosa-Díaz, M. J. (2021). The educational integration of digital technologies preCovid-19: Lessons for teacher education. *PloS One*, *16*(8), 1-22. https://doi.org/10.1371/journal.pone.0256283
Zamir, M. Z., Abid, M. I., Fazal, M. R., Qazi, M. A. A. R., & Kamran, M. (2022). Switching to outcome-based education (OBE) system, a paradigm shift in engineering education. *IEEE Transactions on Education*, *65*(4), 695-702. https://doi.org/10.1109/te.2022.3169184
Zawacki-Richter, O., & Anderson, T. (2014). *Online distance education: Towards a research agenda Athabasca University Press*. Retrieved from http://www.aupress.ca/index.php/books/120233
Zawacki-Richter, O., & Naidu, S. (2016). Mapping research trends from 35 years of publications in distance education. *Distance Education*, *37*(3), 245-269. https://doi.org/10.1080/01587919.2016.1185079

Appendix

Appendix 1 presents the questionnaire used to gather data which is composed of two major parts, the profile of the respondents and the assessment on the level of agreement on the effectiveness of Outcome-Based Education and its extent of implementation in the three identified areas, the learning outcomes, assessment evidence, and teaching and learning activities.

Appendix 1. Questionnaire.

Part I: Profile of Respondents

Directions: Kindly fill out the information asked for. Rest assured that your identity will be kept confidential.

Name: (Optional) _____
Age: _____
Sex: _____
Graduate Program: _____

Part II: Assessment on the Level of Agreement on the Effectiveness of Outcomes-Based Education (OBE) and its Extent of Implementation

Directions: Please answer all the questions honestly. Do feel free in expressing your personal feelings and opinions. Check the box that best corresponds to your evaluation of each statement about your **level of agreement on the effectiveness of OBE and the extent of implementation of OBE.**

Please use the following scale in describing your level of agreement on the effectiveness of OBE and the extent of implementation of OBE.

Level of agreement on the effectiveness of OBE	Description	Extent of implementation of OBE
1 - Highly disagree	• Has **no agreement** on the effectiveness of OBE concepts and/or **not implementing** OBE in the teaching and learning practices.	1 - No extent
2 - Slightly disagree	• Has **minimal agreement** on the effectiveness of the OBE concepts and principles and with **some difficulties** in the implementation of OBE in the teaching and learning practices.	2 - Less extent
3 - Moderately agree	• Has **moderate agreement on the effectiveness** of the OBE concepts and principles and and/or **moderately implementing** OBE in the teaching and learning practices.	3 - Moderate extent
4 - Agree	• Has **agreement on the effectiveness** of the OBE concepts and principles and/or implementing OBE in the teaching and learning practices to a **great extent**.	4 - Great extent
5 - Highly agree	• Has **full understanding and highly agree on the effectiveness** of the OBE concepts and principles and/or implementing OBE in the teaching and learning practices to **a very great extent**.	5 - Very great extent

Figure 1. Scale and description on the level of agreement in OBE and its extent of implementation.

Table 1. Research instrument on learning outcomes.

A. Learning outcomes	Level of agreement on the effectiveness of OBE					Extent of implementation of OBE				
	1	2	3	4	5	1	2	3	4	5
1. Starting the lesson with a clear picture of what is important for students to be able to perform successfully in terms of knowledge, skills, and values.										
2. Defining learning outcomes that students have to demonstrate at the end of significant learning experiences.										
3. Designing a curriculum with clearly established outcomes.										
4. Making planning, teaching, and assessment decisions linked to the outcomes to be achieved.										
5. Expecting a total development in cognitive, affective, and psychomotor levels of students.										
6. Aiming at helping students to achieve high standards to promote successful learning.										
7. Planning the teaching and learning situations to help students achieve outcomes.										
8. Establishing high, challenging, and achievable standards of performance for students.										
9. Integrating students' learning to real-life situations.										
10. Giving students a flexible time frame to attain goals.										
11. Planning the lesson with the end in mind.										
12. Identifying what learners can do with what they know and have learned.										
13. Having high expectations for all students.										
14. Giving students more than one chance to learn important things until they achieve the desired outcomes, taking into account their learning rates and style.										
15. Following guidelines on how to teach OBE when engaging in classroom practices to achieve desired results.										

Table 2. Research instrument on assessment evidence.

B. Assessment evidence	Level of agreement on the effectiveness of OBE					Extent of Implementation of OBE				
	1	2	3	4	5	1	2	3	4	5
1. Preparing the assessment plan that defines how the learning outcomes will be monitored and evaluated.										
2. Organizing the assessments to make sure that students' learning ultimately happens.										
3. Using performance-based assessments such as oral presentations, simulations, and other research activities to get more comprehensive feedback on student performance.										
4. Giving diagnostic, formative, and summative evaluations to provide feedback for both teaching and learning improvement.										
5. Making the assessment procedures fair, comprehensive, and accurate.										
6. Emphasizing the learner's mastery of the subject related to academic content such as problem-solving and life-situational activities.										
7. Using varied assessment techniques.										
8. Using authentic assessments such as project and portfolio making to make students perform real-life tasks.										
9. Using multiple indicators of quality to measure the varied skills and abilities of students.										
10. Focusing on the application of knowledge and the demonstration of the required skills and values.										
11. Regarding assessment as criterion-referenced by measuring the students' work with the set criteria.										
12. Making assessment procedures valid and reliable by assessing what is intended to be assessed and by giving consistent results.										
13. Involving students in establishing the standards by which their work or products will be evaluated.										
14. Allowing students to practice self-assessment and revisit past performances.										
15. Using the rubric as a rating system to determine the student's level of performance in a given task.										

Table 3. Research instrument on teaching and learning activities.

C. Teaching and learning activities	Level of agreement on the effectiveness of OBE					Extent of implementation of OBE				
	1	2	3	4	5	1	2	3	4	5
1. Organizing everything in an educational system considering what is essential to all students.										
2. Creating desirable teaching and learning environments that would bring the desired changes in the learners.										
3. Increasing level of challenge to which students are exposed.										
4. Making lessons future-focused by giving a direct link to the real world.										
5. Using different media and materials to create enriched teaching/learning contexts.										
6. Using a variety of instructional activities to facilitate learning.										
7. Providing a flexible approach in time and teaching methodologies matched against the needs of the students.										
8. Choosing the teaching method and the learning activities that could best achieve desired outcomes.										
9. Ensuring that each activity, inside and outside the classroom produces the desired results.										
10. Using different learning strategies such as: a. cooperative learning, b. experiential learning, and 11. c. problem-solving to demonstrate proficiency of students in a variety of modalities.										
12. Restructuring of curriculum, assessment, and practices to reflect the achievement of high-order thinking skills and mastery.										
13. Engaging students in the learning process through active learning and participation.										
14. Sharing power from the teacher to the student, and from the student to the teacher.										
15. Creating an environment that motivates students to accept more responsibility for their learning.										
16. Transitioning the teacher's role from an expert who lectures to a coach who facilitates.										