

Best practice of ordinary national educational testing use in basic education level: a multiple-case study

Treekom Prommaboon¹, Siriluck Boongthong², Prasong Tochot³, Boontawee Imboonta¹, Prachit Intakanok¹, Veena Prachagool⁴, Prasart Nuangchalerm⁴

¹Department of Educational Testing and Research, Faculty of Education, Surindra Rajabhat University, Surin, Thailand

²Department of Thai, Faculty of Humanities and Social Sciences, Surindra Rajabhat University, Surin, Thailand

³Graduate School, Khon aken University, Khon Kaen, Thailand

⁴Department of Curriculum and Instruction, Faculty of Education, Mahasarakham University, Kham Rieng, Thailand

Article Info

Article history:

Received May 17, 2023

Revised Jan 21, 2024

Accepted Feb 29, 2024

Keywords:

Best practice
Educational measurement
Learning manangement
Multiple-case study
National educational testing
Quality of basic education

ABSTRACT

This research employed a mixed-methods approach to explore the best practices of ordinary national educational testing (O-NET) to improve the quality of basic education. The methodology was divided into four phases, the first of which was a survey and analysis of the current situation at O-NET. The sample group was made up of representatives of the school under the office of the basic education commission (OBEC), primary education, comprising the school administrators and teachers teaching in four subjects. Phase 2, "multiple case study," is qualitative research by selecting specific case studies for 10 primary schools based on criteria for selection and collecting data through in-depth interviews. A semi-structured interview form was completed by 30 key informants. Phase 3, the synthesis (draft) of best practices, and phase 4, the checking and proposing of best practices by 25 assessors. The results showed the best practices in using the test results of O-NET to improve the quality of basic education were 4 components: i) school management (16 practice guidelines); ii) learning management (10 practice guidelines); iii) student promotion (6 practice guidelines); and iv) parent communications (3 practice guidelines). The best practices were in accuracy, propriety, feasibility, and utilization; all were at the highest level.

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Corresponding Author:

Prasart Nuangchalerm
Faculty of Education, Mahasarakham University
Kham Rieng, Kantharawichai District, Maha Sarakham 44150, Thailand
Email: prasart.n@msu.ac.th

1. INTRODUCTION

The national student quality assessment is a test that is based on the 2008 basic education core curriculum's learning criteria. All students who are enrolled in grade 3, grade 6, grade 9, and grade 12 must get instruction from educational institutions. The assessment's findings will be used to compare the quality of instruction at various levels. Information to assist national policy decision-making and for use in planning to enhance the quality of education management [1]. The National Educational Testing Institute Service (Public Organization) (NIETS), often known as the fundamental national educational exam, organizes the national examination for grades 6, 9, and 12. The test's goal is to assess each student's level of knowledge and critical thinking. The exam outcomes as a requirement for graduation in accordance with the core curriculum of basic education (B.E.) 2018 and for other objectives, such as using the test results to raise teaching standards in institutions that evaluate student learning on a national level.

Data on national educational test results of all 3 grade levels, from the past, where the first test was conducted, academic year 2005 to present, academic year 2019, for more than 14 years, it was found that the national test results were averaged below 50% in almost all subjects. The latest academic year 2019 at the grade 6 level has an average of 37.99% in all subject groups, while the office of the basic commission (OBEC) has a total average score all subject groups were only 36.18%, the average percentage score of all subject groups tested in all 4 subjects in the academic year 2019 decreased when compared to the academic year 2018 (mean score decreased by 4.69%), in descending order as follows: Thai, English, science, and mathematics with an average score of 6.66%, 4.61%, 4.53%, and 4.05% respectively [2]. This reflects that the student's education is not up to the standard, especially the effect on educational management of educational institutions that requires ordinary national educational testing (O-NET) exam results to assess the quality of education. The Bureau of Educational Testing, OBEC, and the NIETS, which have set guidelines for applying O-NET test results to elevate learners, for example, an analysis of scores from the past three years to study strengths. Specifically, the curriculum standards and indicators, which students still have little to no understanding of. Points that should be developed urgently to plan for improvement include adjusting the teacher's learning management method and focusing on teachers to manage learning based on standards and indicators according to the curriculum and instructional innovations [3], [4].

The significance of the advantages of testing can enhance teachers' ability to gauge and evaluate pupils in order to advance teachers' knowledge, comprehension, and abilities. Measuring and analyzing student achievement, together with routinely supervising instructors' learning management as for the OBEC, may be utilized to measure student growth successfully. Project management and initiatives to improve the basic national exam results of all levels are the proposed determinants for success [5]. The improvement of O-NET outcomes is driven by a performance evaluation system. In order to plan the implementation to be in accordance with the NIETS, it is a strong and continually monitored and assessed the operational results of the half year and the end of the fiscal year as well as follow the news and movements on the NIETS website on a regular basis.

The results of the O-NET can be used as goals or as a way to measure how standards and practices in education can be improved. It enhances the quality of instruction as well as students' academic accomplishments, and is utilized for research in the field of education [6]. Hatsaprap [7] compiled a summary of suggestions for implementing the results of educational tests to enhance the overall quality of students in schools across three domains. In terms of the knowledge and significance of educational testing, the elements that impact the application of test results to enhance the quality of school learners and achieve success. The elements of educational institutions had a direct impact on how the evaluation findings were used at the school level [8]. Therefore, it is important to urge educational institutions to place a high value on their staff, factors in executive leadership, executives' knowledge, and executives' competency. The backdrop of educational institutions and the aspects of people characteristics in educational institutions were linked to a negative impact on the usage of the evaluation.

In addition, Saini *et al.* [9], the management element was the most important in developing learners' quality, followed by the national policy factor. When educational exam results were applied to increase learner quality by 56.4%, the student factor and the other four components were able to explain the variability of the variables. The monitoring variable from the parent agency was followed by the people factors inside the organization as the variables [10]. The assessment's information use encompasses a wide range of factors, including: i) concept uses, ii) usefulness, iii) authoritative usage, and iv) symbolic uses. These are concerns 21st century learning skills and characteristics of teacher's education development [11]. This research uses a mixed research method to explore the best practice of O-NET to improve the quality of basic education. As a result, the researcher is interested in investigating and creating recommendations for applying the O-NET results to management.

2. RESEARCH METHOD

This research is development research using mixed methods and a convergent design which is to collect both qualitative data and quantitatively by analyzing the two sets of data simultaneously or collecting non-sequential data as to which method was collected before and after. and combine the results of the analyzes obtained from the two data sets to compare the results. To examine the results of research by comparing quantitative data with qualitative data [12].

2.1. Participants

Phase 1 is survey and analysis of the current state of applying the results of the O-NET as quantitative research using survey research. The sample group was representatives of the school, comprising the school administrators under the OBEC in the Northeast and teachers teaching in 4 subjects used for

testing. The sample size was determined using G*Power [13] and compared with the Taro Yamane sample spreadsheet [14] at 95% confidence level, $\pm 5\%$ error to obtain the correct sample size, and using multi-stage random sampling. The questionnaire returned total of 1,286 people. Ethics committee approval was obtained for the research from Research and Development Institute, Surindra Rajabhat University with the decision numbered HE642007 dated June 5, 2021.

Phase 2 is multiple cases study. It is qualitative research by collecting data by in-depth interviews. Selecting specific case studies (purposive sampling) for 10 schools. The criteria for selecting the case studies are: It is a school that has a basic educational test result higher than the national average of 2 schools in each province in the 5 provincial education officer of regional education officer, namely Udon Thani Province (provincial education officer 10), Sakon Nakhon Province (provincial education officer 11) Khon Kaen Province (provincial education officer 12), Ubon Ratchathani (provincial education officer 13) and Surin (provincial education officer 14). Key informants are there are two representatives in primary schools under the office of primary education service areas, school administrators, and teachers 1 in 4 subjects used for the O-NET of 20 persons. Qualifications are school administrators and teachers in schools whose national educational test scores are higher than the national average for the academic year 2020. Parents and students 6 per school. Qualifications are parents and students whose O-NET test results are higher than the national average and voluntarily be interviewed. The research instrument was a semi-structured interview form and classified by 5 groups of samples. Ethics committee approval was obtained for the research from Research and Development Institute, Surindra Rajabhat University with the decision numbered HE642007 dated June 5, 2021.

Phase 3 is synthesis (draft) best practices; to bring the research results of phase 1 and phase 2 studies were used in the study of multiple cases study to analyze quantitative and qualitative data and synthesize (draft) best practice guidelines for using educational test results to use to improve the quality of basic education. To perform a data synthesis to organize, develop a good practice from phase 1 exploratory research. Qualitative data with the characteristics of multiple case studies in which the data is diverse, comprehensive and complete can lead to a qualitative conclusion [15]–[17].

Phase 4 is checking and proposing best practices. Implement a (draft) best practice guidelines for applying test results to assess their validity, accuracy, propriety, feasibility, and utilization and verify the accuracy of the information. The 25 assessors consisted of school administrators and teachers whose basic educational test scores were higher than the national average. They were an assessment expert of 20 persons, and 5 experts involved in national educational testing at the school district level and experts in educational research.

2.2. Data collection

Phase 1 is the researcher conducted the complete questionnaire according to the research conceptual framework and research objectives. In the form of an online questionnaire by creating a Google Form program and creating a link/QR code for the sample to answer the questionnaire. Data collection was conducted between June 1 and August 31, 2022 by coordinating with the office of primary education areas, which are targeted areas in all 5 provinces.

Phase 2 is preparing official documents to coordinate with the office of elementary education area with a sample group to coordinate the schools that were the sample group in determining the date, time, location, interview format with communication channels semi-structured interview form is also sent in document format to key informants to prepare for the indebt-interview. The appointment and conduct of in-depth interviews according to the date, time, location and interview format. including face-to-face interviews or interview via an online meeting application.

Phase 3 is a team of five researchers conducted a data synthesis to develop a best practice guideline based on two parts of the data: i) quantitative data from phase 1 survey research and ii) qualitative data with a multidisciplinary nature. Multiple case studies in which the data is diversity, comprehensive, and complete can lead to general significance conclusions by the researchers to synthesize data to develop (draft) good practice guidelines as follows: i) determine the subject and purpose to be synthesized, namely, to create good practice for utilizing the results of national educational testing; ii) analyze related documents and research and analyze the quantitative and qualitative data of the sample group of grade 6 students, parents of grade 6 students, school administrators, teachers and administrators of the education area office. to analyze the practices of the 10 case studies; and iii) synthesize guideline information obtained from related documents and research. The results of quantitative and qualitative data analysis from multiple case study to be processed as information for the preparation of (draft) good practice guidelines for utilizing the results of national educational testing.

Phase 4: i) establish (draft) best practice guidelines for applying test results to assess their validity, suitability, feasibility, and utilization and verify the accuracy of the information from the interviews and analyze the school self-assessment report documents by the assessors; and ii) coordinate the assessors via the

LINE application and electronic mail to submit drafts best practice guidelines had 25 assessors take the assessment in the online assessment.

2.3. Data analysis

Phase 1: data analysis uses descriptive statistics; mean, standard deviation. Phase 2: data analysis use content analysis, emphasizing content based on research concepts and able to answer research objectives correctly. and the analysis to create conclusions, which was the inductive analysis (analytic induction) uses interpretation to draw conclusions from the interview and analysis of educational institutions' self-assessment reports. Phase 3: data analysis use content analysis is used to present information in the form of analytical table to bring a generalizability. Phase 4: data analysis uses descriptive statistics; mean, standard deviation.

3. RESULTS AND DISCUSSION

The utilization of the test results to improve the overall quality of basic education was at a high level. When analyzing each item, the test results were used for all items at a high level with an average of between 3.63. to 4.14, with a standard deviation between 0.73 and 1.00, with the five highest mean values being i) used to improve academic quality; teaching and learning according to the curriculum; ii) Providing supplementary teaching examination preparation review; iii) enhancing motivation for achievement and student reinforcement; iv) enhancing good attitude and awareness of the importance of O-NET; and v) providing test information to students for self-improvement as presented in Table 1. The results of the analysis of best practice in using the test results to improve the quality of education in 10 schools of cases study.

Table 1. Using test results to improve the quality of basic education in schools of school directors and teachers (n =1286)

Item management	\bar{X}	S.D.	Interpret
1. Schedule to upgrade/develop national exam results (O-NET) as a school policy.	4.08	0.78	High
2. Prepare a development plan/upgrading the achievement national examination results (O-NET) to facilitate the organization of teaching activities effectively.	4.07	0.73	High
3. Communicate goals and operational guidelines by meeting to clarify/report on national exam results to teachers in each subject group.	4.07	0.74	High
4. Appoint a committee to upgrade/develop the national exam results of the school.	4.06	0.75	High
5. Communicate/convene to clarify the importance of the national test/national examination report to parents in promoting support children.	3.98	0.78	High
6. Supervise follow-up a review O-NET test results to improve teacher performance.	4.04	0.75	High
7. Promote and support the development/improvement of teaching and learning in the course/curriculum improvement.	4.03	0.76	High
8. Provide technology that is conducive to modern learning management that can search for information.	3.95	0.80	High
9. Organize the environment within the school, such as classrooms, materials, libraries, and information technology conducive to student learning.	4.00	0.81	High
10. Improve academic quality teaching and learning management according to the curriculum.	4.11	0.71	High
11. Management of personnel and suitable teachers sufficient for teaching and learning management.	4.05	0.80	High
12. Encourage and encourage teachers to conduct research in the classroom to solve problems and develop students.	3.98	0.73	High
13. Evaluate the teacher's teaching and create motivation for teachers.	3.98	0.75	High
14. Use O-NET scores for further study.	3.63	1.00	High
Teaching and learning management			
15. Manage additional teaching review to prepare for the exam.	4.14	0.72	High
16. Enhancing motivation for achievement and reinforcing students.	4.12	0.72	High
17. Enhancing a good attitude and awareness of the importance of O-NET testing.	4.12	0.72	High
18. Provide test information to students to develop yourself.	4.11	0.72	High
19. Used as a guide to learning guidelines and further education.	3.83	0.91	High
20. Develop teaching and learning management to be able to integrate teaching that covers the indicators of the study course and the O-NET exam.	4.07	0.70	High
21. Develop teachers in learning management according to indicators that emphasize analytical thinking skills.	4.07	0.71	High
22. Develop teachers in analyzing O-NET exams according to educational curriculum indicators.	4.05	0.73	High
23. Build a good relationship between teachers and students in the teaching and learning process.	4.09	0.70	High
Overview	4.11	0.54	High

3.1. School management

In terms of school management, there are best practices as follows: i) All schools have clear visions, policies, and achievement enhancements. Emphasize the participation of personnel and share responsibility; ii) All schools have clearly defined achievement goals that are appropriate to the context and readiness of the school. Making an action plan and an action calendar; iii) All schools use test results to prepare for quality assurance in schools and external quality assessment; iv) All school has a meeting to clarify and report test results to teachers in each subject group to enhance participation in planning set goals together; v) All school has a meeting of teachers for each class/work line; vi) All schools are aware of the importance of using O-NET exam results in the development of teachers' teaching and learning; vii) All schools have a national examination level up/development committee; viii) All schools are improving and improving the quality of academic work; ix) Most schools have improved and developed educational institutions' curricula and teaching and learning management according to the curriculum; x) Most schools encourage classroom research; xi) All schools have appropriate teacher personnel management; xii) All school has a promotion and budget support, xiii) All school has an information technology system and equipment for learning management that are readily available to teachers such as computers, internet, and printers in the classroom thoroughly enough; xiv) All school has a morale boost and enhancing the participation of teachers in educational institutions; xv) All school is monitored continuous supervision of learning management and student development results of teachers requires progress to be reported in learning management using the plan, do and act (PDCA) process; and xvi) All school communicates goals and guidelines for school operations to the board of directors and students' parents systematically and quickly. It in accordance with the level of using the results of the school's basic national educational test from the survey research in phase 1.

3.2. Learning management

In terms of learning management, there are best practices as follows: i) Teachers in all schools analyze the O-NET exams according to the exam issuance map and the indicators of the school curriculum; ii) Most school teachers have analyzed the weaknesses and shortcomings of the O-NET exam of the indicators according to the test blue print of NIETS; iii) Teachers in all school have learning planning and management according to the indicators and test blue print of NIETS; iv) Teachers in most schools have planning and organizing supplementary teaching. A review of grades 4-6 to prepare for the exam; v) Teachers in all school's plan and organize supplementary teaching. Reviewing the content of grades 4-6 and tutoring exams to prepare for the exam; vi) Teachers in all schools have to foster good relationships between teachers and students in the teaching and learning process; vii) Teachers in all schools have developed the capacity of information technology for effective learning management; viii) Teachers in all schools are prepared in terms of materials and equipment. Teaching media in a variety of formats suitable for the student's condition; ix) Teachers in all schools have a wide variety of measurements and assessments. results-oriented and analytical thinking to apply knowledge to the test; and x) teachers in all schools have a vocational learning process. Professional learning community, it is in accordance with the level of using the results of the school's basic national educational test from the survey research in phase 1.

3.3. Student's engagement

In terms of student, there are best practices as follows: i) Students in all schools receive test information to students to develop yourself and create awareness for students from grade 5; ii) Students in all schools are motivated morale and reinforcement for students by senior role models; iii) Students in all schools are encouraged to take O-NET exam skills by practicing on past exams and practice exercises to build on their knowledge for future testing and use; iv) Students in all schools are guided by learning guidelines. Recognizing the importance of testing and further study by applying the results of the O-NET test; v) Students in all schools are encouraged. Students are responsible and willingness to learn in class; and vi) Students in some schools reduce non-essential activities for grade 6 students. It in accordance with the level of using the results of the school's basic national educational test from the survey research in Phase 1.

3.4. Parents involvement

In terms of parents, there are best practices as follows: i) All schools have public relations communication. Meeting to raise awareness of the importance of school policy and goals and participate in supporting educational institutions; ii) All schools have support for parents to supervise and encourage their children in learning development; and iii) Most schools have fostered parents' pride in their children's achievements. It in accordance with the level of using the results of the school's basic national educational test from the survey research in phase 1. The results of the best practice quality assessment; In terms of school management, learning management, student's promotion, and parent's communications, it consisted of four assessments, namely, accuracy, propriety, feasibility, and utilization all practices were highest as shown in Table 2.

Table 2. The results of the best practice quality assessment (n=25)

Best practice	Accuracy		Propriety		Feasibility		Utilization	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
School managements	4.90	0.30	4.85	0.42	4.84	0.47	4.83	0.48
Learning management	4.84	0.36	4.85	0.40	4.89	0.35	4.88	0.35
Student's promotion	4.83	0.37	4.88	0.36	4.83	0.46	4.84	0.42
Parent's communications	4.94	0.22	4.92	0.27	4.92	0.32	4.97	0.16

The best practices for using test results to improve educational quality consisted of four strategies: i) school management; ii) the school has provided internal supervision to supervise; iii) direct and monitor the use of the curriculum; and iv) is a leader in curriculum management by coordinating with personnel in all departments and promoting internal supervision. The school has an internal supervision system and management provides support for budget equipment. The enthusiasm for implementing the project monitoring and evaluating the results of supervision management within the school and encourage teachers to have a real understanding of supervision within the school [18]–[20]. This is in line with the recommendations made by the Bureau of Educational Testing of OBEC, which suggests examining the outcomes of the O-NET exams taken over the course of the previous three years to investigate the areas in which students excelled [21]. Things that require immediate attention, particularly the standards and indicators from the curriculum's very last order that the students still do not comprehend well or at all. Including matters that require urgent attention in order to plan for additional changes. In addition, teachers must familiarize themselves with their students.

Therefore, it motivates students to take the exam fully, which consists of the Bureau of Educational Testing of OBEC, it proposes a way to improve O-NET test results by raising awareness of the importance of the benefits of testing based on its true potential. It is strongly suggested that teachers do research in the classroom to find solutions to problems and help students grow, especially when it comes to improving their academic skills [22]–[24]. School is a good place to learn, the private teacher development part of the school is in charge of providing learning resources and evaluating teachers' lessons on a regular basis so that the school can keep track of its overall direction and standards. Additionally, provide incentives, such as boosting teachers' pride by honoring or recognizing them, boosting morale, and motivating teachers, similar to what other schools associated with it do [25], [26].

This is consistent with the Bureau of Educational Testing of the OBEC has proposed a guideline for improving O-NET test results to provide teachers with regular supervision of learning management, the academic performance of secondary schools. There was academic excellence in the basic educational quality assessment project for the quality assurance [27]–[29]. That is a leader in curriculum management by coordinating with personnel from all departments and promoting internal supervision work the school has an internal supervision system. Management provides support for budget equipment, and morale in the implementation of the project monitoring and evaluating the results of supervision management within the school and encourage teachers to have a real understanding of supervision within the school [30], [31]. Schools should clarify, provide information and report test results to students. Including guidance on studying or continuing education so that students can see and discover their potential and provide feedback to students and prepare for study and further education at a higher level [32]–[33].

4. CONCLUSION

It is critical to improve management quality so that it is efficient and effective. It is a means of encouraging parental involvement in learning and supporting kids at various levels of understanding and thought. The basic education core curriculum of 2008, a quality management standard, states that learners should be good, clever, happy, and capable of continuing their education, in order to enable students to fulfill their course objectives. after completing their basic education, the learners are moral, ethical, and desired values. and occupation. The best practices based on the knowledge synthesized from this research can increase organizations' and their adopters' confidence that they are workable and have the potential to dramatically improve education quality.

ACKNOWLEDGEMENT

This research financially supported by National Institute of Educational Testing Service (Public Organization) Fiscal Year 2021. The authors also would like to thanks Mahasarakham University for financially support in publication.




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BIOGRAPHIES OF AUTHORS






Treekom Prommaboon    is an assistant professor of educational research and assessment. He has been working for Faculty of Education, Surindra Rajabhat University in Thailand. His research focuses on teacher education, educational quality, educational research, and professional development. He can be contacted at email: Trkm_pro@hotmail.com.






Siriluck Boongthong    is a lecturer of Thai language instruction. She has been working for Faculty of Humanities and Social Sciences, Surindra Rajabhat University in Thailand. Her research focuses on teacher education, Thai language, communicative teaching, and professional development. She can be contacted at email: siriluckboongthong5751@gmail.com.






Prasong Tocht    works for Graduate school, Khon Kaen University in Thailand. His research focuses on teacher education, educational quality, educational research, and professional development. He can be contacted at email: grad@kku.ac.th.







Boontawee Imboonta    is an assistant professor of educational research and assessment. He has been working for Faculty of Education, Surindra Rajabhat University in Thailand. His research focuses on teacher education, educational quality, educational research, and professional development. He can be contacted at email: Imboonta_kku@hotmail.co.th.







Prachit Intakanok    is an assistant professor of educational technology and communication. He has been working for Faculty of Education, Surindra Rajabhat University in Thailand. His research focuses on teacher education, educational technology, ICT for education, and professional development. He can be contacted at email: prachit@srru.ac.th.



Veena Prachagool     is an assistant professor of curriculum and instruction. She has been working for Faculty of Education, Maharakham University in Thailand. Her research focuses on teacher education, young children learning, literature-based learning, and professional development. She can be contacted at email: veena.p@msu.ac.th.



Prasart Nuangchalerm     is an associate professor of curriculum and instruction. He has been working for Faculty of Education, Maharakham University in Thailand. His research focuses on teacher education, inquiry-based learning, pedagogical content knowledge, science teaching, and professional development. He can be contacted at email: prasart.n@msu.ac.th.