International Journal of Research Studies in Education
2026 Volume 15 Number 25, 173-184

Development of a worktext in statistics and probability 10



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Received: 6 November 2026
Revised: 19 November 2026
Accepted: 21 November 2026
Available Online: 22 November 2026
DOI: 10.5861/ijrse.2026.26490

ISSN: 2243-7703
Online ISSN: 2243-7711

OPEN ACCESS

Abstract

This study aimed to develop and validate the Good in Numbers Worktext in Mathematics 10, focusing on the topics of Probability and Statistics for the Third Quarter of School Year 2019–2020. Specifically, it identified the challenges encountered by Grade 10 Mathematics teachers and developed an instructional material to address the identified needs. The study employed a Research and Development (R&D) design guided by the ADDIE model, consisting of Analysis, Design, Development, Implementation, and Evaluation. Interviews were conducted with Grade 10 Mathematics teachers in the Schools Division of Candon City to identify instructional challenges, while the developed worktext was evaluated by mathematics teachers and school heads from public and private schools in Ilocos Sur using the Department of Education's Learning Resources Management and Development System (LRMDS) Evaluation Rating Sheet for Print Resources. Findings revealed four major challenges: learners, instructional materials, physical facilities, and curriculum. The developed worktext covered permutation and combination, probability of compound events, mutually and not mutually exclusive events, and probability of independent events. The validation results showed that the worktext met and exceeded the prescribed standards in terms of content, format, presentation and organization, and accuracy and up-to-datedness. The findings established that the Good in Numbers Worktext is a valid and acceptable supplementary instructional material for teaching Mathematics 10.

Keywords: good in numbers worktext, mathematics 10, probability and statistics, instructional material development, worktext validation

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1. Introduction

Excellence in mathematics education has long been considered an indicator of global competitiveness. In the Philippines, one of the educational system goals is to uplift the quality of mathematics education and to increase the numeracy skills of the students. Learning mathematics is very significant in the field of education. It is not just one of the subjects in the school curriculum, but also a springboard for scientific and technological evolution. When used properly, mathematics helps develop one's critical, analytical, and logical thinking. In this 21st century, where Science and Technology are significantly influential, Mathematics is given more emphasis and importance in all science-related topics and discussions because of its nature of efficiency and accuracy. Through Mathematics, Science keeps on making progress, which is why it is always said that "Mathematics is a science of all sciences and an art of all arts," as Sharma (2018) emphasized.

One of the reasons why one should study mathematics is its importance in the development of modern science. And so, they say that mathematics is the mother of modern science. Equations and algorithms, which are the basics of mathematics, are implicitly used in other sciences (Cariaso, 2016). Mathematics needs not to be stressed; even if it is not easy to perceive by the majority, this can still be appreciated. Enjoyment of the subject relies on its meaningfulness and the dynamics of the concept illustrated. It is the essential role of the teachers to guide and direct the student in getting knowledge. Thus, the right ground on methods, strategies, and techniques must be considered in giving a comprehensive environment that arouses the interest of students and challenges them to a higher level of learning mathematics (Herrera, 2017).

Filipino students were among the lowest-performing groups of students among all the participating countries in the 2018 Programme for International Student Assessment (PISA). In mathematics, less than 20% of students demonstrated the minimum proficiency level (Level 2), while more than 50% showed very low proficiency (below Level 1). Scoring the lowest level of proficiency in the PISA, these Filipino students have been left behind in terms of mathematics education; more than half of this age group of Filipino students need more mathematical skills compared to their peers in other parts of the world. The poor performance in mathematics also varies in degree between the students in public and private schools, where the means were 343 and 395, respectively (Bernardo et al., 2020).

Braza and Supapo (2014) claimed that the shortcomings that can affect students' achievement in mathematics are lack of mastery of the basic concepts and skills, lack of problem-solving and critical thinking skills, diverse behavior of students, and inappropriate teaching skills and approaches of teachers in dealing with the students in a class of mathematics. Most of the students feel it is difficult and tiresome to handle the subject. Thus, it is a great challenge for teachers to have a couple of solutions for coping with these problems in the classroom. One of these is that a teacher must incorporate cooperative learning in the class as a reciprocal learning strategy. Concerned Mathematics educators provide framework-like instructional materials to conduct their lessons. The educator utilizes instructional materials like workbooks, computers, modules, and the like for instructional purposes. Furthermore, it can be used to arouse interest, provide information not available in the text or expand on text material, introduce students' different points of view, provide illustrations, provide practice opportunities, summarize information, and provide individual differences (Salavatore, 2014).

Instructional materials play a key role in the changes that move toward inquiry-centered and standard-based instruction. These are utilized to transfer information to learners. Hence, a successful teaching-learning process can be achieved if the instructional materials are well organized, constructed, and presented properly. Consequently, Salavaria (2014) mentioned the use of instructional materials to provide learning activities for practice and drill needs realistic guidelines for their application in a classroom setting. Students will learn more easily and remember

information longer if they individually practice what they understand or have learned through prior classroom experiences. The teacher needs to provide a variety of interesting drill items and situations in which students can use the skill or knowledge in other phases of learning.

The researcher and her co-teachers experienced the unavailability of simplified and localized instructional materials needed in teaching Grade 10 Mathematics that would suit the level of the student's abilities, and activities relative to their experiences, cultures, and beliefs. A worktext as an instructional material is an important tool in the process of learning. It does not only enhance the knowledge, thinking skills, and communicative competence of the learners, but also enables them to achieve the learning objectives effectively and interestingly. It is an important tool in the process of learning and could enhance the knowledge, thinking skills, and communicative competence of the learners and enable them to achieve the learning objectives effectively and efficiently (San Andres, 2015).

Most workbooks are frequently referred to as worktexts since they typically give both drills and reviews, and instructions and practices. The old Trivia-Based Approach to learning, in which students are constantly exposed to the same material along with the many activities in the course, is still frequently used in modern workbooks and worktexts. Although this method is effective for improving rote memorization, it does not give students enough chances to apply their information to new contexts or in useful ways. Higher-order thinking abilities should be considered and emphasis for greater quality result (Salavaria, 2014). Therefore, it is critical to remember that adequate instructional aids for teaching and learning should be provided to improve student performance. Both teacher quality and material resources are intimately related (Matsumoto, 2019). Teachers need a supply of adequate and relevant materials to teach their subjects. Also, they need to be creative and resourceful for them to effectively and efficiently teach their subjects. Part of being resourceful, they can also improvise materials, especially those that are costly. Moreover, many students with low grades in Mathematics and the complaints of mathematics teachers about the students' poor mathematical skills are alarming proofs of the students' difficulty in mathematics. One reason perceived by the researcher, as well as by other mathematics teachers, is the lack of textbooks suited to students' levels (Ballado & Espinar, 2017).

According to Gibbon (2012), as cited by Ballado and Espinar (2017), the need to develop self-instructional materials with the current shift toward individualized programs at all levels of instruction is an approach that provides opportunities to develop a coherent instructional program that tolerates and nurtures widely divergent goals and accomplishments. The teacher must develop instructional materials suited to special group of individuals, whether the instruction is intended for the whole class or a student. Through this concept, the researcher is positive that developing additional instructional materials that are directly based on the learning competencies of Grade 10 and their localization can be of great help in improving the performance of students. The researcher strongly believes that the worktext in Grade 10 mathematics can remedy the inadequacy of instructional materials in the school, enrich the teaching of mathematics, facilitate the improvement of instruction, and thereby produce competent students in mathematics. With all the arguments presented, the researcher hopes that the worktext serves its purpose to the fullest once approved and validated.

Statement of the Problem- This study aimed to develop and evaluate worktext in Mathematics 10 for the Third Quarter of the School year 2019-2020. Specifically, it sought to answer the following questions:

- What are the challenges encountered by teachers in teaching Grade 10 Mathematics teachers?
- What instructional material may be developed to address the challenges faced by the Grade 10 Mathematics Teachers?
- What is the level of validity of the developed worktext in terms of content, format, presentation and organization, and accuracy and up-to-datedness of information?

Conceptual Framework - In the conduct of the study, the researcher was guided by the research paradigm illustrated below.

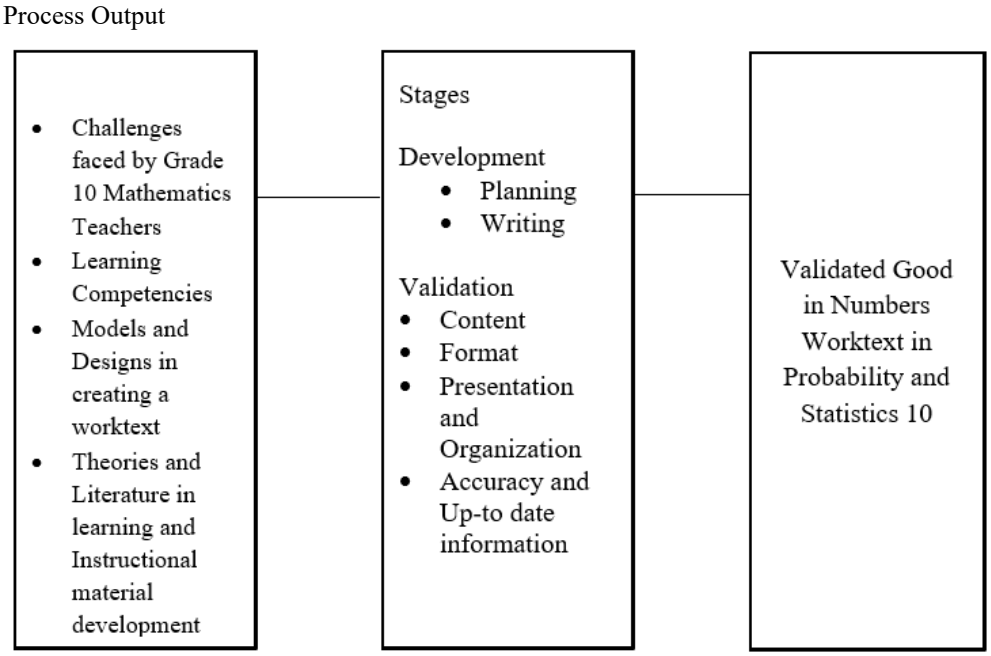


Figure 1. Research Paradigm

The model showed that the proposed worktext underwent a process of development and evaluation from planning and reviewing learning competencies to developing worktext in Probability and Statistics where there is a need to input the challenges faced by the Grade 10 Mathematics Teachers. The challenges faced by the teachers were used as the basis for crafting different learning materials as an aid to the teaching-learning process. The different designs in creating a worktext and theories on instructional material development were carefully assessed and utilized in making the learning material, which later is evaluated in terms of content, format, presentation, organization, Accuracy, and Up-to-date information until the revising and finalizing part.

2. Research Methodology

This section includes the research design, population and sample, data gathering instruments, data gathering procedure, ethical consideration, and statistical treatment.

Research Design - This study utilized a Research and Development (R & D) design. According to Borg & Gall (1983), a developmental study is a disciplined inquiry conducted in the context of the development of a product or program to improve the thing being developed. The research and development methodology (Research-Based Development) used in the development and validation of a Worktext in Grade 10 Mathematics. The five key features considered in writing the worktext were adopted from the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation. The development portion dealt with the determination of the learning competencies in Grade 10 Mathematics as prescribed by the Department of Education, as well as determining the adequacy of the existing instructional materials used in the subject.

Respondents of the Study - The respondents of the study composed of two groups. The first group composed of Grade 10 Mathematics teachers from different schools within the Schools Division of Candon City. This group was interviewed to find out their challenges in teaching Mathematics 10. The second group composed of validators of the worktext. These are experts in the field of Mathematics.

Data Gathering Instrument - To establish the validity of the Good in Numbers Worktext in Probability and Statistics 10, a questionnaire was adopted from the Evaluation Rating Sheet for Print Resources under the Learning

Resources Management and Development System (LRDMS) of the Department of Education. The following were the indicators for the level of content: format validity, presentation and organization validity, and accuracy and up-to-dateness of information. The following numerical scales were used to measure the level of adequacy of the instructional materials in Grade 10 Mathematics. For Factors 1, 2, and 3, Content, format and presentation, and organization of the worktext, the weighted mean was used. The following numerical scale was used to measure the validity of the material as to content.

The evaluation of the worktext was based on four criteria: content, format, presentation and organization, and accuracy and up-to-date information, each assessed using a 4-point scale with corresponding descriptive ratings. For the first three criteria—content, format, and presentation and organization—the ratings were Very Satisfactory (4), Satisfactory (3), Poor (2), and Not Satisfactory (1), with minimum passing scores of 21 out of 28 for content, 54 out of 72 for format, and 15 out of 20 for presentation and organization. In contrast, Criterion 4—accuracy and up-to-date information—used a different scale: Not Present (1), Present but very minor and must be fixed (2), Present and requires major redevelopment (3), and Poor (4), with a strict passing requirement of 24 out of 24 points, indicating that the information must be fully accurate and current to meet the standard.

Data Gathering Procedure - In the organization, construction, and evaluation of the Worktext in Probability and Statistics 10, the researcher utilized the following stages in the R and D cycle, which was presented in the diagram below.

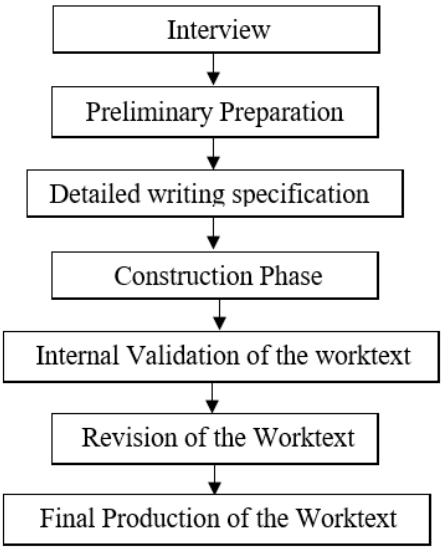


Figure 2. Schematic diagram showing the steps in the development of the Good in Numbers Worktext for Probability and Statistics 10.

The study utilized 3 stages in the development and evaluation of Good in Numbers worktext in Probability and Statistics 10.

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- Phase 1 (Interview). An interview was done to assess the challenges faced by the Grade 10 Mathematics teachers, and a needs assessment survey was conducted to identify the needed Instructional Material/s to address the gaps in the teaching-learning process.
- Phase 2 (Preliminary preparations). Before the writing of the Worktext for Grade 10 Mathematics, the researcher examined the learning competencies of Grade 10 Mathematics. Different books in Grade 10 mathematics were gathered from which concepts were taken.

- Phase 3 (Detailed writing of specifications). Before constructing the Good in Numbers Worktext for Grade 10 Mathematics, topics were outlined based on the K-12 Basic Education Curriculum. The prescribed font style and size used by the Department of Education was Times New Roman, 12 in an A4 paper size.

Development Stage

- Phase 4 (Construction Phase). After gathering the necessary information, objectives were set and lifted from the curriculum guide of Grade 10 Mathematics. Constant consultation from the different reference books and examples for each topic as the exercises were carefully designed by the researcher. The worktext was intended to be worked on by the learners individually. The worktext has 3 basic parts, namely, Learning Competencies, Lecture Notes, and Activities. The different activities were categorized into three: warm-up, power plus, and challenge.

Validation Stage

- Phase 5 (Internal Validation of the Simplified Worktext). The worktext in Probability and Statistics 10 was evaluated by 20 experts in the field of mathematics, specifically 10 from public and 10 from private institutions who had teaching experiences in Grade 10 Mathematics. The evaluators were given three weeks to read the manuscript and complete the questionnaire. They were asked to write all their comments and suggestions to improve the Worktext in Probability and Statistics 10.

- Phase 6 (Revision of the Simplified Worktext). The pooled evaluation and comments of the evaluators were used as the basis for the revision of the worktext in Mathematics 10.

- Phase 7 (Final Production of the Simplified Worktext). The final production was done upon revision and finalization of the Worktext on the approved format and method of presentation and incorporating all suggestions made by the evaluators.

Ethical considerations - This study is mainly for academic purposes. The researcher did not impose any harm on the respondents and only revolved around their personal experiences. Therefore, it was safe to declare that there was no conflict of interest during the conduct of the study as to the aim to develop and evaluate a worktext in Statistics and Probability 10. The confidentiality and anonymity of the respondents were guaranteed to avoid the vulnerability of the data collected from the subjects being released. The researcher showed a strong concern for respondents' anonymity and confidentiality by utilizing study codes on data documents like the completed questionnaire rather than entering identifying information. Also, the researcher maintained a second document that ties the study code to individuals' data protected in a different place and only permitted principal investigators' access. Using codes, the respondents' identities were kept confidential, and all study data and materials were kept in the researcher's custody in a locked filing cabinet. All materials will be destroyed after they are no longer required for study. Notwithstanding the high vulnerability of the information provided by respondents, the researcher anticipated that using study codes would be a useful way to safeguard researchers' privacy. Rather than identifying information, study codes were used in the data collection instruments to protect researchers' responses. If a data-sheet is misplaced or stolen, having the data protected by a study code may prevent anybody who examines the data from discovering the respondent's identity. Before delivering the necessary survey responses, informed consent was stated in the questionnaire used for data collection. This reduced dangers to an absolute minimum, and to minimize any hazards, nonetheless, every effort was made. There was no financial remuneration for the respondents' involvement in this research.

Statistical Treatment of Data - Mean. It was used to describe the validity of the worktext in Probability and Statistics 10, and it was the primary statistical tool used in the study.

3. Results

3.1 The result of the evaluation of the developed worktext in terms of Content, Format, Presentation and Organization, Accuracy and Up-to-datedness?

The Good in Numbers Worktext for Probability and Statistics under Mathematics 10 scored an average of 25.95. This score exceeded the required minimum score of 21 points out of 28 (maximum), therefore, the material passed the criteria. Regarding the mean ratings per item, the first two items. 1. (*Content is suitable to the student's level of development),* and 2. (*Material contributes to the achievement of specific objectives of the subject area and grade/year level for which it is intended*). Under content validity, it scored average ratings which is equivalent to 3.80. On the other hand, Item 7 (*Adequate warning/cautionary notes are provided in topics and activities where safety and health are of concern)* obtained the lowest with a mean rating of 3.50. The material passed the evaluation because it is aligned with the competency standards set and prescribed by the Department of Education. In addition, the worksheet is deemed appropriate to the level of the students and understanding. Table 1 presents the validation of the evaluators in terms of content.

Table 1
Evaluation in Terms of Content

Factor 1: Content	$\bar{x}$	Description
1. Content is suitable to the student's level of development.	3.80	Satisfactory
2. Material contributes to the achievement of specific objectives of the subject area and grade/year level for which it is intended.	3.80	Satisfactory
3. Material provides for the development of higher cognitive skills such as critical thinking, creativity, learning by doing, inquiry, problem solving, etc.	3.75	Satisfactory
4. Material is free of ideological, cultural, religious, racial, and gender biases and prejudices.	3.75	Satisfactory
5. Material enhances the development of desirable values and traits	3.60	Satisfactory
6. Material has the potential to arouse the interest of the target reader.	3.75	Satisfactory
7. Adequate warning/cautionary notes are provided in topics and activities where safety and health are of concern.	3.50	Satisfactory
Total	25.95	Passed

For overall: < 21 Failed, 21 and above Passed

Overall, the worktext is believed to help develop cognitive skills such as problem solving, critical thinking, and learning by doing. It is also free from any form of biases (religious, gender, cultural, and ideological). This conforms the study of Mallari (2013) led to the findings that the mathematics experts evaluated the relevance of the contents, adequacy of the scope, and appropriateness of the teaching procedures of the worktext as highly acceptable.

Table 2 presents the validation of the evaluators in terms of format.

Table 2
Evaluation in Terms of Format

Factor 2: Format	$\bar{x}$	Description
1. Prints		
1.1 Size of letters is appropriate to the intended user.	4.00	Very Satisfactory
1.2 Spaces between letters and words facilitate reading.	3.75	Satisfactory
1.3 Font is easy to read.	4.00	Very Satisfactory
1.4 Printing is of good quality (i.e., no broken letters, even density, correct alignment, properly placed screen registration).	3.65	Satisfactory
2. Illustration		
2.1 Simple and easily recognizable.	3.75	Satisfactory
2.2 Clarify and supplement the text.	3.60	Satisfactory
2.3 Properly labelled or captioned (if applicable)	3.75	Satisfactory

2.4 Realistic / appropriate colors.	3.75	Satisfactory
2.5 Attractive and appealing.	3.70	Satisfactory
2.6 Culturally relevant.	3.45	Satisfactory
3. Design and Layout		
3.1 Attractive and pleasing to look at.	3.80	Satisfactory
3.2 Simple (i.e., does not distract the attention of the reader).	3.75	Satisfactory
3.3 Adequate illustration in relation to text.	3.60	Satisfactory
3.4 Harmonious blending of elements (e.g., illustrations and text).	3.65	Satisfactory
4. Paper and Binding		
4.1 Paper used contributes to easy reading.	3.90	Satisfactory
4.2 Durable binding to withstand frequent use.	3.75	Satisfactory
5. Size and Weight of Resource		
5.1 Easy to handle.	3.85	Satisfactory
5.2 Relatively light.	3.90	Satisfactory
TOTAL	67.6	Passed

For overall: < 54 Failed and 54 above Passed

It can be gleaned from the table that the worktext passed the evaluation in terms of format as manifested by the total mean of 67.70 which is greater than the 54-passing score. This means that the material met the requirements for print, illustration, design and layout, paper and binding, and size and weight. The material passed the evaluation because the material is clear, readable and is of good quality. This conforms the study of Selga (2013) that the worktext was "very highly valid" along format whereas the highest factor along its prints got the highest mean while the Size and Weight attained the lowest. The printing, as regards the font size, style, and spaces, is of good quality and may need fewer enhancements.

Table 3 presents the validation of the evaluators in terms of presentation and organization.

Table 3
Evaluation in terms of Presentation and Organization

Factor 3: Presentation and Organization	$\bar{x}$	Description
1. Presentation is engaging, interesting, and understandable.	3.65	Satisfactory
2. There is a logical and smooth flow of ideas.	3.65	Satisfactory
3. Vocabulary level is adapted to target reader's likely experience and level of understanding.	3.85	Satisfactory
4. Length of sentences is suited to the comprehension level of the target reader.	3.65	Satisfactory
5. Sentences and paragraph structures are varied and interesting to the target reader.	3.85	Satisfactory
Total	18.65	Passed

For overall: <15 is Failed and 15 and above passed.

Table 3 shows the result of the evaluated validation of the Good in Numbers Worktext for Probability and Statistics under Mathematics 10 in terms of presentation and organization with a total mean of 18.65, which is greater than 15 passing score. Indicators 3 (*the vocabulary level adapted to the target reader's likely experience and level of understanding*) and 5 (*sentences and paragraph structures are varied and interesting to the target reader*), manifested the highest weighted mean of 3.85. This means that the developed instructional material contains appropriate vocabulary suitable to the level of comprehension and learning ability of the students and well-structured and contextualized sentences and paragraphs that may instigate the learners' interest.

On the other hand, indicators 1 (*presentation is engaging, interesting, and understandable*), 2 (*there is logical and smooth flow of ideas*), and 4 (*length of sentences is suited to the comprehension level of the target reader*) got the lowest rated as satisfactory with a 3.65 weighted mean. These are areas for improvement for succeeding revision of the material. This implies that the developed worktext may need further polish in the presentation of engaging, interesting, understandable, and logical flow of ideas, and the length of sentences fitted to the level of the learners. Thus, developed material was well-presented and with well-organized problems and localized task-based activities that motivate engagement in learners that passed the evaluation. The result supports the idea of Bolstad and Gilbert (2012) that teachers need to create materials that will reinforce the learners' intellectual

curiosity, problem identification, problem-solving skills, and the construction of new knowledge.

Table 4 presents the validation of the evaluators in terms of accuracy and up-to-datedness of information.

Table 4
Evaluation in terms of Accuracy and Up-to-datedness

Factor 4: Accuracy and Up-to-datedness of information	$\bar{x}$	Description
1. Conceptual errors.	4	Not Present
2. Factual errors.	4	Not Present
3. Grammatical errors.	4	Not Present
4. Grammatical errors.	4	Not Present
5. Obsolete information.	4	Not Present
6. Typographical and other minor errors (e.g., inappropriate or unclear illustrations, missing labels, wrong captions, etc.).	4	Not Present
Total	24	Passed

For overall: 24 to passed

As gleaned from the table, the material attained a perfect score of 24 points. It can be inferred that the material was described as not present in terms of accuracy and up-to-datedness of information. Thus, there were no seen errors in the concept, facts, grammar, typography, and other minor errors such as inappropriate or unclear illustrations, missing labels, and wrong captions used in the developed worksheet in Probability and Statistics in Grade 10 that passed the evaluation. Furthermore, it was also noticed that obsolete and out-of-date information were not present in the material. Giving accurate and updated problems and context to the students will keep their interest in answering the worktext. This conforms the study of Selga (2013) that the worktext was rated in general as "very highly valid" along accuracy and up-to-datedness of information. This indicates that facts about the topic were not present, grammatical errors were minimized, the information in the various topics are also up to date. This also further implies that the illustrations were appropriate to the concepts presented, pictures were in place, and charts accompanying presented data were truthful. The evaluators suggested to add more interactive activities in the worktext.

Table 5 presents the summary of the evaluator's evaluation on the worktext.

Table 5
Summary of the Evaluator's Evaluation of the Worktext

Aspects of Evaluation	Score	Description
Factor 1: Content	25.95	Passed
Factor 2: Format	67.45	Passed
Factor 3: Presentation and Organization	18.65	Passed
Factor 4: Accuracy and Up-to-datedness	24	Passed

Using the LRMDS guidelines for assessment and evaluation, the Good in Numbers Worktext is acceptable as a printed learning resource for Probability and Statistics 10. The evaluation reflected scores which exceeded the minimum score for each criterion. In terms of Content, it exceeded the required minimum score of 21 points out of 28 (maximum), therefore, the material passed this criterion. In terms of format, it is manifested by the total mean of 67.70, which is greater than the 54-passing score. In terms of presentation and organization with a total mean of 18.65, which is greater than 15 passing score. Lastly, in terms of Accuracy and Up-to-datedness, attained a perfect score of 24 points. The evaluation reflected that the scores exceeded the minimum score for all the criteria.

4. Conclusions and implications

This study aimed to develop and validate a contextually relevant, learner-centered worktext titled "The Good in Numbers Worktext" for Probability and Statistics, specifically designed for Grade 10 Mathematics under the K to 12 curriculum. The research employed a Research and Development (R&D) design, with validation conducted using the Evaluation Rating Sheet for Print Resources from the Learning Resources Management and Development System (LRMDS) of the Department of Education. This instrument was administered by 20 secondary mathematics teachers and school heads from public and private schools in Ilocos Sur. Grade 10 Mathematics teachers identified several persistent challenges, including learners' varying levels of readiness, a

lack of adequate instructional materials, limited physical facilities, and curriculum demands that hinder effective teaching and learning. These findings underscore the need for contextualized, reliable, and accessible learning resources to support educators.

The study resulted in the creation of a comprehensive worktext that systematically addresses key competencies in Probability and Statistics, including permutation and combination, probability of compound events (union and intersection of events), mutually and non-mutually exclusive events, and probability of independent events. Validation outcomes revealed that "The Good in Numbers Worktext" exceeded minimum standards across all four evaluation criteria: content, format, presentation and organization, and accuracy and up-to-dateness of information. In terms of content, the worktext achieved a mean score of 25.95 out of 28, surpassing the passing threshold of 21, indicating strong alignment with learning objectives, cognitive development, and value integration. For format, it scored 67.45 out of 72, exceeding the 54-point passing mark, reflecting high-quality typography, layout, illustrations, and physical design. In presentation and organization, it earned 18.65 out of 20, above the 15-point requirement, demonstrating clear logical flow, age-appropriate language, and engaging structure. Lastly, accuracy and up-to-dateness achieved a perfect score of 24/24, indicating no conceptual, factual, grammatical, typographical, or outdated information. The challenges faced by Grade 10 Mathematics teachers highlight the need for contextualized learning resources that are reliable and accessible. "The Good in Numbers Worktext" effectively addresses core competencies through well-structured, engaging, and conceptually sound content, making it a valid and reliable instructional tool for Grade 10 learners. Its high acceptability as a printed learning resource is evident from its exceeding of all minimum validation standards across evaluation criteria.

For teachers, the worktext provides a ready-to-use, research-based, and validated resource that reduces preparation time and enhances lesson delivery. It promotes active learning through problem-solving, inquiry-based tasks, and localized examples, supporting higher-order thinking skills development. Teachers can use it as a foundation for differentiated instruction, adapting activities to meet diverse learning needs while ensuring curriculum coverage. The worktext encourages innovation in teaching by inspiring educators to create more localized, student-centered materials that reflect real-life contexts. While, for students, the worktext supports deeper conceptual understanding of abstract statistical and probabilistic concepts through scaffolded, step-by-step learning. Its clear language, engaging format, and real-world applications increase motivation, engagement, and confidence in mathematics. The absence of errors and up-to-date content ensures accuracy and reliability, helping students build correct knowledge and avoid misconceptions. Culturally relevant examples foster inclusivity and relevance, making learning more meaningful and relatable.

Based on these findings, schools and learning centers are encouraged to adopt and integrate the "The Good in Numbers Worktext" into their Mathematics 10 curriculum as a supplementary or primary instructional material. School administrators should allocate budgets for mass reproduction to ensure equitable access. Post-implementation evaluations by teachers, student feedback, and peer reviews should be conducted regularly to refine and update the material. The worktext should also be recommended for actual classroom use to enhance teaching effectiveness and improve student learning outcomes in Probability and Statistics. Finally, developers are advised to file for copyright protection to safeguard their original work and promote responsible use and dissemination. The success of this worktext warrants the development of similar materials for all quarters of Mathematics 10, ensuring a comprehensive, cohesive, and continuous learning experience throughout the academic year.

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