



RESEARCH ARTICLE

Comprehensive Quality Standards in Basic Computer Textbooks in Jordan

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ARTICLE INFO	ABSTRACT
Received: Apr 19, 2024 Accepted: Jul 22, 2024	This study aimed to investigate the availability of comprehensive quality standards in the developed computer textbooks for the basic education stage in Jordan, as perceived by teachers, principals, and educational supervisors within the First Directorate of Education in Irbid Governorate. It also sought to determine whether there are significant differences in their assessments. The entire population was included in the sample due to its small size, comprising 88 teachers, 70 principals, and 6 supervisors. The study tool encompassed 79 quality standards distributed across six domains. The results indicated that the evaluations of teachers, principals, and supervisors regarding the availability of comprehensive quality standards were high. Furthermore, there were no statistically significant differences in their assessments across all domains and the overall tool at the significance level (0.05). Based on the findings, several recommendations were proposed, including the integration of psychology experts into the textbook authoring team to ensure the content is aligned with students' abilities and interests, the clear articulation of objectives, and the distribution of evaluative activities throughout the content.
Keywords Quality standards Computer textbooks Basic education Jordan	
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INTRODUCTION

The computer has become a fundamental tool in modern educational methods, garnering the attention of educational leaders and teachers alike. The reliance on educational technologies has shaped the future of education through the latest methods and techniques, delivering information in a simple and accessible manner, thereby encouraging

student engagement (Johnson, 2006). It is well established that the use of computers enhances academic achievement, saves effort for both teachers and students, and provides a classroom environment that accounts for individual differences among students (Clark, 2001). Furthermore, it offers specialized programs for students with special needs and safeguards them from the risks associated with experimental procedures in laboratories while maintaining the capacity to capture attention and increase student interaction (Warschauer Healey, 1998).

In Jordan, ongoing research seeks the most effective methods to achieve educational objectives. Educational institutions are under considerable pressure to apply quality standards to educational products, including textbooks. To maximize their utility, textbooks should not merely present preliminary ideas and necessary information but also include texts from specialized literature to encourage independent knowledge acquisition and broader exploration by students (AlSaud, 2002).

For Jordan to realize its aspirations in the realm of information technology, possessing the necessary infrastructure is insufficient; comprehensive quality standards must be integrated into the computer textbooks utilized by students, who are the primary users and beneficiaries of these technologies (Ministry of Education, 2008). This study was initiated to determine the extent to which these standards are met.

Research Problem

Educational reform and development aim to enhance society and its various components. Central to this reform is the development and modernization of curricula to achieve developmental goals through the educational process. The research literature indicates that educational advancement necessitates curricula capable of keeping pace with current technological and methodological advancements.

The textbook, as the official document representing curriculum content, serves as the backbone and primary reference of the educational process and translates its objectives into practice. Thus, it must adhere to comprehensive quality standards. With the educational system's adoption of the total quality management philosophy, achieving these objectives requires reliance on criteria that encompass the specifications and conditions a textbook should meet. The importance of these standards cannot be overstated. Among the various school textbooks, computer books must also meet these quality standards. Previous studies (Diab, 2004; AlAdawi, 2009; AlZahrani, 2010) have highlighted a low degree of these standards' presence.

Therefore, this study aims to explore the availability of comprehensive quality standards in the developed computer textbooks for the basic education stage in Jordan. The findings will inform the development of these textbooks, contributing to societal progress and development in Jordan, where information and communication technology, and the related curricula and courses, are foundational elements.

Aim of the Study

This study aims to investigate the extent to which comprehensive quality standards are present in the developed computer textbooks for the basic education stage in Jordan, from the perspectives of teachers, principals, and educational supervisors within the

First Directorate of Education in Irbid Governorate. Additionally, it seeks to identify any differences in their assessments. The research addresses the following question:

To what extent are comprehensive quality standards available in the developed computer textbooks for the basic education stage in Jordan?

Study Significance

The significance of this study is twofold: theoretical and practical. Theoretical Significance

The study contributes to enriching the theoretical literature on quality standards, particularly in relation to computer textbooks.

Practical Significance

The practical significance lies in understanding the perspectives of teachers, principals, and educational supervisors regarding the availability of comprehensive quality standards in computer textbooks. These insights could form the basis for improving these textbooks if the study reveals that the availability of these standards is moderate or low.

Contribution

This study contributes to the field of educational quality standards in several significant ways:

Theoretical Enrichment: By investigating the extent to which comprehensive quality standards are integrated into computer textbooks for basic education in Jordan, the study adds to the existing body of theoretical literature on educational quality. It specifically addresses a gap in research concerning the evaluation of computer textbooks, which are increasingly critical in modern education.

Practical Insights: The study provides valuable insights from the perspectives of teachers, principals, and educational supervisors. Understanding their evaluations and perceptions regarding the quality standards of computer textbooks can inform policy makers and curriculum developers. This feedback is essential for refining and enhancing the educational materials used in schools, ensuring they meet comprehensive quality standards.

Policy Implications: The findings highlight areas where computer textbooks meet or fall short of established quality standards. These insights can guide the Ministry of Education in Jordan and other relevant stakeholders in making informed decisions about curriculum development, textbook approval processes, and resource allocation.

Development of Educational Resources: By identifying the presence and gaps of quality standards in computer textbooks, the study provides a framework for improving these resources. This improvement can enhance the learning experience for students, ensuring that textbooks are not only informative but also engaging and aligned with their educational needs and abilities.

Support for Total Quality Management in Education: The study reinforces the importance of applying Total Quality Management (TQM) principles to educational resources. By evaluating textbooks through a comprehensive quality lens, it supports the broader goal of achieving excellence in education, which is crucial for the overall development and progress of the educational system in Jordan.

RELATED WORK

The field of educational quality standards, particularly concerning textbooks, has been extensively researched. Various studies have investigated the criteria and standards necessary for effective educational resources. This section reviews relevant literature, highlighting key findings and contributions that align with the current study's focus on computer textbooks for basic education in Jordan.

Diab (2004) evaluated the quality of mathematics textbooks in Palestinian curricula and found a significant gap in meeting comprehensive quality standards. The study emphasized the need for continuous assessment and improvement of educational materials to ensure they align with pedagogical goals and student needs.

AlAdawi (2009) examined the quality of science textbooks in Oman, revealing that while some standards were met, there were notable deficiencies in content relevance and pedagogical effectiveness. The research highlighted the importance of integrating feedback from educators and students to enhance textbook quality.

AlZahrani (2010) focused on the quality of Arabic language textbooks in Saudi Arabia. The study identified several areas for improvement, particularly in aligning textbooks with modern educational practices and technological advancements. The findings underscored the need for comprehensive quality frameworks to guide textbook development.

More recent studies continue to build on this foundation. Mahmood, Iqbal, and Saeed (2015) conducted a comprehensive evaluation of textbooks used in Pakistani schools, using a robust set of quality indicators. Their findings highlighted the critical role of continuous quality assessment and the involvement of multiple stakeholders in the textbook development process.

Nguyen (2017) evaluated English language textbooks in Vietnam, using a combination of theoretical and empirical approaches. The study found that textbooks generally met quality standards but identified specific areas for enhancement, such as cultural relevance and inclusivity.

Shah et al. (2018) assessed the quality of English language textbooks in Pakistani public schools. The study used Bloom's Taxonomy to evaluate the cognitive, affective, and psychomotor domains of learning represented in the textbooks. The findings suggested that while the textbooks were effective in some areas, there was a need for more balanced coverage across all learning domains.

Cynthia, Shenandoah, and Renae (2019) explored the impact of open educational resources on textbook quality in South African schools. The study revealed that open source textbooks could achieve high quality standards while reducing costs and allowing for greater flexibility in content localization.

These studies collectively underscore the importance of rigorous quality standards in educational resources. They highlight the ongoing need for research and development in textbook quality to ensure that educational materials meet the evolving needs of students and educators. The current study builds on this body of work by specifically examining the comprehensive quality standards of computer textbooks in Jordan, addressing a gap in the literature regarding this critical educational tool.

METHODOLOGIES

This section outlines the research methodologies employed in this study, including the study design, population and sample, data collection instruments, and data analysis procedures.

Study Design

A descriptive survey design was utilized in this study to investigate the extent to which comprehensive quality standards are available in computer textbooks for the basic education stage in Jordan. This design is appropriate for describing the current status of phenomena and exploring the relationships between different variables without manipulating them (Creswell, 2014).

Population and Sample

The population for this study consisted of teachers, principals, and educational supervisors in the First Directorate of Education in Irbid Governorate, Jordan. Given the relatively small population size, the study included the entire population to ensure comprehensive data collection. The sample comprised 88 teachers, 70 principals, and 6 educational supervisors, totaling 164 participants. This approach ensured that the perspectives of all relevant stakeholders were considered (Table 1).

Table 1: Distribution of Sample Individuals by Personal Variables

Category	Population	Sample	Percentage
Teacher	88	88	100%
Principal	70	70	100%
Educational Supervisor	3 (Irbid) + 3 (amman)	6	100%
Total	164	164	100%

Data Collection Instruments

The primary instrument for data collection was a structured questionnaire developed by the researcher. The questionnaire was designed based on a thorough review of the relevant literature on educational quality standards and previous studies related to textbook evaluation (Hamdani, 2001; Atia, 2008; Farwana, 2016). The questionnaire comprised two main sections:

Demographic Information: This section collected demographic data about the respondents, including their roles (teacher, principal, or educational supervisor).

Quality Standards: This section included 79 items distributed across six domains: objectives, content, activities, evaluation, language and presentation, and the physical appearance of the textbook. Each item was rated on a fivepoint Likert scale ranging from 1 (very low) to 5 (very high).

Validity and Reliability

To ensure the validity of the instrument, the questionnaire was reviewed by a panel of experts in curriculum development, educational assessment, and computer science education. Their feedback was incorporated to refine the items for clarity, relevance, and comprehensiveness. The reliability of the instrument was assessed using Cronbach’s alpha, with an overall reliability coefficient of 0.95, indicating high internal consistency (Table 2).

Table 2: Cronbach’s Alpha Reliability Coefficients for Each Domain

Domain	Number of Items	Cronbach’s Alpha
Objectives	9	0.90
Content	21	0.91
Activities	7	0.89
Evaluation	9	0.90
Language and Presentation	19	0.93
Physical Appearance	14	0.90
Overall	79	0.95

Data Collection Procedures

The questionnaires were distributed to all participants by the researcher, who also followed up to ensure a high response rate. Out of the distributed questionnaires, all 164 were returned, resulting in a 100% response rate. The researcher ensured that all collected questionnaires were complete and suitable for analysis.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including means and standard deviations, were used to summarize the data. To answer the main research question regarding the extent of the availability of comprehensive quality standards in the computer textbooks, the mean scores for each domain were calculated. Additionally, ANOVA was used to identify any significant differences in the assessments of teachers, principals, and educational supervisors across the different domains.

Instruments

The primary instrument for data collection in this study was a structured questionnaire developed by the researcher. The design of the questionnaire was informed by an extensive review of relevant literature on educational quality standards and previous studies focused on textbook evaluation (Hamdani, 2001; Atia, 2008; Farwana, 2016). The questionnaire consisted of two main sections:

Demographic Information

This section gathered demographic data about the respondents, including their professional roles (teacher, principal, or educational supervisor). This information was essential to categorize the responses and analyze any differences based on the respondents’ roles.

Quality Standards

This section included 79 items distributed across six domains, each representing a different aspect of textbook quality:

Objectives: This domain assessed the alignment of the textbook’s objectives with educational standards and student needs, containing 9 items.

Content: This domain evaluated the relevance, accuracy, and comprehensiveness of the textbook content, with 21 items.

Activities: This domain focused on the variety and appropriateness of the activities provided in the textbook, comprising 7 items.

Evaluation: This domain looked at the methods and tools for assessing student learning included in the textbook, containing 9 items.

Language and Presentation: This domain assessed the clarity, readability, and engagement of the textbook’s language and presentation, with 19 items.

Physical Appearance: This domain evaluated the physical quality, durability, and

aesthetic aspects of the textbook, consisting of 14 items.

Each item was rated on a fivepoint Likert scale ranging from 1 (very low) to 5(very high), allowing for a detailed assessment of each quality standard.

Validity and Reliability

To ensure the validity of the questionnaire, it was reviewed by a panel of experts in curriculum development, educational assessment, and computer science education. Their feedback was incorporated to refine the items for clarity, relevance, and comprehensiveness. The reliability of the instrument was tested using Cronbach’s alpha, resulting in an overall reliability coefficient of 0.95, indicating high internal consistency (Table 3).

Table 3: Cronbach’s Alpha Reliability Coefficients for Each Domain

Domain	Number of Items	Cronbach’s Alpha
Objectives	9	0.90
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Activities	7	0.89
Evaluation	9	0.90
Language and Presentation	19	0.93
Physical Appearance	14	0.90
Overall	79	0.95

Structure of the Questionnaire

The questionnaire deployed in this study is bifurcated into two main sections. The initial section is designed to collate demographic data from the participants. This includes basic information such as age, gender, academic standing, and major areas of study, which are critical for contextualizing the subsequent responses within the appropriate demographic segments.

The second section of the questionnaire is more extensive and multifaceted. It aims to gauge students’ knowledge and proficiency in utilizing elearning platforms such as Moodle, Microsoft Teams, and Zoom. Additionally, it probes into the factors that influence students’ comprehension and utilization of these platforms in educational contexts. Key aspects under evaluation include the perceived efficacy of these elearning platforms in facilitating the educational process, issues encountered by students in using elearning, the scope of disciplines engaging with elearning methodologies, and the duration dedicated to elearning endeavors by the students.

Moreover, this section solicits information on the types of activities or tasks that participants typically perform within the elearning environment. It also seeks students’ perspectives on the integration of ecourses in the learning process. Finally, the survey examines the impact of elearning on students’ selfstudy habits and motivational levels. The aim is to derive a nuanced understanding of the elearning experience and its overarching influence on student engagement and academic motivation.

The final questionnaire included the following sections:

Demographic Information: This section collected basic demographic information, including age, gender, academic level, and field of study.

Elearning Platform Usage: Questions in this section focused on the students’ familiarity with and frequency of use of Moodle, Microsoft Teams, and Zoom.

Perceptions of Elearning Platforms: This section included items measuring students’ attitudes towards elearning platforms, their perceived effectiveness, and the impact on their learning processes.

SelfDirected Learning: Items in this section assessed the extent to which elearning platforms facilitated selfdirected learning, including motivation, time management, and independent study skills.

Academic Performance: This section contained questions related to the students' academic achievements and how they were influenced by the use of elearning platforms.

Social and Interpersonal Relationships: Questions in this section explored the impact of elearning on students' interactions with peers and instructors.

Challenges and Preferences: This section included items that identified challenges faced by students when using elearning platforms and their preferences for blended or traditional learning methods.

DATA COLLECTION AND ANALYSIS

Data Collection Procedures

The data collection process involved distributing the structured questionnaire to all participants within the First Directorate of Education in Irbid Governorate. The researcher personally administered the distribution and collection of the questionnaires to ensure a high response rate and accuracy in data gathering. Out of the distributed questionnaires, all 164 were returned, resulting in a 100% response rate. The researcher verified that all collected questionnaires were complete and suitable for subsequent analysis.

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS). The analysis comprised two main steps:

Descriptive Statistics

Descriptive statistics, including means and standard deviations, were calculated to summarize the responses for each domain of the questionnaire. This initial analysis provided a clear overview of the extent to which comprehensive quality standards were perceived to be present in the computer textbooks.

Inferential Statistics

To determine whether there were significant differences in the assessments of teachers, principals, and educational supervisors, Analysis of Variance (ANOVA) was conducted. This statistical method is appropriate for comparing means across multiple groups and identifying any statistically significant differences in their evaluations.

Steps in Data Analysis

Data Entry: Responses from the questionnaires were entered into SPSS for analysis.

Calculation of Descriptive Statistics: Means and standard deviations were computed for each domain to assess the overall perception of quality standards in the textbooks.

ANOVA: Conducted to test for significant differences in the assessments across different groups (teachers, principals, and educational supervisors).

Post Hoc Tests: If ANOVA indicated significant differences, post hoc tests (e.g., Tukey's HSD) were performed to pinpoint specific group differences.

Reliability and Validity

The reliability of the questionnaire was confirmed through Cronbach's alpha, which yielded a high overall reliability coefficient (0.95), indicating strong internal consistency. Validity was ensured by expert review, which refined the questionnaire items for clarity and relevance, ensuring that the instrument accurately measured the intended constructs.

RESULTS INTERPRETATION

The results were interpreted in the context of existing literature and the specific educational environment in Jordan. This interpretation helped in understanding the practical implications of the findings and guided the recommendations for improving the quality of computer textbooks.

The Participants

The participants in this study were selected from the First Directorate of Education in Irbid Governorate, Jordan. The selection included teachers, principals, and educational supervisors, ensuring a comprehensive perspective on the quality standards of computer textbooks used in basic education.

Population and Sample

Given the relatively small size of the population, the study included the entire population to ensure comprehensive data collection. The total number of participants was 164, comprising:

- 88 teachers
- 70 principals
- 6 educational supervisors

Distribution of Participants

The distribution of participants is detailed in Table 4.

Table 4: Distribution of Participants by Category

Category	Population	Sample	Percentage
Teacher	88	88	100%
Principal	70	70	100%
Educational Supervisor	3 (Irbid) + 3 (Ramtha)	6	100%
Total	164	164	100%

Role and Importance

Each group of participants played a crucial role in providing a comprehensive evaluation of the computer textbooks:

Teachers: As the primary users of the textbooks, teachers provided insights into the practical application and effectiveness of the textbooks in classroom settings.

Principals: Principals offered an administrative perspective, assessing how well the textbooks aligned with the school's educational objectives and policies.

Educational Supervisors: Supervisors contributed an oversight perspective, evaluating the textbooks based on broader educational standards and their experience across multiple schools.

By including these diverse perspectives, the study aimed to obtain a holistic understanding of the quality standards of computer textbooks and identify areas for improvement.

RESULTS

This section presents the findings from the analysis of the data collected through the structured questionnaire. The results are organized according to the research question and the different domains of quality standards evaluated.

Overall Quality Standards

The overall mean score for the availability of comprehensive quality standards in the computer textbooks was 3.79 on a five-point scale, indicating a high level of quality. Table 5 summarizes the mean scores and standard deviations for each domain.

Table 5: Mean Scores and Standard Deviations for Each Domain

Domain	Mean	Standard Deviation
Objectives	3.90	1.31
Content	3.70	1.14
Activities	3.66	1.32
Evaluation	3.81	1.22

Language and Presentation	3.74	1.17
Physical Appearance	3.94	1.14
Overall	3.79	1.141

Differences in Assessments

An ANOVA was conducted to determine if there were significant differences in the assessments of teachers, principals, and educational supervisors. The results indicated no statistically significant differences at the α 0.05 level across all domains, suggesting that all groups had similar perceptions of the quality of the textbooks. \leq

DISCUSSION

The findings of this study indicate that the comprehensive quality standards of computer textbooks for basic education in Jordan are perceived to be at a high level. This result aligns with previous studies (e.g., AlSaud, 2002; McBrien Brandt, 1997) that emphasize the importance of integrating quality standards into educational materials to enhance learning outcomes.

Objectives and Content

The high scores in the objectives and content domains suggest that the textbooks are well aligned with educational goals and provide relevant, accurate, and comprehensive content. This alignment is crucial for achieving curriculum objectives and supporting student learning.

Activities and Evaluation

The activities and evaluation domains, while still rated highly, had slightly lower mean scores. This indicates a need for further enhancement in the variety and appropriateness of activities, as well as in the methods and tools for assessing student learning. Including more diverse and engaging activities can foster better student engagement and learning outcomes.

Language and Presentation

The language and presentation domain received high scores, reflecting the clarity, readability, and engagement of the textbook's language and presentation. These attributes are essential for maintaining student interest and facilitating comprehension.

Physical Appearance

The physical appearance of the textbooks was rated the highest among all domains. This finding underscores the importance of the physical quality, durability, and aesthetic appeal of educational materials in enhancing the overall learning experience.

Recommendations

Based on the findings of this study, several recommendations are proposed to further improve the quality of computer textbooks for basic education in Jordan:

Incorporate Expert Input: Ensure that the textbook authoring team includes experts in educational psychology and assessment to align the content with students' abilities and interests, and to develop clear, measurable objectives.

Enhance Activities: Develop a wider variety of activities that are engaging and cater to different learning styles. Ensure that these activities are practically applicable and aligned with the objectives of the curriculum.

Improve Evaluation Methods: Include diverse and effective assessment tools that not only test students' knowledge but also their application and critical thinking skills.

Maintain High Standards of Presentation: Continue to focus on the clarity, readability, and aesthetic quality of the textbooks to maintain student engagement and interest.

Regular Review and Update: Establish a system for the regular review and update of textbooks to ensure they remain current with the latest educational standards and technological advancements.

Resource Allocation: Provide adequate resources and support for schools to implement and utilize these high quality textbooks effectively.

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