

Indicators for a Quality Textbook Evaluation Process in Pakistan

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Abstract: Advancement in science and technology, and other emerging trends in the world are resulted in curriculum reforms. These reforms have resulted not only on the contents of the textbooks but also on its presentation. The core source of learning which has always been popular internationally is the textbook. The major concern relative to the textbook is the quality of its content and the quality of its presentation. In many countries, as also in Pakistan, textbooks are developed in the light of national curriculum after which they are submitted to an evaluation process to ensure their quality. This study identifies indicators for quality textbooks from literature and good practices employed internationally. Considering textbook as a product, Garvin's (1988) framework for quality products was used as base for identification of the indicators. The indicators identified were validated through experts' opinions. Delphi technique was employed to reach a consensus on indicators of quality textbooks. The study suggests that the quality of textbook in Pakistan could be ensured by fulfilling the compliance conditions for each of the identified eleven indicators.

Keywords quality textbook, curriculum reforms, content, presentation, evaluation process

Introduction

Currently education systems in many countries are experiencing some kind of curriculum reform. One of the most important reasons for this is that the information age has brought technology to schools and to the lives of the young and the old in our societies. The most salient outcome of this process is the textbook, the most widely used tool for curriculum interpretation and implementation. Textbooks are one of the major teaching and learning resources used in schools. Development and production of textbooks is a continuous process which needs to be supported by continuous and rigorous research and development. Every country including Pakistan, has some kind of mechanism to evaluate textbooks. Having such a mechanism, however, does not, in and

by itself, provides a guarantee of quality. To make the textbook evaluation process effective, it is necessary to refer to and use agreed upon indicators of what constitutes quality textbook. The purpose of the present article is to identify these indicators.

In Pakistan, the Curriculum Wing (CW) of Ministry of Education is the apex national institution that formulates and approves curricula for all subjects up to class XII. Textbook evaluation is one of the key responsibilities of the CW.

Textbook development and evaluation has always been subject of debate in Pakistan. There are a variety of reasons for this, but non-availability of explicit criteria for textbook evaluation is one of the main reasons and, hence, an important concern. This study, by identifying the key indicators for effective textbook evaluation and thereby providing explicit criteria for textbook evaluation, can be instrumental in overcoming the current difficulty.

Textbooks are typically the main source of learning material for students and the source of information on a specific subject or field. Textbooks also typically reflect society's values and aspirations of a nation. These are the visible, tangible and practical manifestation of the curriculum, designed to teach students what governmental educational authorities believe must be taught. In other words, textbooks "tell children what their elders want them to know" (Kalmus, 2004, p.13). "Textbooks can give teachers a sense of security and confidence as they steer their way through the innovation" (Mustapha, 2008). "Textbooks certainly provide an important tool in transferring knowledge (Pallo, 2006, p.779). This transfer of knowledge is not limited to merely conveying the information about a subject, but also aims at developing an understanding of the subject. One of the classical definition of textbook that was latter adopted by UNESCO is "A textbook is an exposition of generally accepted principles in one subject, intended primarily as a basis for instruction in classroom or pupil – book – teacher situation" (Brammer, 1967 as cited in Laspina, 1998, p-28). Hence a textbook plays multifarious roles in the educational context. Amongst them are the following key roles:

- a) address students' needs;
- b) provide a framework for teaching;
- c) help new teachers as a resources material; and
- d) influence teaching learning processes.

An approved textbook may easily become the curriculum in the classroom (Lame, 1991). Skierso (1991) is of the view that “most of teachers tend to follow the text’s [the text is from textbook] sequence, methodology, pacing and vocabulary to the letter” (p.432). This situation demands explicit indicators of quality textbooks to guide development of textbooks.

Objectives and Methodology of the Study

Primarily the study was designed to achieve the following objectives

1. Identify indicators of a quality textbook
2. Develop compliance condition for each of the identified indicators

Methodologically, the following stages were set for finalizing the indicators of quality textbooks.

Stage 1

Review of documents including reports on textbook evaluation, criteria used by ministries, private organizations, school boards, schools and other agents in different parts of the world, along with technical reports on textbooks development and evaluation, researches in the field. Through a comprehensive review of literature and meeting with experts, indicators for various aspects of a quality for textbook were identified. In order to get more clarity on listing indicators of quality textbooks, two cases of development and evaluation of textbook, Canada which follows decentralized curriculum development and Malaysia which follows a centralized curriculum development approach, were scrutinized in the study.

Stage 2

Later on description of these indicators in the light of Garvin’s (1987) eight dimensions of quality products was made and subsequently shared with curriculum and textbook experts. As result of these meetings a detailed list of indicators of quality textbooks along with description of these indicators was finalized.

Stage 3

A meeting of selected individuals, working in the institutions dealing with curriculum and textbook development and evaluation, from all the four provinces of Pakistan, Azad Jammu and Kashmir, and Islamabad Capital Territory, was convened in Islamabad.

Basically, this was a developmental study; Sim & Wright (2000) recommend Judgmental Sampling in order to determine the sample in developmental studies Technique. Cohen et al. (2008) also suggest this technique for studies of the present type. According to them, this technique helps “access ... ‘knowledgeable people’ i.e. those who have in-depth knowledge of issue may be by virtue of their professional role, power, access to networks, expertise or experience etc.” (p.115). Keeping in view the nature of the study and the kind of population involved in it, the Judgmental Sampling Technique was used for Curriculum and/or Textbook Experts. A total of thirty five (35) experts were included in the study with a balance representation of above-mentioned; textbook writers, curriculum developers, faculty of the departments of education teaching curriculum development and evaluation, and members of National Textbook Review Committees (NTRC).

Consensus on the identified list of the indicators of the quality textbooks was sought during the meeting by using the Delphi Technique. The experts were free to add or delete any indicator from the prepared list.

Quality Textbook Indicators from the Literature

According to Hussain & Mahmood (2002), the extensive utilization of textbooks engenders high level expectations for textbook contents especially with respect to: a) comprehension in terms of content and pedagogy including a gradual increase in the level of vocabulary utilized and expressions and sentence structures that are ambiguity free; and b) relevant, attractive and self explanatory illustrations; natural and pleasant design including horizontal and vertical coordination. Diamond (2008) highlights some key questions used for reviewing curriculum materials.

In order to get more clarity on indicators of quality in textbooks, two cases of development and evaluation of textbook were examined. The first corresponds to a decentralized curriculum development process that of Canada, and the second to a

centralized curriculum development process, that of Malaysia.

Decentralized Curriculum and Textbook Development: The Case of Canada

In Canada's largest province, Ontario, the Ministry of Education (2006) lists qualities of contents to be included in a textbook and its format, in a document titled 'Guidelines for Approval of Textbooks'. For contents, the ministry identifies seven aspects: a) quality, b) reference to use of technology, c) health and safety, d) environmental responsibility, e) language level, f) instructional and assessment strategies, g) bias; and format. In addition to these which are required for suitability for student use the Ministry adds a second criterion, that of durability.

The ministry has also identified indicators for each of the qualities indicated above. *Quality* of content refers to; i) sound scholarship in and contemporary relevance of the content, ii) adequate depth and sophistication of the information provided in the content, iii) build learning area/subject/course and build on students' previous knowledge and skills, iv) use of graphics appropriate to support students' understanding of the content. The *use of technology* refers to reflections on uses of technology related to the level/grade-wise, where appropriate in the content and allows students to use and develop technological skills. *Health and safety* requires : i) that attention to safe practices be evident through appropriate warnings and information; ii) that there be portrayal of people in learning, working, and playing situations; and iii) that the learning activities be suitable. For ensuring *environmental responsibility*, the content must reflect concepts of environmental responsibility, where appropriate, within the context of the grade-wise course. For *language level*, the Ministry places emphasis on; i) appropriate language for the reading level of a particular grade and level, ii) writing style appropriate for the learning area/ subject/ discipline, iii) contextual use of language, symbols, and technical terms that are subject- or discipline specific and that student would understand. For *instructional and assessment* strategies insistence is that: i) the content must support a broad range of instructional strategies and learning styles; ii) the activities must be appropriate for the skills and knowledge described in the curriculum or learning expectations, and provide opportunities for students to engage in higher-order thinking and problem solving, to apply concepts and procedures, and to communicate their

understanding; iii) there should be a range of tasks – that is, open-ended tasks, teacher-directed tasks, and tasks for students to do independently; iv) the connections between instructional strategies and assessment should be meaningful and should be consistent with the assessment strategies for the subject or course. The Ministry, in relation to *bias* requires that i) textbook content be free from racial, ethno-cultural, religious, regional, gender-related, or age-related bias; from bias based on disability, sexual orientation, socioeconomic background, occupation, political affiliation, or membership in a specific group; and from bias by omission. Here *suitability* for student use means that textbooks must be intended primarily for use by students, rather than for use by teachers. The organization should be logical and easy to follow to promote ease of comprehension. For textbook *durability* the Ministry requires that i) textbook must be constructed of high-quality materials that are sufficiently durable to support frequent use by many students over a period of years; ii) for print materials, the size, weight, and shape of the textbook should be such that the textbook is easily transported with little risk of damage.

Centralized Curriculum and Textbook Development: The Case of Malaysia

The textbook evaluation in Malaysia is known as ‘vetting of textbooks’. The Textbook Division of Malaysia’s Ministry of Education, (2009) focuses on the alignment of textbook contents with the curriculum and on two other important aspects of textbooks a) graphics and b) textbook design.

For the graphics used in publishing textbooks, the Textbook Division (Malaysia Ministry of Education, 2009) recommends that it must be suitable and fulfill the requirements of the subjects. The selection of graphics must be highly congruent with the objectives for which they are used and meet the requirements of the subject. Graphics are largely used in writing textbooks on technical and scientific subjects because they facilitate clearer delivery of the contents, are more accurate than text only and are easily comprehensible. The graphics in textbooks are not intended to fill up empty spaces. According to the division of textbooks, the graphics in textbook publications function are to: a) deliver the message of the texts (concepts / facts), b) assist in understanding the texts, c) reinforce understanding of the texts; d) complement the texts, e) provide additional information, f) facilitate student’s memorizing of important concepts / facts, g) enhance pupil’s mind in learning and f) provide aesthetic values.

The Malaysia Ministry of Education Textbook Division divides graphics into three general categories, a) illustration, b) layout, and c) information graphics. Illustration refers to figures, photographs, and drawings used to channel information and emotional effects through images and not by words. The design of the whole book, based on the arrangement of the basic elements of design such as the principles of design, design structure, colour, bleed, and reverse make the design of the published material attractive. Information graph refers to charts, tables, maps, and diagrams used to channel information visually. The Textbook Division delineates characteristics of good graphics. The information graphic has content value – the visual functions of the graphics are able to; a) convey the expressed and implied meanings, b) precise information, and c) deliver information accurately.

According to the Textbook Division ‘design’ is a structured plan which encompasses the layout concept of a book. Design is an important factor which can differentiate one publication from another. It represents a layout which displays the texts, graphics or other materials in the pages of the book. The division ensures the quality design by stating how the presentation format for the whole book must be structured, functional, clear, user-friendly and simple. Every space must be used to the optimum, taking into consideration the space that enables readers to rest their eyes. A good design can guide a reader’s eyes to read in sequence and differentiate the primary from the secondary materials. The design of a textbook takes into consideration the basic principles of creativity or creative arts in an ordinary design, which are balance, proportion, sequence, unity, easy and contrast. In designing textbooks, however, the aspects to focus on are the pedagogical requirements of the subject and its suitability to the target group. This ensures that the selected design is suitable. The design of the textbook must be consistent throughout the book so as to assist users in understanding the contents.

The ministry emphasizes on the incorporation of moral education, citizenship education, patriotism and thinking skills. According to the ministry, it will contribute towards the building of a modern and progressive Malaysian society (Ministry of Education, Malaysia, 2002).

The comparison of textbook evaluation and review criteria of the two cases

indicates that in Canada the first criterion for quality textbooks is quality of contents and its format which include; reference to use of technology, health and safety, environmental responsibility, language level, instructional and assessment strategies, bias and format. The second criterion is for suitability for student use they add a second criterion, that of durability. In Malaysia, the quality of textbooks is ensured through focus on their content and format but it focuses on: alignment of contents with the curriculum, promotion of moral education, citizenship education, patriotism and thinking skills; and presentation of the contents. For presentation the ministry of education Malaysia focuses on graphics and textbook design.

From the Canadian and Malaysian case studies, and literature reviewed on textbook evaluation and reviewed in this regard suggest some eight indicators for quality textbooks. These include: a) curriculum policy, b) content reliability, c) vocabulary, illustrations and format, d) horizontal and vertical alignment of the content, e) critical and creative learning, f) assessment and evaluation, g) environment and h) freedom from bias.

In further meetings with experts three additional indicators were identified. These are: h) curriculum scope, i) cognitive development, and j) acceptability.

Framework for Identification of Quality Textbook

One of the basic principles generally used for the development of a quality product is that it should meet the criteria used to determine its quality. This is done in reference to the indicators used to operationalize these criteria in the setting in which the product's quality is ensured. It is difficult even to think about quality in textbooks if there are no pre-set indicators for the purpose. The principal conceptual framework for developing indicators for quality textbooks used here is Garvin's (1988) framework for quality products. Garvin has written a lot on quality, and quality products (see Garvin, 1985, 1986, 1987a, 1987b, 1988, 1991, 2001, 2005, etc.). He proposed a well-known framework for thinking about 'product quality' based on eight dimensions presented and discussed in following paragraphs.

A first condition to be met in order to apply this model to textbooks is to establish whether a textbook is a product or a service? A product is generally considered to be the output of a process. And a textbook is the result of a multi-phase process. Therefore, for the purpose of this discussion, a textbook is considered to be a product.

Figure-1 represents a conceptual framework for the production of a quality textbook. The framework is based on the integration of Stufflebeam's CIPP model (Context, Input, Process and Product model) and Garvin's eight dimensions for quality products.

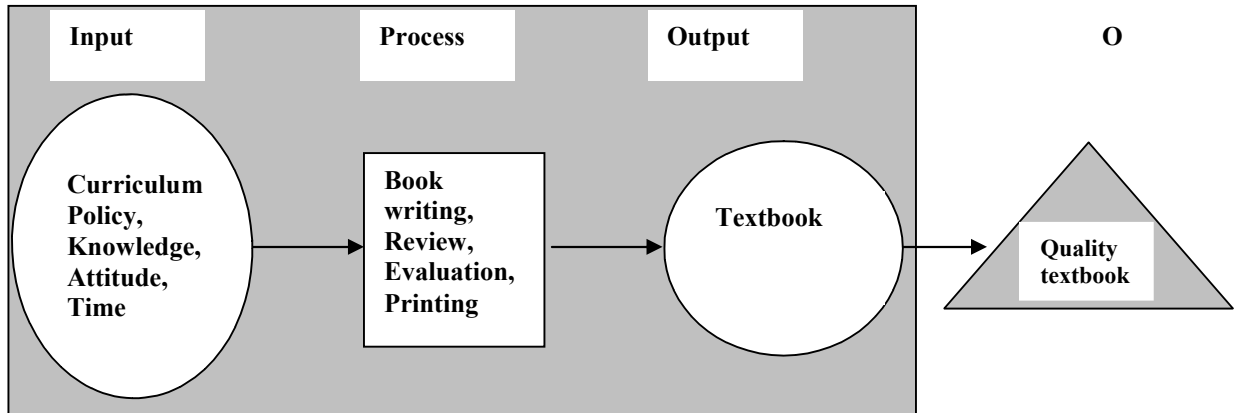


Figure 1. CIPP model and textbook development process- a conceptual framework for developing indicators of quality textbooks

Garvin's Eight Dimensions of Product Quality

Below is a brief of Garvin's (1988) eight dimensions for a quality product:

1. *Performance* refers to primary operating characteristics e.g. speed, comfort, ease of use etc. for multiple performance features, and the relative importance of each.
2. *Features* are extras, add-ons, or gimmicks that enable a customer to customize a product somewhat.
3. *Reliability* reflects the probability of a product malfunctioning or failing within a specified time period.
4. *Conformance* is the degree to which a product's design and operating characteristics meet to pre-established standards.

5. *Durability* refers to the length of time, or extent of use, before the product deteriorates and must be replaced; durability is a function of the product's operating environment and reliability.
6. *Serviceability* is the speed, ease, and convenience of making maintenance work or repairs and the courtesy and competency of service people.
7. *Aesthetic* refers to the look, sound, smell, feel, or taste of the product based on personal taste; though subjective, some aesthetic judgments tend to be common.
8. *Perceived Value* is a subjective opinion about the product based on images or attitudes formed by advertising and/or the reputation of the producer.

If we restate these eight dimensions in less general terms referring only to textbooks and not to products in general they can be defined as follows.

1. *Performance.*

The Performance of a textbook refers to traits that help students in achieving the learning outcomes laid down in curriculum, and that cater to individual cognitive, social, cultural, religious, ethnic and other needs

2. *Features.*

Features of textbooks refer to traits like promote student thinking and suggests activities for further study through Teachers' Guide, Teaching Kit, E-material, and Assessment.

3. *Reliability.*

Reliability refers to the likelihood that a textbook will be useful as expected and nothing will be wrong within the time period during which it is intended to be used. Reliability of a textbook means that it provides updated and accurate information-valid for the period for which it is prescribed, and offers clarity in conveying meanings and is understandable for every reader using the text.

4. *Conformance.*

Conformance refers to the extent to which a textbook meets pre-set standards. These are found in public and education policies, curriculum guidelines and objectives/standards, national ideology and culture etc. These pre-set standards are consistent with the scope of the content given in the curriculum guidelines.

5. *Durability.*

As a measure of textbook life or duration, durability has both economic and technical dimensions. Economic dimension refers to physical state of textbook and technical dimension refers to content matter in textbook. In terms of physical state, durability is typically defined as the length of time a textbook can be used by students before it deteriorates beyond usefulness and replacement becomes preferable to continued repair. This depends largely on paper quality, quality of printing and binding and care of use. From content matter perspective, durability refers the validity of the information content before this information becomes invalid or obsolete.

6. *Serviceability*

Textbook serviceability refers to the review of textbook and to the manner of the delivery of its content in the classroom. Review refers to periodic content evaluation in order to keep the book valid without changing its basic structure. Delivery refers to the availability of textbooks' teachers' guides to guide classroom instruction. In brief, review and delivery seek to ensure, through periodic examinations and updates of content and teachers' guides that the textbook is fit for long term use. In turn these require the availability and capacity of professionals and reviewers.

7. *Aesthetics*

How a product looks, feels, sounds, tastes, or smells is often a matter of personal preference. But there are general areas of agreement. For textbooks, the aesthetic dimension refers to the formulation of the title, layout, format, illustrations, and other graphics-acceptability with respect to age / level / relevant to content and context. Good looking title that attract students of the age and grade for which it has been developed. In brief, the esthetics of textbook include: a) title, binding, font and font size, page layout/format and illustrations, and b) other graphics-acceptability with respect to age / level / relevant to content and context.

8. *Perceived Quality*

For textbooks, perceived quality refers to positive perceptions of teachers, parents, and students regarding textbook appearance, content and publication quality.

Description of the Identified Indicators of Quality Textbook

The following are descriptive statements of indicators that could be used for the effective production of quality textbooks in Pakistan. They are based on the features of quality textbooks derived from Garvin's eight dimensions of quality products model presented above and indicators delineated through review of literature and meeting with curriculum and textbook experts.

Indicator 1- Curriculum Policy

Matches objectives of the Curriculum Policy of Pakistan (*conformance*); and aligns to Philosophy and Intent (*perceived quality*)

Indicator 2- Curriculum Scope

Covers the scope of content specified in the curriculum (*conformance*); and structures in a way that can be used with minor reviews and updates (*serviceability*)

Indicator 3- Content reliability

Provides up to date, credible and correct information for the period for which it is to be prescribed (*durability*) and the textual content is free of misconceptions (*reliability*) and usable at least for the period of curriculum revision cycle without requiring major structural changes (*serviceability*)

Indicator 4- Vocabulary, Illustrations and Format

Uses words from graded vocabulary and defines new terms (*conformance*); uses language appropriate for the student and the subject (*serviceability*); contains illustrations from the local environment and allied with text, (*perceived quality*); Clear unambiguous line diagrams, and good quality photographs (*aesthetics*); sets attractive title, page and font size, page layout, and color according to grade (*aesthetic*); and selects durable binding, and proper gramage of paper according to size and grades (*durability*).

Indicator 5- Horizontal and Vertical Alignment of the Text

Uses sequential activities, content of the same level/grade books for explanations, examples, and exercises and provides challenging but enjoyable exercises (*performance*); creates links of the content with one grade below and above

(*conformance*); and connects to everyday experiences and prior learning (*feature*)

Indicator 6- Cognitive Development

Presents materials and exercises/questions at a variety of cognitive levels; provide first hand experiences; and structures material in a coherent and logical way (*performance*); shows diversity and allows for inclusion (*features*); and contains authentic learning opportunities appropriate to the subject (*reliability*)

Indicator 7- Critical and Creative Learning

Fosters critical and creative learning through applying relevant contexts, experiences, phenomena and thinking over learning process; guides interpretations and reasoning; suggests activities for further study; provides research-based assessment that has content validity (*feature*); builds upon prerequisite skills and ideas (*conformance*); and provides opportunity to think critically about controversial issues (*aesthetics*)

Indicator 8- Assessment and Evaluation

Allows for authentic demonstrations for learning at all levels (*reliability*); integrating tasks/culminating activities (*performance*); and presents opportunities for students to self-assess (*feature*).

Indicator 9 Acceptability

High levels of academic credential of authors (*reliability*), locally available, affordable price (*perceived value*); deliverable within available duration for the grade (*performance*); and provides opportunities to incorporate use of technology by students (*durability*)

Indicator 10 Environment

Safety warnings for students are written and/or expressed symbolically (*feature*).

Indicator 11 Bias Free

Free from gender, ethnic, religious, sectarian, geographical, cultural and occupational biases (*performance*); presents different points of view/contributions (*performance*); and shows diversity and allows for inclusion (*feature*)

Components of the CIPP model when aligned with Garvin’s (1988) eight dimensions of quality product, the situation arises as given in Figure 1, which is the conceptual framework for quality textbooks and vis-à-vis for the study as well. The horizontal and vertical articulation between Garvin’s quality dimensions and proposed indicators for quality textbooks is given in appendix –A

Validation of the Identified Indicators of Quality Textbooks

The Real-time Delphi Technique which ‘occurred face-to-face, within the context of a meeting or conference’ (Salkind, 2007, p.242) was used to determine the level of consensus among the experts on identified indicators..A variety of respondents who were working in institutions related to textbook development and evaluation but they were based in different parts of Pakistan. The steps in the Delphi technique for small and large group work were followed (Cohen et al., 2008).

Findings

As result of the above-mentioned activity, following indicators along with their key description were finalized for assessing the quality of a textbook.

Table 1: Quality Textbook Indicators along with their key description

Indicators	Key description
1- Curriculum Policy	Aligns with the constitution of Pakistan (<i>conformance</i>) Matches intent and objectives of the Curriculum Policy of Pakistan (<i>conformance</i>)
2- Curriculum Scope	Covers scope of the content mentioned in the curriculum(<i>conformance</i>)
3-Text Reliability, Accuracy, Validity	Provides up to date, credible and correct information for the period for which it is to be prescribed (<i>durability</i>) Free of misconceptions text (<i>reliability</i>) Provides Laboratory Experiences (<i>conformance</i>) Usable at least for the period of curriculum revision cycle without making major structural changes in it (<i>serviceability</i>) High levels academic credential of authors (<i>reliability</i>)

4- Vocabulary, Illustrations & Format	<p>Uses words from graded vocabulary and defines new terms (<i>conformance</i>)</p> <p>Contains illustrations from local environment and allied with text (<i>Perceived Quality</i>)</p> <p>Contains good quality photographs and sets attractive title, page and font size, page layout, and color according to grade (<i>aesthetics</i>)</p>
5- Horizontal and vertical alignment of the text	<p>Uses sequential activities, content of the same grade books for explanations, examples, and exercises and provides challenging but enjoyable exercises (<i>performance</i>)</p> <p>Creates links of the content with one grade below and above (<i>conformance</i>)</p> <p>builds upon prerequisite skills and ideas Connects to everyday experiences and prior learning (<i>feature</i>) (<i>conformance</i>)</p>
6- Critical and Creative Learning	<p>Presents materials and exercises / questions at a variety of cognitive levels (<i>performance</i>)</p> <p>Encourages by applying relevant contexts, experiences, phenomena and thinking over (<i>feature</i>)</p> <p>Provides opportunity to think critically about controversial issues (<i>aesthetics</i>)</p>
7-Technology	<p>Provides opportunities to incorporate student use of technology (<i>durability</i>)</p>
8- Assessment and Evaluation	<p>Allows for the authentic demonstration for learning at all levels (reliability)</p>
9-Bias Free	<p>Free from Gender, Ethnic, Religious, Sectarian, Geographical, Cultural, Occupational biases (<i>performance</i>)</p> <p>Presents different points of view/contributions (<i>performance</i>)</p> <p>Sensitivity to People with Disabilities (<i>feature</i>)</p>
10-Environment	<p>Considers safety and/or environmental concerns (<i>durability</i>)</p>
11- Teacher Guide and other learning materials	<p>Accompanied by teacher guide, e-material, learning aids and assessments (<i>feature</i>)</p>

Conclusion

This study was unique in the field of textbook evaluation in a sense that multidimensional strategy was adopted to achieve the objectives. Research methodology, the responding persons, the instruments of the study and consequently the results, all depend upon the level and culture of research in the society. The Education culture of the Pakistani system of education is not research oriented. The context of the study was not

without difficulties and obstacles but despite this, the study generates new knowledge regarding key indicators to evaluate textbooks as well as to guide future textbook production in Pakistan. Owing to socio-cultural and political diversities, the specific indicators identified in this study may not be used without close examination of their validity in other countries. Nonetheless, they provide a basic framework for textbook evaluation across boundaries.

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