



Responsibilities of Reviewers

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ESSENTIAL to a discussion of the responsibilities of the reviewer of science materials for children is an understanding of recent developments and concepts in the fields of science, education, and criticism, involving the evaluation and selection of many materials. The problem is a complicated one; separate disciplines are concerned with the answers which, although often tentative, contribute to the background knowledge necessary for effective reviewing.

PRESENT CONCEPTS IN EDUCATION AND SCIENCE

Open classrooms, alternative schools, and vouchers are a few of the ways in which educators are attempting to meet the challenge of educating today's youth. It is evident that in most cases the textbook-oriented formal classroom is inadequate to fill the needs of the present, given the acceleration of research and communications of the past decades. Some of today's concepts and concerns in education and science are found stated below.

Frymier summarizes "that the need to know (the need for stimulation) is man's only insatiable need . . . a pressing, relentless part of life itself."¹

Bertrand Russell felt more than forty years ago that "power-knowledge would supersede the science which was once born of love of things and persons."² This is a prophecy whose time has come in view of the political and scientific developments with which we are constantly bombarded via the media.

In *The Golden Bowl* Henry James asked, "What was science but the absence of prejudice backed by the presence of money?"³ Since James's day, "pure" science, married in the twentieth century to technology, has become prejudicial; but money is still vital to research and development.

George Sarton, a great scholar in the field of the history of science, pointed out that man's ability to find further knowledge, and to know

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how and when best to use it, is far more important than his actual knowledge. Implicit in this idea is the value for which man uses his knowledge and how he discovers the knowledge he uses. These are important considerations for one attempting to evaluate science materials, since helping to build the discrimination of young people in finding and selecting pertinent information is a major task. "Our primary function as educators must be to recognize that to educate is to 'lead out.'"⁴ The ways in which this function can be accomplished are diverse. No one way solves all educational problems, but today's emphasis on having children pose their questions and "discover" the answers is a step in the right direction.

Ralph Lapp, nuclear physicist wrote: "it is through brain power that we will solve the highly complex problems of the future . . . we also need the elixir of support for basic science. . . . Scientists must . . . develop the innovations which will interconnect this century with the next. Those future innovators are now in your schools."⁵

How can potential innovators be recognized and stimulated? Perhaps through individualized teaching, under "an umbrella structure that provides a format for trying out all kinds of different teaching methods, techniques, and strategies, with one idea in mind—giving each child the opportunity to learn with the materials most suited to him and in the situation most suitable to his style of learning."⁶ This method is a challenge to the parent, teacher or librarian. It opens the door to providing the child with what he wants and needs. Often need and want do not synchronize; it is then that the persuasive skill of teacher, librarian, or parent is called upon.

USE OF MEDIA MATERIALS

The use of the word "materials" in addition to books on science for children greatly enlarges the scope of reviewing, evaluation and selection. Materials may be defined as "books, periodicals, pamphlets, and other publications as well as films, slides, recordings and other audiovisuals."⁷ Media may be defined as "printed and audiovisual forms of communication and their accompanying technology."⁸

There has been a tremendous proliferation of media materials finding their way to the educational market where, if accepted, multiple orders for an item for a school system contribute to its publisher's success. Related to this is the development of media centers (which include the library) in schools. This trend is evident in recently constructed school buildings with their generous space for study carrels, stations, and areas which can be converted for use by small or

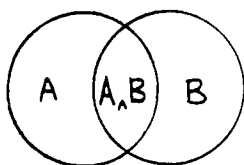


Fig. 1. Domains in School Media Specialization

Legend: A = Media—Knowledge, B = People—Users, and A ∩ B = Media—Knowledge and People—Users

Source: Baughman, James C. *School Media Quarterly*, 1:277, Summer 1973. Reproduced with permission.

large groups, with adequate room for housing hardware and software. In many school systems, however, libraries—if any—are under the direction of librarian, teacher-librarian, or volunteers; audiovisual equipment and materials are often acquired and dispensed as a separate unit. Such diversity increases the problems of efficient selection, acquisition, distribution and maintenance of available materials.

Figure 1 illustrates the domains involved in school media specialization.⁹ Among media materials can be found filmstrips, cassettes, video tapes, films, recordings, tapes, slides, pictures, maps, sets of transparencies and overlays for the overhead projector, kits offering these in various combinations, games, puzzles, mineral and biological specimens, live plants and animals which, with books and pamphlets, are all used today in science education for young people. In other words, almost anything can prove useful, depending on the ingenuity of the eager child and adult. One has only to scan any issue of *Science and Children* or *The Science Teacher* to become aware of the multiplicity of materials.

Although available materials are abundant, in many places the standards recommended by the American Library Association and the National Education Association for school media programs are still only goals for a distant future. Recent cutbacks in federal funds, inflation, diminishing school enrollments and local budget cuts are deterrents. Peggy Sullivan finds that “the media program . . . has a special role to play in the continuing education of teachers. . . . In addition, the nourishment and growth of the media program itself requires action and competence from other members of the staff.”¹⁰ If there is no real interest in the program, it will founder. One way to

involve staff is to make use of individual talents or knowledge for the enrichment of all. The *Standards for School Media Programs* states that "evaluation of materials in the media collections is a continuous process . . . Suitability for the users of the media center is a major criterion, but such established elements of evaluation as accuracy, values, up-to-dateness, and style are also considered."¹¹

Unfortunately, many reviews of media materials are mere summaries of products and offer little help to the viewer or listener who may be the purchaser. Certainly it is a function of a reviewer to make judgments according to the usual critical standards. It is not enough to review *only* those few items which are of top quality; educators are constantly exposed to the "hard sell" in what has become a highly competitive business. Appraisal of as many materials as possible is needed. Catalogs are not selective; opportunity and time for previewing media are often nonexistent. "Selection is at best a difficult job with so many background factors to consider in relation to the large quantity of materials available, together with the reality of limited amounts of money for the purchase of materials."¹²

In an excellent article on filmstrips, Diana Spirt says: "Criteria by which we evaluate and choose . . . are only as sound as the judgments of the people who use them. There are really only two main . . . criteria for selection of media . . . (1) What is the idea, intellectual content, etc. in the material and how is it presented?; (2) Is the medium that is used to present the idea the most suitable for its treatment?"¹³ To these criteria must be added another—one encompassing the canons of good taste and merit.

More than thirty-five periodicals are now reviewing recordings; there are several newcomers to be noted in the media field, particularly *News and Previews*, at this time a yearling of the *Library Journal*, and *Media Review*¹⁴ which was initiated in January 1973 to complement the *Bulletin of the Center for Children's Books*. Also useful as a selection tool is *A Multimedia Approach to Children's Literature*.¹⁵ The selection is based on firsthand evaluation and use with children. Although no science headings were listed in the index and no entries on science were included in the text, the three introductory sections are excellent for general information on selection aids for a broad range of audiovisual materials.

CHILDREN'S READING

In general, children are reading less than they did twenty-five years ago. Malcolm Douglass analyzes the problems of learning—motor

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responses and cognitive behavior in particular—with which child psychologists such as Jean Piaget and Jerome Bruner have long been involved: “There are four major elements interacting as any reading proceeds. . . . The first . . . is the environment of the reader . . . the second . . . is that process by which the human organism changes visual, auditory, and other forms of stimulation into neural responses Two elements . . . remain; they are those of perception and of responding [which are mysteries] at once the most complex and at the same time those we know least about.”¹⁶

Other factors in learning to read are:

1. Maturity. All children go through much the same stages of physical and mental development. However, they mature at their own rates along different paths and sometimes in quantum leaps.

2. Interests. It has been found that certain interests of children appear at certain stages of their growth and can make a decided impact on what knowledge a child acquires. When he is immersed in a subject—dinosaurs, horses, astronauts—difficulties with vocabulary fade away and understanding increases due to his intense desire to “find out.”

3. Innate ability. There is no denying the fact that, unless a child has a specific reading disability, the verbal-minded child will, other things being equal, cope with reading materials better than the nonverbal child.

REVIEWING CHILDREN'S SCIENCE BOOKS

When one contemplates the reviewing, evaluation, and selection of children's science books one is on firmer ground in theorizing about children's reading for, on the whole, these criteria are closely allied to those applied to adult criticism, limited by the young reader's maturity, reading level, etc. These limitations are well stated by Harry Stubbs in discussing the writing of young children's science books:

The problems of writing science books for the very young may not differ greatly in kind from those of other forms of scientific writing, but they certainly differ in degree. The always important distinctions among reasonably certain observed fact, highly probable theory, and very uncertain hypothesis must be kept even more firmly in mind by the writer or the illustrator whose intended audience has barely learned to read. These are the distinctions which young children are least able to recognize for themselves.¹⁷

Another problem which reviewers, reading and cogitating in their ivory towers, seem to overlook on occasion is whether the book will appeal enough to youngsters to be read by them. What good will it do to pass judgment on the accuracy, etc., of a science book if it is dull, inexpressive, and unattractive? The book with flair, written from knowledge of what appeals to a child, has a greater chance of connecting with the young reader than a dull, condescending recitation, no matter how factual. Günter Ebert writes: "We are all familiar with the old dilemma in our work: children's books are written by adults, propagated by adults, and criticized by adults. The only thing children have to do with the books is to read them. . . . Young readers do not always articulate their wishes, but they react inevitably and very clearly to the lack of excitement in their books."¹⁸

Criteria are available to use when reviewing science books for children.¹⁹ Accuracy is important, although its extent or quality varies with the age of the young reader. Oversimplification is a danger; some theories cannot be proved and should be presented in the light of modern research as still unanswered questions. Concepts should not be confused with facts. Anthropomorphism, teleology, and animism should be avoided. Clarity and logic in presentation of material is important. The style should be fluent. Illustrations, whether diagrams, sketches, paintings, or photographs, should illuminate the text and be positioned on the page and captioned so as to aid the reader's understanding. Books without indexes are less useful as sources of information.

Since we know very little about how and at what age children can identify with adults making significant contributions—e.g., Isaac Newton and the law of gravitation—writers of juvenile biographies should be particularly careful to present a true picture. Some accounts seem to be merely watered-down versions of adult biographies, with dubious aspects of the subject's life glossed over or omitted, and give a false impression to the young reader.

Also important is recognition by the author of the fact that science is not always made up of successes. Many hypotheses fail, and many experiments lead to failure. Children, in addition, should be shown that the achievement of an individual often depends on earlier work by others.

Science fiction is an area generally overlooked by the reviewer of books on science per se. Reviewing science fiction is usually the occasion for hot debate among reviewers who may cry, "This is fiction! How can we review it as science?" or, "But it uses and explains

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topography," or "tells about ESP. We should review it because children will read it." Another aspect of science fiction we cannot discount is its "presentation of man's need to change his own nature."²⁰

A final criterion to be relied upon is the reviewer's own, possibly subliminal, reaction. This is difficult to define, for reviewing is a highly subjective matter, depending on the experience and insights into children and books which the reviewer possesses. "In the long run, only continued intelligent reading and concern for the reactions of young readers can begin to resolve some of these selection problems."²¹

A DUAL APPROACH TO REVIEWING

"Give me anything but science books! I am not qualified to judge them," was the oft-repeated plaint of a group of children's librarians during book review meetings of the Massachusetts Division of Library Extension early in the 1960s. As a result, the Children's Science Book Review Committee was formed.²² In September 1963, with the New England Round Table of Children's Librarians as sponsor, an experimental project was set up with the Boston Museum of Science which invited specialists working in scientific or technical areas to judge books for scientific accuracy, up-to-dateness, etc., with librarians reviewing the same titles for style, format, reading levels, and appeal. In this way a more meaningful appraisal of a book would be offered as an aid to librarians, teachers, and parents searching for books for children from preschool through ninth grade.

Since 1964, the Graduate School of Education, Harvard University, has sponsored the work of the committee by providing office room and the services of a part-time secretary, without which the volunteer assistance of librarians, specialists, and publishers might not have survived.

After several years of experimenting, it was decided to publish *Appraisal: Children's Science Books*²³ three times during the academic year. Each issue contains a lead article and two reviews for each title for which suggested age levels and an over-all rating are given as a ready reference. All reviews are initialed, and a list of contributors is included. Only books with reviews from both a librarian and a specialist are covered in *Appraisal*.

A cumulative author-title index appears annually in the fall issue. A recent, but at this time sporadic, inclusion is "Media Materials," limited to those associated with children's science books. It has been well received, but practical difficulties have still to be resolved.

Librarians within easy access of Cambridge, Massachusetts, attend bimonthly meetings to see, discuss and select books. Specialists in education, science, government agencies, etc., range geographically from Maine to Oregon, from Minnesota to the District of Columbia. Although in most cases both reviewers come to the same conclusions, it is by no means uncommon to find the two opinions diametrically opposed. If so, it is an indication to the reader to take the trouble to look at the book and make up his own mind.

The publication committee which prepares annotations of reviews for publication is intrigued by the fact that often the librarian takes on the role of the specialist who may then comment on style, readability, etc. Each learns from the other.

Now in its seventh year, *Appraisal* is well established, and has received excellent notices. Throughout Canada, Europe, and the United States as well as in Australia, Asia, and the Middle East, it has proved itself to be, with its dual approach, a valuable selection tool.

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