EFFECTIVENESS OF VISUAL IMAGES IN SOCIAL SCIENCE TEXTBOOKS AT PRIMARY LEVEL

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Abstract:

Textbook is fundamental tool in teaching-learning process of social science at primary level. It is found in every classroom and accessible to every student. From the earliest to the advanced stages of education, various types of visuals are included in social science textbooks in order to promote pupil's learning. A good social science textbooks needs and presents illustrative material like pictures, charts, maps and graphs etc., to explain the content matter which the teacher and the student can use to their advantage. In connection with iconic turn and expansion of visual culture their number still increases. Visual images can serve as key didactic means for visualising and mediating ideas to young pupils and also for supporting their exploration of the educational content. Across disciplines, students engage with images and visual materials throughout the course of their education. For students to take advantage of the widespread and growing use of various illustrations in social science textbooks, they must develop visual literacy skills, which include the ability to examine different pictorial representations in a variety of contexts and make meaning from the images. Illustrations promote learning and understanding of text, developing concepts improve attitudes and interests of students.

Keywords: Social science textbooks, visual images, visual literacy, pictures, learning.

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International Journal of Physical and Social Sciences
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Any organised teaching-learning situation can be construed basically as consisting of a specific curriculum, which in turn, would include the syllabus, the instructional materials, and the transactional strategies. The ultimate efficacy of the learning situation would thus be dependent largely on the relevance of each of these components in the context of the learner and the learning outcomes. In the national context today, the significance of an appropriate curriculum becomes even more critical in view of the efforts towards universal education wherein the diversity of student's need will inevitably become still greater and so will the need to adapt educational approaches to match curriculum, instruction, and learner. In the Indian situation, at the primary stage the textbook continues to be the most essential and in majority of cases the only aid in the hands of the teacher and the learner through which the given curriculum is transacted. This situation consequently places a heavy responsibility on the quality of the textbook for ensuring effective teaching-learning interactions and outcomes. For any instructional material to be effective, it has to be necessarily planned keeping in view the requirements of the learners particularly with reference to their age, their educational and cultural background, their immediate environment as well as their proficiency in the language, which is the medium of instruction. A large number of textbooks are being prepared in India every year, both at the central level and in the different states.

Social Science textbooks:

Method of teaching plays a vital role in achieving the aim and objectives of teaching a particular subject or topic. The selection of teaching method depends upon the nature of subject and topic to be taught. A method is "The process of planning, guiding, sharing and evaluating learning with a group of students". A method is a means of procedure which a teacher follows to make learning easy and effective. The importance of Books is utilized extensively in teaching social science at primary level. 90% of social science activity in the primary level classroom involves textbooks. Textbook is fundamental tool in teaching-learning process of social sciences. It is found in every classroom and accessible to every student. It was the only instrument of imparting knowledge in the past. Logically arranged subject matter presented in the form of textbook, influences the objectives, characters and scope of curriculum, the method of instruction and the mean of evaluating the outcomes. According to the professor Keating, "Textbook is the

basic instrument of teaching". Textbook is a standard book for any branch of study over the course of many years; reading instruction has been defined and practiced in a variety of ways.

Theories of Learning from Visual Images:

During the last 25 years, learning and understanding text has been investigated intensively, but research on examining the effectiveness of learning through visual images has received much less attention (Schnotz, 2002). However a number of studies, especially in the 1970s, have emphasised the strength of our brain to store and recall images as opposed to text (e.g. Haber, 1970; Standing, 1973; Paivio, 1975). Illustrations have been part of our learning mechanism since our childhood, as images are used in textbooks to stimulate our imaginations. So, for students who are learning new subject areas or topics unfamiliar to them it is like being a child again, reinforcing the need for images and illustrations to help students visualise and relate to them. Paivio's (1986) dual coding theory is a good starting point for addressing the use of pictures on learning from text. According to this theory, "words and sentences are usually processed and encoded only in the verbal system, whereas pictures are processed and encoded both in the imagery system and in the verbal system" (Schnotz, 2002). Therefore, pictures have an added advantage over text, as dual coding takes place in the memory, hence "it is easier for the learner to make cross connections between the two different codes and later retrieve information" (Schnotz, 2002).Studies undertaken as early as the 1970s highlighted the extraordinary capacity of the brain to imprint and recall images accurately, and at incredibly high speeds (Haber, 1970; Standing, 1973). Images can be stored in our long term-memory in terms of a coherent chunk or concept (Standing, 1973; Paivio, 1975, Erdelyi and Stein, 1981; Williams *et al*., 1996), and there is no limit to the extent to which it can be stored and retrieved (Miller, 1956; Gage and Berliner, 1988; Williams *et al*., 1996). This is because images provoke a range of responses, such as colour, dimension, texture, visual rhythm and imagination, in particular (Buzan, 1990; Williams, *et al*., 1996). They are "generally more evocative than words, more precise and potent in triggering a wide range of associations, thereby enhancing creative thinking and memory (Williams *et al*., 1996). Research throughout the 1990s demonstrated that carefully constructed pictures as visual text adjuncts can not only have a decorative function, but also have

functions of representation, organisation, interpretation and transformation (Carney and Levin, 2002). According to Levin and Mayer (1993 , cited in Carney and Levin 2002), this "suggests that pictures improve students' learning from text because they make the text more concentrated, compact/concise, concrete, coherent, comprehensible, correspondent and code able". Cognitive theory also proposes "the idea that meaningful learning occurs when the learner engages in cognitive processes such as selecting relevant material, organizing it into a coherent representation and integrating it with existing knowledge" (Wittrock 1974, cited in Mayer and Moreno, 2002). Therefore, carefully selected images can be used in promoting effective learning amongst students. One of the most well known advocates of visual literacy is Dondis (1995) (cited in de Souza, 2005), who strongly emphasised that visual literacy (i.e. the ability to read and write through images) should not be limited to those who are trained in this, such as artists, designers or visual communicators, rather it should be accessible to everyone. Schnotz (2002) also supports this notion by advocating visual displays as powerful devices to support teaching and learning, since combining visuals and text are important to support comprehension among students. Incorporating images in lectures can be important in developing attitudes and perceptions of dimensions other than cognitive, but which are equally important for preparing any future educators (de Souza, 2005).

Visual images in Social Science textbooks:

The definition of literacy has expanded over the latter half of the 20th Century to account for the growing variety of texts that our students encounter inside and outside of school. This trend reflects a societal shift towards creating and utilizing a greater number and variety of written, visual and oral texts to meet an expanding set of purposes. In order to meet the increasing demands of this diversity of texts that students encounter during their formal school years, our reading and language arts curricula must begin to recognize this reality and take steps towards equipping students with the skills necessary to interact successfully with the many forms of reading that exist today. Sometimes there is a lack of visual teaching aids in schools. A good social science textbooks needs and presents illustrative material like pictures, charts, maps and graphs etc., to explain the content matter which the teacher and the student can use to their advantage. A good textbook is the friend of the teacher and guide of the students. Picture in the

text book are the real touch of the real object does not occur. Picture in the textbook should be so precise, coloured and attractive that the people become familiar with the size and shape of the real object. When the teacher imparts knowledge with the help of textbook's picture, the people's attention remains focused on the lesion. The use of maps, pictures is essential to study historical events, geographical facts and places. An increasing number of the texts that today's students encounter incorporate graphical representations of information and intricate images and illustrations, all of which help to carry the informational load alongside written text (Kress & van Leeuwen, 1996). The presence of visual elements in today's teaching and learning is increasing as the integration of images and visual presentations with text in textbooks, instructional manuals, classroom presentations, and computer interfaces broadens (Benson, 1997; Branton, 1999; Dwyer as cited in Kleinman & Dwyer, 1999). Although the educational community is embracing visual enhancements in instruction, the connection of visual and verbal information is evident throughout history. According to the poet Simonides, "Words are the images of things."

"What is the use of a book," thought Alice, "without pictures or conversation?"

     ~from *Alice's Adventures in Wonderland*

Children's textbooks are not only important because of the literary value they provide young readers, but they are also an essential element in the developmental reading process. Illustrations are associated with the initial stages of reading and one of their functions is to help children understand that print has meaning before they actually can read (Harms, 1998; Landers, 1987; Manning, 2004). The main function of illustrations in a child's textbook, if the author has done his or her job correctly, is to illuminate the text (Heins, 1987). Without the illustrations, today's emergent readers may have a more difficult time with the processes of learning how to decode text, developing recall and comprehension skills, and even vocabulary acquisition and development. Because the text and the illustrations in the best textbooks are so well balanced it would be difficult to imagine one without the other. The two are sometimes so undeniably interlinked that the support can be total (Butler, 1987). Children who are exposed to one without the other may indeed be missing an important step in learning how to read. From the earliest to the advanced stages of education, various types of visuals are included in school textbooks in

order to promote pupils' learning. In connection with iconic turn and expansion of visual culture their number still increases. Visuals thus have significant influence on the appeal, attractiveness and also educational functioning of the school textbook (LaSpina 1998; Thornes 2004).

Besides, visuals work as a criterion, when evaluating school textbooks, they are also important as an educational aid. They are highly suitable for picturing and mediating ideas to young learners and also for supporting their exploration of educational content (Carney and Levin 2002). Doing so, visuals possess various educational functions. They can be used as sources both for individual inquiry activities or whole-class practice. However, visuals do not usually convey their message automatically. Thus, to enhance the didactical functioning of visuals, specific circumstances have to be met (Mayer and Gallini 1990). Important factors constituting the educational effectiveness of visuals in school textbooks are particularly:

> (1) Socio-cultural context of the instruction,
>
> (2) The nature of the instructional goal and
>
> (3) Pupil's cognitive characteristics (Bolling et al. 2004).

Moreover, a fundamental factor influencing the educational effectiveness of visuals is their instructional design, which is most obviously reflected by the type of visuals (Peeck 1993). Categorizing and evaluating the types of visuals in school textbooks have a great significance from the educational point of view. This is because various types of visuals (for example, photographs, tables, maps) significantly differ in a way in which they convey educational content. The differences in didactical functioning of the various types of visuals are most evident when comparing different school subjects. However, empirical studies, which would provide a synthesizing view on this issue, are rare. As a framework for considering the visuals and their educational functioning in different school subjects, an established classification which distinguishes between representational and non-representational visuals is used (Levie and Lentz 1982; Tang 1994). Representational visuals are those, which convey educational information in a direct (tangible) way. As representational thus should be categorized visuals which show how things really look like – for example, photographs, ordinary drawings etc. On the other hand, non-representational visuals may serve as a substitute, which only refers to the concept being visualised. They are mostly highly schematized and thus may not look like the things they

represent but are related in some structural, conceptual or logical way – for example, maps, diagrams, charts etc. (Anglinet al. 2004).

However influential the pictorial image has become, Kiefer (1995) maintains that the combination of the written word with the visual presentation produces a greater effect on the reader than does each individually. Still others have demonstrated that illustrations improve reader comprehension (Holliday & Harvey, 1976), and that they are especially beneficial in helping poor readers better understand the written word (Fleming & Levie, 1993). Although there is much evidence to suggest that illustrations promote learning and understanding of text, other educators insist that illustrations, if misused or misinterpreted, may in fact interfere with learning (Downey, 1980; Weidenmann, 1987; Waddell, McDaniel & Einstein, 1988; Pena & Quilez, 2001).

Many learners with disability labels are visual learners and are best able to understand and remember content when they can see it represented in some way; in other words, they need to "see what we mean." Visual and spatial learners often think in terms of pictures and learn best from things that can be seen including diagrams, checklists, charts, and graphic organizers; movies; illustrated books; curriculum-related objects (e.g., dioramas, math counters, models); and PowerPoint presentations. Each of these supports can be offered across subject areas, can be used to boost literacy learning, and can be generated by teachers or by students themselves. Downey (1980) has argued that the effectiveness of visual representations is dependent on the learner's ability to independently and accurately interpret them. Thus, the issue of pictorial utilization manifests itself. The creator has the responsibility of developing visual images that are age-appropriate, and the learner has the task of realizing its full meaning and significance.

For students to take advantage of the widespread and growing use of various illustrations in books, they must develop visual literacy skills, which include the ability to examine different pictorial representations in a variety of contexts and make meaning from the images (Glasgow, 1994; Moline, 1995; Stonehill, 1998; Wilhams, Sachats & Morse, 1995). According to Glasgow (1994), for learners to become visually literate, they must be schooled, just as they are schooled in reading. She wrote, "Since our goal is to educate them (students) to make text their own, we must provide with skills to interpret the content of visual images as well as print" (1994,)

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The importance of images and visual media in contemporary culture is changing what it means to be literate in the 21st century. Today's society is highly visual, and visual imagery is no longer supplemental to other forms of information. New digital technologies have made it possible for almost anyone to create and share visual media. Yet the pervasiveness of images and visual media does not necessarily mean that individuals are able to critically view, use, and produce visual content. Individuals must develop these essential skills in order to engage capably in a visually-oriented society. Visual literacy empowers individuals to participate fully in a visual culture, points of views, attitudes and values (Miller 1998).

Visual Literacy:

Visual literacy is based on the idea that pictures can be 'read' and that meaning can be communicated through a process of reading. Visual literacy is a set of abilities that enables an individual to effectively find, interpret, evaluate, use, and create images and visual media. Visual literacy skills equip a learner to understand and analyze the contextual, cultural, ethical, aesthetic, intellectual, and technical components involved in the production and use of visual materials. A visually literate individual is both a critical consumer of visual media and a competent contributor to a body of shared knowledge and culture.

In an interdisciplinary, higher education environment, a visually literate individual is able to:

• Determine the nature and extent of the visual materials needed

• Find and access needed images and visual media effectively and efficiently

• Interpret and analyze the meanings of images and visual media

• Evaluate images and their sources

• Use images and visual media effectively

• Design and create meaningful images and visual media

• Understand many of the ethical, legal, social, and economic issues surrounding the creation and use of images and visual media, and access and use visual materials ethically

Across disciplines, students engage with images and visual materials throughout the course of their education. Although students are expected to understand, use, and create images in academic work, they are not always prepared to do so.

Reading Images in Social Science textbooks:

Werner (2002) provided a framework to develop pedagogical approaches to support image-related work with pre service teachers and students, stressing the importance of teaching students to "read" images. He identifies seven types of strategies employed in reading visual texts:

1. Instrumental – viewing texts as a source of information

2. Narrative – focusing on the implied storyline of a text

3. Iconic – identifying the broader issues and values the text represents

4. Editorial – inferring the artist's judgment towards a topic

5. Indicative – inferring the implied social conditions demonstrated by the image

6. Oppositional – critiquing the implied storyline and position of the viewer

7. Reflexive – self-evaluating one's interpretation and response to an image

Conclusion:

The present day classroom practices are, in almost all schools of the country, totally dominated by textbooks. Textbooks are among the most instructional materials readily available for the use in the classroom for the implementation of Social Science curriculum. A good social science textbooks needs and presents illustrative material like pictures, charts, maps and graphs etc., to explain the content matter which the teacher and the student can use to their advantage. Texts and illustrations are dependent upon one another and, if designed effectively, can help to improve children's reading skills. The selection of illustrations and graphics should be highly congruent with the texts they refer to. They should not be intended just to fill up the empty spaces. Textbooks accompanied by illustrations are meant to improve children's memories of a text; they also enable young children to make one-to-one links between visual objects and words and serve as good eye-catching attractions for young readers. Individuals must develop these essential skills in order to engage capably in a visually-oriented society. Visual literacy empowers individuals to participate fully in a visual culture, points of views, attitudes and values.

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