



RESEARCH PAPER

An Intersemiotic Analysis of Verbal and Visual Cohesion in Primary level Textbooks Published by PTBB

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ABSTRACT

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The current study focuses on the inter-semiotic relations of the visual and the verbal modes in Primary level books published by the Punjab Textbook Board (PTBB). The criterion sampling techniques were employed to collect 21 images from the Primary Level textbooks of English, General Science, and General Knowledge. This sample was, later, qualitatively analyzed for the inter-semiotic multimodal cohesion present in the books. Furthermore, the inter-semiotic relations between the visual and verbal modes at the logical level of ideational meaning have been analyzed following the cohesive categories proposed by O' Halloran (2005) for the study of inter-semiotic cohesion. These categories are grouped as the logical relations (e.g., *implication sequence: comparison, addition, consequential, and temporal*) of inter-semiotic cohesion (O' Halloran, 2005). The findings of the study reveal that the *logical relations* of *addition* and *comparison* have been more frequently used in these textbooks. From the results, it can be suggested that the course designers should make less use of consequence logical relations while designing the textbooks for primary level learners as it might make the text more complicated for the young learners.

Introduction

The current study is the multimodal analysis of the textbook discourse which includes different semiotic modes. Semiotics is the study of sign system which studies how visual and verbal resources are used for meaning-making. Halliday (1985) opines that many modes of meaning-making exist in any culture. So, semiotics is not just a

study of signs but it is the study of sign system i.e. the study of meaning in its most general sense (Halliday & Hasan, 1989). In the modern world of multimedia, our everyday language use has become quite multimodal as the visual resources of communication have also gained importance along with the traditional verbal modes of communication.

Multimodality is the convergence of different semiotic modes present in a society/culture (Van Leeuwen, 2006). It is the relationship of different semiotic modes i.e. visual, verbal, music, dance, paintings, art, sculpture, etc. This study aims to investigate how verbal and visual aspects of a discourse integrate to create meanings. It aims at exploring how the cohesive devices contribute to establishing a link between the verbal and the visual aspects of discourse. The focus of this study is the exploration of the cohesive devices providing the integration of verbal and visual modes present in Primary level books published by PTBB.

Different signs integrate to make a multimodal discourse. It was late 1980 when Halliday's discourse analysis seriously started working on analyzing the meaning-making process beyond the language. Halliday's Systematic Functional Linguistics (SFL) is concerned with the analysis of sequences of parts i.e., words, word groups, clauses, paragraphs, etc. (O'Halloran, 2008). Multimodal discourse analysis is an emerging epitome of discourse studies that study the language with a combination of other semiotic resources. It is revealed that the perception of whole visual images takes priority over the perception of parts that needs to be taken into consideration (Ivry & Robertson, 1998). Halliday's (2004) metafunctional principles provide an integrating platform for theorizing how semiotic resources work together to create meaning (e.g., Baldry & Thibault, 2006a; Kress & Van Leeuwen, 2006; Van Leeuwen, 1999). This metafunctional principle is the principle that semiotic resources provide tools for constructing ideational meaning (experiential meaning & logical relations), interpersonal meaning (for enacting the social relations), and textual meaning (thematic structure of the text) (O'Halloran, 2008).

Different works have, in recent times, demonstrated the significance of studying multimodality in the textbooks. A multimodal textbook is a book that is comprised of at least two different modes of communication i.e. language and images (Kress & Leuween, 2006). The current study also focuses on the multimodal cohesion in the Primary level textbooks published by the Punjab Textbook Board. Children learn more quickly when they are required to read and produce text involving different modes of communication i.e., visual and verbal. Designers of the textbooks use resources that help make meaning for educational purposes. These modes and genres perform specific pedagogical works. In the textbooks, images and written texts stand equally with each other so that neither of them enjoys dominance. To grasp the meaning effectively, we need to analyze how the two modes (visual and verbal) of communication work in integration. The current study will discuss how these two modes work together.

In Pakistan, a few studies have been done on examining how multimodal discourse works. Bukhari and Tehseem (2015) attempted to explore the political cartoons in Pakistani newspapers and declared that these cartoons are face-spoilers for one political party while they are face-saviors for the other. The paper also proved that the portrayal of these comic cartoons revealed the political affiliation of a certain media group.

Afshan (2014) investigated the role of media in breaking gender stereotypes. The study applied the multimodal analysis to investigate the relationship between the media and the women. The findings revealed that the media is trying to break the gender stereotypes against women by portraying them as capable of performing every task related to men.

Reviewing the literature on multimodality in the Pakistani context, the researcher found that there is a less number of studies in multimodal discourse analysis in Pakistan. The gap was observed to exist in the multimodal discourse analysis for primary level textbooks of Pakistani learners as this dimension remains unexplored in the Pakistani context. The present study is an attempt to fill the gap by examining the intersemiotic cohesion of verbal and visual discourse in primary level textbooks of Punjab Textbook board using certain cohesive devices proposed by O'Halloran (2005).

Anyhow, the present study aims at analyzing the inter-semiotic cohesion present in Primary-level books published by PTBB at Logical level of Ideational meaning.

Material and Methods

A qualitative approach is utilized to study the construction of intersemiotic ideational meaning in primary-level textbooks published by PTBB. The sample was based on the textbooks of English, Science, and General Knowledge. Multistage-sampling techniques were used to select the sample. Purposive sampling technique was used to select three textbooks of English, two of General Science, and one of General Knowledge based on the objectives of the study. This purposive technique was employed to ensure the selection of books having a significant number of images. A sample of 40 Pictures was collected from these books for the study. Out of these pictures, 21 were selected using the criterion sampling technique. By applying the criterion sampling technique, only those pictures were collected

- which were larger than 2.25cm²
- in which both the language and image were given clearly.

Pictures were selected from both lessons and exercises.

The book-wise distribution of pictures selected from the textbooks is as follows:

Table 1
No. of pictures collected for analysis

English	General Science	General Knowledge
7	6	8

The study primarily explores intersemiotic cohesion of verbal and visual modes found in the images selected from these books using K. O'Halloran's (2005) intersemiotic cohesive devices. The current study discusses the inter-semiotic complementarity of ideational meaning at the logical level. According to O'Halloran (2005), ideational meanings can be studied at both experiential and logical levels. However, this research will only focus on examining the logical relations of image-text discourse. O'Halloran (2005) proposed a category for examining logical relations is an implication sequence which is further classified into a comparative, additive, consequence and temporal categories. These categories are the cohesive devices that would be identified in the verbal and visual texts of the Primary level textbooks to study their inter-semiotic interdependence.

Table 1
Theoretical Framework for the study

Inter-semiotic Cohesion Analysis
Cohesive Devices (O' Halloran, 2005)
Logical relations (Ideation) <ul style="list-style-type: none"> • Implication sequence <ul style="list-style-type: none"> ▪ Comparison ▪ Addition ▪ Consequence ▪ Temporal

The present study is delimited to the analysis of inter-semiotic ideational meaning at the logical level. O'Halloran's (2005) inter-semiotic ideational categories have been used for the analysis of inter-semiotic cohesion at ideational level of meaning. Ideational meanings are studied at experiential and logical levels but this study is restricted to the analysis of only logical relations of ideational meaning.

Inter-semiotic Logical relations

Logical Relations

According to Halliday (1985), Halliday and Hassan (1976) and Martin (1992), Logical cohesive devices are important text-forming resources. Logical relations include a cohesive device of Implication Sequence which is further categorized into four types.

Implication Sequence

The implication sequence is further categorized into comparison, addition, consequence, and temporal relations.

Comparative Relations

This is a kind of logical relation in which there is a similarity between linguistic and pictorial parts of multimodal discourse. Both the linguistic and visual messages are the reformulations (Martin, 1992) of each other i.e. the verbal reformulates the visual part and the visual reformulates the verbal part in the multimodal discourse.



Figure 1: Extracted from the textbook of English, Grade 4 (Pg. 28)

Inter-semiotic Analysis: Comparative Relation

The girl is an actor in the Figure. 1 who is involved in an “action process” (see Kress and Van Leeuwen, 2006) of ‘*eating the food*’. She is the most salient entity in the picture. In inter-semiotic comparative relations, both the image and the text present the same message, or in other words, both of the modes reformulate each other to create the whole meaningful message (Martin, 1992). There is a relationship of comparison in the picture in which both the verbal and visual parts are redeveloping each other. The visual image in Figure 1 is reformulating the verbal text that is “*Fatima takes breakfast at seven o'clock*”. The girl is doing an act of eating the food which is stated in the verbal part as breakfast. The picture is showing a corn flakes box which is usually considered as a breakfast food.

The linguistic part is redeveloping the visual part with the shift of level of generality i.e. the visual part is representing a girl but in the verbal part, it is specified as *Fatima*. The visual part is presenting a watch ringing 7 O'clock and the verbal part

is complementing it. The author has used the relation of comparison very aptly in the figure which is conveying the intended meaning.

Additive Relation

In this kind of logical relation, one semiotic device adds new information to the other component and hence both semiotic components converge to make a single message



Figure 2: Extracted from the textbook of general science, Grade 4 (pg. 43)

Inter-semiotic Analysis: Additive Relation

Both the verbal and visual parts of figure 2 are related in the way that they are adding information to each other. In the image, a participant is presented washing hands but in the linguistic part, a statement is made to explain what the image means. In the visual part, a participant is washing hands and the verbal part is adding the information to the image that before and after the meal we should wash our hands. The message of the whole figure can be "before and after meals, we should wash our hands". Both the verbal and the visual modes are cohesively linked to each other through inter-semiotic additive relation.

Consequential Relations

The logic of consequence can inter-connect the visual and verbal parts of a text in the way that one aspect determines or enables the other rather than just preceding the other aspect (Martin, 1992). All of the consequential relations have the structure of cause and effect. There are two kinds of consequential logical relations based on the distinction between condition and purpose: Consequence and Contingency.

Intersemiotic Consequence



Figure 3: Extracted from the textbook of English, Grade 4 (pg. 81)

Inter-semiotic Analysis: Consequence relation

It is the causal relationship between visual and verbal parts of a discourse in which the effect is ensured. One part is the cause and the other is an effect. It is the relationship of the *condition* i.e. one part conditioned the other.

Figure 3 is presenting an inter-semiotic consequence relation. The image is showing that a man is cutting the trees and in the background, there is no tree because probably he has cut all the trees. Birds are flying away because there are no more trees for them to make their nests and live. The verbal part "*we are cutting more and more trees without growing new ones*" may suggest the reason for the visual image.

The effect of cutting them is shown in the image where no trees are left and birds are also flying away from this place. A sun is drawn on the right corner of the image making the environment hot due to which birds cannot stay here anymore. So the verbal part is stating the cause and image is showing its effect. The whole message then can be trans-coded as *cutting of trees without growing the new ones can cause difficulty for the living things*". Cutting of trees can affect the environment in a harmful way.

The figure could have conveyed the message more effectively if the effect of cutting trees was given in the verbal part. This could be additional information. So in this picture, a logical relation of addition is more suitable for children to understand the semantics of the figure.

Intersemiotic Contingency



Figure 4: Extracted from the textbook of English, Grade 5 (pg. 18)

Inter-semiotic Analysis: Contingency relation

Both the image and the linguistic part are related to each other in a logical relation of contingency. In contingency, there is a possibility of an effect. The figure above is showing that the mother is a super-ordinate entity who is advising her daughter to show care about her. The girl is perhaps suffering from sore throat and she is looking ill and irritated. The statement in the dialogue box is proving the illness of the girl. The relationship of contingency exists in the way that the girl is giving confusing expressions looking at her mother that whether this advice will be helpful or not. In other words, whether the effect is guaranteed or not but the possibility exists because in contingency there is no ensured effect. The cause has the potential to determine the probability of the effect.

Temporal Relation



Figure 5: Extracted from the textbook of English, Grade 4 (pg. 32)

Inter-semiotic Analysis: Temporal Relation

The genre of the procedure is now a characteristic of multimodality not just of language (Iedema, 2003). Inter-semiotic temporal relation can be explained in the logic of time when different procedures are presented in a progression.

Figure 5 is presenting a procedure about how to make a sandwich. There are five steps of making and eating the sandwich in the picture. Step 5 is foregrounded against the background because it is the final step of eating the sandwich. Linguistic and visual parts are inter-connected in the way that images are showing only pictures of sandwich making which may be difficult for children to understand. So the verbal part is here for explaining that which thing comes first and which comes later. The procedure in the verbal is in a shuffling manner because the designer perhaps wants the learners to understand the linguistic part with the help of images.

Conclusion

Then the significance of integration of different semiotic choices in constructing meaning cannot be denied as language is not the only mode of communication in human societies (Kress & Leeuwen, 2006). This study investigates how verbal and visual discourses are combined in the Primary Level Textbooks by Punjab Textbook Board (PTBB) to make a cohesive and graspable text for primary level learners. It explores inter-semiotic ideational meaning at the logical level in primary level books published by PTBB. It analyses the inter-semiotic cohesion between language and image. It is a contribution to the work done on multimodal discourse analysis in the Pakistani context.

The practical importance of the study is that it can assist the profession of pedagogy. It should be in the minds of the course designers that how critical a cohesive multimodal textbook is for creating and delivering a message. It can also help course designers to design effective image-text relations as multimodal discourse has inspired the textbook designers to create a more efficient medium of learning. They may use the devices of comparison, addition, and temporal relations to link verbal with visual discourse to make it comprehensible for the primary level learners. Furthermore, the research can be helpful for future researchers who are interested in studying the relationship between different semiotic resources.

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