

## The effectiveness of educational structural factors and text design on students' reading comprehension

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### Abstract

The purpose of this study is to investigate and compare the effectiveness of educational variables in the scientific text on the reading comprehension of Islamic Azad University students. The sample group consisted of students studying in the East Tehran branch, 360 of whom were selected by random sampling. To make the text, a raw text unfamiliar and unrelated to the subjects of the students was used, and then, according to the objectives of the project, educational variables were used for each project. One-way analysis of variance was used to analyze the data. The findings of this study did not confirm the effectiveness of text type on students' reading comprehension. The result was not in line with previous findings and research. The study recommends that people dealing with psychology and education should have a clear understanding of the learning process

Keywords: Text, educational variable, reading comprehension, text organization, university students

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## 1. Introduction

Now that the revival of human society depends on how education is carried out, familiarity with the method of education and educational technology is very necessary. Experience has shown that purposeful and methodical things are always more successful than things that are carried out without preliminary and final planning and design, and achieve the desired result in a shorter time.

According to learning theorist David Ausubel, the only real learning is meaningful learning. We have learned only what we fully understand. On the other hand, learning and knowledge will be valuable and useful when it is applicable and practical in one's life, otherwise it will not have the slightest value. Students learn concepts, but they have little connection to the world around them, and that scientific subject is etched in his mind as a simple definition, and he cannot expand it and apply it in his life. In the school environment, when the learner tries to comprehend a scientific text, he/she often faces the problem of limited knowledge about the subject and, according to Voss (1984), he/she needs a high level of knowledge.

Also, since most science and textbooks provide readers with a collection of facts, it is much more difficult to understand the contents of these texts than other texts (such as fiction books, etc.). Chambliss and Calfi (1998) consider the unattractiveness of the text for the reader as another reason for being intangible and difficult to understand. So, the fact is that interpretive texts contain facts that may not be comprehensible on their own, and this, along with the problem of incompetence or low skill of the reader by many authors in many pieces of research and reports, such as Kirch et al. (1993) and Gustaw et al. (2003), complicates the comprehension process. In the meantime, the author's job to organise the writing, apart from the quality of the content, is to formulate and determine the appropriate structure. To this end, he can use the appropriate organisational and structural elements to prioritise, nurture and better link them once the subject and elements have been clarified.

Given some of the difficulties mentioned, it turns out that efforts to conduct empirical research and extract appropriate standards for textbook writing are inevitable. Also, although this concept has been discussed in many prestigious universities in other countries, at present, no empirical research (except some theoretical and library research) has been conducted to clarify the criteria for writing in Iran, with the characteristics of Iranian students and universities. The present plan is suggested based on the said necessities, but with a learner focus. Since Ausubel and Ralph Tyler first introduced pre-organisers and educational goals to the teaching literature of teaching and learning psychology, respectively, numerous studies have demonstrated their effectiveness in student learning. These educational variables are mainly used as variables in oral presentation and their effectiveness has been examined separately.

Regarding the effectiveness of educational goals, other research shows that teaching how to use educational goals as a tool to guide teaching can increase students' academic achievement (Bryant, 1970).

In his research, Hoffman (2010) concluded that the use of pre-organisers has a significant effect on students' understanding of the text. Hudson and Fred (2009) emphasised the effectiveness of pre-organiser in motivating learners. McCrudden et al. (2007) believe that the use of pre-organiser reveals causal relationships within the text for learners. Stoll and Mayer (2007) and Mayer (2009) have also confirmed the effectiveness of pre-organisers in their research. Stoll and Mayer (2007) and Mayer (2009) have also confirmed the effectiveness of pre-organisers in their research. Chandler and Suller (1991) also believe that using pre-organisers reduces students' cognitive load when learning.

Also, Ferdosipour and Delavar (2011) and Ferdosipour (2015) studied the effectiveness of structural factors on reading comprehension. Also, the effects of the influential factors have been investigated by Chambliss et al. (2007), Chambliss (1994), Chambliss (1995), Woolley (2010), Connell et al. (2012), Veeravagu et al. (2010) and Chene et al. (2008) and various attempts have been made to examine the

effect of text structure on reading comprehension. Therefore, the general purpose of the research is as follows:

Prioritising the best patterns of text variables that affect students' comprehension.

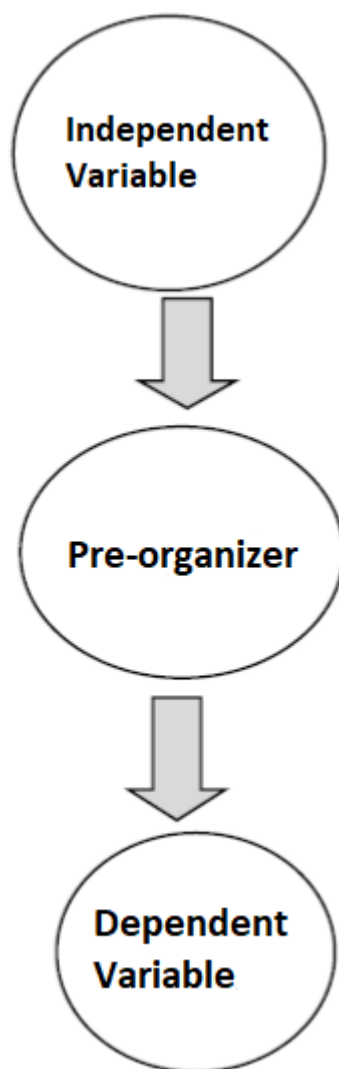


Figure 1.

## 2. Methodology

The present study includes a one-way factor design that examines and compares the effectiveness of educational variables on comprehension. This study was conducted on a specific community of undergraduate students of the Ghiamsht Branch of Azad University. The target statistical population in this study included all undergraduate students of Islamic Azad University, East Tehran Branch. From the target population, 360 subjects were selected using Morgan's sample size estimation table by random sampling method and participated in this study by a random alternative method (Christensen, 2008).

### 3. Results

**Table 1. The results obtained from statistical analyses related to comprehension obtained from different texts and indexes**

No.	Divisible	Number	Mean	Standard deviation	F	Significance level
1	Topical list	40	18.20	2.41	22	0.00%
2	Learning Objective	40	16.28	3.90		
3	Abstract	40	16.56	4.05		
4	Local map	40	19.92	4.71		
5	Points	40	18.40	5.13		
6	Pure	40	16.01	3.80		
7	Final question	40	14.80	4.02		
8	Keyword	40	15.90	3.02		

Significance at the level of 05.0

As can be seen in the Table 1, the mean comprehension scores of each of the studied groups, i.e., the research findings, are shown to compare the nine studied texts. The highest average among these texts are as follows:

- [1] A text in which a concept map is used to clarify the main topic.
- [2] The lowest average is for a text that lacks educational elements.

Also, Table 1 shows that using the *F*-test, the differences between these three text forms are not significant. In other words, the obtained *F* index is lower than the critical value, which refutes the assumption of a significant difference between the three forms of the text. Therefore, it was found that in this study, expression patterns could not create a significant difference between the subjects' comprehension scores. This size was not significant at the two levels of 01.0 and 05.0. The statistical findings of Table 1 show that although there is a difference between the mean of the texts, this difference is not statistically significant in this study.

### 4. Discussion and conclusion

Learning is a concept that is used in many cases and everyone seems to know it, as long as they do not have to define it in scientific terms. Given that it is not easy to provide an accurate definition of learning, people dealing with psychology and education should have a clear understanding of the learning process. Given that it is not easy to provide an accurate definition of learning, people dealing with psychology and education should have a clear understanding of the learning process. According to Traverse (1972), learning occurs when relatively stable changes in behaviour occur as a result of environmental conditions. Environmental conditions sometimes mean the same stimulus. Learning is a complex process and involves internal change. But in some cases, we see the realisation of learning as a visible response that comes from the learner.

Although the theory is not easy to implement, the need to use learning theories or even laboratory information in the natural environment and vice versa is not ruled out. Ideally, a two-way flow of information connects the natural learning environment and theorists. Learning theories and psychological research can help educators improve their teaching methods. Learning theories teach us how to analyse the learning process and facilitate learning by pointing out the points that matter and by pointing to our expectations. Also, learning theories teach us what principles to use in learning and teaching, and which principles are useful and which are ineffective. In short, teaching methods are the product of the work of theorists who have thought about the nature and laws of learning (Kadivar, 2000).

Some researchers, such as Voss and Silfies (1996) and Magliano et al. (1999), have shown that the effectiveness of a text depends on its structure. For example, Voss and Silfies (1996) showed that in a

well-developed text with a so-called 'extended' structure, comprehension skills are more important than the learner's existing knowledge. Instead, when the text is 'non-extended' and not well developed, it is the learner's existing knowledge that is superior to his or her skills in reading comprehension. Besides, Rozenblit (1989) showed that if the content of the text is nurtured by an expansion chart, the reader's comprehension power increases.

Also, Rozenblit (1989) showed that if the content of the text is nurtured by an expansion chart, the reader's comprehension power increases. A study was conducted by Johanness et al. (2009) on the importance of using titles in learning complex materials. Some of the results of this study showed the importance and effectiveness of content-related heading on the comprehension of low-skilled learners. Also, it was found that the greater the number of these signs and references in the text, the higher the learning efficiencies. It should be noted that this research was conducted for university students.

Blohm and Colwell (1983) studied the structural and content factors of the text that affect reading comprehension. They studied the effect of stylistics and structure and textual references on the reader's recollection. The most important approaches of this design were complex and high-level structures and textual references to re-reading the original idea and theory of text.

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