Survey of the reading comprehension skills of first year students

Mihály Kocsis - Zsuzsa Mátrai - József Zsolnai
University of Pécs - Pannon University (Hungary)

Over the years following 2000 there have been some fundamental changes in the Hungarian higher education. On one hand, among admitted students, the stage of absolute expansion from 1991 has been taken over by the period of relative expansion. Today the ratio of students admitted at university within each age group reaches 40%. On the other hand, the structure of higher education changed dramatically in 2006. Hungary also joined the European Higher Education Area accepted in the Bologna Declaration. Together with the joining, the institutions agreed to continuously monitor the training according to the accreditational requirement. All of these took place during the period when the PISA-surveys proved our educational system to be working under expectations. This means that by this time, students tackling reading comprehension tasks with difficulty had most probably become university students.

Introducing the new course structure and the required monitoring we endeavour to observe some of the elements of the verbal, cognitive and mental abilities of entering day-students, their reading comprehension skills primarily. Over the past two academic years 4,800 students of 15 institutions of higher education have been involved in our research (Chart 1). In our presentation we are going to present what impact text structure has on the understanding of information, as well as the solution of tasks among university students.

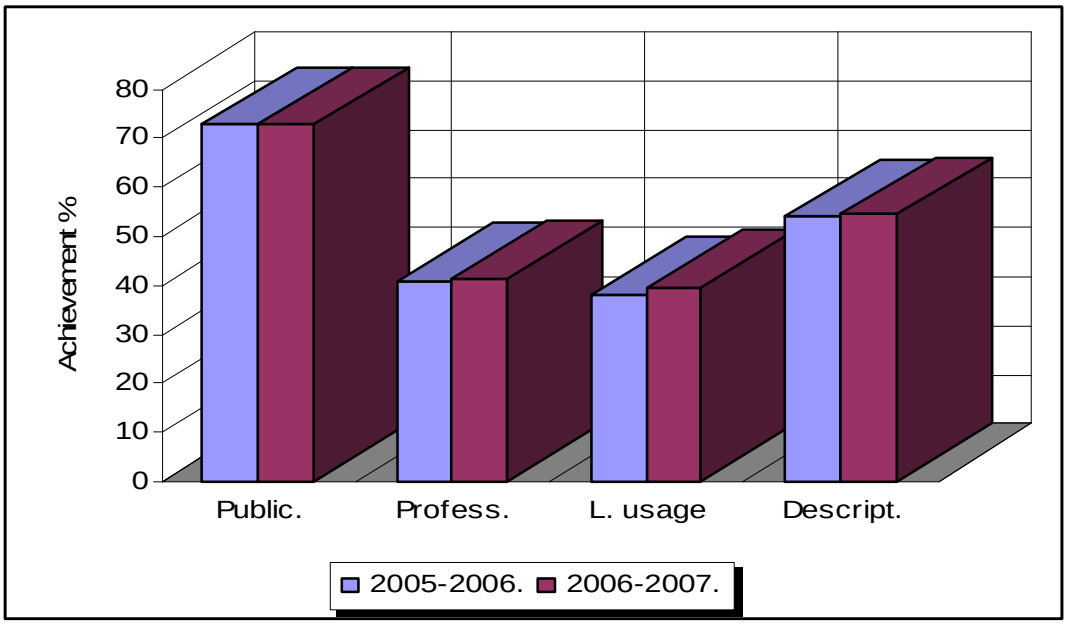
Chart 1. The number of universityes and students is our survey

School years	Universityes	Students
2005-2006.	10	2800
2006-2007.	15	2000
Together	-	4800

We have already presented the context where our surveys can be interpreted at the conference in Singapore in 2006. The institutions and their students that launched the human resources organizer or cultural organizer major subjects in 2005 have been involved in the comprehensive survey. Since September 2006. andragogy has become their succeeding major. Our test booklet contains four sections – the mapping of the socio-cultural background, monitoring reading comprehension skills, solving mathematical logical problems, and testing the psychological immune system –, here, however, we are going to deal solely with reading comprehension, including publicistic text, professional text, text for language usage testing and text for elaborating different notions.

Like in the academic year 2005-2006, in 2006-2007 we also found that there are relatively great differences between the performances in the case of each text type (Chart 2). The strong correlation between the performance of the students of the Hungarian education system and the socio-cultural background was apparent in this survey as well. There were two areas where we found the so called 'slope-effect': in the case of the type of the place of living and the parents' qualification (Charts 3-4).

Chart 2. Achievents of students
in the case of various types of texts



Publicistic text: Public;Professional text: Profess; Text for language usage testing: L. usage; Text for elaborating different notions: Descript.

Chart 3. Achievements of students from various types of communities
in the case of reading comprehension skills

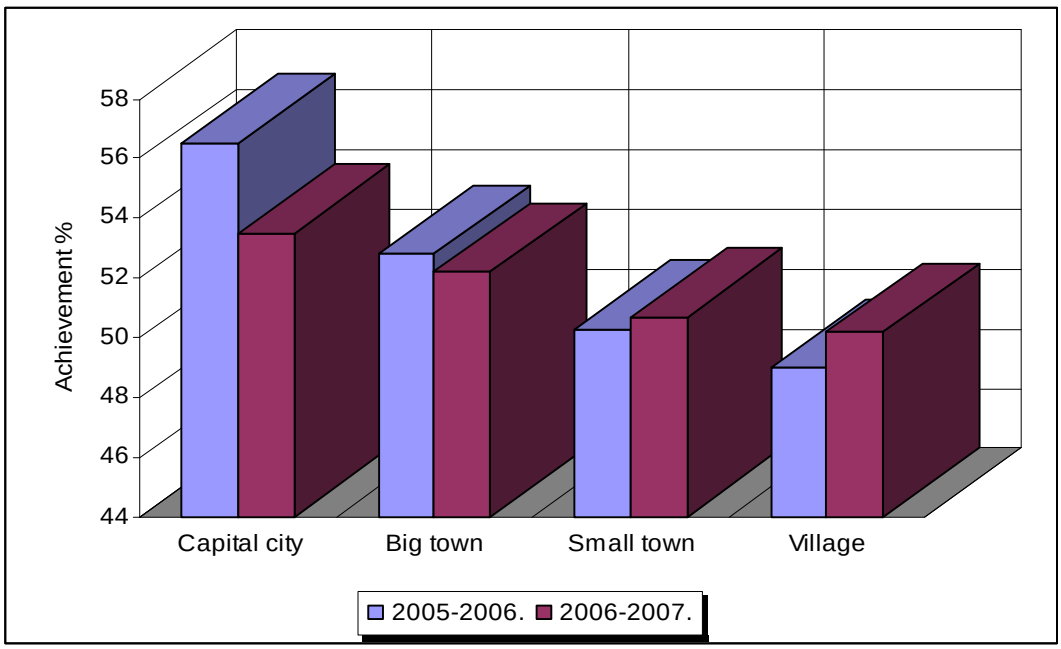
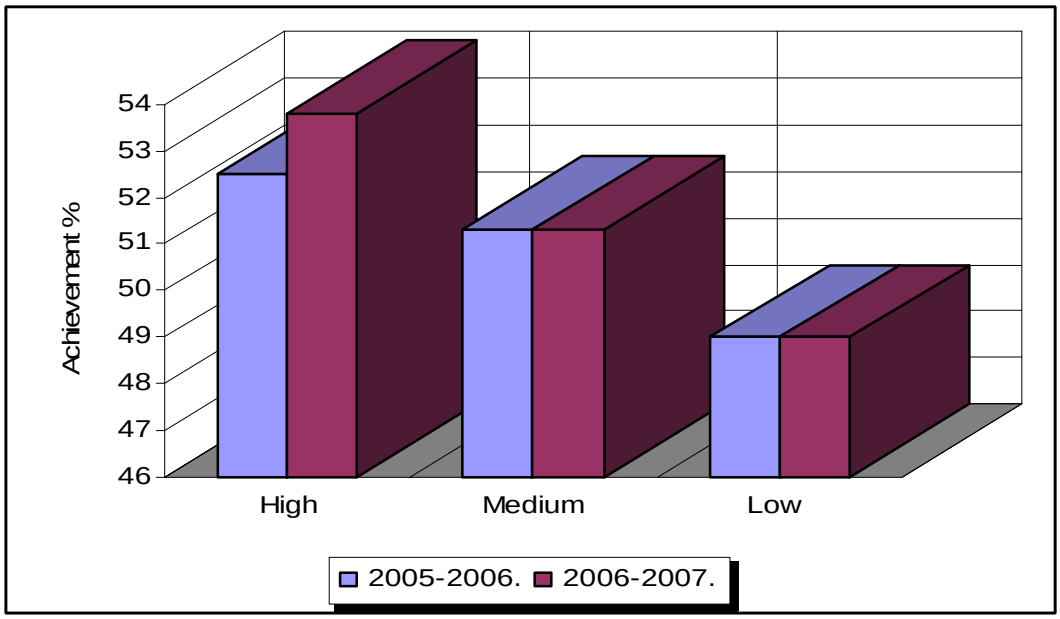


Chart 4. The level of education of mothers and the achievements of their student children in the case of reading comprehension skills



Abbreviations: Educational level of mother: college or higher: high; Educational level of mother: secondary school-leaving exam: medium; Educational level of mother: elementary school or vocational training school: low

In the observed two academic years the results of our tests which had apparently evolved independent from each other, showed extraordinary resemblance. Thus we also analyzed the text structure of tasks within the text types. In this respect we have distinguished the following types of text structures:

-specific data in simple text structure;
-specific data in complex text structure;
-abstract data in simple text structure.

We are presenting an example for each of the above mentioned text structures (Charts 5-7).

Chart 5. Exact data in simple text structure

„In their first experiment the researchers did not give water to the camel for eight days. The camel lost 22% of its weight, approximately 100 kilos." …

According to the text, how much is the estimated weight of a camel?

- **A** 100 kg.
- **B** 500 kg.
- **C** 2200 kg.
- **D** No information.

Chart 6. Exact data in complicated text structure

The distance between A and B is 30 km. A cyclist is riding from A into the direction of B with a speed of 15 km/h. From the start of the cyclist on, flies a fly from B into the direction of A with a speed of 30 km/h. When the cyclist and the fly meet each other, the fly touches the nose of the cyclist and immediately turns back to B with the same speed. After arriving at B the fly turns back to the cyclist and so on until the cyclist arrives at B.

The number of km the fly has flown equals:

- **A** 15
- **B** 30
- **C** 45
- **D** 60
- **E** none of the above

Chart 7. Abstract data in simple text structure

We know the following facts:

- Every DUDU is a PUPU
- Some DADA are DUDU
- If a DADA is not a DUDU, then it is a PUPU

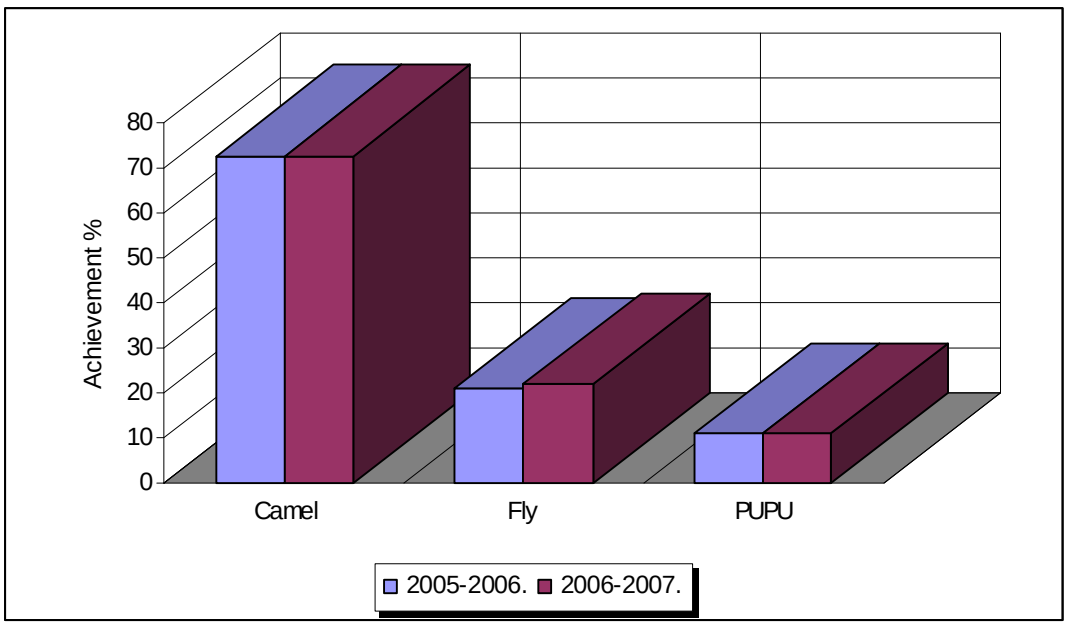
Which of the following statements can be deducted?

1. Every PUPU which is a DADA is a DUDU
2. Every PUPU which is not a DADA is a DUDU
3. Some PUPU's are DUDU's
4. Every DUDU is a DADA
5. Every DADA is a PUPU

- **A** 3. only
- **B** 4. only
- **C** 1. and 3. only
- **D** 2. and 5. only
- **E** 3. and 5. only

We already saw in the academic year 2005-2006 that with the text structure becoming more complex, as well as with the appearance of abstract data, the weakening of our students' performance is extremely severe. We observed the same phenomenon in the test group from 2006-2007 (Chart 8). The ratio of the losses in the two test groups is equal, so we can assume that the same reasons can lead to this result.

Chart 8. Achievents of students in the case of various structures of texts



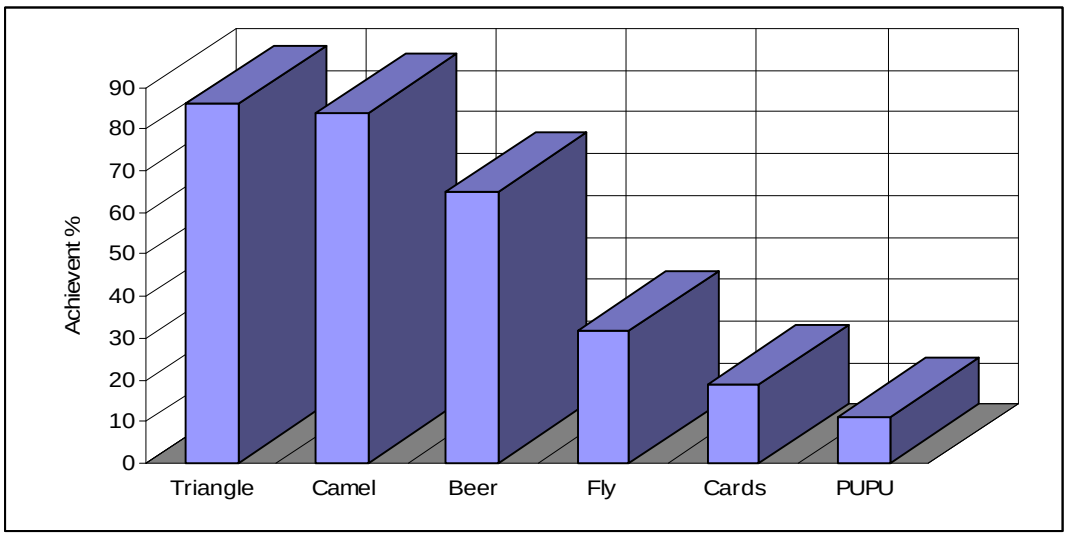
In the literature applied in Hungary the researches that have shown significant differences in performance among tasks with the same text structure, but with specific or abstract data, can primarily be connected to Wason (Chart 9). He found that in the case of specific data more than 2/3 of the surveyed people, in the case of abstract data, less than 1/3 can solve equivalent tasks correctly. He called this correlation pragmatic rule.

Chart 9. „Pragmatic principles" of Wason

• The cards can only show vowels with odd numbers. • On one side of the card, there is a letter, and on the other side, there is a number. E K 2 7 • How many cards need to be turned in order to test the rule?	• Under 18s are not allowed t consume alcoholic drinks. • On one side of the card, there is the name of the drink, and on the other side, there is the age of the consumer. Beer Cola 22 16 • How many cards need to be turned in order to test the rule?

In the second term of the academic year 2006-2007 we repeated Wason's tests. We surveyed 300 of the first year students of our university. We arranged the survey as a 'spontaneous' in-class assignment. We completed our questionnaire with the transformed version of the task in Chart 8. In this, we changed the abstract data to specific data. During the swop, we employed the sets of Prof. Zoltán Dienes' 'game of logic'. (This method is regularly used in the primary schools of the Hungarian public education system.) Although the gained data with this method cannot be compared to years of study, they are instructive. Wason's 'hypothesese' proved to be correct in terms of tendency. The specific data version of Chart 8 was solved with relatively good results by the students, owing probably to the help of the memories from the primary school routine (Chart 10.). The question is where and what the cognitive hurdle is which prevents the cognitive transmission between the specific and the abstract, and how it works.

Chart 10. Achievents of 300 students in the case of various structures of texts



In our researches so far we have experienced that among our students entering the university program – with higher education getting multitudinous – the same problems have emerged as the ones in the public education, observed in the PISA-surveys. Our educators working in public education have learnt and have been following the path described in Comenius' Didactica Magna in detail relatively well, which moves from concept, from the specific towards the abstract. There is less emphasis on the deductive path, the reference of the abstract to the specific or the search for the opportunities for reference, creation, the development of creative thinking. All this is an obstacle at the universities today. The questions raised are the following:

- can the university take on the development of students' academic skills;
- can a course or a training substitute the losses, or is there a need for a change in attitude;
- are university tutors ready to develop students' academic skills;
- can university tutors be trained to develop students' academic skills;
- can the future educators be trained at university in a way that succeeding generations will not have to tackle similar problems?

In our surveys we are trying to find the answers to these questions as well.