

## **A close reading of reading comprehension among Swedish students in grade 4**

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### **Abstract**

A slight decrease in Swedish students' reading ability has recently been shown in national as well as international reading tests, e.g. PIRLS 2006. It is thus of great importance to refine the knowledge of what type of reading comprehension Swedish students at the four different levels of the international benchmarks are able to carry out. This is therefore the overall purpose of this study. Another purpose is to create a theoretical framework and a method for keeping track within a qualitative perspective of changes in students' reading comprehension by e.g. studying trends in PIRLS. Reading comprehension is in this study discussed in terms of 'text movability'. This is a notion inspired by the work of several researchers, e.g. Langer (1995) and her identification of four different ways of moving in a text in order to build an envisionment or a mental textworld. The results show that it is quite common that many students, even those at the low international benchmark, manage to get one point in a complex constructed response question. But very few manage to get two or three points, even though the only extra load in some questions is to find the answers at two or more different locations in the text. This would be of great interest to compare in an international context. Another result is that some of the Swedish students especially at the low and intermediate international benchmark have a broader repertoire of reading ability than expected.

**Keywords:** *PIRLS, secondary analysis, reading comprehension, item characteristics, international benchmarks*

### **Introduction**

This study<sup>1</sup> is meant to create a theoretical as well as methodological framework within a qualitative perspective for the investigation of changes over time of young students' reading comprehension. It is also meant to bring knowledge to the question of how reading instruction in school can be improved. It is of outmost importance to know what type of comprehension

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<sup>1</sup> This study is based on the result from an in-depth study of the texts and items used in PIRLS 2006 and the Swedish students' achievement (Liberg 2010).

different groups of students are able to perform in order to create a relevant and effective teaching where no student is left behind.

The overall purpose of this study is to refine the knowledge of what type of reading comprehension Swedish students at each of the four different levels of the international benchmarks are able to carry out. Another purpose is to create a theoretical framework and a method for keeping track within a qualitative perspective of changes in Swedish students' reading comprehension by studying trends in PIRLS. The research questions are as follows:

- What types of items do most Swedish students manage and what types are managed by smaller groups of students? What groups of students in accordance with the four different levels of the international benchmarks are managing what types of items?
- How may reading comprehension among Swedish students be characterized in more detailed and qualitative way using the results of this study, the format of the items, and the PIRLS Reading Development Group's description of the items in PIRLS 2006?
- What kind of potential has one type of items for developing the ability of answering a more advanced type of items, i.e. what kind of developing structure is possible to identify between types of items?
- How can reading instruction in school be improved for students at different levels of reading ability by knowing the developing structure between different types of items?

One way of studying how students relate to texts and thereby express their understanding is in terms of 'text movability' (Liberg et al forthcoming). The notion of text movability is inspired by the work of several researchers. Smidt (2004, pp. 31-32) for example discusses reading as a walk in an ever shifting landscape. With the work of Langer (1995) this walk can be described more in detail (also c.f. Mullis et al 2006). Langer identifies four different ways of moving in a text in order to build an envisionment or a mental textworld: "...we build envisionments all the time when we make sense of ourselves, of others, and of the world" (Langer 1995, p. 9). A first move, or stance in Langer's terminology, is to step into the text and to get acquainted with it on a surface level. Another move is to get into the text in more depth and become immersed in various aspects of it. To step out from the text and relate to other experiences is a third move, and to critically reflect upon what has been read is a fourth move. All of these moves or stances are considered by Langer to be equally important. To be a more advanced reader implies the ability to move between these stances in a functional way. Also of importance for the development of the concept of text movability has been Kress'(1989) discussion of how a

reader's habits of participating in different discourses and knowledge of different genres, contributes to the reading position taken by the reader and to the text comprehension that develops during the reading activity. Within this theoretical framework the concept of text movability has in this study been operationalized as the students' ability to show their moves in a text by how they answer the items, i.e. the types of reading skills and strategies demonstrated by the students at each of the international benchmarks.

## **Methodology**

The study is based on data for Swedish students in PIRLS 2006. For each item in the texts used in PIRLS 2006 the result of students' achievement at each one of the four different levels of the international benchmarks has been calculated, i.e. students reaching 400-474 (henceforth 'less strong readers' or 'LS'), 475-549 (henceforth 'medium strong readers' or 'MS'), 550-624 (henceforth 'strong readers' or 'S'), and 625- (henceforth 'very strong readers' or 'VS')) on the international scale. The mean of the five different plausible values per item and group of students have been used. Students getting two or more points on a complex constructed-response question are also considered to have got one point and in cases of three point question to have got two points. This means that getting two points implies also getting one point, and getting three points implies also getting one as well as two points.

The items in the literary texts and in the informational texts have then been clustered in five groups based on how many students in each of the four different groups of readers that manage these items. These five groups of items have been characterized by

- how many Swedish students that manage each group of items,
- the international classification of items (Mullis et al 2007, pp. 73–74),
- the format of the items: multiple-choice (henceforth MC-items) and constructed-response (henceforth CR-items) format,
- the description of the items made by the PIRLS Reading Development Group (see Appendix E in Mullis et al 2007), and
- texts which the items appear in: five literary texts and five informational texts.

## **Findings and Discussion**

There is a gradual and not categorical difference between the groups of Swedish students at each one of the four different levels of the international benchmarks, i.e. the less strong

readers, the medium strong readers, the strong readers, and the very strong readers. In Table 1. the amount of items classified as low, intermediate, high, and advanced on an international basis managed by these four groups of readers are displayed. In this table it can be detected that e.g. the items classified as advanced on an international basis are in the literary texts managed by none up to one third of the less strong readers, ten to fifty percent of the medium strong readers, one to nearly three quarters of the strong readers, and lastly nearly half up to almost all of the very strong readers.

[Take in Table 1 about here]

Thus quite a few of the less strong readers manage some of the items placed at the intermediate level and some also manage items placed at the high and advanced levels. This means that some of the Swedish students at the low international benchmark show signs of quite a broad repertoire of text movability. They are able to move both in a horizontal way on the surface of the text and also to some degree in a vertical way into the text. The corresponding situation is found for medium strong readers and strong readers and items classified at the high and advanced levels.

The international classification is here considered to be one dimension in the characterization of the items used in the texts in PIRLS 2006. Another dimension of the description of these items from a Swedish perspective is to see how many of the Swedish students that manage them. These two dimensions form the Y-axle and the X-axle in Table 2 (literary texts) and Table 3 (informational texts). The items are on the X-axle distributed over five groups as follows

- A. items managed by all or nearly all Swedish students,
- B. items managed by most Swedish students: all or nearly all strong and very strong readers, a little bit more than two thirds of the medium strong readers, and a little bit more than half of the group of less strong readers,
- C. items managed by many Swedish students: two thirds or more of the strong and very strong readers, half or a little bit more of the group of medium strong readers, and little bit less than half the group of less strong readers,
- D. items managed by not so many students: two thirds or more of the very strong readers, half or a little bit more of the group of strong readers, around half of the group of medium strong readers, and one third or a little bit less of the less strong readers,

- E. items managed by very few students: around half of the group of very strong readers, half or a little bit less of the group of strong readers, one third or little bit less of the medium strong readers, and one quarter or less of the less strong readers.

[Take in Table 2 about here]

[Take in Table 3 about here]

Items in the A- and B-group in literary as well as informational texts are managed by very many of the Swedish students. Even as many as half or more of the group of less strong readers manage these items. These items constitute as much as forty percent of the items in the literary texts and thirty-six percent of the items in the informational texts. A breaking point for the less strong readers goes between group B and C. Less than half of the less strong readers manage the items in the C-group. Similar breaking points go between group C and D for the medium strong readers and between group D and E for the strong readers. A majority of the very strong readers manage all type of items in group A through E.

The first two groups (A and B) consist of as many MC-items as complex CR-items, i.e. 2 or 3 points CR-items. The students manage to get at least one point in these CR-items. Some of these students also manage to get 2 and in some cases 3 points, but then they show up once again in group D and E. In the C-group the MC-items dominate the scene in the literary texts and there is an even distribution between simple and complex CR-items. In the informational texts it is on the other hand an even distribution between MC-items and CR-items and the simple CR-items are in majority. As in group A and B it is the one point of the complex CR-items that are included. The groups D and E are dominated by the complex CR-items and the ability to get full points. Thus it is quite common that many students, even the less strong readers, manage to get one point in a complex CR-item. But very few manage to get two or three points, even though the only extra load in some questions is to find the answers at two or more different locations in the text. However, sometimes it is quite a distance between the different parts that are asked for. Other reasons why some students do not give a complete answer may be that they do not even care or that they do not understand that they have not given a full answer. It is not always specified more than in the question that it should be more than one answer. Though in some questions, but not all, this complexity is indicated by numbered lines, one for each answer. The importance of this type of signal has to be investigated further. Also the fact that more students get one point in a complex CR-item than getting one point in a simple CR-item has to be looked in to.

In Table 2 and 3 it is clear that quite similar items at some points recur in the groups A through

E as well as in the four groups based on the international classification of items. In literary texts it concerns e.g. the ability to connect different parts and make an inference, interpret actions in terms of a character trait or emotions, and recognize the main message of the story. In informational texts it concerns e.g. the ability to locate and reproduce information and make inferences. The difference between the items concerns very often the cognitive load placed upon them.

One aspect of this difference in cognitive load is already touched upon. It concerns how spread out the information or aspects, that are supposed to be used, are in a text. The more distributed the information or aspects are, the more the reader has to be able to move backwards and forwards over larger text parts.

Another aspect of difference in cognitive load relates to a stepwise increase in what is asked for, e.g. *to locate something explicitly stated in the text* in contrast to *to locate something implicitly given by the text* or *to locate something explicitly stated and make an inference based on that*.

A third aspect of difference in cognitive load involves linguistic features. In some of the more linguistically demanding items synonyms or concepts for certain phenomena, behaviors or feelings are asked for. In other items it is necessary to know synonyms in order to understand the connection of what is asked for in the question and how this aspect is referred to in the text. This means that the person who is going to answer these questions has to have quite good linguistic skills and among other things know how words and concepts are related in what is called semantic networks. The lack of these types of linguistic knowledge may be a hindrance regardless of if you are a first or second language speaker of the test language. In connection to this it could be mentioned that in Sweden roughly fifteen percent of the students have immigrant background.

A fourth aspect of difference in cognitive load concerns the texts read. The topic in some of the texts might be more closely related or recognizable for the students than topics in other texts, and/or they might be of greater interest and create more engagement from the reader. In Table 4 and 5 it is shown how items classified as low, intermediate, high, and advanced on an international basis on the one hand and on the other hand classified as being managed by Swedish students to a larger or lesser degree are distributed over literary and informational texts used in PIRLS 2006. Among the literary texts many items in at least one of the texts, Text U, is classified as low or intermediate and also occur to a large degree in the A- and B-group. The same goes for the informational text Text A. The opposite is true of the items in the literary texts Text C and Text Y and the informational texts Text L and Text K. In case of Text L five of the seven not classified items in group E are from this text. These observations

indicate that Text U and Text A may be quite easy texts to move within for a not that developed reader, while the other above mentioned texts may be more difficult. These two texts are among those released. Text U is called *Unbelievable Night* and Text A is *Antarctica* (see Appendix D in Mullis et al 2007). The topics of both these texts are judged to be of high interest to ten year old Swedish students. The topics of Texts C, Y and K could also be of great interest. But the plot is quite complicated in Text C and Y and there are many points of references to keep track of in Text K. Text C is also one of the released texts called *A Lump of Clay* (see Appendix D in Mullis et al 2007). Text L is both complicated and judged to not have a theme central to many Swedish students aged ten year.

[Take in Table 4 about here]

[Take in Table 5 about here]

### **Conclusion and Implications**

The results in this study show that an item has the potential of forming a scaffolding structure in order to support students' development of their text movability. The examples brought up here concern the format and the content of the items, i.e. complex CR-items and items used in a situation where the cognitive load is reduced. The one point complex CR-item may be a launching pad in order to continue to get two or more points. The reader who manages to get one point seems to have an idea, perhaps even a good one, about what is asked for. This is possible to be used as a scaffold in a teaching situation. The same goes for an item with low cognitive load which can be the starting point to deal with similar or more extensive types of items with a more sophisticated cognitive load. Another aspect that has not been considered here is the study of students' answers, in order to understand how the students comprehend the questions either their answer is correct or not. This aspect could be used to get an even more multifaceted understanding of the items and their pedagogical potential. The data gathered in PIRLS is very promising for doing these types of qualitative in-depth investigation of items, texts, and students' answers and the development over years. These types of questions are also dealt with in the research project *Testing a reading test - Construction of reading comprehension in international reading surveys*<sup>2</sup>.

In a Swedish in-depth study of PIRLS 2006 (Liberg 2010) the teaching situation in Swedish schools and more specifically the fact that very few Swedish students at grade four in an

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<sup>2</sup> Project leaders: C. Liberg, J.W. Folkeryd and Å. af Geijerstam, Department of Curriculum Studies, Uppsala University. Funding from The Swedish National Research Council.

international comparison are taught different types of reading strategies is focused. There is actually no tradition in Swedish schools to teach these aspects in an explicit way from fourth grade and onwards. This is quite a contrast to the situation in the first three grades where the teaching of reading and writing is more or less dominating the school days. The most common situation in Sweden is also that the students will change teacher when starting fourth grade. In this perspective it is of great importance to extend teachers' knowledge and awareness in grade four and onwards concerning issues of what different groups of readers actually are able to perform and how to scaffold their ongoing development of how to read and move in texts. Except for traditional scaffolds used in grade four such as

- using engaging texts as an entrance to more difficult ones
- socially interact before, during and/or after the reading act,
- using different modalities such as talking, drawing, drama or writing
- using different media: paper or computer
- keeping track of the student's development and discuss this with the him or her

it is now of great concern to include more explicit scaffolds that focus on reading strategies such as (Liberg et al (forthcoming))

- to locate and reproduce information in the text
- to reflect upon choice of wording
- to extract main points from the text
- to summarize the text
- to explain passages that would require a reader to fill in gaps in the text
- to generalize and expand from the main points in the text, distancing themselves from the text
- to reflect upon motives, feelings and relations in the text
- to examine the content in the text critically
- to associate from the text to personal experience
- to express awareness of the functionality or genre of the text



- to adapt the position of being a writer and writing for a specific purpose and reader

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Table 1. Amount of items classified as advanced, high, intermediate, and low in literary and informational texts in PIRLS 2006 managed by four groups of Swedish students.

| Group of students                                   | % students | Literary texts   |              |                      |            | % students | Informational texts |              |                      |            |
|---|------------|------------------|--------------|----------------------|------------|------------|---------------------|--------------|----------------------|------------|
|   |            | Type of items    |              |                      |            |            | Type of items       |              |                      |            |
|   |            | Advanced<br>N=16 | High<br>N=37 | Intermediate<br>N=24 | Low<br>N=5 |            | Advanced<br>N=19    | High<br>N=29 | Intermediate<br>N=18 | Low<br>N=8 |
| Swedish students reaching the level 400 – 474 (10%) | 0          | 1                |              |                      |            | 0          |                     |              |                      |            |
|   | 5          | 4                |              |                      |            | 5          | 4                   |              |                      |            |
|   | 10         | 4                |              |                      |            | 10         | 2                   |              |                      |            |
|   | 15         | 2                |              |                      |            | 15         | 1                   | 2            |                      |            |
|   | 20         | 2                | 6            |                      |            | 20         | 5                   | 3            |                      |            |
|   | 25         | 1                | 5            | 1                    |            | 25         | 3                   | 1            | 1                    |            |
|   | 30         | 2                | 2            |                      |            | 30         | 1                   | 1            | 1                    | 1          |
|   | 35         |                  | 3            |                      |            | 35         | 2                   | 4            |                      |            |
|   | 40         |                  | 6            | 2                    |            | 40         |                     | 4            | 1                    |            |
|   | 45         |                  | 4            | 2                    |            | 45         |                     | 7            | 2                    |            |
|   | 50         |                  |              | 2                    |            | 50         | 1                   | 3            |                      |            |
|   | 55         |                  | 2            | 1                    |            | 55         |                     | 2            | 3                    | 1          |
|   | 60         |                  | 2            | 4                    |            | 60         |                     |              |                      | 1          |
|   | 65         |                  | 3            | 4                    |            | 65         |                     | 2            | 3                    |            |
|   | 70         |                  | 2            | 4                    |            | 70         |                     |              | 1                    | 2          |
|   | 75         |                  |              | 2                    |            | 75         |                     |              | 2                    | 1          |
|   | 80         |                  |              | 1                    |            | 80         |                     |              | 2                    | 1          |
| 85  |            |                  | 1            |                      | 85         |            |                     | 1            | 1                    |            |
| 90  |            |                  |              |                      | 90         |            |                     |              | 2                    |            |
| 95  |            |                  |              |                      | 95         |            |                     |              |                      |            |
| 100   |            |                  |              |                      | 100        |            |                     |              |                      |            |
| Swedish students reaching the level 475 – 549 (35%) | 0          |                  |              |                      |            | 0          |                     |              |                      |            |
|   | 5          |                  |              |                      |            | 5          |                     |              |                      |            |
|   | 10         | 1                |              |                      |            | 10         | 1                   |              |                      |            |
|   | 15         | 2                |              |                      |            | 15         | 1                   |              |                      |            |
|   | 20         | 1                |              |                      |            | 20         | 1                   |              |                      |            |
|   | 25         | 3                |              |                      |            | 25         |                     |              |                      |            |
|   | 30         | 3                | 1            | 1                    |            | 30         | 4                   |              |                      |            |
|   | 35         | 1                | 2            |                      |            | 35         | 2                   | 1            |                      |            |
|   | 40         | 2                | 1            |                      |            | 40         | 3                   | 2            | 1                    |            |
|   | 45         | 1                | 3            |                      |            | 45         | 3                   | 1            |                      | 1          |
|   | 50         | 2                | 1            | 1                    |            | 50         | 1                   | 3            | 2                    |            |
|   | 55         |                  | 4            |                      |            | 55         | 2                   | 1            |                      |            |
|   | 60         |                  | 7            |                      |            | 60         | 1                   | 4            |                      |            |
|   | 65         |                  | 2            |                      |            | 65         |                     | 7            | 1                    |            |
|   | 70         |                  | 3            | 4                    |            | 70         |                     | 4            |                      |            |
|   | 75         |                  | 9            | 2                    |            | 75         |                     | 2            |                      | 1          |
|   | 80         |                  | 1            | 2                    |            | 80         |                     | 4            | 3                    |            |
| 85  |            | 2                | 5            |                      | 85         |            |                     | 3            | 1                    |            |
| 90  |            | 1                | 7            |                      | 90         |            |                     | 5            | 2                    |            |
| 95  |            |                  | 2            |                      | 95         |            |                     | 3            | 3                    |            |
| 100   |            |                  |              | 2                    | 100        |            |                     |              |                      |            |
| Swedish students reaching the level 550 – 624 (42%) | 0          |                  |              |                      |            | 0          |                     |              |                      |            |
|   | 5          |                  |              |                      |            | 5          |                     |              |                      |            |
|   | 10         |                  |              |                      |            | 10         |                     |              |                      |            |
|   | 15         |                  |              |                      |            | 15         |                     |              |                      |            |
|   | 20         |                  |              |                      |            | 20         |                     |              |                      |            |
|   | 25         | 1                |              |                      |            | 25         | 1                   |              |                      |            |
|   | 30         | 1                |              |                      |            | 30         |                     |              |                      |            |
|   | 35         | 1                |              |                      |            | 35         |                     |              |                      |            |
|   | 40         |                  | 1            | 1                    |            | 40         | 1                   |              |                      |            |
|   | 45         | 2                |              |                      |            | 45         | 2                   |              |                      |            |
|   | 50         | 2                | 1            |                      |            | 50         | 4                   |              |                      |            |
|   | 55         | 4                |              |                      |            | 55         | 1                   |              |                      |            |
|   | 60         | 2                | 1            | 1                    |            | 60         | 1                   | 2            | 3                    | 1          |
|   | 65         |                  | 2            |                      |            | 65         | 3                   | 2            |                      |            |
|   | 70         | 3                | 2            |                      |            | 70         | 3                   |              |                      |            |
|   | 75         |                  | 4            |                      |            | 75         | 3                   | 2            |                      |            |
|   | 80         |                  | 7            | 2                    |            | 80         |                     | 8            |                      |            |
| 85  |            | 7                | 1            |                      | 85         |            | 7                   | 1            |                      |            |
| 90  |            | 8                | 5            |                      | 90         |            | 5                   | 1            | 1                    |            |
| 95  |            | 4                | 10           | 2                    | 95         |            | 3                   | 10           | 1                    |            |
| 100   |            |                  |              | 3                    | 100        |            |                     |              | 5                    |            |
| Swedish students reaching the level 625 – (11%)     | 0          |                  |              |                      |            | 0          |                     |              |                      |            |
|   | 5          |                  |              |                      |            | 5          |                     |              |                      |            |
|   | 10         |                  |              |                      |            | 10         |                     |              |                      |            |
|   | 15         |                  |              |                      |            | 15         |                     |              |                      |            |
|   | 20         |                  |              |                      |            | 20         |                     |              |                      |            |
|   | 25         |                  |              |                      |            | 25         |                     |              |                      |            |
|   | 30         |                  |              |                      |            | 30         |                     |              |                      |            |
|   | 35         |                  |              |                      |            | 35         |                     |              |                      |            |
|   | 40         |                  |              |                      |            | 40         |                     |              |                      |            |
|   | 45         | 1                |              | 1                    |            | 45         | 1                   |              |                      |            |
|   | 50         | 2                |              |                      |            | 50         |                     |              |                      |            |
|   | 55         |                  | 1            |                      |            | 55         | 1                   |              |                      |            |
|   | 60         |                  |              |                      |            | 60         |                     |              | 1                    |            |
|   | 65         | 1                |              |                      |            | 65         | 1                   |              |                      |            |
|   | 70         | 4                | 1            |                      |            | 70         | 3                   |              | 1                    |            |
|   | 75         | 2                | 2            |                      |            | 75         | 1                   |              |                      |            |
|   | 80         | 2                | 1            | 2                    |            | 80         | 3                   | 1            | 1                    |            |
| 85  | 3          | 1                |              |                      | 85         | 4          | 3                   |              | 1                    |            |
| 90  | 1          | 10               | 2            |                      | 90         | 2          | 9                   |              |                      |            |
| 95  |            | 13               | 5            |                      | 95         | 3          | 12                  | 3            | 2                    |            |
| 100   |            |                  |              | 5                    | 100        |            |                     |              | 5                    |            |

Table 2. Examples of items in literary texts in PIRLS 2006 classified as advanced, high, intermediate, and low in five item groups A – E and the amount of Swedish students that manage these different types of item (students reaching 400-474 (=LS), 475-549 (=MS), 550-624 (=S), and 625- (=VS)).

|   | <b>Item group A-literary</b>   | <b>Item group B-literary</b>  | <b>Item group C-literary</b>  | <b>Item group D-literary</b>   | <b>Item group E-literary</b>  |
|---|--|---|---|--|---|
| <b>Items classified as</b>                        | MC-items and one point complex CR-items<br>N=11  | MC-items and one point complex CR-items<br>N=22   | More MC-items than CR-items: simple and one point complex CR-items<br>N=17  | Foremost two and three points complex CR-items<br>N=24   | Almost all are two and three points complex CR-items (2 items not classified)<br>N=8  |
| <b>Low, e.g.</b><br>N=5<br>[4+1+0+0+0]            | * recognize a detail of a central event in the story<br><br>LS: 75-90% - MS: 85-100%<br>S: 95-100% - VS: 100%  | * make a straightforward inference based on a specified part of the text<br><br>LS: 65% - MS: 85%<br>S: 95% - VS: 100%  | -----   | -----  | -----   |
| <b>Intermediate, e.g.</b><br>N=24<br>[6+13+4+0+1] | * make a connection with personal experience to interpret and provide a story detail as evidence<br>* give a simple explanation of a metaphor<br><br>LS: 70-85% - MS: 85-95%<br>S: 95-100% - VS: 95-100% | * make an inference to explain character's action<br>* combine, retrieve, and visualize concrete descriptive information and identifies matching picture<br><br>LS: 50-70% - MS: 70-95%<br>S: 80-100% - VS: 80-100%     | * reproduce an event by making connections between clearly related sentences<br><br>LS: 40-45% - MS: 50-85%<br>S: 60-95% - VS: 80-100%                            | -----  | * locate a relevant detail and make a straightforward inference to recognize a character's action<br><br>LS: 25% - MS: 30%<br>S: 40% - VS: 45%  |
| <b>High, e.g.</b><br>N=37<br>[1+8+13+14+1]        | * interpret and integrate story events and character actions to describe a character<br><br>LS: 70% - MS: 80%<br>S: 95% - VS: 100%   | * locate the relevant event in the story and make a straightforward inference<br>* interpret a character's actions to provide either a description or example<br><br>LS: 55-70% - MS: 70-90%<br>S: 80-95% - VS: 90-100% | * locate and retrieve embedded detail<br>* locate an embedded metaphorical phrase and infer its meaning<br><br>LS: 35-45% - MS: 55-75%<br>S: 60-90% - VS: 75-100% | * make a straightforward inference to explain the cause of an event<br>* infer a character trait from an example by recognizing a synonym<br><br>LS: 15-30% - MS: 35-60%<br>S: 50-85% - VS: 70-95% | * recognize main "message" stated in an abstract form<br><br>LS: 25% - MS: 30%<br>S: 40% - VS: 55%  |
| <b>Advanced, e.g.</b><br>N=16<br>[0+0+0+10+6]     | -----  | -----   | -----   | * interpret a character's actions<br>* locate and interpret figurative language to provide an explanation<br><br>LS: 5-30% - MS: 25-50%<br>S: 55-70% - VS: 90-70%                                  | * describe cause-and effect relationship<br>* integrate ideas across text to interpret the character's feelings about the setting<br><br>LS: 0-15% - MS: 10-30%<br>S: 25-50% - VS: 45-70% |

Table 3. Examples of items in informational texts in PIRLS 2006 classified as advanced, high, intermediate, and low in five item groups A – E and the amount of Swedish students that manage these different types of item (students reaching 400-474 (=LS), 475-549 (=MS), 550-624 (=S), and 625- (=VS)).

|  | <b>Item group A-inform.</b>  | <b>Item group B-inform.</b>   | <b>Item group C-inform.</b>   | <b>Item group D-inform.</b>  | <b>Item group E-inform.</b>  |
|--|--|---|---|--|--|
| <b>Items classified as</b>                       | MC-items and one point complex CR-items<br>N=10  | MC-items and one point complex CR-items<br>N=17   | MC-items and one point complex CR-items and some one point complex CR-items<br>N=23   | Foremost two and three points complex CR-items<br>N=21   | Almost all are two and three points complex CR-items (7 items not classified)<br>N=3   |
| <b>Low, e.g.</b><br>N=8<br>[4+3+1+0+0]           | * locate and reproduce explicitly stated information<br>* make a straightforward inferences based on specific information<br>LS: 70-85% - MS: 90-95%<br>S: 95-100% - VS: 95-100%             | * locate and reproduce explicitly stated information from the beginning of the text<br>LS: 55-70% - MS: 75-95%<br>S: 90-100% - VS: 95-100%  | * (not described)<br>LS: 30% - MS: 45%<br>S: 60% - VS: 85%  | -----  | -----  |
| <b>Intermediate, e.g.</b><br>N=18<br>[6+7+3+2+0] | * locate and reproduce explicitly stated text<br>* make an inference using several pieces of evidence in a specified section of the text<br>LS: 75-90% - MS: 90-95%<br>S: 95-100% - VS: 100% | * locate and reproduce explicitly stated information from further in the text<br>LS: 55-70% - MS: 80-90%<br>S: 90-100% - VS: 95-100%  | * make a straightforward inference to locate and reproduce explicitly stated information from further in the text<br>LS: 40-45% - MS: 50-80%<br>S: 60-95% - VS: 65-100%           | * locate and reproduce 2 pieces of explicitly stated information from a specified part of the text<br>LS: 25-30% - MS: 40-50%<br>S: 60% - VS: 70-80%   | -----  |
| <b>High, e.g.</b><br>N=29<br>[0+6+17+6+0]        | -----  | * make a straightforward inference to identify and reproduce explicitly stated information embedded in continuous text without subheads<br>LS: 50-65% - MS: 65-80%<br>S: 80-95% - VS: 90-100% | * locate and distinguish relevant information<br>* integrate information to infer and reformulate<br>* evaluate the content<br>LS: 30-50% - MS: 50-80%<br>S: 75-95% - VS: 85-100% | * explain a preference based on evaluating features<br>* demonstrate interpretation of an abstract idea by providing an example from continuous text<br>LS: 15-25% - MS: 35-60%<br>S: 60-85% - VS: 85-100%             | -----  |
| <b>Advanced, e.g.</b><br>N=19<br>[0+1+2+13+3]    | -----  | * locate and distinguish relevant scientific information embedded across text<br>LS: 50% - MS: 60%<br>S: 75% - VS: 80%  | * integrate information across several parts of text to infer and recognize an explanation<br>LS:35% - MS: 55%<br>S: 65-70% - VS: 85%   | * locate and distinguish relevant scientific information across texts<br>* integrates information across several parts of text to infer and provide an explanation<br>LS: 5-30% - MS: 30-50%<br>S: 45-75% - VS: 70-95% | * integrate scientific information from 3 text boxes to explain a sequence<br>* describe the function of a presentational device<br>LS:5% - MS: 15-20%<br>S: 25-45% - VS: 45-70% |

Table 4. Items classified as advanced, high, intermediate, and low distributed over literary texts in PIRLS 2006 in five item groups A – E and the amount of Swedish students that manage these different types of item (students reaching 400-474 (=LS), 475-549 (=MS), 550-624 (=S), and 625- (=VS)).

|   | <b>Item group A-literary</b>   | <b>Item group B-literary</b>   | <b>Item group C-literary</b>  | <b>Item group D-literary</b>   | <b>Item group E-literary</b>   |
|---|--|--|---|--|--|
| <b>Items classified as</b>                        | MC-items and one point complex CR-items<br>N=11  | MC-items and one point complex CR-items<br>N=22  | More MC-items than CR-items: simple and one point complex CR-items<br>N=17  | Foremost two and three points complex CR-items<br>N=24   | Almost all are two and three points complex CR-items (2 items not classified)<br>N=8                 |
| <b>Low, e.g.</b><br>N=5<br>[4+1+0+0+0]            | Text U: 1<br>Text E: 2<br>Text F: 1<br>LS: 75-90% - MS: 85-100%<br>S: 95-100% - VS: 100%                             | Text U: 1<br><br>LS: 65% - MS: 85%<br>S: 95% - VS: 100%  | -----   | -----  | -----  |
| <b>Intermediate, e.g.</b><br>N=24<br>[6+13+4+0+1] | Text U: 1<br>Text E: 1<br>Text F: 1<br>Text C: 2<br>Text Y: 1<br>LS: 70-85% - MS: 85-95%<br>S: 95-100% - VS: 95-100% | Text U: 5<br>Text E: 2<br>Text F: 3<br>Text C: 2<br>Text Y: 1<br>LS: 50-70% - MS: 70-95%<br>S: 80-100% - VS: 80-100% | Text U: 1<br>Text E: 1<br>Text C: 2<br><br>LS: 40-45% - MS: 50-85%<br>S: 60-95% - VS: 80-100%                       | -----  | Text E: 1<br><br>LS: 25% - MS: 30%<br>S: 40% - VS: 45%   |
| <b>High, e.g.</b><br>N=37<br>[1+8+13+14+1]        | Text Y: 1<br><br>LS: 70% - MS: 80%<br>S: 95% - VS: 100%  | Text U: 2<br>Text E: 1<br>Text F: 4<br>Text Y: 1<br>LS: 55-70% - MS: 70-90%<br>S: 80-95% - VS: 90-100%               | Text U: 1<br>Text E: 3<br>Text F: 2<br>Text C: 3<br>Text Y: 4<br>LS: 35-45% - MS: 55-75%<br>S: 60-90% - VS: 75-100% | Text U: 1<br>Text E: 1<br>Text F: 3<br>Text C: 3<br>Text Y: 6<br>LS: 15-30% - MS: 35-60%<br>S: 50-85% - VS: 70-95% | Text C: 1<br><br>LS: 25% - MS: 30%<br>S: 40% - VS: 55%   |
| <b>Advanced, e.g.</b><br>N=16<br>[0+0+0+10+6]     | -----  | -----  | -----   | Text U: 2<br>Text E: 3<br>Text C: 2<br>Text Y: 3<br>LS: 5-30% - MS: 25-50%<br>S: 55-70% - VS: 90-70%               | Text U: 1<br>Text F: 2<br>Text C: 2<br>Text Y: 1<br>LS: 0-15% - MS: 10-30%<br>S: 25-50% - VS: 45-70% |
| <b>Total items per text</b>                       | Text U: 2<br>Text E: 3<br>Text F: 2<br>Text C: 2<br>Text Y: 2  | Text U: 8<br>Text E: 3<br>Text F: 7<br>Text C: 2<br>Text Y: 2  | Text U: 2<br>Text E: 4<br>Text F: 2<br>Text C: 5<br>Text Y: 4   | Text U: 3<br>Text E: 4<br>Text F: 3<br>Text C: 5<br>Text Y: 9  | Text U: 1<br>Text E: 1<br>Text F: 2<br>Text C: 3<br>Text Y: 1  |

Table 5. Items classified as advanced, high, intermediate, and low distributed over informational texts in PIRLS 2006 in five item groups A – E and the amount of Swedish students that manage these different types of item (students reaching 400-474 (=LS), 475-549 (=MS), 550-624 (=S), and 625- (=VS)).

|  | <b>Item group A-inform.</b>  | <b>Item group B-inform.</b>  | <b>Item group C-inform.</b>   | <b>Item group D-inform.</b>  | <b>Item group E-inform.</b>  |
|--|--|--|---|--|--|
| <b>Items classified as</b>                       | MC-items and one point complex CR-items<br>N=10  | MC-items and one point complex CR-items<br>N=17  | MC-items and one point complex CR-items and some one point complex CR-items<br>N=23                                 | Foremost two and three points complex CR-items<br>N=21   | Almost all are two and three points complex CR-items (7 items not classified)<br>N=3     |
| <b>Low, e.g.</b><br>N=8<br>[4+3+1+0+0]           | Text A: 3<br>Text LS: 1<br>LS: 70-85% - MS: 90-95%<br>S: 95-100% - VS: 95-100%                           | Text A: 2<br>Text K: 1<br>LS: 55-70% - MS: 75-95%<br>S: 90-100% - VS: 95-100%  | Text N: 1<br>LS: 30% - MS: 45%<br>S: 60% - VS: 85%  | -----  | -----  |
| <b>Intermediate, e.g.</b><br>N=18<br>[6+7+3+2+0] | Text A: 2<br>Text N: 1<br>Text S: 2<br>Text L: 1<br><br>LS: 75-90% - MS: 90-95%<br>S: 95-100% - VS: 100% | Text A: 1<br>Text N: 2<br>Text S: 1<br>Text L: 1<br>Text K: 2<br>LS: 55-70% - MS: 80-90%<br>S: 90-100% - VS: 95-100% | Text A: 1<br>Text S: 1<br>Text L: 1<br>LS: 40-45% - MS: 50-80%<br>S: 60-95% - VS: 65-100%                           | Text A: 1<br>Text K: 1<br><br>LS: 25-30% - MS: 40-50%<br>S: 60% - VS: 70-80%                               | -----  |
| <b>High, e.g.</b><br>N=29<br>[0+6+17+6+0]        | -----  | Text N: 2<br>Text L: 3<br>Text K: 1<br><br>LS: 50-65% - MS: 65-80%<br>S: 80-95% - VS: 90-100%                        | Text A: 2<br>Text N: 5<br>Text S: 4<br>Text L: 1<br>Text K: 5<br>LS: 30-50% - MS: 50-80%<br>S: 75-95% - VS: 85-100% | Text A: 2<br>Text S: 1<br>Text L: 2<br>Text K: 1<br><br>LS: 15-25% - MS: 35-60%<br>S: 60-85% - VS: 85-100% | -----  |
| <b>Advanced, e.g.</b><br>N=19<br>[0+1+2+13+3]    | -----  | Text K: 1<br><br>LS: 50% - MS: 60%<br>S: 75% - VS: 80%   | Text L: 2<br><br>LS: 35% - MS: 55%<br>S: 65-70% - VS: 85%   | Text A: 1<br>Text N: 3<br>Text S: 5<br>Text K: 4<br>LS: 5-30% - MS: 30-50%<br>S: 45-75% - VS: 70-95%       | Text A: 1<br>Text S: 1<br>Text K: 1<br><br>LS: 5% - MS: 15-20%<br>S: 25-45% - VS: 45-70% |
| <b>Total items per text</b>                      | Text A: 5<br>Text N: 1<br>Text S: 2<br>Text L: 2<br>Text K: 0  | Text A: 3<br>Text N: 4<br>Text S: 1<br>Text L: 4<br>Text K: 5  | Text A: 3<br>Text N: 6<br>Text S: 5<br>Text L: 4<br>Text K: 5   | Text A: 4<br>Text N: 3<br>Text S: 6<br>Text L: 2<br>Text K: 6  | Text A: 1<br>Text N: 0<br>Text S: 1<br>Text L: 0<br>Text K: 1                            |