

## Data analysis and the interim report of the third round of the PROFILES Curricular Delphi Study on Science Education Latvia

### 1 Introduction

Subject of the third round of the International PROFILES Curricular Delphi Study on Science Education is in particular to identify which priority and reality assessments the participants assign to the three concepts of desirable science education derived from the hierarchical cluster analyses in round 2, and to find out where priority and realization in science educational practice drift apart in the opinions of the participants.

### 2 Leading questions of the second round

- 1.1 Which priorities regarding concepts of desirable science education can be identified in the participants' assessments?
- 1.2 To what extent are the respective concepts of desirable science education according to the participants' assessments realized in current science educational practice?
- 1.3 What kind of priority-practice differences can be identified in the participants' assessments?
- 2.1 Which priorities regarding concepts of desirable science education can be identified in the participants' assessments with regard to different educational levels?
- 2.2 To what extent are the respective concepts of desirable science education according to the participants' assessments realized in current science educational practice regarding different educational levels?
- 2.3 What kind of priority-practice differences can be identified in the participants' assessments regarding the different educational levels?
- 3 What differences or similarities appear in the general assessments between the six different sub-groups?

### 3 Method

The questionnaire of the third and final round of the PROFILES Curricular Delphi Study on Science Education was adopted into the Latvian language and together with the covering letter of the study sent to 6 groups of participants: students; science teachers (studying teacher; teachers and training teachers (experienced teachers)); educators, didactics, and in-service teacher educators; scientists; education politicians; people not directly involved in science.

The participants were asked to make priority and reality assessments of the three given concepts both in general and, in a second step, differentiated according to different educational levels (pre-school, elementary level, lower secondary education, higher secondary education).

For the assessment of the concepts, the participants were given a questionnaire with a six-tier scale. The coding of the answers, following the six-tier scale, ranged from 1 to 6 (1: "very low priority" / "to a very low extent"; 2: "low priority" / "to a low extent"; 3: "rather low priority" / "to a rather low extent"; 4: "rather high priority / to a rather high extent"; 5: "high priority" / "to a high extent"; 6: "very high priority" / "to a very high extent").

Aspekti Lūdzu, novērtējiet katru	Cik nozīmīgs ir katrs no šiem aspektiem dabaszinātņu izglītībā?	Cik lielā mērā šie aspekti tiek šobrīd realizēti dabaszinātņu izglītībā?
<b>Aspekti</b> <b>Lūdzu, novērtējiet katru aspektu pēc diviem dotajiem jautājumiem!</b>	<b>Izglītības posms</b>	<b>Cik nozīmīgs ir katrs no šiem aspektiem dabaszinātņu izglītībā?</b>  1 = ļoti maz nozīmīgs 2 = maz nozīmīgs 3 = drīzāk maz nozīmīgs 4 = drīzāk nozīmīgs 5 = nozīmīgs 6 = ļoti nozīmīgs  <b>Cik lielā mērā šie aspekti tiek šobrīd realizēti dabaszinātņu izglītībā?</b>  1 = ļoti mazā mērā 2 = mazā mērā 3 = drīzāk mazā mērā 4 = drīzāk lielā mērā 5 = lielā mērā 6 = ļoti lielā mērā
<b>A aspekts</b>  <b>Dabaszinātņu lomas apzināšanās mūdienu, sociālā, globāli būtiskā un profesionālā kontekstā gan mācību, gan ārpusskolas situācijās.</b>	Pirmsskolā	[1] [2] [3] [4] [5] [6]
	Sākumskolā	[1] [2] [3] [4] [5] [6]
	Pamatskolas 7.-9.klasē	[1] [2] [3] [4] [5] [6]
	Vidusskolā	[1] [2] [3] [4] [5] [6]
<b>B aspekts</b>  <b>Intelektuālā izglītība starpdisciplināros zinātniskos kontekstos</b>	Pirmsskolā	[1] [2] [3] [4] [5] [6]
	Sākumskolā	[1] [2] [3] [4] [5] [6]
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	Vidusskolā	[1] [2] [3] [4] [5] [6]
<b>C aspekts</b>  <b>Vispārēja ar zinātņi saistīta izglītība un intereses sekmēšana dabas, ikdienas dzīves un dzīves vides kontekstā</b>	Pirmsskolā	[1] [2] [3] [4] [5] [6]
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	Vidusskolā	[1] [2] [3] [4] [5] [6]

<b>aspektu pēc diviem dotajiem jautājumiem!</b>	1 = ļoti maz nozīmīgs 2 = maz nozīmīgs 3 = drīzāk maz nozīmīgs 4 = drīzāk nozīmīgs 5 = nozīmīgs 6 = ļoti nozīmīgs	<i>1 = ļoti mazā mērā 2 = mazā mērā 3 = drīzāk mazā mērā 4 = drīzāk lielā mērā 5 = lielā mērā 6 = ļoti lielā mērā</i>
<b>A aspekts</b> <b>Dabaszinātņu lomas apzināšanās mūsdienu, sociālā, globāli būtiskā un profesionālā kontekstā gan mācību, gan ārpusskolas situācijās</b>	[1] [2] [3] [4] [5] [6]	[1] [2] [3] [4] [5] [6]
<b>B aspekts</b> <b>Intelektuālā izglītība starpdisciplināros zinātniskos kontekstos</b>	[1] [2] [3] [4] [5] [6]	[1] [2] [3] [4] [5] [6]
<b>C aspekts</b> <b>Vispārēja ar zinātņi saistīta izglītība un intereses sekmēšana dabas, ikdienas dzīves un dzīves vides kontekstā</b>	[1] [2] [3] [4] [5] [6]	[1] [2] [3] [4] [5] [6]

Tables were created and results summarized on the priority of the respective concepts in science education and to what extent are these concepts realized in current science education in Latvia.

The tables contain descriptive statistics (mean, standard deviation, n) of the priority and practice assessments and the priority-practice differences as well as differentiation according to the groups of students, teachers, education researchers, scientists and adults (including the groups of teachers, educators and scientists) and a description.

#### **4 Structure and form of the responses**

From November 2012 to the beginning of March 2013, e-mails asking to fill out the questionnaires for the third round were sent out to all participants who had already participated in the first and second rounds. Responded a total of 81 participants. The number of respondents per each group as well as the total number is indicated in the following table. Table 1 shows the structure over all three rounds of the FUB. (Table 1) It can be seen that out of the 117 participants from the second round, a total of 81 participants took part in the third round as well.

These 81 participants took part in all of the three rounds of the FUB. This equals to 69,2% of the participants from the second round and 63,4% of the participants from the first round.

It can be seen that, with regard to the second round, the group of *science teachers* features with 74,3% the highest response rate in the third round. With slightly higher drop-out, the group of *People not directly involved in science* features a participation rate of 72,7% and the group of *Educators, didactics, and in-service teacher educators* a participation rate of 71,4%. The highest drop-out between the second and third round appears in the group of *scientists* with a response rate of 60%. The overall response rate between the second and third round is 69,2%, which features a satisfying size with respect to the drop-out throughout the three rounds.

Group		Number of participants round 1	Number of participants round 2	Number of participants round 3	Participation rate between rounds 2 and 3	Participation rate between rounds 1 and 3
<b>Students</b>		30	27	18	66,7%	60%
<b>Science teachers</b>	Studying teachers	12	12	6	74,3%	74,3%
	trainee teachers;	0	0	0		
	teachers	11	11	10		
	training teachers (experienced teachers)	12	12	10		
<b>Educators, didactics, and in-service teacher educators</b>		22	21	15	71,4%	68,2%
<b>Scientists</b>		20	20	12	60%	60%
<b>Education politicians</b>		3	3	2	66,7%	66,7%
<b>People not directly involved in science</b>		12	11	8	72,7%	66,7%
<b>Total</b>		<b>122</b>	<b>117</b>	<b>81</b>	<b>69,2%</b>	<b>63,4%</b>

Table 1: Structure of the FUB PROFILES Curricular Delphi Study on Science Education and response rate of the third round

A detailed overview of the structure of the third round of the FUB Curricular Delphi Study on Science Education is given in Table 2.

Group	Subgroup	Distribution	Total number	Percentage
<b>Students</b>		18	18	22,2%
<b>Science teachers</b>	Studying teachers	6	26	32,1%
	trainee teachers;	0		
	teachers	10		
	training teachers (experienced teachers)	10		
<b>Educators, didactics, and in-service teacher educators</b>		15	15	18,5%
<b>Scientists</b>		12	12	14,8%
<b>Education politicians</b>		2	2	2,5%
<b>People not directly involved in science</b>		8	8	9,9%

Table 2: Detailed structure of the third round of the FUB Curricular Delphi Study on Science Education

## 5. Results – descriptive and variance statistical analyses

The results include descriptive-statistical analyses with regard to the priority and practice assessments as well as to the identified priority-practice differences.

The analyses and descriptions are made on the basis of both the participants in total and the six different groups (students, teachers, education researchers, scientists, education politicians and people not directly involved in science).

According to the structure of the questionnaire, the description of the results is divided into three parts. The first part (5.1) refers to the general assessments of the three given concepts of desirable science education by the participants in total; the second part (5.2) considers the assessments of the concepts by the participants in total differentiated according to different educational levels and the third part (5.3) refers to the general assessments of the concepts by the different groups.

### 5.1 Concepts of desirable science education – general assessment by the participants in total

This chapter addresses the general assessments of the three concepts by the participants in total with regard to priority, realization in practice and the calculated priority-practice differences.

#### 5.1.1 Priority assessments

Table 3 shows the mean values of the general priority assessments by the participants in total. The mean values of the general priority assessments by the participants in total are also illustrated in Figure 1.

Concept C, being assessed by the participants in total as having “high priority”, features of all three concepts the highest mean value (5,20). Concept C refers to “General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”.

A lower mean value (5,07) appears for Concept A, which relates to “Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings”. Concept B, which relates to “Intellectual education in interdisciplinary scientific contexts”, features the lowest mean value (4,95).

Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings		Concept B: Intellectual education in interdisciplinary scientific contexts		Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment	
Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation
5.07	0.75	4.95	0.77	5.20	0.63

Table 3: Mean values and standard deviation of the general priority assessments by the participants in total

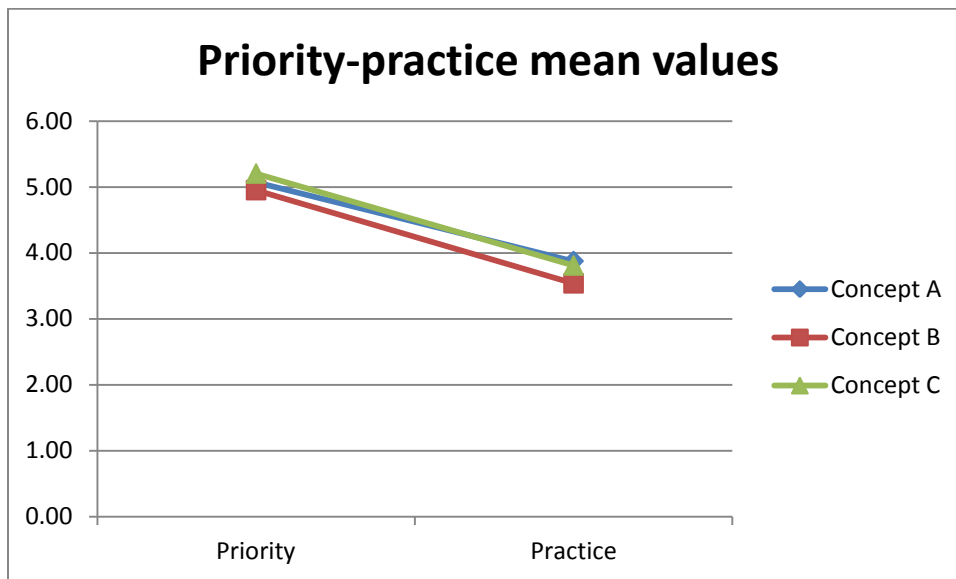


Figure 1: Mean values of the general priority and practice assessments by the participants in total

### 5.1.2 Practice assessments

Table 4 shows the mean values of the general practice assessments by the participants in total. The mean values of the general practice assessments by the participants in total are also illustrated in Figure 1.

The concept that was assessed as most realized in science education is Concept A , mean value (3,87), which relates to “Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings”. A lower mean value (3,81) appears for Concept C, which refers to “General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”. Concept B, which relates to “Intellectual education in interdisciplinary scientific contexts”, features the lowest mean value (3,54).

<b>Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings</b>		<b>Concept B: Intellectual education in interdisciplinary scientific contexts</b>		<b>Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment</b>	
Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation
3.87	0.75	3.54	0.88	3.81	0.82

**Table 4: Mean values and standard deviation of the general practice assessments by the participants in total**

### 5.1.3 Priority-practice differences

The priority-practice differences were determined on the basis of all data by subtracting the practice values from the priority values ( $\Delta\text{PPD} = X_{\text{Priority}} - Y_{\text{Practice}}$ ).

As it can be seen, the mean PPDs of all three concepts feature positive values. This shows that for all three concepts, the mean values of the priority assessments are higher than the mean values of the practice assessments. The mean PPD values of the total range between 1,20 and 1,41. This indicates that in the opinion of the participants, the presence of all three concepts in science educational practice falls short of the importance the participants attribute to these concepts.

The largest gap between importance and realization in practice appears for Concept B (“Intellectual education in interdisciplinary scientific contexts”) with a PPD of 1,41. The smallest gap between priority and practice assessments is found for Concept A (“Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings”) with a PPD of 1,2.

<b>Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings</b>		<b>Concept B: Intellectual education in interdisciplinary scientific contexts</b>		<b>Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment</b>	
Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation
1,20	0.42	1,41	0.57	1,39	0.35

**Table 5: Mean values and standard deviation of the priority-practice differences of the total**

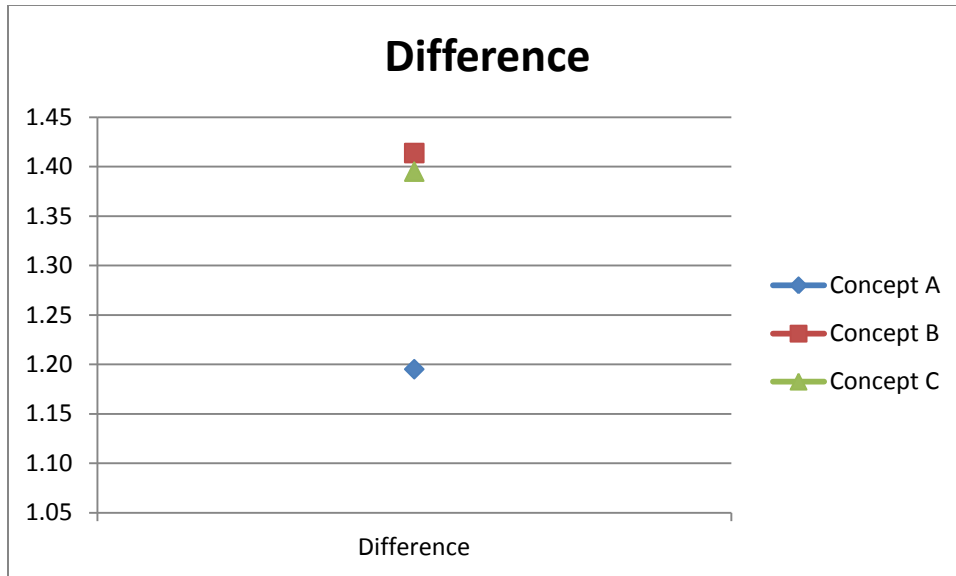


Figure 2: Mean values of the priority-practice differences in the general assessments by the participants in total

## 5.2 Concepts of desirable science education – assessment by the participants in total regarding different educational levels

After having considered the results from the general assessment of the three concepts with regard to priority, realization in practice and the calculated priority-practice differences, the following sections address the results from the assessments by the participants in total differentiated according to the following different educational levels:

pre-school

elementary level

lower secondary education

higher secondary education

The descriptions are structured into priority assessments, practice assessments and the calculated priority-practice differences.

### 5.2.1 Priority assessments

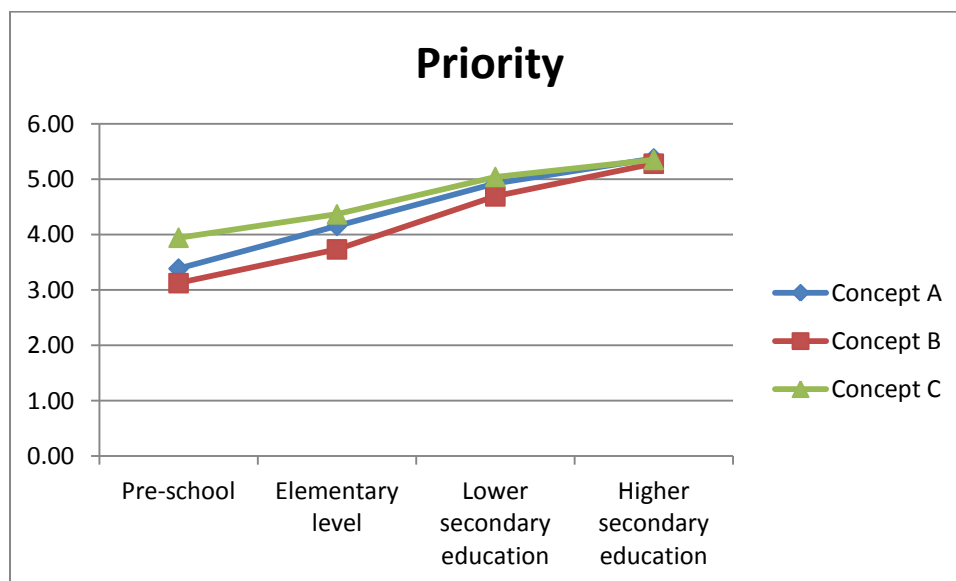
Table 6 shows the results of the priority assessments differentiated according to the different educational levels. The mean values of the priority assessments by the participants in total differentiated according to the different educational levels are also illustrated in Figure 3.

The highest priority mean values for science education at pre-school (3,94), elementary level (4,37) and lower secondary education (5,04) appear for Concept C (“General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”). For higher secondary education, Concept A features a slightly higher priority mean value (5,37) than Concept C (5,35).



	Mean values			
Education level	Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings	Concept B: Intellectual education in interdisciplinary scientific contexts	Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment	Average of all three concepts
Pre-school	3,39	3,12	<b>3,94</b>	3,48
Elementary level	4,16	3,73	<b>4,37</b>	4,09
Lower secondary education	4,92	4,69	<b>5,04</b>	4,88
Higher secondary education	<b>5,37</b>	5,28	5,35	5,33

**Table 6: Mean values of the priority assessments by the participants in total regarding different educational levels and significance test values**



**Figure 3: Mean values of the priority assessments by the participants in total regarding different educational levels**

### 5.2.2 Practice assessments

Table 7 shows the results of the practice assessments of the total differentiated by the different educational levels. The mean values of the practice assessments differentiated according to the different educational levels are also illustrated in Figure 4.

The highest overall average of the mean values in the practice assessments occur for higher secondary education. The overall averages of the mean values for the other educational levels are gradually lower.

Concept C (“General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”) features the highest practice mean values for science

education at pre-school (3,06), lower secondary education (3,98) and higher secondary education (4,26), Concept A (“Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings”) features the highest practice mean values for science education at elementary level (3,59).

	Mean values			
Education level	Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings	Concept B: Intellectual education in interdisciplinary scientific contexts	Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment	Average of all three concepts
Pre-school	2,99	2,64	<b>3,06</b>	2,90
Elementary level	<b>3,59</b>	3,20	3,54	3,44
Lower secondary education	3,96	3,65	<b>3,98</b>	3,86
Higher secondary education	4,16	4,13	<b>4,26</b>	4,18

Table 7: Mean values of the practice assessments by the participants in total regarding different educational levels

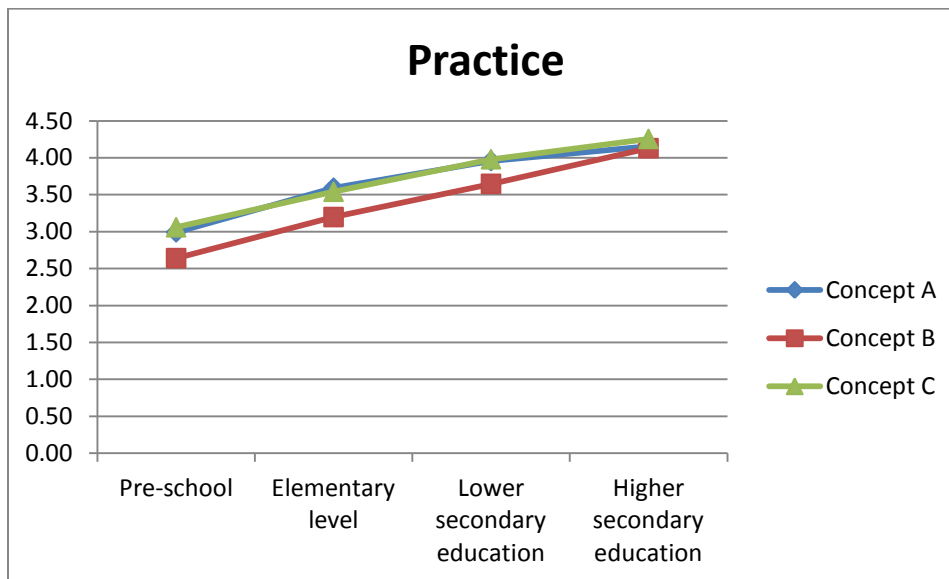


Figure 4: Mean values of the practice assessments by the participants in total regarding different educational levels

### 5.2.3 Priority-practice differences

Table 8 shows the results of the priority-practice differences differentiated by the different educational levels. The mean values of the priority-practice differences of the total regarding the different educational levels are also illustrated in Figure 5. The highest priority-practice

differences for science education at pre-school (0,88), elementary level (0,83) and lower secondary education (1,06) appear for Concept C (“General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”). The highest priority-practice differences for higher secondary education appear for Concept A (“Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings”). The lowest priority-practice differences for science education at pre-school (0,39) appear for Concept A (“Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings”) and elementary level (0,54) appear for Concept B (“Intellectual education in interdisciplinary scientific contexts”).

	Mean values			
Educational level	Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings	Concept B: Intellectual education in interdisciplinary scientific contexts	Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment	Average of all three concepts
Pre-school	0.39	0.48	<b>0.88</b>	0,58
Elementary level	0.56	0.54	<b>0.83</b>	0,64
Lower secondary education	0.97	1.04	<b>1.06</b>	1,02
Higher secondary education	<b>1.22</b>	1.15	1.09	1,15

Table 8: Mean values of the priority-practice differences of the total regarding different educational levels

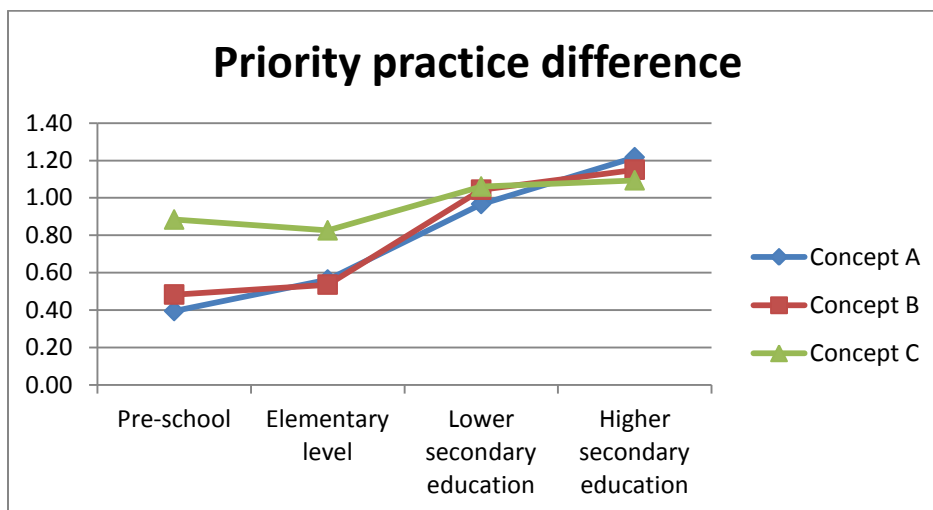


Figure 5: Mean values of the priority-practice differences in the assessments by the participants in total regarding different educational level

### 5.3 Concepts of desirable science education – general assessment by the sub-groups

The following part takes a look at the assessment of the three concepts with regard to priority, realization in practice and the calculated priority-practice differences by the six different sub-groups of the study – students, teachers, education politicians, scientists, people who are not directly involved with sciences and educators, didacts, in-service teacher educators.

#### 5.3.1 Priority assessments

The mean values of the priority assessments by the different sub-groups are illustrated in Table 9 and Figure 6.

It can be seen that the students (mean value 5,28), educators, didacts, and in-service teacher educators (mean value 5,60) and people, who are not directly involved with sciences (mean value 5,38) consider Concept C (“General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”) as most important. By the other sub-groups, except for the group of scientists, Concept C is also given the highest priority. However, the group of scientists has awarded the highest importance (mean value 4,92) to both the Concepts A and B, yet the group of education politicians consider Concepts B and C equally important (mean value 5,00). The highest assessment by the group of teachers is, however, awarded to the Concept A (mean value 5,62).

Sub- groups	Mean values			
	Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings	Concept B: Intellectual education in interdisciplinary scientific contexts	Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment	Average of all three concepts
Students	5,00	4,53	<b>5,28</b>	4,94
People who are not directly involved with sciences	5,25	4,88	<b>5,38</b>	5,17
Teachers	<b>5,62</b>	5,12	5,46	5,4
Education politicians	4,50	<b>5,00</b>	<b>5,00</b>	4,83
Scientists	<b>4,92</b>	<b>4,92</b>	4,5	4,78
Educators, didactics, and in-service teacher educators	5,13	5,27	<b>5,60</b>	5,33
Total	5,07	4,95	5,20	5,08

Table 9: Mean values of the general priority assessments by the sub-groups

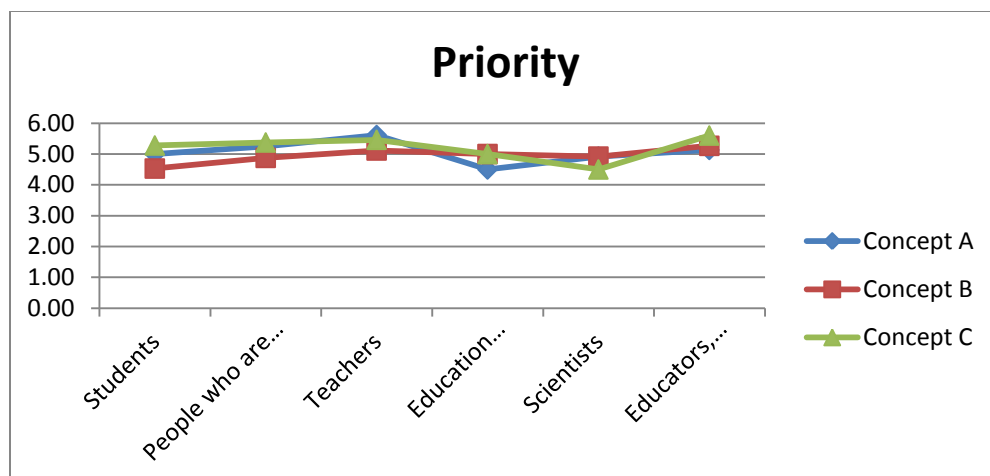


Figure 6: Mean values of the general priority assessments by the sub-groups

### 5.3.2 Practice assessments

The mean values of the priority assessments by the different sub-groups are illustrated in Table 10 and Figure 7.

It can be seen that the students (mean value 4,28), teachers (mean value 4,33), educators, didacts, and in-service teacher educators (mean value 4,07) consider Concept C (“General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”) as the most important. However, the group of people who are not directly involved with sciences has awarded the highest importance (mean value 4,00) to both the Concepts A and C, and the group of education politicians and scientists consider Concepts A as the most important (mean values respectively 4,00 and 3,33).

Sub-group	Mean values			
	Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings	Concept B: Intellectual education in interdisciplinary scientific contexts	Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment	Average of all three concepts
Students	4,11	3,88	<b>4,28</b>	4,09
People who are not directly involved with sciences	4,00	3,63	4,00	3,88
Teachers	4,20	4,08	<b>4,33</b>	4,20
Education politicians	<b>4,00</b>	3,50	3,00	3,50
Scientists	<b>3,33</b>	2,67	3,17	3,06
Educators, didactics, and in – service teacher educators	3,60	3,47	<b>4,07</b>	3,71
Total	3,87	3,54	3,81	3,74

Table 10: Mean values of the general practice assessments by the sub-groups

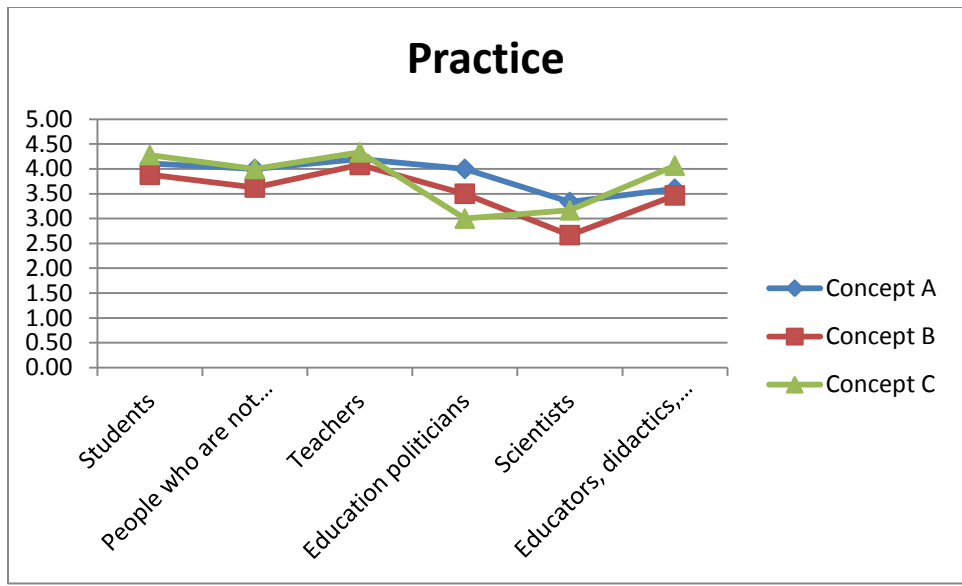


Figure 7: Mean values of the general practice assessments by the sub-groups

### 5.3.3 Priority-practice differences

Table 11 shows the results of these assessments. The mean values of the priority-practice differences of the different sub-groups are also illustrated in Figure 8.

For all three concepts, the smallest gaps between the priority and practice assessments appear in the group of students (0,85). The largest gaps between priority and practice assessments appear both in the group of educators, didacts, in-service teacher educators (1,62) and scientists (1,72). The largest gap between priority and practice in the assessments of the students (1,00) appears for Concept C (“General science-related education and facilitation of interest in contexts of nature, everyday life and living environment”). The largest gaps for the Concept C also appear in the assessments by people who are not directly involved in science (1,38) and education politicians (2,00). In the assessments of two groups – scientists and educators, didacts, in-service teacher educators, the largest gap appear for Concept B (“Intellectual education in interdisciplinary scientific contexts”). However, according to the assessment of only the group of teachers (mean value 1,42) significant differences appear for Concept A (“Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings”).

	Mean values			
Sub- group	Concept A: Awareness of the sciences in current, social, globally relevant and occupational contexts relevant in both educational and out-of-school settings	Concept B: Intellectual education in interdisciplinary scientific contexts	Concept C: General science-related education and facilitation of interest in contexts of nature, everyday life and living environment	Average of all three concepts
Students	0,89	0,65	<b>1,00</b>	0,85
People who are not directly involved with sciences	1,25	1,25	<b>1,38</b>	1,29
Teachers	<b>1,42</b>	1,04	1,13	1,20
Education politicians	0,50	1,50	<b>2,00</b>	1,33
Scientists	<b>1,58</b>	2,25	1,33	1,72
Educators, didactics, and in – service teacher educators	<b>1,53</b>	1,80	<b>1,53</b>	1,62
Total	1,20	1,41	1,39	1,34

Table 13: Mean values of the general priority-practice differences of the sub-groups

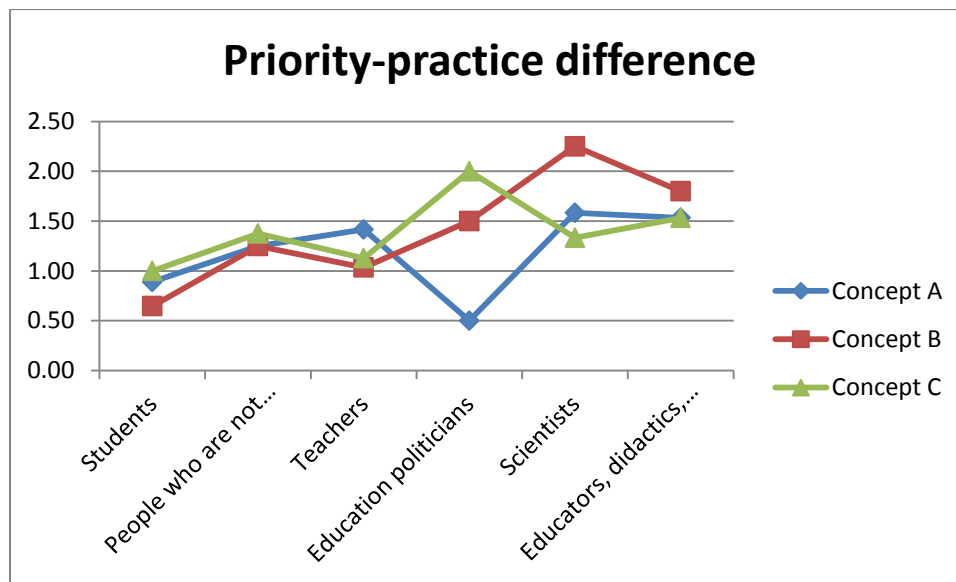


Figure 8: Mean values of the priority-practice differences in the general assessment by the different sub-groups

## 6 Summary

During the course of the third round of the International PROFILES Curricular Delphi Study on Science Education, the participants of the rounds one and two of the respective study were asked to do a priority and practice assessments of the three concepts of desirable science education derived from the hierarchical cluster analyses of the second round.

The questionnaire was adopted into the Latvian language and sent to 6 groups of participants: students; science teachers (studying teacher; teachers and training teachers (experienced teachers)); educators, didactics, and in-service teacher educators; scientists; education politicians; people not directly involved in science. The total response rate equals to 69,2% of the participants from the second round and 63,4% of the participants from the first round.

Regarding the assessment by the whole group of participants in total, it can be seen that the concept referring to general science-related education is assessed as the most important, however the concept of the awareness of the sciences is viewed as the most realized concept of the three. The largest gap in priority-practice differences appear for the intellectual education concept.

The general assessment of the three concepts by all participants regarding different educational levels reflect that in both priority and practice assessments the concepts are considered most important the higher the educational level is. The concept referring to general science-related education is assessed as the most important for the three educational levels except for the higher secondary education, where, however, concept referring to awareness of the sciences is viewed as the most significant. With regard to practice, the concept viewed as the most realized at the elementary education level is Concept A, while Concept C prevails for other levels. The priority-practice difference gaps are considerably smaller for pre-school and elementary education levels, yet they become larger, the higher the level of education is.

The general assessments of the three concepts by the different sub-groups show that, with respect to the priority assessment four out of 6 study groups consider the concept referring to science-related education as the most significant. However, regarding practice the results within the same sub-group for all three concepts are fairly similar.