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Learn2Analyze (L2A)

**An Academia-Industry Knowledge Alliance for enhancing Online Training
Professionals' (Instructional Designers and e-Trainers) Competences in Educational
Data Analytics**



Learn2Analyze

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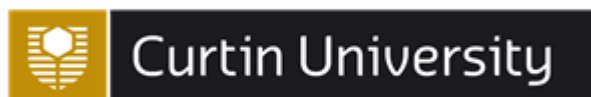
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R3. Report on the emerging competences for Instructional Designers and e- Trainers (expert- based survey)

Disclaimer:

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Learn2Analyse Consortium



Contact

Professor Demetrios Sampson, Learn2Analyse Project Co-ordinator

Department of Digital Systems, University of Piraeus,
80, Karaoli and Dimitriou Street, Piraeus, 18534 / Greece

Phone: +30-210-4142766

E-mail: sampson@unipi.gr

Executive Summary

The scope of **Result 3** (Report on the emerging competences for Instructional Designers and e-Trainers (expert-based survey)) is to validate and identify areas of possible improvement of the draft **Educational Data Literacy (EDL) Competence Profile (CP)** framework for (a) Instructional Designers and (b) e-Tutors of Online and Blended Courses, produced in Result 2 (R2) through literature review.

This was done through an **expert-based questionnaire-driven online survey** with **210 experts** from *Higher Education Institutes* and *eLearning Industry Enterprises* which was conducted between 1st September to 15th October 2018.

This document presents the design, the implementation and the analysis of the expert-based survey and provides recommendations for improvement of the initial EDL-CP.

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1. Scope

The scope of **Result 3** (Report on the emerging competences for Instructional Designers and e- Trainers (expert-based survey)) is to validate and identify areas of possible improvement of the draft **Educational Data Literacy (EDL) Competence Profile (CP)** framework for (a) Instructional Designers and (b) e-Tutors of Online and Blended Courses, produced in Result 2 (R2) through literature review.

This was done through an **expert-based questionnaire-driven online survey** with **210 experts** from *Higher Education Institutes* and *eLearning Industry Enterprises* which was conducted between 1st September to 15th October 2018.

This document presents the design, the implementation and the analysis of the expert-based survey and provides recommendations for improvement of the initial EDL-CP.

2. Background

Result 2 through an extensive literature review produced a draft **Educational Data Literacy (EDL) Competence Profile (CP)** framework for Instructional Designers and e-Tutors of Online and Blended Courses which is summarised in **Appendix 1**. This competence profile consists of

- 6 Competence **Dimensions**, namely
- 21 Competence **Statements** which aim to describe these dimensions.

In order to validate this proposal and identify areas of possible improvement, an **expert-based questionnaire-driven online survey** was designed and implemented, within the European context (and beyond, to have eventually a global impact and reach out), with **210 experts** from **Higher Education Institutes** and **eLearning Industry Enterprises**. This survey can be considered as the first part of a **Delphi study**¹ that is further enhanced and implemented in Result 4.

The core question of this survey is:

- is the proposed **Educational Data Literacy (EDL) Competence Profile (CP)** framework (including **6 dimensions** and **21 statements**) appropriate to describe the essential competences of Instructional Designers and e-Tutors of Online and Blended Courses?

The core question is investigated at the following dimensions

- if the proposed **statements address well** the corresponding EDL competence dimensions
- if the proposed **statements are important for** the EDL competences of Instructional Designers and e-Tutors of Online and Blended Courses
- if the proposed **statements are well written**
- recommendations for **alternative and/or additional statements** for the EDL competence dimensions

3. Survey Design and Implementation

¹ Green, R.A. (2014). The Delphi Technique in Educational Research. SAGE Open. Volume: 4 issue: 2.

Introduction

The main design aspects of the expert survey were:

- the participants' profile and selection procedure,
- the instruments used for the data collection, namely invitation letter and questionnaire
- privacy and ethical issues, namely, the consent form used.

Next, we summarise the key design aspects.

3.1. Participants

The selection of the appropriate participants was essential for the quality of our study. For that reason the criteria used for their selection were their expertise on the field, their impact on the field, their availability for the completion of all the rounds needed and diversity, meaning, selecting experts from different professional roles, geographic regions, and institution types². It was decided that the most appropriate participants for this study are experts that are engaged in technology supported education and training, online and/or blended courses, educational data literacy (either in Higher Education or Professional Development) in various roles (namely, professional, academic, research, support, manager, leader). **Appendix 4.1** summarises the different professional roles of the participants. The number of the targeted participants was **210 participants** that ideally cover the full range of professional roles in approximately equal numbers.

The participants were selected by all consortium partners based on the above criteria. All partners invited around 50-60 potential experts each (a total of 370) to participate to the survey and 210 experts responded. Section 4.1 of this report analyses the profile of the 210 participants which is indeed representative of the targeted profile.

3.2. Instruments

The instruments used for the implementation of the survey were:

The **invitation letter** sent to the experts, mentioning the description of the project and its objectives, the reasons that they were selected to participate in the survey, the description of the methodology to used with guidelines for completing the survey in the right manner, as well as informing them about privacy and ethical issues.

The **consent form** with all the information needed (purpose and procedure, potential benefits, potential risk or discomforts, storage of data, anonymity and confidentiality, right to withdraw, conflict of interest, compensation, participant concerns and reporting) for the experts to consent or not in the survey. The consent form follows the guidelines of the General Data Protection Regulation (EU) 679/2016 ('GDPR')³ [Section 2 of the Online Questionnaire, see **Appendix 2**].

² Iqbal S. & Pison-Young, L. (2009). The Delphi Method. The Psychologist. volume 22 number 7 pp 598-600.

³ <http://eur-lex.europa.eu/eli/reg/2016/679/oj>

The **questionnaire** in a web form (google form) to collect the participants' responses using the Likert scale. The questionnaire consists of 11 sections and will need approximately 60 minutes to be filled in. More specifically the online questionnaire consists of the following sections:

- section 1 provides information about the project
- section 2 includes the **consent form**. There are 3 options:
 - I have read the consent form and I consent to participate in this survey and in the use of my personal data in a public version of the report to be produced.
 - I have read the consent form and I consent to participate in this survey and in the use of my personal data in a confidential version to be shared only among Learn2Analyze Consortium partners and the European Commission of the report to be produced.
 - I have read the consent form and I consent to participate in this survey but I do not consent in the use of my personal data in neither a confidential nor a public version of the report to be produced.
- section 3 includes **6 items** on **demographics**, namely:
 - Age
 - Gender
 - Country or Region
 - Definition of professional role (from a given list)
 - Years involved in this role
 - Years involved in the field of Digital Teaching and Learning
- section 4 includes **3 basic items** on **Educational Data Literacy**:
 - I am familiar with the term Educational Data Literacy
 - I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses already possess Educational Data Literacy competences to a large extend
 - I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses need to possess Educational Data Literacy competences
- section 5 provides an overview of the proposed L2A Educational Data Literacy Competence **Dimensions (#6) & Statements (#21)**
- sections 6-11 includes a set of items for each EDL Competence Dimension (total 6), namely:
 - **three (3) items** for **each statement (Sj)** of a **given dimension (Di)**, (total **63 items type Di-Sj-Qz**) that is:
 - I believe that the EDL competence statement Sj addresses well the EDL competence dimension Di
 - I believe that the EDL competence statement Sj is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses
 - I believe that the EDL competence statement Sj is well written
 - **one (1) open item** for **each statement (Sj)** of a **given dimension (Di)**, (total **21 open item type Di-Sj-openQ**), that is:
 - How would you rewrite or revise the EDL competence statement Sj to better address EDL competence dimension Di?
 - **one (1) open item** for **each dimension (Di)**, (total **6 open item type Di-openQ**), that is:
 - If you would propose an additional EDL competence statement for competence dimension Di, which one would that be?

Appendix 2 presents the full online questionnaire and **Appendix 3** provides the coding of the different types of questions.

3.3. Implementation

The survey was conducted between 1st September to 15th October 2018 based on the following timeframe:

1-15 September	Invitations send out
15 September - 15 October	Collect Responses from Participants

4. Data Analysis

4.1. Analysis of Participants Profile

4.1.1. Scope

First, **descriptive statistics** (that is, mean values, variance, standard deviations, frequency tables, pies and histograms) will be used for the **demographic data analysis** re to: Age, Gender, Country or Region, Definition of Professional Role, Years involved in this Role, Years involved in the field of Digital Teaching and Learning, as well as, the **Consent Status (section 1)**. This aims to confirm the distribution of experts across all anticipated demographic elements. Additionally:

- for **Country or Region**: an additional grouping will be made for representation from different continents, as well as, countries. Emphasis will be given to the # of countries represented, as well as, the # of counties represented from the EU Member States.
- for the **Professional Role**: an additional grouping will be made at 2 levels. One level will be those self-considered as experts in EDL (Group A in **Appendix 4.1**) and another level will be the 3 Groups of Practitioners (Group B), Managers (Group C), Academics/Researchers (Group D) in **Appendix 4.1**.

Furthermore, descriptive statistics will be also used to analyse the responses to the three questions of **section 4** of the questionnaire which are related with the experts' perceptions on the status of EDL competences for Instructional Designers and e-Tutors of Online and/or Blended Courses.

4.1.2. Identify and Establish Expertise in Educational Data Literacy

First, **experts in Educational Data Literacy** were identify based on the participants' replies to Question 5 of Section 3 ("*what is your professional role?*" of the questionnaire [see **Appendix 2**]. More specifically, four groups of professionals roles were defined as presented in **Appendix 4.1**.

Table 1 presents the distribution of participants in two groups related to their expertise in EDL according to their professional role as self-assessed in Q5@S3:

Table 1: Distribution of Participants in relation to expertise in EDL according to professional role

	Professional Role Group [Appendix 4.1]	Frequency	%
Experts in EDL according to professional role	Group A	34	16.20
Non-Expert in EDL according to professional role	Groups B, C, D	176	83.80
		210	100.00

Next, we combined the replies to Q5@S3 with the grades to Question 1 of Section 4 ("I am familiar with the Educational Data Literacy" Scale 1 to 5), to identify different levels of expertise in EDL based on the following rules presented in **Table 2**.

Table 2: Definition rules for the level of expertise in EDL

Level of Expertise in EDL	Definition Rules
High	Self-Defined at Group A AND Grade 4 or 5 in Q1 @ Section 4 Self-Defined at Groups (B, C, D) AND Grade 5 in Q1 @ Section 4
Low	Self-Defined at Group A AND Grade 3 in Q1 @ Section 4 Self-Defined at Groups (B, C, D) AND Grade 3-4 in Q1 @ Section 4
None	Self-Defined at Group A AND Grade 1 or 2 in Q1 @ Section 4 Self-Defined at Groups (B, C, D) AND Grade 1 or 2 in Q1 @ Section 4

Table 3 presents the distribution of participants in three groups related to their expertise in EDL according to the combination of their professional role as self-assessed in Q5@S3 and the level of familiarity with EDL.

Table 3: Distribution of Participants in relation to expertise in EDL according to professional role

Level of Expertise in EDL	Frequency	%
High	85	40.50
Low	100	47.60
None	25	11.90
	210	100.00

Concluding this part, it is evident that the majority of the participants to the survey has a reasonable level of understanding of EDL (88.10%) and 40.50% have a high-level of expertise in EDL. This is a strong evidence of the level of EDL expertise of the participants that demonstrates the reliability of the sample.

4.1.3. Years involved in the Professional Role and Digital Teaching and Learning

Next, we analysed:

- the years involved in the their **professional role** as defined by the participants based on their replies to Question 6 of Section 3.
- the years involved in the **field of Digital Teaching and Learning** as defined by the participants based on their replies to Question 7 of Section 3.

Table 4 presents the distribution of Participants in relation to years involved in their professional role.

Table 4: Distribution of Participants in relation to years involved in their professional role

# years involved in their professional role	Frequency	%
1-5	55	26.20
6-10	56	26.70
11-20	69	32.90
over 21	30	14.2
	210	100.00

Table 5 presents the distribution of Participants in relation to years involved in the field of Digital T&L.

Table 5: Distribution of Participants in relation to years involved in the field of Digital T&L

# years involved in the field of Digital T & L	Frequency	%
1-5	41	19.50
6-10	46	21.90
11-20	84	40.00
over 21	39	18.60
	210	100.00

Concluding this part, it is evident that the majority of the participants to the survey has a reasonable level of experience in their professional roles (73.80% more than 6 years) and in the field of digital Teaching and Learning (80.5% more than 6 years) with the majority in both categories reporting 11-20 years experience. Again, this is an evidence of the level of professional experience of the participants that demonstrates the reliability of the sample. The mean value of the participants involved in their professional role is 11.65 years with a standard deviation of 7.76 which was to be expected as the majority of the responders' lies in the interval of 11-20 years. Finally, the mean value of the participants in this survey was evaluated with regards to their involvement in the field of Digital T & L (per years) and was found to be 13.27 with a standard deviation of 7.77 which again is in accordance with the high frequency (84 participants) of the group 11-20 years (see Appendix 5).

4.1.4. Geographical Distribution

Next, we analysed the geographical distribution of the participants to the survey based on their replies to Question 4 of Section 3. **Table 6** presents the distribution of participants in relation to the continent that they belong.

Table 6: Distribution of participants per continent.

Continent	Frequency	%
Europe	158	75.24
North & South America	27	12.86
Asia-Pacific	25	11.90
Africa	0	0.00
	210	100.00

Based on the above analysis, it is evident that the majority of the participants are from Europe (75.24%) as expected, however a fair representation of other major continents (America, Asia-Pacific) is also granted.

Furthermore, the participants are from 31 different countries with 17 of them being EU members. **Appendix 5** provides a detailed analysis of the distribution per country.

4.1.5. Gender and Age

Finally, we analysed the distribution of the participants in relation to

- their gender as defined based on their replies to Question 3 of Section 3.
- their age as defined based on their replies to Question 2 of Section 3.

Table 7a presents the distribution of Participants in relation to their gender.

Table 7a: Distribution of Participants in relation to gender

Gender	Frequency	%
Male	139	66.19
Female	69	32.86
Do not want to say	2	0.95
	210	100.00

Table 7b presents the distribution of Participants in relation to their age.

Table 7b: Distribution of Participants in relation to age

Age	Frequency	%
25-30	19	9.05

30-40	61	29,05
40-50	76	36,20
50-60	45	21,43
60-70	6	2,86
70+	3	1,43
	210	100.00

Based on the above analysis, it is evident that in relation to

- the gender, the distribution of the participants is relatively balanced with 32.86% female participants.
- the age, the majority of the participants (36.2%) are between 40-50 and 86.68% are between 30-60 years old

Again, this is an evidence of a well balance that demonstrates the reliability of the sample. Evaluating the mean age of the responders we find that it is 43.65 years with a standard deviation of 10.05 years which is in accordance to the data taking into consideration that the majority of the responders is in the 40-50 age group (see Appendix 5).

4.1.6. Analysis of participants' opinion in relation to EDL competence readiness of instructional designers and tutors of online course.

Next, we analysed the opinion of the participants in relation to EDL competence readiness of instructional designers and tutors of online course through their replies to the Section 4 of the questionnaire. This section includes 3 questions with a 5 point Likert scale

- I am familiar with the term Educational Data Literacy [Q1@S4].
- I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses already possess Educational Data Literacy competences to a large extend [Q2@S4].
- I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses need to possess Educational Data Literacy competences [Q3@S4].

4.1.6.1. Level of familiarity with the concept of Educational Data Literacy (EDL)

First, the **level of familiarity with the concept of Educational Data Literacy (EDL)** is examined by analysing the responses to Q1@S4. **Table 8** presents the distribution of participants in relation to their declared level of familiarity (with 1 being the lowest score and 5 the maximum score). **Figure 1** presents the histogram of the of frequency of scores in Q1@S4.

Table 8: Distribution of Participants in relation to their level of familiarity with the concept of EDL

Level of Familiarity with the term EDL	Frequency	%
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1,0	6	2.86
2,0	19	9.05
3,0	39	18.57
4,0	73	34.76
5,0	73	34.76
	210	100.00

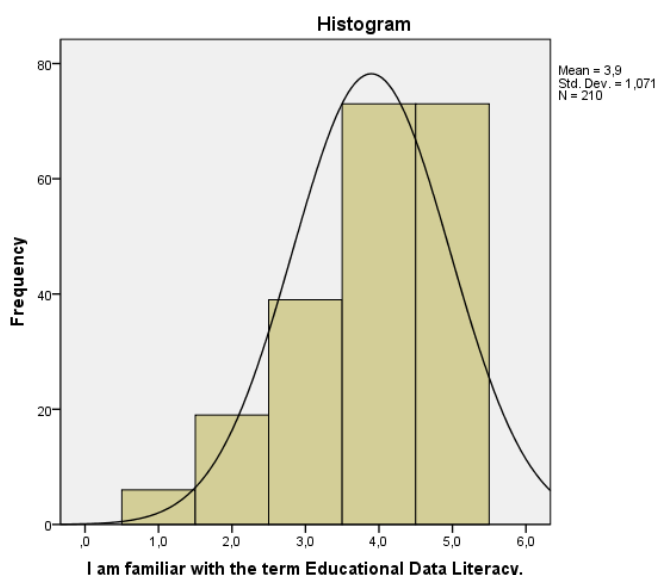


Figure 1: Histogram of Frequency of Scores in Q1@S4

Based on the above analysis, it is evident that the majority of the participants (69.52%) identified themselves as being familiar with the concept of Educational Data Literacy (scores 5, strongly agree and 4, agree).

Next, we cross examine the responses to Q1@S4 with the analysis of the expertise in EDL according to the participants' professional role as self-assessed in Q5@S3 (see section 4.1.2 of this report). Table 9 presents the results of this analysis.

Table 9: Cross tabulation of the responses to Q5@S3 and Q1@S4

		I am familiar with the term Educational Data Literacy [Q1@S4]					Total
		1,0	2,0	3,0	4,0	5,0	
What is your professional role? [Q5@S3]	Expert	0	3	0	16	15	34
	NonExpert	6	16	39	57	58	176
Total		6	19	39	73	73	210

From **table 9**, we can see that the majority of the **Experts**, (91.20%) identified themselves as being familiar with the term Educational Data Literacy (scores 5, strongly agree and 4, agree), as expected. However, 3 experts have identified themselves as having low familiarity (score 2) with the term EDL and thus can be identified as outliers. This has been taken into consideration in the analysis of section 4.1.2 towards identifying different levels of expertise in EDL based on the rules presented in **Table 2**. Lastly, there is a substantial percentage, namely 65.34% of NonExperts that are familiar with the term EDL giving a score of 4 (32.38%) and 5 (32.95%).

4.1.6.2.Opinions on EDL competence readiness of instructional designers and tutors of online course

Next, we examine the **opinion of the participants** in relation to the EDL competence **readiness** of instructional designers and tutors of online course, through Q2@S4: *"I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses already possess Educational Data Literacy competences to a large extend"*.

Table 10 presents the distribution of participants' opinion in relation to the EDL competence readiness of instructional designers and tutors of online course. **Figure 2** presents the histogram of the of frequency of scores in Q2@S4.

Table 10: Distribution of participants opinion in relation to the EDL competence readiness of instructional designers and tutors of online course

EDL competence readiness of instructional designers and tutors of online course	Frequency	%
1,0	17	8.10
2,0	60	28.57
3,0	81	38.57
4,0	40	19.05
5,0	12	5.71
	210	100.00

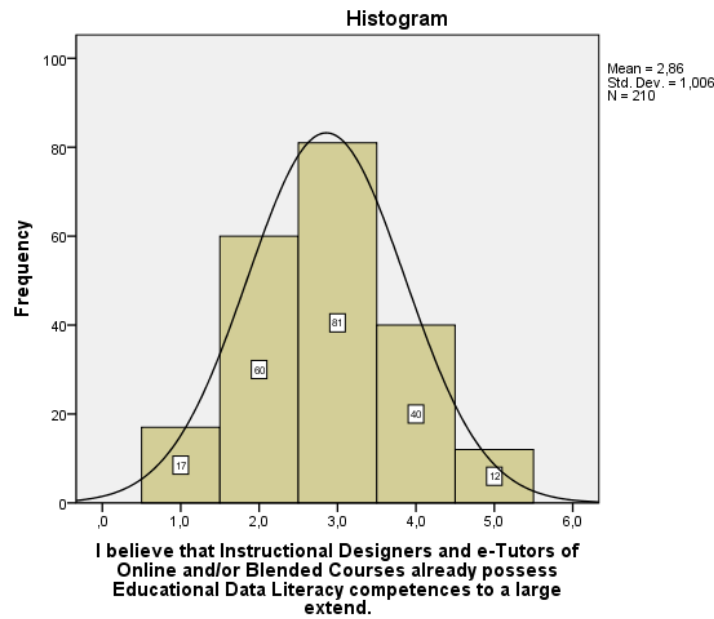


Figure 2: Histogram of Frequency of Scores in Q2@S4

Based on the above analysis, it is evident that the majority of the participants (75.24%) gave score of 3 or less indicating that they consider the EDL competence readiness of instructional designers and tutors of online course as not adequate, although a reasonable percentage (24.76%) declared otherwise.

We have further analysed the same issue for two different subgroups of the participants, namely:

- experts in EDL according to their professional role, and
- level of expertise in EDL according to the combination of their professional role as self-assessed in Q5@S3 and the level of familiarity with EDL,

as defined in Section 4.1.2.

Table 11 presents the results for the experts in EDL according to their professional role. It can be seen that in the **Experts** sub-group 91.18% gave score of 3 or less indicating that they consider the EDL competence readiness of instructional designers and tutors of online course as not adequate, while only 8.82% declared otherwise with no-one giving a score 5 (full agreement on readiness). On the other hand, in the **non-Experts** sub-group 72.16% gave score of 3 or less indicating that they consider the EDL competence readiness of instructional designers and tutors of online course as not adequate, while only 27.84% declared otherwise. Thus, the sub-group of experts demonstrate an overwhelming confidence that instructional designers and tutors of online course are missing or have limited EDL competence.

Table 11: Distribution of experts in EDL according to their professional role subgroups' opinion in relation to the EDL competence readiness of instructional designers and tutors of online course

EDL competence readiness of instructional designers and tutors of online course	Experts in EDL according to their professional role				Total
	Expert		Non Expert		
	Frequency	%	Frequency	%	

1,0	2	5.88%	15	8.52%	17
2,0	13	38.24%	47	26.70%	60
3,0	16	47.06%	65	36.93%	81
4,0	3	8.82%	37	21.02%	40
5,0	0	0.00%	12	6.82%	12
Total	34		176		210

Table 12 presents the results for the 3 subgroups according to the level of expertise in EDL. It can be seen that in the **High Expertise** sub-group 67.06% gave score of 3 or less indicating that they consider the EDL competence readiness of instructional designers and tutors of online course as not adequate, while 32.94% declared otherwise. On the other hand, in the **Low Expertise** sub-group 80.00% gave score of 3 or less indicating that they consider the EDL competence readiness of instructional designers and tutors of online course as not adequate, while only 20.00% declared otherwise. Finally, in the **Non Expertise** sub-group 84.00% gave score of 3 or less indicating that they consider the EDL competence readiness of instructional designers and tutors of online course as not adequate, while only 16.00% declared otherwise with no-one giving a score 5 (full agreement on readiness).

Table 12: Distribution of Level of Expertise in EDL subgroups' opinion in relation to the EDL competence readiness of instructional designers and tutors of online course

EDL competence readiness of instructional designers and tutors of online course	Level of Expertise in EDL						Total
	High Expertise		Low Expertise		Non-Expertise		
	Frequency	%	Frequency	%	Frequency	%	
1,0	5	5.88%	8	8.00%	4	16.00%	17
2,0	20	23.53%	31	31.00%	9	36.00%	60
3,0	32	37.65%	41	41.00%	8	32.00%	81
4,0	20	23.53%	16	16.00%	4	16.00%	40
5,0	8	9.41%	4	4.00%	0	0.00%	12
Total	85		100		25		17

Comparing the results from **Table 11** and **12**, it is evident that the two different ways to identify expertise in EDL, indeed, lead to considerably different subgroups with different perceptions in core issues related with EDL competence. It is thus, meaningful to study the two different sub-group divisions further.

4.1.6.3. Opinions on the usefulness of the EDL competence for instructional designers and tutors of online course

Next, we examine the **opinion of the participants** in relation to the **usefulness** of the EDL competences for instructional designers and tutors of online course, through Q3@S4: "*I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses need to possess Educational Data Literacy competences*".

Table 13 presents the distribution of participants' opinion in relation to the usefulness of the EDL competence for instructional designers and tutors of online course. **Figure 3** presents the histogram of the of frequency of scores in Q3@S4.

Table 13: Distribution of participants opinion in relation to the usefulness of the EDL competence for instructional designers and tutors of online course

Usefulness of EDL competence for instructional designers and tutors of online course	Frequency	%
1,0	3	1.43%
2,0	3	1.43%
3,0	16	7.62%
4,0	64	30.48%
5,0	124	59.05%
	210	100.00

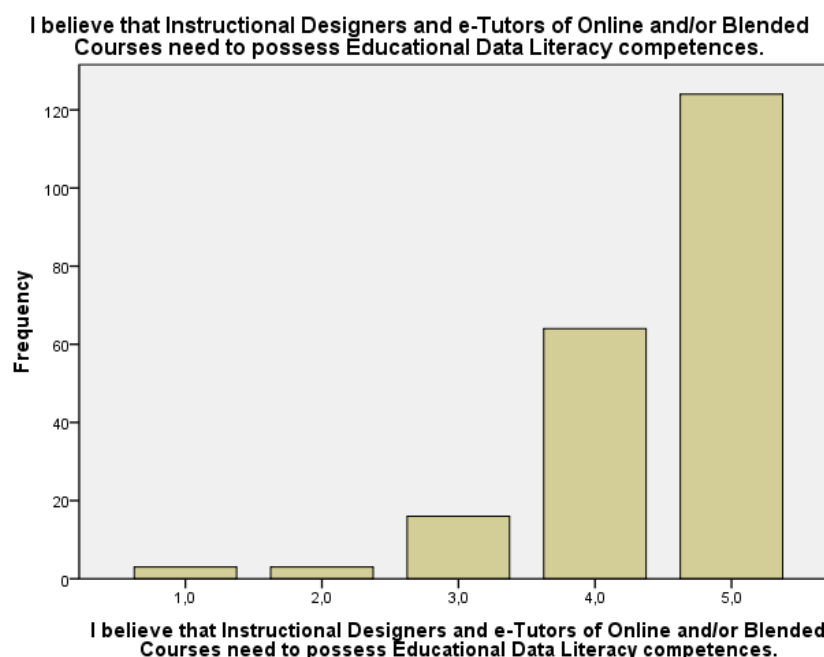


Figure 3: Histogram of Frequency of Scores in Q3@S4

We have further analysed the same issue for two different subgroups of the participants, namely:

- experts in EDL according to their professional role, and
- level of expertise in EDL according to the combination of their professional role as self-assessed in Q5@S3 and the level of familiarity with EDL,

as defined in Section 4.1.2.

Table 14 presents the results for the experts in EDL according to their professional role. It can be seen that in the **Experts** sub-group 91.18% gave score of 4 or 5 that they consider the EDL competence instructional designers and tutors of online course essential, and only 5.88% declared otherwise (scores 1 or 2). Similarly, in the **non-Experts** sub-group 89.20% gave score of 4 or 5 that they consider the EDL competence instructional designers and tutors of online course essential, and only 2.27% declared otherwise (scores 1 or 2). Thus, both sub-group of experts demonstrate an overwhelming confidence that EDL competences are essential for instructional designers and tutors of online courses.

Table 14: Distribution of experts in EDL according to their professional role subgroups' opinion in relation to the usefulness of the EDL competence for instructional designers and tutors of online course

Usefulness of EDL competence for instructional designers and tutors of online course	Experts in EDL according to their professional role				Total
	Expert		Non Expert		
	Frequency	%	Frequency	%	
1,0	1	2.94%	2	1.14%	17
2,0	1	2.94%	2	1.14%	60
3,0	1	2.94%	15	8.52%	81
4,0	8	23.53%	56	31.82%	40
5,0	23	67.65%	101	57.39%	12
Total	34		176		210

Table 15 presents the results for the 3 subgroups according to the level of expertise in EDL. It can be seen that in the **High Expertise** sub-group 95.29% gave score of 4 or 5 that they consider the EDL competence instructional designers and tutors of online course essential, and only 2.35% declared otherwise (scores 1 or 2). Similarly, in the **Low Expertise** sub-group 90.00% gave score of 4 or 5 that they consider the EDL competence instructional designers and tutors of online course essential, and only 3.00% declared otherwise (scores 1 or 2). Finally, in the **Non Expertise** sub-group 68.00% gave score of 4 or 5 that they consider the EDL competence instructional designers and tutors of online course essential, and only 4.00% declared otherwise (scores 1 or 2). Thus, sub-group of high and low expertise demonstrate an overwhelming confidence that EDL competences are essential for instructional designers and tutors of online courses.

Table 15: Distribution of Level of Expertise in EDL subgroups' opinion in relation to the usefulness of the EDL competence for instructional designers and tutors of online course

Usefulness of EDL competence for instructional designers and tutors of online course	Level of Expertise in EDL						Total
	High Expertise		Low Expertise		Non Expertise		
	Frequency	%	Frequency	%	Frequency	%	
1,0	1	1.18%	2	2.00%	0	0.00%	17
2,0	1	1.18%	1	1.00%	1	4.00%	60
3,0	2	2.35%	7	7.00%	7	28.00%	81
4,0	16	18.82%	40	40.00%	8	32.00%	40
5,0	65	76.47%	50	50.00%	9	36.00%	12
Total	85		100		25		17

4.2. Analysis of the Grades to the Questions of Sections 6-11 of the Questionnaire

4.2.1. Scope and Background

In the survey, we have asked participants to grade (scale 1-5) each statement (#21) in reference to 3 issues:

- is the statement **important** for the EDL [Q2]
- does the statement **address well** its dimension [Q1]
- is the statement **well written** ? [Q3]

With regard to the interpretation of the grades within the scale 1-5, we can assume that (1,2 = NO), (4,5 = YES), (3 = is neutral). The combination of responses in the 3 Questions lead to possible actions related to the further improvement of the proposed EDL description, which is the scope of the survey. **Table 16** summarises this analysis.

Table 16. Analysis of the combination of responses to the three key questions of the Questionnaire.

important	YES	YES	YES	YES	NO	NO	NO	NO
address well	YES	YES	NO	NO	YES	YES	NO	NO
well written	YES	NO	YES	NO	YES	NO	YES	NO
Possible	No	Re-Write	Revise and	Revise	Remove	Remove	Remove	Remove

Actions	action	Statement	Re-Write Statement ⁴	and Re- Write Statemen t				
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Using quantitative analysis **of the Grades in each Q for all Statements** it is expected to provide indications for each statement in reference to the options of the table:

- statements that are valid and need no further action
- statements that need possible re-write
- statements that need possible revision and re-write
- statements that need to be removed

Also, quantitative analysis can be done at 3 different groups of participants:

1. total: all responders (#210)
2. subgroup A: based on the Expert Role (Expert, Non-Expert)
3. subgroup B: based on Expertise Level (High, Low, None),

4.2.2. Reliability Analysis

4.2.2.1. Reliability Analysis of the EDL between all dimensions, statements and questions

In this section a **reliability analysis** of the closed questions of Sections 6-11 of the Questionnaire as a reliable instrument to validate the proposed Educational Data Literacy (EDL) Competence Profile (CP) framework (including 6 dimensions and 21 statements) is conducted by calculating **Cronbach's alpha coefficient** which provides a measure of the internal consistency of the set of scale questions.

As commonly accepted, the values of the Cronbach's alpha index greater than 0.7 are considered satisfactory. The calculation of the reliability Cronbach's alpha index produces a matrix (see Appendix 7 **Table A7.1** column "Corrected Item-Total Correlation") . This column shows how well each item correlates with the overall questionnaire score. Correlations less than 0.3 indicate that the item may not belong to the scale. We see that all items have a correlation coefficient bigger than 0.3 (see Appendix 7 **Table A7.1**). Furthermore we calculate the Cronbach's alpha coefficient if we delete an item (see Appendix 7 **Table A7.1** column "Cronbach's Alpha if Item Deleted"). If this score goes up after the removal of the item this is an indication that the item should be deleted. In our analysis there is no such indication.

⁴ if a Competence Statement is well written but not addressed well, this is an indication that the statement might need to be revised.

4.2.2.2. Reliability of the EDL Dimensions

Next, we calculate the Cronbach's alpha coefficient for **all the questions and statements for each dimension**.

From **Table 17**, we can observe a high internal consistency since the minimum value of α is 0.884.

Table 17. Cronbach's alpha coefficient for all Dimensions.

D1SiQi	$\alpha=0.890$	D2SiQi	$\alpha=0.901$	D3SiQi	$\alpha=0.896$
D4SiQi	$\alpha=0.906$	D5SiQi	$\alpha=0.884$	D6SiQi	$\alpha=0.893$

Then, we calculate the Cronbach's alpha coefficient for **the set of all 3 questions within a given statement and a given dimension**. **Table 18** presents the Cronbach's alpha coefficient for all the questions for each statements in each dimension. From **Table 18** we can see that the Cronbach's alpha coefficient is consistently between 0.723 and 0.877 indicating good internal consistency, except for S2 "Understand Statistics" at Dimension 4 (S2D4 $\alpha=0.622$) which needs further attention although it is reasonable due to the few number of items (three) in every statement in the calculation of Cronbach's alpha coefficient.

Table 18. Cronbach's alpha coefficient for every Statement in all Dimensions.

D1S1	$\alpha=0.75$	D1S2	$\alpha=0.81$	D1S3	$\alpha=0.77$				
D2S1	$\alpha=0.77$	D2S2	$\alpha=0.72$	D2S3	$\alpha=0.78$	D2S4	$\alpha=0.78$		
D3S1	$\alpha=0.74$	D3S2	$\alpha=0.80$	D3S3	$\alpha=0.73$				
D4S1	$\alpha=0.77$	D4S2	$\alpha=0.62$	D4S3	$\alpha=0.76$	D4S4	$\alpha=0.87$	D4S5	$\alpha=0.81$
D5S1	$\alpha=0.82$	D5S2	$\alpha=0.84$	D5S3	$\alpha=0.85$				
D6S1	$\alpha=0.81$	D6S2	$\alpha=0.78$	D6S3	$\alpha=0.78$				

4.2.3. Validity Analysis

4.2.3.1. Content Validity

Content validity is the degree to which an instrument has an appropriate sample of items for the construct being measured and is an important procedure in scale development. **Content validity index (CVI)** is the most widely used index in quantitative evaluation. There are 2 kinds of CVI: **I-CVI** and **S-CVI/Ave**. The first type involves the content validity of individual items and the second involves the content validity of the overall scale (the average).

Content validity of individual items, I-CVI index, refers to the proportion of content experts giving item (Q_i , $i=1, 2, 3$) a relevance rating of 4 or 5. If this is bigger than 0.75 then the I-CVI is excellent while the score of 0.7 is acceptable. Researchers recommend that a scale with excellent content validity should be composed

of I-CVIs of 0.75 or higher and S-CVI/Ave of 0.77 or higher, respectively. For establishing Content Validity the I- CVI index was calculated by dividing the number of the responders that graded with 4 or 5 (thus dichotomizing the ordinal scale into agree, strongly agree and disagree, strongly disagree) by the total number of the responders. Additionally, S-CVI/Ave averages the proportion of items rated 4 or 5 across the responders.

Furthermore, data generated from the survey were further analyzed, using Relative Importance Index (RII) which is given by the following formula

$$RII = \frac{\sum w}{AN} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{5N},$$

where w is the weight given to each factor by the respondent ranging from 1 to 5. In our case n_1 is the number of responders which graded the question with 1, n_2 the number of responders which graded the question with 2 etc. Finally, A is the highest response integer (5) and N is the total number of respondents. The RII index aids in finding the contribution a particular variable makes to the prediction of a criterion variable both by itself and in combination with other predictor variables. In the case of a five-point response item, RII produces a value ranging from 0.2 to 1.0 (Ugwu and Haupt, 2007). The higher this index is the higher the influence the item imposes on the construction of survey.

Calculating the indices introduced above we have the following results.

Dimension 1

In **Table 19** we can see that the results for the 210 participants for every item in dimension 1 is over 0.75 for the I-CVI index. Furthermore the value of S-CVI/Ave is over 0.77 which proves the validity of each statement in dimension 1. The Table also presents the results for the RII index and the RII AVE. Taking into consideration the RII AVE index we have the values 0.8473, 0.8542 and 0.8644 which indicate respectively, the influence of Q1, Q2 and Q3 on the S1, S2 and S3. Likewise, the RII values show that, in all three statements Q2 appears to influence more the responder's grade to the statements with Q1 to hold the second place and Q3 the last. Similarly, it suggests that, S3 ranked the first significantly influential factor that accounts for D1.

Table 19. The I-CVI, RII and S-CVI/Ave, RII AVE validity scores for Dimension 1 N=210	I-CVI	S-CVI/AVE	RII	RII AVE
D1S1Q1	0,871429	0,84127	0,86	0.8473
D1S1Q2	0,866667		0,864762	
D1S1Q3	0,785714		0,817143	
D1S2Q1	0,842857	0,84127	0,86	0.8542
D1S2Q2	0,871429		0,86	
D1S2Q3	0,809524		0,842857	
D1S3Q1	0,861905	0,857143	0,872381	0.8644
D1S3Q2	0,914286		0,888571	

D1S3Q3	0,795238		0,832381	
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Dimension 2

Following the same procedure for Dimension 2 we have **Table 20** where we see that the index of I-CVI appears to be on the boundary of the accept level (0,7) for both Q2 and Q3 @S1 and as a result the index of S-CVI/Ave is at its lowest value on this Dimension. In addition Q2, Q3@S2 and Q2, Q3 @S3 have a score lower than 0.75 which implies further analysis needed as well as Q2,Q3@S1. These results were confirmed also by the index RII as especially S1Q2, S1Q3 have the lowest value in this dimension with 0,787619 and 0,791429 respectively. As a result of this S1 appears to be the least influential factor from the rest of the statements.

Table 20. The I-CVI, RII and S-CVI/Ave, RII AVE validity scores for Dimension 2 N=210	I-CVI	S-CVI/AVE	RII	RII AVE
D2S1Q1	0,8	0,736508	0,838095	0.8056
D2S1Q2	0,704762		0,787619	
D2S1Q3	0,704762		0,791429	
D2S2Q1	0,833333	0,77619	0,85619	0.825
D2S2Q2	0,742857		0,812381	
D2S2Q3	0,752381		0,806667	
D2S3Q1	0,804762	0,760317	0,840952	0.8180
D2S3Q2	0,728571		0,800952	
D2S3Q3	0,747619		0,813333	
D2S4Q3	0,828571	0,796825	0,862857	0.8453
D2S4Q2	0,8		0,842857	
D2S4Q3	0,761905		0,830476	

Dimension 3

In accordance with Dimensions 1 and 2 the calculation of the indices of I-CVI and s-CVI/Ave is shown in **Table 21**. The scores of I-CVI are high in every Qi with the only exception of the score in D3S2Q3 which is below the limit of 0.7. This is an indication that the statement may be needing more analysis. We see that S-CVI/Ave is affected by this phenomenon producing low score in the Statement S3. Moreover, the RII index for S2Q3 also appears to be low in accordance with the I-CVI result. Due to the fact that the rest of the questions in this statement are reasonably high we notice that there is not a big influence of the RII AVE as it scores over 0.80.

Table 21. The I-CVI, RII and S-	I-CVI	S-CVI/AVE	RII	RII AVE
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CVI/Ave, RII AVE validity scores for Dimension 3.N=210				
D3S1Q1	0,871429	0,819048	0,879048	0.8561
D3S1Q2	0,828571		0,861905	
D3S1Q3	0,757143		0,827619	
D3S2Q1	0,809524	0,750794	0,854286	0.8215
D3S2Q2	0,77619		0,828571	
D3S2Q3	0,666667		0,781905	
D3S3Q1	0,871429	0,836508	0,880952	0.8641
D3S3Q2	0,871429		0,884762	
D3S3Q3	0,766667		0,828571	

Dimension 4

Moving at Dimension D4, computational procedures of I-CVI and S-CVI/Ave give some interesting results when looking at the scores of D4S2Q3 and D4S4Q3 which are both below the limit of 0.7 with D4S2Q3 to be quite low, see **Table 22**. Another noticeable result is the score of D4S1Q3, D4S4Q1 which appear to be near the low boundary of the acceptance level. The rest of the items Q1, Q2, Q3 in every statement produce a high score of I-CVI index. The low values of the I-CVI index of D4S2Q3 and D4S4Q3 influence the S-CVI/Ave strongly producing the score of 0.72 for S2 and 0.74 for S4. The above results are in accordance with the RII results which for example in S2Q3 drop to 0.755238 the lowest score to appear in all the analysis. Following up, we have the second lowest score in this dimension which appears in S4Q3. Lastly the scores for the RII AVE show that the least important factor for this dimension is S2 with S4 to hold the second place.

Table 22. The I-CVI, RII and S-CVI/Ave, RII AVE validity scores for Dimension 4.N=210	I-CVI	S-CVI/AVE	RII	RII AVE
D4S1Q1	0,842857	0,795238	0,869524	0.8425
D4S1Q2	0,828571		0,854286	
D4S1Q3	0,714286		0,80381	
D4S2Q1	0,761905	0,722222	0,830476	0.8073
D4S2Q2	0,785714		0,83619	
D4S2Q3	0,619048		0,755238	
D4S3Q1	0,895238	0,866667	0,902857	0.8793
D4S3Q2	0,880952		0,875238	
D4S3Q3	0,82381		0,86	
D4S4Q1	0,738095	0,742857	0,829524	0.8251
D4S4Q2	0,809524		0,86	
D4S4Q3	0,680952		0,785714	
D4S5Q1	0,871429	0,861905	0,884762	0.8819
D4S5Q2	0,914286		0,904762	

D4S5Q3	0,8		0,85619	
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Dimension 5

Following with the analysis, **Table 23** shows that the scores of both indices are high for all Qi and therefore every Statement is valid.

Table 23. The I-CVI, RII and S-CVI/Ave, RII AVE validity scores for Dimension 5 N=210	I-CVI	S-CVI/AVE	RII	RII AVE
D5S1Q1	0,890476	0,863492	0,88381	0.8723
D5S1Q2	0,92381		0,900952	
D5S1Q3	0,77619		0,832381	
D5S2Q1	0,861905	0,820635	0,88	0.8612
D5S2Q2	0,795238		0,844762	
D5S2Q3	0,804762		0,859048	
D5S3Q1	0,838095	0,804762	0,86381	0.8473
D5S3Q2	0,819048		0,857143	
D5S3Q3	0,757143		0,820952	

Dimension 6

Lastly, the analogous scores for Dimension 6 prove that every statement is valid, see **Table 24** with S2 to score the highest value for both S-CVI/AVE and RII AVE.

Table 24. The I-CVI, RII and S-CVI/Ave, RII AVE validity scores for Dimension 6 N=210	I-CVI	S-CVI/AVE	RII	RII AVE
D6S1Q1	0,909524	0,860317	0,905714	0.8815
D6S1Q2	0,866667		0,887619	
D6S1Q3	0,804762		0,851429	
D6S2Q1	0,933333	0,91746	0,928571	0.9149
D6S2Q2	0,942857		0,922857	
D6S2Q3	0,87619		0,893333	
D6S3Q1	0,919048	0,887302	0,913333	0.8952
D6S3Q2	0,904762		0,905714	
D6S3Q3	0,838095		0,866667	

Summarizing in **Table 25**, one may raise a concern for the following items that appear all with a low score for the I-CVI, S-CVI/Ave indices as well as RII and RII AVE and which may need further analysis. It appears that **all statements in Dimension 2** show low I-CVI, RII and S-CVI/Ave, RII AVE validity scores in both Questions 2 and 3 and **most statements in Dimension 4** show low I-CVI, RII and S-CVI/Ave, RII AVE scores in Question 3.

Table 25. Summarizing the items (questions) with low I-CVI, RII and S-CVI/Ave, RII AVE scores

	D1	D2	D3	D4	D5	D6
Q1				D4S4Q1		
Q2		D2S1Q2 D2S2Q2 D2S3Q2				
Q3		D2S1Q3 D2S2Q3 D2S3Q3	D3S2Q3	D4S1Q3 D4S2Q3 D4S4Q3		

We will do further analysis using descriptive statistics.

Table 26 shows the mean grades for each question calculated for each statement and dimension without considering the neutral response (=3). Table 26 demonstrates that all the items that appeared with a low score of I-CVI, S-CVI/Ave index in the previous section have a low mean score which verifies and reinforces the need for some further analysis.

Table 26. Mean grade for each DiSjQk.

	MEAN GRADE		MEAN GRADE		MEAN GRADE
D1S1Q1	3,9429	D3S1Q1	4,1238	D5S1Q1	4,1619
D1S1Q2	3,9952	D3S1Q2	3,9238	D5S1Q2	4,2905
D1S1Q3	3,6286	D3S1Q3	3,6810	D5S1Q3	3,7333
D1S2Q1	3,9143	D3S2Q1	3,8714	D5S2Q1	4,100
D1S2Q2	4,0	D3S2Q2	3,6296	D5S2Q2	3,7381
D1S2Q3	3,7571	D3S2Q3	3,3095	D5S2Q3	3,8810
D1S3Q1	4,0619	D3S3Q1	4,0905	D5S3Q1	3,8905
D1S3Q2	4,2714	D3S3Q2	4,1095	D5S3Q2	3,8571
D1S3Q3	3,7190	D3S3Q3	3,6571	D5S3Q3	3,6048
D2S1Q1	3,6905	D4S1Q1	4,0048	D6S1Q1	4,2714
D2S1Q2	3,3381	D4S1Q2	3,8714	D6S1Q2	4,1095
D2S1Q3	3,3286	D4S1Q3	3,4190	D6S1Q3	3,8143
D2S2Q1	3,8524	D4S2Q1	3,6238	D6S2Q1	4,4571
D2S2Q2	3,4905	D4S2Q2	3,6814	D6S2Q2	4,4714
D2S2Q3	3,533	D4S2Q3	3,0762	D6S2Q3	4,1952
D2S3Q1	3,7476	D4S3Q1	4,2429	D6S3Q1	4,3381
D2S3Q2	3,3905	D4S3Q2	4,1476	D6S3Q2	4,2714
D2S3Q3	3,4952	D4S3Q3	3,9429	D6S3Q3	4,0048
D2S4Q1	3,8857	D4S4Q1	3,5619		
D2S4Q2	3,7571	D4S4Q2	3,8714		

D2S4Q3	3,6095	D4S4Q3	3,300		
		D4S5Q1	4,0952		
		D4S5Q2	4,3095		
		D4S5Q3	3,7952		

Next, we calculate the frequency and percentage of the answers with score 1 or 2 or 3 for every DiSjQk, (see **Appendix 7 Tables A7.8-A7.16**). Taking into consideration the results that were produced from the low score of I-CVI, S-CVI/Ave indices we have formed **Table 27** showing the percentage of the grades 1, 2 and 3 for specific questions and statements. In these items appear the highest percentages in low grades with three of them to score over 30%. To be specific we have the first group of D3S2Q3, D4S2Q3 and D4S4Q3 with 33,4%, 38,0% and 32,0% respectively and the other group whose percentage varies from 24.8% to 29.5%

Table 27. Percentage of the answers with score 1, 2 and 3

Items	Total % (of 210) with grade (1,2)+(3)
D2S1Q2	9.5+20=29.5
D2S1Q3	8.6+21=28.6
D3S2Q3	13.4+20=33.4
D4S1Q3	8.6+20=28.6
D4S2Q3	14.7+23.3=38
D4S4Q3	11+21=32
D4S4Q1	6.7+19.5=26.2
D2S2Q2	6.7+19=25.7
D2S2Q3	8.1+16.7=24.8
D2S3Q2	6.7+20.5=27.2
D2S3Q3	6.2+19=25.2

Then we calculate the frequency and percentage of the questions with score 1 or 2 or 3 for every DiSjQk, for the sub-groups of Experts/Non-Experts and High/Low/Non-Expertise and we form the analogous tables, (see **Appendix 7 Tables A7.8-A7.16**).

Gathering the information for only the items we want to analyze we have produced **Tables 28a & b**. **Table 29a** refers to the first group of the items with low score in the I-CVI, S-CVI/Ave index which high percentage of Experts/NonExperts and High/Low/None who have graded 1,2, and 3 at D3S2Q3, D4S1Q3, D4S2Q3 and D4S4Q3.

Table 28a. Percentage of the answers with score 1, 2 and 3 for the two sub-groups

Prof. Role	Expert (1,2)+(3)% Of 34	NonExp (1,2)+(3)% Of 34	High Exp. (1,2)+(3)% Of 85	Low Exp (1,2)+(3)% Of 100	NoneExp, (1,2)+(3)% Of 25	Total % (of 210) (1,2)+(3)
D3S2Q3	11.8+26.5=38.3	13.6+18.8=32.4	14.1+20=34.1	10+20=30	24+20=44	13.4+20=33.4
D4S1Q3	8.8+23.5=32.3	8.5+19.3=27.8	5.9+20=25.9	7+20=27	24+20=44	8.6+20=28.6
D4S2Q3	11.7+26.5=38.2	15.4+22.7=38.1	11.8+18.8=30.6	15+23=38	24+40=64	14.7+23.3=38
D4S4Q3	11.7+15.4=27.1	10.8+22.2=33	10.6+14.1=24.7	9+26=35	20+24=44	11+21=32

For the rest of the statements in question we have produced the following **Table 28b** where we see that if we restrict the analysis to the Experts and High/Low Expertise responders the percentages of low score grades improves indicating that no further action is needed.

Table 28b. Percentage of the answers with score 1, 2 and 3 for the two sub-groups

Prof. Role	Expert (1,2)+(3)% Of 34	NonExp (1,2)+(3)% Of 34	High Exp. (1,2)+(3)% Of 85	Low Exp (1,2)+(3)% Of 100	NoneExp, (1,2)+(3)% Of 25	Total % (of 210) (1,2)+(3)
D2S1Q2	8.8+14.7=23.5	9.7+21=30.7	7.1+16.5=23.6	8+22=30	24+24=48	9.5+20=29.5
D2S1Q3	5.9+17.6=23.5	9.1+21.6=30.7	7.1+12.9=20	7+28=35	20+20=40	8.6+21=28.6
D4S4Q1	2.9+20.6=23.5	7.4+19.3=26.7	7.1+14.1=21.2	4+22=26	16+28=44	6.7+19.5=26.2
D2S2Q2	11.8+11.8=23.6	5.7+20.5=26.2	4.7+12.9=17.6	4+20=24	24+36=60	6.7+19=25.7
D2S2Q3	5.9+14.7=20.6	8.5+17=25.5	4.7+11.8=16.5	8+20=28	20+20=40	8.1+16.7=24.8
D2S3Q2	5.9+17.6=23.5	6.8+21=27.8	4.7+15.3=20	7+20=27	12+40=32	6.7+20.5=27.2
D2S3Q3	0+14.7=14.7	7.4+19.9=27.3	1.2+12.9=14.1	6+25=31	24+16=40	6.2+19=25.2

In conclusion the items that must be **further studied (revised)** are the following in order:

- ✗ D4S2Q3
- ✗ D4S4Q3
- ✗ D3S2Q3
- ✗ D4S1Q3

4.2.3.2. Criterion Validity

We will test the **criterion validity** of the questionnaire using **Spearman's Correlation coefficient**. The Validity test is calculated by correlating each item questionnaire scores with the total score. Item questionnaire that significantly correlated with total score indicates that the items are valid.

In **Table 29** we see that the correlation coefficient of each item is very high in accordance to the total score in each statement as well as with the rest of the items. Furthermore the sig. value (2-tailed) is of 0.000 <0.05 and therefore we can conclude that the item is valid.

Dimension 1

Table 29. Correlation coefficient for Dimension 1

Spearman's rho	totalD1S1	Sig. (2-tailed)	D1S1Q1	D1S1Q2	D1S1Q3
D1S1Q1	,806**	,000	1,000	,526**	,588**
D1S1Q2	,807**	,000		1,000	,533**
D1S1Q3	,868**	,000			1,000
	totalD1S2	Sig. (2-tailed)	D1S2Q1	D1S2Q2	D1S2Q3
D1S2Q1	,872**	,000	1,000	,610**	,742**
D1S2Q2	,833**	,000		1,000	,604**

D1S2Q3	,900**	,000			1,000
	totalD1S3	Sig. (2-tailed)	D1S3Q1	D1S3Q2	D1S3Q3
D1S3Q1	,842**	,000	1,000	,530**	,705**
D1S3Q2	,768**	,000		1,000	,569**
D1S3Q3	,918**	,000			1,000

We produce the same results working in the same way for the other Dimensions (see **Appendix 7 Tables A7.17-A7.20**) and the results demonstrate that every item in every Dimension is valid.

Dimension 4

Table 30. Correlation coefficient for Dimension 4

Spearman's rho	totalD4S1	Sig. (2-tailed)	D4S4Q1	D4S4Q2	D4S4Q3
D4S1Q1	,882**	,000	1,000	,512**	,709**
D4S1Q2	,751**	,000		1,000	,418**
D4S1Q3	,870**	,000			1,000
	totalD4S2	Sig. (2-tailed)	D4S2Q1	D4S2Q2	D4S2Q3
D4S2Q1	,835**	,000	1,000	,490**	,577**
D4S2Q2	,665**	,000		1,000	,252**
D4S2Q3	,829**	,000			1,000
	totalD4S3	Sig. (2-tailed)	D4S3Q1	D4S3Q2	D4S3Q3
D4S3Q1	,854**	,000	1,000	,541**	,630**
D4S3Q2	,790**	,000		1,000	,428**
D4S3Q3	,844**	,000			1,000
	totalD4S4	Sig. (2-tailed)	D4S4Q1	D4S4Q2	D4S4Q3
D4S4Q1	,912**	,000	1,000	,696**	,774**
D4S4Q2	,827**	,000		1,000	,629**
D4S4Q3	,919**	,000			1,000
	totalD4S5	Sig. (2-tailed)	D4S5Q1	D4S5Q2	D4S5Q3
D4S5Q1	,887**	,000	1,000	,449**	,801**
D4S5Q2	,744**	,000		1,000	,488**
D4S5Q3	,912**	,000			1,000

It is interesting to examine the correlation coefficient in Dimension 4. As we can see in the **Table 30** there is a lower value (0.665) in comparison with the total score. Furthermore the correlation coefficient D4S2Q2-D4S2Q3 is low. The item D4S2Q3 is an item that give us low score and maybe needs further analysis. Overall because the Spearman's Correlations Coefficient in relation with the total score is bigger than 0.3 we conclude that the item D4S2Q2 is valid.

4.2.3.3. Concurrent Validity

We will examine the **concurrent validity** using the **correlation coefficient for the mean value** of each question Q_j , $j=1, 2, 3$ in all dimensions ($MDiQ_i$). Then we will examine the homogeneity among groups (expert/NonExperts-High/Low/Non-Expertise) with the use of **nonparametric tests**.

In what follows we are going to investigate the validity of the followings assumptions:

- if the proposed **statements** are **addressed well for** the EDL
- if the proposed **statements are important for** the EDL
- if the proposed **statements are well written for** the EDL

Beginning the analysis we firstly calculate the mean value for each question Q_i in all dimensions ($MDiQ_i$) for the 210 participants (see Appendix 7 Table A7.21). Calculating the Spearman's Correlation Coefficient for every pair $MDiQ_1$ we have a good correlation **in each dimension** indicating that the proposed statements (Q_1) are **addressed well** for the EDL as we can see in Table 31a.

Table 31a. Correlation coefficients for paired mean values for Q_1 in all dimensions.

	Correlation		Correlation
MD1Q1 & MD2Q1	,718	MD2Q1 & MD3Q1	,648
MD1Q1 & MD3Q1	,649	MD2Q1 & MD4Q1	,741
MD1Q1 & MD4Q1	,673	MD2Q1 & MD5Q1	,768
MD1Q1 & MD5Q1	,660	MD2Q1 & MD6Q1	,708
MD1Q1 & MD6Q1	,636	MD4Q1 & MD5Q1	,740
MD3Q1 & MD4Q1	,698	MD4Q1 & MD6Q1	,714
MD3Q1 & MD5Q1	,653	MD5Q1 & MD6Q1	,693
MD3Q1 & MD6Q1	,626		

By calculating the correlation coefficient for every pair $MDiQ_2$ we have a good correlation (bigger than 0.3) **in each dimension** indicating that the proposed statements **are important for** (Q_2) for the EDL (see Table 31b).

Table 31b. Correlation coefficients for paired mean values for Q_2 in all dimensions.

	Correlation	Correlation	
MD1Q2 & MD2Q2	,607	MD2Q2 & MD3Q2	,620
MD1Q2 & MD3Q2	,515	MD2Q2 & MD4Q2	,562
MD1Q2 & MD4Q2	,511	MD2Q2 & MD5Q2	,600
MD1Q2 & MD5Q2	,515	MD2Q2 & MD6Q2	,536
MD1Q2 & MD6Q2	,497	MD4Q2 & MD5Q2	,635
MD3Q2 & MD4Q2	,570	MD4Q2 & MD6Q2	,543
MD3Q2 & MD5Q2	,536	MD5Q2 & MD6Q2	,541
MD3Q2 & MD6Q2	,362		

By calculating the correlation coefficient for every pair $MDiQ_3$ we have a good correlation (bigger than 0.3) **in each dimension** indicating that the proposed statements **are well-written for** for the EDL (see Table 31c).

Table 31c. Correlation coefficients for paired mean values for Q3 in all dimensions.

	Correlation	Correlation	
MD1Q3 & MD2Q3	,718	MD2Q3 & MD3Q3	,590
MD1Q3 & MD3Q3	,583	MD2Q3 & MD4Q3	,744
MD1Q3 & MD4Q3	,731	MD2Q3 & MD5Q3	,743
MD1Q3 & MD5Q3	,646	MD2Q3 & MD6Q3	,698
MD1Q3 & MD6Q3	,657	MD4Q3 & MD5Q3	,760
MD3Q3 & MD4Q3	,678	MD4Q3 & MD6Q3	,744
MD3Q3 & MD5Q3	,549	MD5Q3 & MD6Q3	,682
MD3Q3 & MD6Q3	,629		

Taking into consideration the results of the tables above we can conclude that the following assumptions

- if the proposed **statements** are *addressed well for* the EDL
- if the proposed **statements** are *important for* the EDL
- if the proposed **statements** are *well written for* the EDL

are valid.

Homogeneity of the groups (Experts-Non-Experts), (High/ Low/Non-Expertise) using non-Parametric Tests.

We start again the analysis with the sub-group of **Experts/Non-Experts**. As the data are ordinal and not normally distributed another way of analyzing the mean scores of the Q1, Q2 and Q3 is by using **non-parametric tests**. Such an appropriate statistical test for two comparison groups is the **Mann-Whitney U test**. We see that Experts and Non-Experts have a **similar mean rank for Q1** with the value of the significant value must higher than 0,05 (see Appendix table 24). **Similar are the results for Q2 and Q3 in the tables 25 and 26 (see appendix table)**. From our analysis we see that there is a homogeneity in the mean score for each question (Qj, j=1,2,3) between **Experts-Non-Experts**.

Continuing the analysis of the mean score of the Q1 with the sub-group of **High, Low and Non- Expertise** we apply a non-parametric test for three samples. This is the **Kruskal-Wallis test** which allows the comparison of more than two independent groups see (**Appendix 7 Table A7.27**). From the results we can see that the category of High Experts has a higher mean rank than that of the other two categories. In order to compare Low and Non Expertise categories we apply the nonparametric **Mann-Whitney U test** and we see that Low Expertise and Non-Expertise have a similar mean rank for **Q1** with the significant value higher than 0,05. (see **Appendix 7 Table A7.28**). Therefore there is a homogeneity in the mean score for question (Q1) between Low Expertise and Non-Expertise group. Continuing the same procedure for Q2, Q3 we have similar results for the homogeneity among the groups (see **Appendix A7 Tables A7.29-A7.32**).

4.2.3.4. Construct validity - Discriminant Validity

4.2.3.4.1. Factor Analysis

Factor analysis and especially **exploratory analysis** allows to test the hypothesis that a relationship between the observed variables and their underlying latent construct exists. Taking into consideration as variables the DiSkQw, where i=1,...,6, k=1,...,5 and w=1,2,3 which are 63 in total we can apply **principal**

component analysis in each dimension in order decrease the number of our variables (super variables). The **Keiser-Meyer-Olkin index** evaluates the sufficiency of the sample (greater than 0.5). **Barlett's Test of Sphericity** evaluates the correlations of our items allow to apply factor analysis (sig. value<0.05). We see that these two assumptions are satisfied (see Appendix A7 tables).

Factor analysis in each Dimension

Dimension 1

Working in each Dimension we can produce the followings tables. In **Table 32a** we can see that Q1 type questions have a strong relation with Q3 type questions and belong at the same component. Furthermore Q2 type questions belong in another component. Furthermore we see that we have two Components as you can see from the Screen Plot (see Appendix **A7 Table A7.35**).

Table 32a. The clustering of the D1.

Component	1	2
D1S1Q1	,762	,190
D1S1Q2	,301	,811
D1S1Q3	,778	,206
D1S2Q1	,688	,383
D1S2Q2	,207	,893
D1S2Q3	,714	,365
D1S3Q1	,755	,215
D1S3Q2	,281	,755
D1S3Q3	,714	,217

Dimension 2

In the **Table 32b** for the Dimension D2 we see that Q1 type questions with Q3 type questions belong at the same component while Q2 type questions belong to Component 2. There is another Component no.3 which includes the questions of the S4 ("Understand Data Description (Metadata)"). That means that the statement S4 is compact and doesn't relate with the other statements while the items Q1 and Q2 of the statements S1,S2,S3 are related.

Table 32b. The clustering of the D2.

Component	1	2	3
D2S1Q1	,702	,345	,150
D2S1Q2	,302	,779	-,033
D2S1Q3	,723	,280	,086
D2S2Q1	,682	,228	,240
D2S2Q2	,230	,796	,231
D2S2Q3	,803	,095	,196
D2S3Q1	,621	,318	,366

D2S3Q2	,234	,775	,224
D2S3Q3	,749	,163	,285
D2S4Q1	,405	,117	,744
D2S4Q2	,011	,468	,742
D2S4Q3	,384	,004	,779

Dimension 3

In the **Table 32c** for the Dimension D3 we see that Q1 type questions with Q3 type questions belong at the same component while Q2 type questions belong to Component 2.

Table 32c. The clustering of the D3.

Component	1	2
D3S1Q1	,726	,333
D3S1Q2	,208	,845
D3S1Q3	,846	,148
D3S2Q1	,724	,349
D3S2Q2	,288	,804
D3S2Q3	,801	,192
D3S3Q1	,709	,379
D3S3Q2	,198	,787
D3S3Q3	,851	,146

Dimension 4

In the **Table 32d** for the Dimension D4 there is one Component no.4 which includes all the questions of the S4 “Generate potential connections to instruction”. The type questions of Q1 and Q3 are split into two components, no. 1, @S2, S5 and no. 3, @S1, S2 statements. It is obvious due to the fact that the two Statements S1 (“Understand Data”) and S2 (“Understand Statistics”) are related so their Questions of Q1 and Q3 are in the same Component. In Component no.2 are all Q2 type questions of all the Statements, @Si.

Table 32d. The clustering of the D4.

Component	1	2	3	4
D4S1Q1	,197	,307	,744	,211
D4S1Q2	-,092	,742	,364	,242
D4S1Q3	,187	,133	,853	,140
D4S2Q1	,639	,183	,404	,076
D4S2Q2	,250	,763	,148	-,007
D4S2Q3	,531	-,125	,502	,066
D4S3Q1	,469	,440	,396	,292
D4S3Q2	,102	,833	,124	,187

D4S3Q3	,394	,221	,648	,204
D4S4Q1	,256	,119	,238	,844
D4S4Q2	,084	,423	,064	,803
D4S4Q3	,272	,037	,202	,837
D4S5Q1	,733	,205	,250	,264
D4S5Q2	,545	,560	-,171	,260
D4S5Q3	,830	,086	,203	,255

Dimension 5

In the **Table 32e** for the Dimension D5 we see that every Statement belongs to different Component.

Table 32e. The clustering of the D5.

Component	1	2	
D5S1Q1	,892	,129	,234
D5S1Q2	,765	,363	,101
D5S1Q3	,789	,182	,290
D5S2Q1	,330	,207	,814
D5S2Q2	,090	,195	,808
D5S2Q3	,245	,242	,808
D5S3Q1	,324	,787	,305
D5S3Q2	,145	,868	,128
D5S3Q3	,208	,791	,288

Dimension 6

In the **Table 32f** for the Dimension D6 we see that S1 statement belongs to one component while the other two statements belongs to the other component. That could be explained by the nature of the statements.

Table 32f. The clustering of the D6.

Component	1	2
D6S1Q1	,291	,823
D6S1Q2	,138	,865
D6S1Q3	,305	,698
D6S2Q1	,671	,517
D6S2Q2	,525	,430
D6S2Q3	,862	,177
D6S3Q1	,758	,397
D6S3Q2	,529	,474
D6S3Q3	,864	,145

4.3. Quantitative Analysis of Comments to Open Text Questions of Sections 6-11 of the Questionnaire

4.3.1. Overview

We asked the participants of the survey to provide 2 types of **open-text responses**:

- their proposed **revision and/or re-write** of any of the 21 statements (OpTxt-RW), max 21 per responder
- their proposed **additional statement** for each of the 6 dimension (OpTxt-ADD), max 6 per responder

In total **87 out of the 210 responders** provided responses to open-text questions.

Appendix 8 presents the replies provided by the 81 responders for these 2 types of open-text questions, namely:

Appendix 8.1 presents all the replies provided by responders to the Open Text Questions for **Rewriting or Revising** a given Statement of a given Dimension, that is, OpTxtQ of the type: "*How would you rewrite or revise **this** EDL competence statement to better address the EDL competence dimension #X?*". For each Statement of a given Dimension, we collected all comments provided , including

- the identifier of the responder;
- the responder's actual comment for the given statement in a given dimension;
- the % of replies provided by this responder to all open-text questions of this category;
- the responder's EDL expertise (High, Low, None)
- the responders EDL role (Expert, Non-Expert)
- the responders grade in Q1, Q2, Q3 for this statement

Appendix 8.2 presents all the replies provided by responders to the Open Text Questions for proposing Additional Statement for a given Dimension, that is, OpTxtQ of the type: "*If you would propose an additional EDL competence statement for competence dimension #X, which one would that be?*". For each Statement of a given Dimension, we collected all comments provided , including

- the identifier of the responder;
- the responder's actual respond for additional statements in a given dimension;
- the % of replies provided by this responder to all open-text questions of this category;
- the responder's EDL expertise (High, Low, None)
- the responders EDL role (Expert, Non-Expert)
- the responders grade in Q1, Q2, Q3 for each statement at this Dimension.

4.3.2. Analysis

4.3.2.1. Analysis for the sub-group of Expert/Non-Expert

From the quantative analysis we have seen that questions Q3 of the questionnaire appear to have the highest percentage of scores 1, 2 and 3 in comparison to Q1, Q2. Taking into consideration the sub-group of **Experts/Non-Experts (87 in total)** the **Table 33-36** show the percentages for the

- **one (1) open text question** for **each statement (Sj)** of a **given dimension (Di)**, (**total 21 open text questions type Di-Sj-openQ**, Type 1: $DiSiRiOpTxtQi=DiSi$) and

- **one (1) open text question** for **each dimension (Di)**, (**total 6 open text questions type Di-openQ**, Type 2: **DiRiOpTxtQi=Di**).

Specifically, column 1 gives the name of the item analyzed. Column 2 shows the percentage of responders that commented the two types of open questions overall. Column 3 gives the percentage of responders that graded Q3 with 1, 2, 3 and provided a comment. The next columns give the percentages of Experts that provided a comment (Column 4) and provided a comment as well as graded with 3 or less the question (Column 5). In addition, the percentage of Experts with comments and grade bigger or equal than 4 is given in column 6. Finally, column 7 gives the percentage of Experts with comments on Type 2 questions over the total number of responders who have added comment in the question of type 2.

Summarizing all the information we have the following:

1. Since the quantitative analysis provided information about specific items that may be in need of a revision, it is of interest to analyze them further. Items D3S2, D4S2 and D4S4 appear to have a high percentage of comments that is 48.3%, 59.8%, 40.23% respectively. In addition these statements have a high percentage of Experts providing a comment and grading Q3 with 3 or less. Taking a closer look we see that at **D3S2 (“Understand and apply the basic data analysis process steps”)** 9 out of 15 Experts commented this statement from which 7 of them gave a low score (46,67 percent). Next, in **D4S2 (“Understand Statistics”)** we see that 47,1% of all the responders gave a score of 3 or less to Q3. Continuing with the analysis of this item, 46,7% of Experts have commented this statement and 40% of them have also given a score of 3 or less. Finally, **D4S4 (“Generate potential connections to instruction”)** has 19,54% of all responders with comments to be scoring Q3 with 1,2 and 3. Taking into account the Experts we see that 7 out of 15 give a comment to this statement with 5 of them (33,3 %) scoring Q3 with 3 or less. Overall for D4, one can see that Type 2 open question has the highest score compared to the rest of the dimensions with 11 responders out of 87 providing a comment from which one third are Experts (33,3 %). This results in 45,45% of the comments to be provided by Experts.

Table 33: Percentages for Items D3S2, D4S2 and D4S4 for Experts responders with comments

N=87	Percentage of the Comments,	Percentage of those with Grade (Q3) <=3+Com.	Percentage of Experts with Com.	Percentage of Experts with Com. and grade(Q3) <=3	Percentage of Experts with Com. and grade(Q3) >=4	Percentage of Experts with Com. in DiRiOpTxtQi over the number of Com. On each Di
D3S2	42/87=48.3%	35/87=40.22%	9/15=60%	7/15=46.67%	2/15=13.33%	
D4S2	52/87= 59.8%	41/87=47.1%	7/15=46,7%	6/15=40%	1/15=6.67%	
D4S4	35/87=40.23%	17/87=19.54%	7/15=46,7%	5/15=33.3%	2/15=13.33%	
D4	11/87=12.64%		5/15=33.3%			5/11=45.45%

The statements D2S1, D3S1 and D3S3 have a high score of responders commenting with 9 out of 15 (60 percent) being Experts. What we notice is that the percentage of Experts with a comment that scored Q3 with 4 or 5 is higher than that of the Experts with a low score for D2S1 and D3S1. Statement D3S3 has a slightly higher percentage of Experts with a low grade. Nevertheless the percentage of Experts with low score in all three statements is substantial. (see **Table 34**)

Table 34: Percentages for Items D2S1, D3S1 and D3S3 for Experts responders with comments

N=87	Percentage of the Comments,	Percentage of those with Grade (Q3) <=3+Com.	Percentage of Experts with Com.	Percentage of Experts with Com. and grade(Q3) <=3	Percentage of Experts with Com. and grade(Q3) >=4	Percentage of Experts with Com. in DiRiOpTxtQi over the number of Com. on each Di
D2S1	42/87=48.3%	26/87=29.88%	9/15=60%	3/15=20%	6/15=40%	
D3S1	45/87=51.72%	26/87=29.88%	9/15=60%	4/15=26.67%	5/15=33.33%	
D3S3	39/87=44.83%	26/87=29.89%	9/15=60%	5/15=33.33%	4/15=26.67%	

- The statements in Dimensions 5 and 6 appear to have the lowest percentage in responders with comments, see column 1 in the **Appendix A9 Table A9.1** that summarizes all the results of all statements and dimensions.
- Finally, type 2: **DiRiOpTxtQi** questions appear to have a high participation of Experts that have commented them in all dimensions (**Appendix A9 Table A9.1**).

4.3.2.2. Analysis for the sub-group of High and Low Expertise

The goal of this subsection is to follow similar steps of analysis for the sub-group of High and Low Expertise. From the 87 participants with comments, 40 fall in the category of High Expertise and 32 fall in the category of Low Expertise. In **Tables 35 & 36**, column 1 gives the name of the item analyzed. Column 2 shows the percentage of responders that commented the two types of open questions overall. Column 3 gives the percentage of responders that graded Q3 with 1, 2, 3 and provided a comment. The next two columns give the percentages of High Expertise and Low Expertise that provided a comment (Column 4 and column 5). Following up with their results columns 6 and 7 show the percentages of High and Low Expertise that added a comment and graded as well with 3 or less question Q3. In addition, the percentage of High and Low Expertise with comments and grade bigger or equal to 4 is given in columns 8 and 9. Finally, columns 10 and 11 give the percentage of High and Low Expertise with comments on Type 2 questions over the total number of responders who have added comment in the question of type 2 respectively.

Summarizing all the information we have the following:

- All the items in **Table 35** have over 40% of responders that added a comment. Items D3S1, D3S2, D3S3 and D4S2 appear to have a 50% or over of High Expertise responders that commented. To be more specific we have 62,5% 50,0%, 55,0% and 62,5% respectively. With a slightly lower percentage follow the Low Expertise responders where we have 40,63%, 40,63%, 37,5% and 53,13%. In addition these statements have a high percentage of High Expertise responders providing a comment as well as grading Q3 with 3 or less (40%, 37,5%, 32,5% and 40,0%). In **D3S1 (“Know and apply the basic data analysis methods”)** and **D4S2 (“Understand Statistics”)** from the 25 out of 40 High Expertise responders that commented both statements 16 gave a low score producing a percentage of 40,0%. Next in line is **D3S2 (“Understand and apply the basic data analysis process steps”)** where the participation of responders in this statement with a comment grading with 3 or less Q3 reaches 37,5%. Continuing, with the analysis in **D3S3 (“Understand and apply the basic data presentation methods”)**

we have a 32,5% of the High Expertise responders that commented this statement to give a score of 3 or less. Finally, **D4S4** (“**Generate potential connections to instruction**”) has a participation of 18 out of 40 High Expertise responders with a comment from which 25% gave a low score.

2. In **D3S2** (“**Understand and apply the basic data analysis process steps**”) we see that the percentage of Low Expertise that commented the statement is 40,6% from which **all** graded the statement with 3 or less. It is important to notice that the rest of the statements on **Table 35** below have also a high percentage of Low Expertise responders that added a comment and gave a low score.

Table 35: Percentages for Items D3S1, D3S2, D4S2, D3S3 and D4S4 for High and Low Expertise responders with comments.

N=87	Percentage of the Comments,	Percentage of those with Grade (Q3) $\leq 3 + \text{Com}$	Percentage of High Exp. with Com.	Percentage of Low Exp. with Com.	Percentage of High Exp. with Com. and grade(Q3) ≤ 3	Percentage of Low Exp. with Com. and grade(Q3) ≤ 3	Percentage of High Exp. with Com. and grade(Q3) ≥ 4	Percentage of Low Exp. with Com. and grade(Q3) ≥ 4	Percentage of High Exp. with Com. in DiRiOpT xtQi over the number of Com. on each Di	Percentage of Low Exp. with Com. in DiRiOpT xtQi over the number of Com. on each Di
D3 S1	45/87=5 1.72%	26/87=2 9.88%	25/40=6 2.5%	13/32=4 0.63%	16/40=4 0%	7/32=21. 88%	9/40=2 2,5%	6/32		
D3 S2	42/87=4 8.3%	35/87=4 0.22%	20/40=5 0%	13/32=4 0.63%	15/40=3 7.5%	13/32=4 0.63%	5/40=1 2,5%	0		
D3 S3	39/87=4 4.83%	26/87=2 9.89%	22/40=5 5%	12/32=3 7.5%	13/40=3 2.5%	7/32=21. 88%	9/40=2 2,5%	5/32		
D4 S2	52/87= 59.8%	41/87=4 7.1%	25/40=6 2.5%	17/32=5 3.13%	16/40=4 0%	14/32=4 3.75%	9/40=2 2,5%	3/32		
D4 S4	35/87=4 0.23%	17/87=1 9.54%	18/40=4 5%	11/32=3 4.37	10/40=2 5%	6/32=18. 75%	8/40=2 0%	5/32		

3. The statements D1S1 and D2S1 have a high score of responders with comments with a 51,7% and 43,8% respectively. What we notice is that the percentage of High Expertise responders with a comment that scored Q3 with 4 or 5 is higher than the ones grading with of low score. Nevertheless the percentage of High Expertise responders with low score in both statements is substantial. (see **Table 36**)

Table 36: Percentages for Items D1S1 and D2S1 for High and Low Expertise responders with comments

N=87	Percentage of the Comments,	Percentage of those with Grade (Q3) $\leq 3 + \text{Com}$	Percentage of High Exp. with Com.	Percentage of Low Exp. with Com.	Percentage of High Exp. with Com. and grade(Q3) ≤ 3	Percentage of Low Exp. with Com. and grade(Q3) ≤ 3	Percentage of High Exp. with Com. and grade(Q3) ≥ 4	Percentage of Low Exp. with Com. and grade(Q3) ≥ 4	Percentage of High Exp. with Com. in DiRiOpT xtQi over	Percentage of Low Exp. with Com. in DiRiOpT xtQi over
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									the number of Com. on each Di	the number of Com. on each Di
D1S1	45/87 =51.7 %	22/87=2 5.29%	17/40=4 2.5%	19/32=5 9.38%	8/40=20 %	9/32=28. 13%	9/40=22, 5%	10/32=3 1,25%		
D2S1	42/87 =48.3 %	26/87=2 9.88%	16/40=4 0%	19/32=5 9.38%	6/40=15 %	13/32=4 0.63	10/40=2 5%	6/32=18 ,75%		

- The statements in Dimensions 5 and 6 appear to have the lowest percentage in responders with comments, see column 1 in the **Appendix A9 Table A9.3** that summarizes all the results of all statements and dimensions.
- Finally, type 2: **DiRiOpTxtQi** questions appear to have a high participation of High and Low Expertise that have commented them in all dimensions (**Appendix A9 Table A9.3**).

Overall, the following conclusions can be offered:

- Tables 35 and 36** validate the need for further analysis of the Comments in the corresponding statements.
- From **Appendix A9 Table A9.2** we can see that the percentage of Experts that added a comment and gave a low score to Q3 over the number of Experts with comment has a minimum of 16,67% at D1S1 and a maximum of 85,71% at D4S2. Whereas in **Appendix A9 Table A9.4** the minimum of High Expertise responders with comments and low grades over the total number of High Expertise with comment is 44,46% at D6S1, S2 and the maximum at D4S3. Similarly, we have for the Low Expertise the minimum appearing at D6S3 and the maximum at D5S1.

5. Recommendations from the Quantitative Analysis

In conclusion, we include the following table of recommendations for the actions to be taken for the revision of the Learn2Analyse Educational Data Literacy Competence Profile (produced by Result 2) based on the Quantitative Analysis of the 210 Responses:

Table 37: Recommendations from the Qualitative Analysis

SiDj	Recommended Actions
S1-D1	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table 30), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S2-D1	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table 30), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S3-D1	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table 30), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S1-D2	No actions needed for the statement Spearman's correlation coefficient (Table A7.17) and Cronbach's coefficient (Table 19) are satisfactory. Though the S-CVI/Ave coefficient (Table 23) is boundary low by the RII index results of Q2, Q3 which range from 0.2 to 1.0 we can conclude that both values (0,787619, 0,791429) suggest that they are strong influential factors for S1 (see Gary D. Holt, (2014) "Asking questions, analyzing answers: relative importance revisited", Construction Innovation, Vol. 14 Issue: 1, pp.2-16, https://doi.org/10.1108/CI-06-2012-0035) . Subsequently, we see an RII AVE value of 0.8056 addressing the importance of the statement for its dimension. When analyzing Qi we have the following results: • Q1 (well addressed) has a high I-CVI coefficient (Table 23) • Q2 (important) has a boundary acceptable I-CVI coefficient (Table 23) and a boundary low mean score (Table 27) • Q3 has a boundary acceptable I-CVI coefficient (Table 23), a boundary low mean grade (Table 27) , has low percentage of grades 1,2 (Tables 28) and has a high percentage of Experts and High/Low Expertise responders with comments (Table A9.1-A9.3).
S2-D2	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.17), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1-A9.3)
S3-D2	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.17), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)

S4-D2	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.17), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S1-D3	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.18), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S2-D3	Re-write the statement Spearman's correlation coefficient (Table A7.18) and Cronbach's coefficient (Table 19) are satisfactory. The S-CVI/Ave coefficient (Table 23) is low. When analyzing Qi we have the following results: • Q1 (well addressed) has a high I-CVI coefficient (Table 23) • Q2 (important) has a high I-CVI coefficient (Table 23) • Q3 has a very low I-CVI coefficient (Table 23), a low mean grade (Table 27), has high percentage of grades 1,2 and 3 (Tables 28 and 29a) and has a high percentage of Experts and High/ Low Expertise responders with a comment and low grade (Table 34 and 38)
S3-D3	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.18), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise
S1-D4	Re-write the statement Spearman's correlation coefficient (Table 31) and Cronbach's coefficient (Table 19) are satisfactory. The S-CVI/Ave coefficient (Table 23) is low. When analyzing Qi we have the following results: • Q1 (well addressed) has a high I-CVI coefficient (Table 23) • Q2 (important) has a high I-CVI coefficient (Table 23) • Q3 (well written) has a low I-CVI coefficient (Table 23), has a low mean grade (Table 27), has a high percentage of Experts and High/ Low Expertise responders grading the question with 3 (Tables 28 and 29a)
S2-D4	Re-write the statement Spearman's correlation coefficient between Q2-Q3 is low (Table 31), Cronbach's coefficient (Table 19) and S-CVI/Ave (Table 23) are also low. When analyzing Qi we have the following results: • Q1 (well addressed) has a high I-CVI coefficient (Table 23) • Q2 (important) has a high I-CVI coefficient (Table 23) • Q3 (well written) has a low I-CVI coefficient (Table 23), has a high percentage of grades 1,2 and 3 for Experts and High/ Low Expertise responders (Tables 28 and 29a) and has a high percentage of comments and grades 1, 2 and 3 for the Experts and High/Low Expertise responders (Tables 34 and 38)
S3-D4	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table 31), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise
S4-D4	Revise and Re-write the statement Cronbach's coefficient (Table 19), Spearman's coefficient >0.3 (Table 31) and S-CVI/Ave (Table 23) is low. When analyzing Qi we have

	the following results: • Q1 (well addressed) has a low I-CVI (Table 23) and a low mean grade (Table 27) • Q2 (important) has high I-CVI (Table 23) • Q3 has low I-CVI (Table 23), a low mean grade (Table 27), has high percentage of grades 1,2 and 3 (Tables 28 and 29a) and has a high percentage of Experts and High/ Low Expertise responders with a comment and low grade (Table 34 and 38)
S5-D4	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.18), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S1-D5	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.19), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S2-D5	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.19), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S3-D5	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), Spearman's coefficient >0.3 (Table A7.19), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S1-D6	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), spearman's coefficient >0.3 (Table A7.20), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S2-D6	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), spearman's coefficient >0.3 (Table A7.20), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)
S3-D6	No actions needed Cronbach's coefficient high (Table 19), I-CVI and S-CVI/Ave are high (Table 23), spearman's coefficient >0.3 (Table A7.20), low percentage of grades 1, 2 and 3 for Experts and High/Low Expertise (Table A9.1,3)

6. Qualitative Analysis of Replies to OpenText Questions of Section 6-11 of the Questionnaire

Extending the previous quantitative analysis of the Open Text questions, a qualitative analysis of the responses was conducted as well. The goal was to provide a more complete and holistic processing of the survey input and to further substantiate the revision of the statements, where needed, based on the participants' feedback. Diving into the specific comments of the experts and considering their particular suggestions was expected to shed light to understanding possible misconceptions, ambiguities or inaccuracies, and to contribute to revising the statements and dimensions of the L2A EDL CP framework in a meaningful manner. For the qualitative analysis of the open-ended responses, an inductive in nature (i.e. observation to theory approach) grounded theory approach⁵ was employed to process the information provided by direct observation, i.e., from the experts' responses to the questions. In particular, a researcher/coder (PhD in learning technologies) read all responses, coded important keywords until categories emerged from similar codes. The researcher then discussed the outcomes with 2 more researchers in the area of learning technologies until they reach a consensus, at the end all the three researchers agreed on the final categorization; overall the process followed the method and process described by Glaser and Strauss⁶. Thus, the analysis protocol agreed and adopted, was consisting of the following steps:

1. For each one of the 21 open text questions for each statement of a given dimension (i.e., SjDi), and for each one of the 6 open text questions for each dimension (i.e., Di), all responses were clustered in 21+6 general groups: per SjDi and per Di, respectively, to be analysed separately. The responses in each group were ordered alphabetically, and the frequency of each response (i.e., appearance in the list of responses) was computed. The goal was to identify those replies that were reported by the participants more often, and as such, those that were raised as more important, prioritise them accordingly, and compare them to the respective ones that were raised from the quantitative analysis. At this stage, response like "n/a", "no need for change", "the statement is fine for me", were removed from the dataset, because such responses do not contribute to identifying problematic statements/dimensions and misconceptions and revising them meaningfully.
2. The responses within each group (i.e., for all SjDi, Di) were compiled and merged into sub-clusters with similar meaning in order to reduce the number of the different responses, and to prepepe them for interpretation and evaluation. For example, in S1D1 comments like "*I believe the term 'right' might be a bit general since what is right may change based on the purpose of the ID or eTut - Perhaps the definition can reflect this relativity*", "*I am not sure that 'right' is a right word here. It sounds like seeking for advantageous data. It may also be better to find a word to imply data from multiple sources. We use combinations and accumulation of different data for evaluation. all necessary data?*" and "*instead of 'right' use 'appropriate'*", were merged into "*instead of 'right' use 'appropriate'*".
3. For each sub-cluster of responses extracted from step 2, a new label was assigned to reflect the responses within that cluster and to code this content. For example, in S1D2, the comments "*Identify the appropriate technologies to storage and preserve data*", "*Identify the technologies required to persist/preserve the data*" and "*Identify the technologies to preserve and backup data*", were merged in step 2, and labeld under "*Identify the appropriate technologies to preserve data (i.e., store, persist,*

⁵ Charmaz, K., & Belgrave, L. (2012). Qualitative interviewing and grounded theory analysis. The SAGE handbook of interview research: The complexity of the craft, 2, 347-365.

⁶ Strauss, A., & Corbin, J. (1994). Grounded theory methodology. Handbook of qualitative research, 17, 273-85.

backup data)” in step 3. The frequency of the similar responses, within each sub-cluster, was computed as well (cluster size). Like in step 1, the cluster size acted as an indicator of the importance of the suggestion.

4. Steps 2 & 3 were repeated until no further merging was possible. Table A10.1 in Appendix 10 demonstrates the final clusters of comments with frequencies of processed/merged comments for each statement and each dimension.
5. Following up the “vertical” analysis (i.e., per SjDi, Di), a transversal analysis was conducted aiming to a) identify possible issues and suggestions that were common *across* the different statements and dimensions, and b) reveal possible overlaps between them. Specifically, at this phase, the responses were categorised “horizontally”, clustering the participants’ comments in a holistic manner, and identifying patterns of suggested treatments across all statements and dimensions, in order to sustain consistency throughout the framework. For example, in S3D2, S4D2, S1D3, S2D3, S3D3, S2D4 it was often suggested to revise the statements using the following descriptions “*know and apply*”, “*understand and apply*”, “*know and understand*”, “*know how to apply*”; such suggestions were grouped as a consistent 3 level description “*know-understand-be able to apply*”, to align the level of the competence proficiency, according to the different level of expertise (basic, advanced, expert or novice, experienced, expert). In another example, clarifications with definitions and/or examples were requested for many terms (e.g., in S1D2, ““*preserve*” means what here ? “*Store*”, “*Secure*, etc.”?”; in S2D2 “*What is data manipulation method? Is it altering data to make it readable? Inserting data in DB? Retrieving data from DB? It would be nice to define it.*”)
6. At the final step, all risen issues were recorded and discussed within the L2A consortium regarding how they should be treated to correspond to the participants’ comments and to reflect those suggestions in the revised EDL CP Framework.

It should be noted that for the qualitative analysis, all responses were equally considered, i.e., without considering the respondents’ level of confidence or expertise.

7. Revised Educational Data Literacy Competence Profile

Extending the previous quantitative and qualitative analyses and recommendations demonstrated in sections 4.3, 5 and 6, the L2A EDL Competence Profiles Framework has been revised accordingly. The changes applied are synopsized as follows:

1. A consistent 3 level description “know – understand – be able to apply”, corresponding to different level of expertise (basic, advanced, expert or novice, experienced, expert), is employed to replace “know how”, “know & apply”, “understand”, etc. for each competence statement.
2. A widely accepted definition of the unclear/confusing term and/or specific examples that clarify the term are provided in parenthesis, where needed, next to the competence statement.
3. For the terms used in the statements of the dimensions Data Collection (D1), Data Management (D2), Data Analysis (D3), Data Comprehension (D4), as well as Data Ethics (D6), definitions from standard Data Science textbooks are employed⁷⁸⁹).

As a result, the following modifications were made:

- S1-D1 (“*Know where to find the right data/data sources*”) of EDL-CP-v1 has been merged with S2-D1 (“*Know how to obtain/access data*”) and the new statement has been re-written as S1-D1 (“*Know-understand-be able to obtain, access and gather the appropriate data and/or data sources*”) of EDL-CP-v2 in order to be consistent with the 3 level description of the different levels of expertise and because the experts identified/reported an overlap between the previous two.
- S3-D1 (“*Understand data quality and limitations (e.g., accuracy, completeness)*”) of EDL-CP-v1 has become S2-D1 (“*Know-understand-be able to apply data limitations and quality measures (e.g., validity, reliability, biases in the data, difficulty in collection, accuracy, completeness)*”) of EDL-CP-v2 in order to be consistent with the 3 level description of the different levels of expertise, as well as because S2-D1 was merged with S1-D1 of EDL-CP-v1 in the previous step.
- S1-D2 (“*Identify the technologies to preserve data*”) of EDL-CP-v1 has been re-ordered in EDL-CP-v2 and it has become S4-D2, in order to comply with the widely accepted definition of the data management cycle. Furthermore, it has been re-written as “*Know-understand-be able to apply the technologies to preserve data (i.e., store, persist, maintain, backup data), e.g., storage mediums/services, tools, mechanisms*”) to be consistent with the 3 level description of the different levels of expertise, as well as because it was identified as a statement on the boundary or revision (from the quantitative analysis in section 5).
- S2-D2 (“*Know and apply data manipulation methods*”) of EDL-CP-v1 has been re-ordered in EDL-CP-v2 and it has become S1-D2, in order to comply with the widely accepted definition of the data management cycle. It has also been re-written as “*Know-understand-be able to apply data processing and handling methods (i.e., methods for cleaning and changing data to make it more organized – e.g., deduplication, data structuring*”, according to the suggestions of the experts.
- S3-D2 (“*Know and apply data curation and data re-use methods*”) of EDL-CP-v1 has been re-written as S3-D2 (“*Know-understand-be able to apply data curation processes (i.e., to ensure that data is reliably*

⁷ Tattar P., Ojeda T., Murphy S. P., Bengfort B. & Dasgupta A., (2017). Practical Data Science Cookbook - Second Edition: Data pre-processing, analysis and visualization using R and Python 2nd Revised edition Edition, Packt Publishing

⁸ Berson A. & Dubov L., (2010). Master Data Management and Data Governance (2nd edition), McGraw-Hill Education

⁹ Cady F., (2017). The Data Science Handbook (1st Edition), Wiley

retrievable for future reuse, and to determine what data is worth saving and for how long”) in EDL-CP-v2, to be consistent with the 3 level description of the different levels of expertise.

- S4-D2 (“*Understand Data Description (Metadata)*”) of EDL-CP-v1 has been re-ordered as S2-D2 in EDL-CP-v2 to comply with the widely accepted definition of the data management cycle, and it has been re-written as “*Know-understand-be able to apply data description (i.e., metadata)*”, to be consistent with the 3 level description of the different levels of expertise.
- S1-D3 (“*Know and apply the basic data analysis methods*”) and S2-D3 (“*Understand and apply the basic data analysis process steps*”) of EDL-CP-v1 have been merged and re-written as S1-D3 (“*Know-understand-be able to apply data analysis and modeling methods (e.g. application of descriptive statistics, exploratory data analysis, data mining)*”) in EDL-CP-v2, because the experts identified and reported significant overlap between the previous two, and in order to be consistent with the 3 level description of the different levels of expertise.
- S3-D3 (“*Understand and apply the basic data presentation methods*”) of EDL-CP-v1 has become S2-D3 (“*Know-understand-be able to apply data presentation methods (e.g., pictorial visualization of the data by using graphs, charts, maps and other data forms like textual or tabular representations)*”) of EDL-CP-v2, after the merging of S1-D3 and S2-D3 in the previous step. Furthermore, the statement has been re-written to be consistent with the 3 level description of expertise and specific examples have been added to clarify the statement.
- S1-D4 (“*Understand data (e.g., measurement error, discrepancies within data, key take-away points)*”) of EDL-CP-v1 has been re-written as S1-D4 (“*Know-understand-be able to interpret data properties (e.g., measurement error, outliers, discrepancies within data, key take-away points, data dependencies)*”) in EDL-CP-v2, as a result of the quantitative analysis in section 5, and according to the suggestions of the experts, using additional examples to clarify the statement.
- S2-D4 (“*Understand statistics*”) of EDL-CP-v1 has been re-written as S2-D2 (“*Know-understand-be able to interpret statistics commonly used with educational data (e.g., randomness, central tendencies, mean, standard deviation, significance)*”) in EDL-CP-v2, as a result of the quantitative analysis in section 5, in order to be consistent with the 3 level description of the different levels of expertise and according to the suggestions of the experts, using additional examples to clarify the statement.
- S3-D4 (“*Know how to interpret data (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations)*”) of EDL-CP-v1 has been re-written as S3-D4 (“*Know-understand-be able to interpret insights from data analysis (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations, underlying trends)*”) in EDL-CP-v2, in order to be consistent with the 3 level description of the different levels of expertise and according to the suggestions of the experts.
- S4-D4 (“*Generate potential connections to instruction*”) of EDL-CP-v1 has been revised and re-written as S4-D4 (“*Be able to elicit potential implications/links of the data analysis insights to instruction*”) in EDL-CP-v2, as a result of the quantitative analysis in section 5, according to the suggestions of the experts.
- S5-D4 (“*Make decisions based on data*”) of EDL-CP-v1 has been removed in the revised EDL-CP-v2 according to the suggestions of the experts, because an overlap with D5 was identified and reported.
- S1-D5 (“*Use data to inform instruction*”) of EDL-CP-v1 has been re-written as S1-D5 (“*Know-understand-be able to use data analysis results to make decisions to revise instruction*”) in EDL-CP-v2, in order to be consistent with the 3 level description of the different levels of expertise, to include S5-D4 of EDL-CP-v1 (as explained in the previous step) and according to the suggestions of the experts.

- S2-D5 (*“Know how to share and cite data”*) of EDL-CP-v1 has been removed in the revised EDL-CP-v2 because the qualitative analysis revealed an overlap with S3-D6 (*“Understand authorship, ownership, data access (governance), re-negotiation and data-sharing”*) of EDL-CP-v1. Furthermore, since D6 is a transversal dimension, it was decided to keep this statement as part of D6 in the revised EDL-CP-v2.
- S3-D5 (*“Evaluate the data-driven intervention”*) of EDL-CP-v1 has been re-ordered as S2-D5 (*“Be able to evaluate the data-driven revision of instruction”*) in EDL-CP-v2, after the removal of S2-D5, as explained in the previous step.
- S1-D6 (*“Explain the use of informed consent”*) of EDL-CP-v1 has been re-written as S1-D6 (*“Know-understand-be able to use the informed consent”*) in EDL-CP-v2, in order to be consistent with the 3 level description of the different levels of expertise.
- S2-D6 (*“Know how to protect individuals' data privacy, confidentiality, integrity and security”*) of EDL-CP-v1 has been re-written as S2-D6 (*“Know-understand-be able to protect individuals' data privacy, confidentiality, integrity and security”*) in EDL-CP-v2, in order to be consistent with the 3 level description of the different levels of expertise.
- S3-D6 (*“Understand authorship, ownership, data access (governance), re-negotiation and data-sharing”*) of EDL-CP-v2 has been re-written as S3-D6 (*“Know-understand-be able to apply authorship, ownership, data access (governance), re-negotiation and data-sharing”*) in EDL-CP-v2, in order to be consistent with the 3 level description of the different levels of expertise.

The revised EDL CP Framework (Competence Dimensions and Competence Statements per Dimension) is demonstrated in Table 38.

Table 38: Revised EDL CP Framework.

L2A EDL Competence dimension	L2A EDL Competence statements
1. Data Collection	1.1 Know-understand-be able to obtain, access and gather the appropriate data and/or data sources
	1.2 Know-understand-be able to apply data limitations and quality measures (e.g., validity, reliability, biases in the data, difficulty in collection, accuracy, completeness)
2. Data Management	2.1 Know-understand-be able to apply data processing and handling methods (i.e., methods for cleaning and changing data to make it more organized – e.g., deduplication, data structuring)
	2.2 Know-understand-be able to apply data description (i.e., metadata)
	2.3 Know-understand-be able to apply data curation processes (i.e., to ensure that data is reliably retrievable for future reuse, and to determine what data is worth saving and for how long)
	2.4 Know-understand-be able to apply the technologies to preserve data (i.e., store, persist, maintain, backup data), e.g., storage mediums/services, tools, mechanisms
3. Data Analysis	3.1 Know-understand-be able to apply data analysis and modeling methods (e.g. application of descriptive statistics, exploratory data analysis, data mining).

	3.2 Know-understand-be able to apply data presentation methods (e.g., pictorial visualization of the data by using graphs, charts, maps and other data forms like textual or tabular representations)
4. Data Comprehension & Interpretation	4.1 Know-understand-be able to interpret data properties (e.g., measurement error, outliers, discrepancies within data, key take-away points, data dependencies)
	4.2 Know-understand-be able to interpret statistics commonly used with educational data (e.g., randomness, central tendencies, mean, standard deviation, significance)
	4.3 Know-understand-be able to interpret insights from data analysis (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations, underlying trends)
	4.4 Be able to elicit potential implications/links of the data analysis insights to instruction
5. Data Application	5.1 Know-understand-be able to use data analysis results to make decisions to revise instruction
	5.2 Be able to evaluate the data-driven revision of instruction
6. Data Ethics	6.1 Know-understand-be able to use informed consent
	6.2 Know-understand-be able to protect individuals' data privacy, confidentiality, integrity and security
	6.3 Know-understand-be able to apply authorship, ownership, data access (governance), re-negotiation and data-sharing

Appendix 1: Learn2Analyse Educational Data Literacy (EDL) Competence Profile (CP) version 1.0

L2A EDL Competence dimension	L2A EDL Competence statements
1. Data Collection	1.1 Know where to find the right data/data sources
	1.2 Know how to obtain/access data
	1.3 Understand data quality and limitations (e.g., accuracy, completeness)
2. Data Management	2.1 Identify the technologies to preserve data
	2.2 Know and apply data manipulation methods
	2.3 Know and apply data curation and data re-use methods
	2.4 Understand Data Description (Metadata)
3. Data Analysis	3.1 Know and apply the basic data analysis methods
	3.2 Understand and apply the basic data analysis process steps
	3.3 Understand and apply the basic data presentation methods
4. Data Comprehension & Interpretation	4.1 Understand data (e.g., measurement error, discrepancies within data, key take-away points)
	4.2 Understand statistics
	4.3 Know how to interpret data (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations)
	4.4 Generate potential connections to instruction
	4.5 Make decisions based on data
5. Data Application	5.1 Use data to inform instruction
	5.2 Know how to share and cite data
	5.3 Evaluate the data-driven intervention
6. Data Ethics	6.1 Explain the use of informed consent
	6.2 Know how to protect individuals' data privacy, confidentiality, integrity and security
	6.3 Understand authorship, ownership, data access (governance), re-negotiation and data-sharing

Appendix 2: Online Survey Questionnaire

Section 1

Educational Data Literacy Competence Profile framework for (a) Instructional Designers and (b) e-Tutors of Online and Blended Courses

The Learn2Analyze (L2A): an Academia-Industry Knowledge Alliance for enhancing Online Training Professionals' (Instructional Designers and e-Trainers) Competences in Educational Data Analytics.

** Required*

Section 2

Consent form to Participate in Web-based Survey

Title of Survey: Educational Data Literacy Competence Profile framework for (a) Instructional Designers and (b) e-Tutors of Online and Blended Courses

Dear prospective participant,

I am writing on behalf of the Learn2Analyze Consortium to invite you to participate in a survey entitled: **“Educational Data Literacy Competence Profile framework for (a) Instructional Designers and (b) e-Tutors of Online and Blended Courses”**.

Purpose and Procedure:

The ***Learn2Analyze (L2A): an Academia-Industry Knowledge Alliance for enhancing Online Training Professionals' (Instructional Designers and e-Trainers) Competences in Educational Data Analytics***, is an action co-funded by the European Commission through the Erasmus+ Program of the European Union (Cooperation for innovation and the exchange of good practices - Knowledge Alliances, Agreement n. 2017-2733 / 001-001, Project No 588067-EPP-1-2017-1-EL-EPPKA2-KA). More information about the project is available at www.learn2analyze.eu.

This survey aims to validate and possibly enhance the proposed framework on ***“Educational Data Literacy (EDL) Competence Profile (CP) for (a) Instructional Designers and (b) e-Tutors of Online and Blended Courses”***. We are inviting participants with expertise and impact on the field of Digital Learning from different organizations and geographic regions to participate this survey. Based on your professional profile and expertise we would like to invite you to participate in our on-line survey involving 210 experts from around the world.

Please note:

1. The survey will be carried out from 1/9/2018 to 15/10/2018.
2. Before you proceed to the survey questions, you will be asked to indicate your consent or not for including you in the list of experts that participated in the survey.
3. Once started your participation to the survey, you may leave the survey at any time, should you decide you do not wish to further participate, by exiting your browser.
4. In this survey we collect the opinions of at least 210 experts from around the world.
5. The questionnaire consists of 11 sections and needs approximately 60 minutes to be completed.
6. The first section includes information about the Learn2Analyze project.
7. The second section includes the consent form for participating to the survey.
8. The third section includes demographic questions for creating your profile.

9. The fourth section includes general questions about Educational Data Literacy.
10. The following 6 sections includes a set of questions on the Educational Data Literacy (EDL) competence statements for each competence dimension of the proposed Learn2Analyze EDL Competence framework.
11. The final section provides the link to the website of the project.

Potential Benefits:

Participating in this survey is an opportunity to reflect upon the proposed *Educational Data Literacy Competence Profile framework for (a) Instructional Designers and (b) e-Tutors of Online and Blended Courses*.

Potential Risk or Discomforts:

We do not perceive of any risk or discomfort in the completion of the survey.

Storage of Data:

The survey is completed in a Google Docs form and stored in a secure GoogleDrive folder under the e-mail l2a.r3.survey@gmail.com. The person that has access in this account is Angelos Mitrelis, a researcher at the Learn2Analyze consortium.

By indicating consent to participate in this survey you indicate consent for the possible secondary use of this data at a later date if we decide to undertake a further longitudinal study for the enhancement of the proposed Learn2Analyze EDL-CP framework.

Anonymity and Confidentiality:

The survey is not anonymous, meaning that we will ask you to provide your e-mail address. The only reasons for providing your e-mail is to validate your participation in the survey and to be able document and report the integrity of the process. IP addresses are not collected. Please note that, email and the internet are not 100% secure, so it is also suggested that you clear the computer's cache and browser history to protect your privacy after completing the survey. Finally, just for the record, it will not be able to withdraw from the survey once you have clicked the send button.

The only people processing your input will be the researcher(s) involved in the Learn2Analyze project. The researcher(s) undertake to keep any information provided herein confidential, not to let it out of our possession and to report on the findings from the perspective of the entire participating group (210 experts) and not from the perspective of an individual. Please note that confidentiality cannot be guaranteed while data are in transit over the Internet.

Right to Withdraw:

You are under no obligation to complete the survey and you can withdraw from the survey prior to submitting it. If you do not want to participate simply stop participating or close the browser window. You can simply exit the Web Browser without saving your responses, and they will not be recorded. Once your survey responses have been submitted it will not be possible to withdraw them.

Conflict of Interest:

We do not perceive any conflicts of interest in the development of this survey.

Compensation:

There is no compensation for participants in this survey.

Participant Concerns and Reporting:

If you have any questions concerning the survey or experience any discomfort related to the survey, please contact the lead Learn2Analyze researcher for this survey: Angelos Mitrelis at l2a.r3.survey@gmail.com or amitrelis@gmail.com.

Debriefing and Dissemination of Results:

This survey has been approved by the Learn2Analyze Leadership Board and the final report will be made publicly available through the official website of the project www.learn2analyze.eu.

On behalf of the Learn2Analyze Consortium, we express our sincere thanks for your participation in our survey acknowledging that your insights on the questions in this survey will prove invaluable.

Demetrios Sampson, Learn2Analyze Project Coordinator

PhD(ElectEng) (Essex), PgDip (Essex), BEng/MEng(Elec) (DUTH), CEng

Golden Core Member, IEEE Computer Society

Professor, Digital Systems for Learning and Education, Department of Digital Systems, University of

Piraeus, 80 Karaoli and Dimitriou Street, Piraeus, 18534, Greece

E-mail: sampson@unipi.gr

Do you consent? *
☐

I have read the consent form and I consent to participate in this survey and in the use of my personal data in a public version of the report to be produced.

☐

I have read the consent form and I consent to participate in this survey and in the use of my personal data in a confidential version to be shared only among Learn2Analyze Consortium partners and the European Commission of the report to be produced.

☐

I have read the consent form and I consent to participate in this survey but I do not consent in the use of my personal data in neither a confidential nor a public version of the report to be produced.

Section 3**Demographics****1. E-mail address***

2. Age *

☐	25-30
☐	30-40
☐	40-50
☐	50-60
☐	60-70
☐	70+

3. Gender *

☐	Man
☐	Woman
☐	I don't want to say
☐	Other

4. Country or Region¹⁰ *

Επιλέξτε ένα στοιχείο.

5. What is your professional role? *

☐	Professional Instructional Designer and/or (e-) Tutor of Online and/or Blended Courses
☐	Academic involved in teaching Higher Education Courses on Digital Learning and/or Learning Technologies
☐	Academic involved in teaching Higher Education Courses specifically for Instructional Designers and/or e-Tutors
☐	Academic involved in teaching Higher Education Courses specifically for Educational Data Literacy Researchers in Digital Learning and/or Learning Technologies
☐	Researcher in Instructional Design of Online and/or Blended Courses
☐	Researcher in Educational Data Literacy
☐	Professional involved in supporting Teaching & Learning in Higher Education and/or Professional involved in supporting Professional Development
☐	Professional involved in supporting Educational Data in Higher Education and/or Professional Development
☐	Senior Manager in a Higher Education Institute
☐	Senior Manager in a Professional Development Service Provider
☐	Senior Manager in an e-Learning Service Provider
☐	Senior Manager in a Governmental Education Policy Making Institute
☐	Other <define>

6. How many years are you involved in this role? *

☐	1-5
☐	6-10
☐	11-20
☐	21+

7. How many years are you involved in the field of Digital Teaching and Learning? *

☐	1-5
☐	6-10
☐	11-20
☐	21+

¹⁰ The countries will be in alphabetical order for someone to choose from a dropdown menu.

Section 4

Educational Data Literacy

Educational Data Literacy is the ability to collect, manage, analyze, comprehend, interpret and apply upon educational data in an ethical, meaningful and critical manner [Learn2Analyze Consortium].

Based on this definition of Educational Data Literacy please indicate the extent to which you agree or disagree with the following sentences (1 – strongly disagree, 5 – strongly agree)

8. I am familiar with the term Educational Data Literacy. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

9. I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses already possess Educational Data Literacy competences to a large extend. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

10. I believe that Instructional Designers and e-Tutors of Online and/or Blended Courses need to possess Educational Data Literacy competences. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

Section 5

L2A Educational Data Literacy Competence Dimensions (#6) & Statements (#21)

Based on the following Educational Data Literacy (EDL) Competence Profile framework, indicate the extent to which you agree or disagree with the following sentences (1 – strongly disagree, 5 – strongly agree) regarding the identified competence statements for each EDL competence dimension.

L2A Educational Data Literacy Competence Dimensions (#6) & Statements (#21)

1. Data Collection

- 1.1 Know where to find the right data/data sources
- 1.2 Know how to obtain/access data
- 1.3 Understand data quality and limitations (e.g., accuracy, completeness)

2. Data Management

- 2.1 Identify the technologies to preserve data
- 2.2 Know and apply data manipulation methods
- 2.3 Know and apply data curation and data re-use methods
- 2.4 Understand Data Description (Metadata)

3. Data Analysis

- 3.1 Know and apply the basic data analysis methods
- 3.2 Understand and apply the basic data analysis process steps
- 3.3 Understand and apply the basic data presentation methods

4. Data Comprehension & Interpretation

- 4.1 Understand data (e.g., measurement error, discrepancies within data, key take-away points)
- 4.2 Understand statistics
- 4.3 Know how to interpret data (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations)

4.4 Generate potential connections to instruction

4.5 Make decisions based on data

5. Data Application

5.1 Use data to inform instruction

5.2 Know how to share and cite data

5.3 Evaluate the data-driven intervention

6. Data Ethics

6.1 Explain the use of informed consent

6.2 Know how to protect individuals' data privacy, confidentiality, integrity and security

6.3 Understand authorship, ownership, data access (governance), re-negotiation and data-sharing

Section 6

EDL Competence Dimension #1: Data collection

Definition: Data collection is the process of finding the right data and data sources, and obtaining, accessing and gathering the data by considering their quality and limitations.

EDL Competence statement 1.1 for EDL Competence Dimension #1

1.1 Know where to find the right data/data sources

11. I believe that the EDL competence statement 1.1 addresses well the EDL competence dimension #1. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

12. I believe that the EDL competence statement 1.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

13. I believe that the EDL competence statement 1.1 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

14. How would you rewrite or revise the EDL competence statement 1.1 to better address EDL competence dimension #1?

EDL Competence statement 1.2 for EDL Competence Dimension #1

1.2 Know how to obtain/access data

15. I believe that the EDL competence statement 1.2 addresses well the EDL competence dimension #1. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

16. I believe that the EDL competence statement 1.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

17. I believe that the EDL competence statement 1.2 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

18. How would you rewrite or revise the EDL competence statement 1.2 to better address EDL competence dimension #1?

EDL Competence statement 1.3 for EDL Competence Dimension #1

1.3 Understand data quality and limitations (e.g., accuracy, completeness)

19. I believe that the EDL competence statement 1.3 addresses well the EDL competence dimension #1. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

20. I believe that the EDL competence statement 1.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

21. I believe that the EDL competence statement 1.3 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

22. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #1?

23. If you would propose an additional EDL competence statement for competence dimension #1, which one would that be?

Section 7

EDL Competence Dimension #2: Data management

Definition: Data management is the process of developing, executing and supervising plans, policies, programs and practices for data preservation, curation and re-use by employing data manipulation methods accordingly

EDL Competence statement 2.1 for EDL Competence Dimension #2

2.1 Identify the technologies to preserve data

24. I believe that the EDL competence statement 2.1 addresses well the EDL competence dimension #2. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

25. I believe that the EDL competence statement 2.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

26. I believe that the EDL competence statement 2.1 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

27. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #2?

EDL Competence statement 2.2 for EDL Competence Dimension #2

2.2 Know and apply data manipulation methods

28. I believe that the EDL competence statement 2.2 addresses well the EDL competence dimension #2. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

29. I believe that the EDL competence statement 2.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

30. I believe that the EDL competence statement 2.2 is well written. *

Strongly	1	2	3	4	5	Strongly
----------	---	---	---	---	---	----------

disagree

☐☐☐☐☐

Agree

31. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #2?

EDL Competence statement 2.3 for EDL Competence Dimension #2

2.3 Know and apply data curation and data re-use methods

32. I believe that the EDL competence statement 2.3 addresses well the EDL competence dimension #2. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

33. I believe that the EDL competence statement 2.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

34. I believe that the EDL competence statement 2.3 is well written. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

35. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #2?

EDL Competence statement 2.4 for EDL Competence Dimension #2

2.4 Understand Data Description (Metadata)

36. I believe that the EDL competence statement 2.4 addresses well the EDL competence dimension #2. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

37. I believe that the EDL competence statement 2.4 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

38. I believe that the EDL competence statement 2.4 is well written. *

Strongly

1

2

3

4

5

Strongly

disagree

☐☐☐☐☐

Agree

39. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #2?

40. If you would propose an additional EDL competence statement for competence dimension #2, which one would that be?

Section 8

EDL Competence Dimension #3: Data analysis

Definition: Data analysis is a process of inspecting, processing, transforming, modeling and presenting data with the goal of discovering useful information, informing conclusions, and supporting decision-making.

EDL Competence statement 3.1 for EDL Competence Dimension #3

3.1 Know and apply the basic data analysis methods

41. I believe that the EDL competence statement 3.1 addresses well the EDL competence dimension #3. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

42. I believe that the EDL competence statement 3.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

43. I believe that the EDL competence statement 3.1 is well written. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

44. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #3?

EDL Competence statement 3.2 for EDL Competence Dimension #3

3.2 Understand and apply the basic data analysis process steps

45. I believe that the EDL competence statement 3.2 addresses well the EDL competence dimension #3. *

Strongly
disagree

1

☐

2

☐

3

☐

4

☐

5

☐

Strongly
Agree

46. I believe that the EDL competence statement 3.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

47. I believe that the EDL competence statement 3.2 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

48. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #3?

EDL Competence statement 3.3 for EDL Competence Dimension #3

3.3 Understand and apply the basic data presentation methods

49. I believe that the EDL competence statement 3.3 addresses well the EDL competence dimension #3. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

50. I believe that the EDL competence statement 3.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

51. I believe that the EDL competence statement 3.3 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

52. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #3?

53. If you would propose an additional EDL competence statement for competence dimension #3, which one would that be?

Section 9

EDL Competence Dimension #4: Data Comprehension & Interpretation

Definition: Data comprehension and interpretation is the process of understanding data and reviewing it for the purpose of generating possible solutions and arriving at informed conclusions as a basis for decision-making.

EDL Competence statement 4.1 for EDL Competence Dimension #4

4.1 Understand data (e.g., measurement error, discrepancies within data, key take-away points)

54. I believe that the EDL competence statement 4.1 addresses well the EDL competence dimension #4. *

	1	2	3	4	5	
Strongly disagree	☐	☐	☐	☐	☐	Strongly Agree

55. I believe that the EDL competence statement 4.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

	1	2	3	4	5	
Strongly disagree	☐	☐	☐	☐	☐	Strongly Agree

56. I believe that the EDL competence statement 4.1 is well written. *

	1	2	3	4	5	
Strongly disagree	☐	☐	☐	☐	☐	Strongly Agree

57. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #4?

EDL Competence statement 4.2 for EDL Competence Dimension #4

4.2 Understand statistics

58. I believe that the EDL competence statement 4.2 addresses well the EDL competence dimension #4. *

	1	2	3	4	5	
Strongly disagree	☐	☐	☐	☐	☐	Strongly Agree

59. I believe that the EDL competence statement 4.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

	1	2	3	4	5	
Strongly disagree	☐	☐	☐	☐	☐	Strongly Agree

60. I believe that the EDL competence statement 4.2 is well written. *

Strongly disagree 1 2 3 4 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

61. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #4?

EDL Competence statement 4.3 for EDL Competence Dimension #4

4.3 Know how to interpret data (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations)

62. I believe that the EDL competence statement 4.3 addresses well the EDL competence dimension #4. *

Strongly disagree 1 2 3 4 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

63. I believe that the EDL competence statement 4.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree 1 2 3 4 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

64. I believe that the EDL competence statement 4.3 is well written. *

Strongly disagree 1 2 3 4 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

65. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #4?

EDL Competence statement 4.4 for EDL Competence Dimension #4

4.4 Generate potential connections to instruction

66. I believe that the EDL competence statement 4.4 addresses well the EDL competence dimension #4. *

Strongly disagree 1 2 3 4 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

67. I believe that the EDL competence statement 4.4 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree 1 2 3 4 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

68. I believe that the EDL competence statement 4.4 is well written. *

Strongly
disagree

1
☐

2
☐

3
☐

4
☐

5
☐

Strongly
Agree

69. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #4?

EDL Competence statement 4.5 for EDL Competence Dimension #4

4.5 Make decisions based on data

70. I believe that the EDL competence statement 4.5 addresses well the EDL competence dimension #4. *

Strongly
disagree

1
☐

2
☐

3
☐

4
☐

5
☐

Strongly
Agree

71. I believe that the EDL competence statement 4.5 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly
disagree

1
☐

2
☐

3
☐

4
☐

5
☐

Strongly
Agree

72. I believe that the EDL competence statement 4.5 is well written. *

Strongly
disagree

1
☐

2
☐

3
☐

4
☐

5
☐

Strongly
Agree

73. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #4?

74. If you would propose an additional EDL competence statement for competence dimension #4, which one would that be?

Section 10

EDL Competence Dimension #5: Data application

Definition: Data application is the process of using data appropriately for informing instruction, and with respect to widely-accepted data sharing and data citation method, with a follow-up evaluation of the intervention.

EDL Competence statement 5.1 for EDL Competence Dimension #5

5.1 Use data to inform instruction

75. I believe that the EDL competence statement 5.1 addresses well the EDL competence dimension #5. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

76. I believe that the EDL competence statement 5.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

77. I believe that the EDL competence statement 5.1 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

78. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #5?

EDL Competence statement 5.2 for EDL Competence Dimension #5

5.2 Know how to share and cite data

79. I believe that the EDL competence statement 5.2 addresses well the EDL competence dimension #5. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

80. I believe that the EDL competence statement 5.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

81. I believe that the EDL competence statement 5.2 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

82. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #5?

EDL Competence statement 5.3 for EDL Competence Dimension #5

5.3 Evaluate the data-driven intervention

83. I believe that the EDL competence statement 5.3 addresses well the EDL competence dimension #5. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

84. I believe that the EDL competence statement 5.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

85. I believe that the EDL competence statement 5.3 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

86. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #5?

87. If you would propose an additional EDL competence statement for competence dimension #5, which one would that be?

Section 11

EDL Competence Dimension #6: Data ethics

Definition: Data ethics is the process of systemizing, defending, and recommending concepts of right and wrong conduct in relation to personal data. The concepts involve data privacy, confidentiality, integrity and security, as well as authorship, ownership, data access (governance), re-negotiation and data-sharing.

EDL Competence statement 6.1 for EDL Competence Dimension #6

6.1 Explain the use of informed consent

88. I believe that the EDL competence statement 6.1 addresses well the EDL competence dimension #6. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

89. I believe that the EDL competence statement 6.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

90. I believe that the EDL competence statement 6.1 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

91. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #6?

EDL Competence statement 6.2 for EDL Competence Dimension #6

6.2 Know how to protect individuals' data privacy, confidentiality, integrity and security

92. I believe that the EDL competence statement 6.2 addresses well the EDL competence dimension #6. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

93. I believe that the EDL competence statement 6.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

94. I believe that the EDL competence statement 6.2 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

95. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #6?

EDL Competence statement 6.3 for EDL Competence Dimension #6

6.3 Understand authorship, ownership, data access (governance), re-negotiation and data-sharing.

96. I believe that the EDL competence statement 6.3 addresses well the EDL competence dimension #6. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

97. I believe that the EDL competence statement 6.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

98. I believe that the EDL competence statement 6.3 is well written. *

Strongly disagree	1	2	3	4	5	Strongly Agree
	☐	☐	☐	☐	☐	

99. How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #6?

100. If you would propose an additional EDL competence statement for competence dimension #6, which one would that be?

Thank you for participating in the Survey!

For more information about the project please visit: www.learn2analyze.eu

Appendix 3: Coding of Questions

		Q1 (Di-Sj-Q1)	Q2 (Di-Sj-Q2)	Q3 (Di-Sj-Q3)	openQS (Di-Sj-openQ)	opentQD (Di-opeQ)
D1	Data Collection					openQD1
D1-S1	Know where to find the right data/data sources	D1-S1-Q1	D1-S1-Q2	D1-S1-Q3	D1-S1-openQ	
D1-S2	Know how to obtain/access data	D1-S2-Q1	D1-S2-Q2	D1-S2-Q3	D1-S2-openQ	
D1-S3	Understand data quality and limitations (e.g., accuracy, completeness)	D1-S3-Q1	D1-S3-Q2	D1-S3-Q3	D1-S3-openQ	
D2	Data Management					openQD2
D2-S1	Identify the technologies to preserve data	D2-S1-Q1	D2-S1-Q2	D2-S1-Q3	D2-S1-openQ	
D2-S2	Know and apply data manipulation methods	D2-S2-Q1	D2-S2-Q2	D2-S2-Q3	D2-S2-openQ	
D2-S3	Know and apply data curation and data re-use methods	D2-S3-Q1	D2-S3-Q2	D2-S3-Q3	D2-S3-openQ	
D2-S4	Understand Data Description (Metadata)	D2-S4-Q1	D2-S4-Q2	D2-S4-Q3	D2-S4-openQ	
D3	Data Analysis					openQD3
D3-S1	Know and apply the basic data analysis methods	D3-S1-Q1	D3-S1-Q2	D3-S1-Q3	D3-S1-openQ	
D3-S2	Understand and apply the basic data analysis process steps	D3-S2-Q1	D3-S2-Q2	D3-S2-Q3	D3-S2-openQ	
D3-S3	Understand and apply the basic data presentation methods	D3-S3-Q1	D3-S3-Q2	D3-S3-Q3	D3-S3-openQ	
D4	Data Comprehension & Interpretation					openQD4
D4-S1	Understand data (e.g., measurement error, discrepancies within data, key take-away points)	D4-S1-Q1	D4-S1-Q2	D4-S1-Q3	D4-S1-openQ	
D4-S2	Understand statistics	D4-S2-Q1	D4-S2-Q2	D4-S2-Q3	D4-S2-openQ	
D4-S3	Know how to interpret data (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations)	D4-S3-Q1	D4-S3-Q2	D4-S3-Q3	D4-S3-openQ	
D4-S4	Generate potential connections to instruction	D4-S4-Q1	D4-S4-Q2	D4-S4-Q3	D4-S4-openQ	
D4-S5	Make decisions based on data	D4-S5-Q1	D4-S5-Q2	D4-S5-Q3	D4-S5-openQ	
D5	Data Application					openQD5
D5-S1	Use data to inform instruction	D5-S1-Q1	D5-S1-Q2	D5-S1-Q3	D5-S1-openQ	
D5-S2	Know how to share and cite data	D5-S2-Q1	D5-S2-Q2	D5-S2-Q3	D5-S2-openQ	
D5-S3	Evaluate the data-driven intervention	D5-S3-Q1	D5-S3-Q2	D5-S3-Q3	D5-S3-openQ	
D6	Data Ethics					openQD6
D6-S1	Explain the use of informed	D6-S1-Q1	D6-S1-Q2	D6-S1-Q3	D6-S1-	

	consent				openQ	
D6-S2	Know how to protect individuals' data privacy, confidentiality, integrity and security	D6-S2-Q1	D6-S2-Q2	D6-S2-Q3	D6-S2-openQ	
D6-S3	Understand authorship, ownership, data access (governance), re-negotiation and data-sharing	D6-S3-Q1	D6-S3-Q2	D6-S3-Q3	D6-S3-openQ	

Appendix 4: Coding of Professional Roles and EDL Expertise

Appendix 4.1: Groups of Professional Roles

A. Experts with Experience in EDL

- I. Academic involved in teaching Higher Education Courses specifically for Educational Data Literacy Researchers in Digital Learning and/or Learning Technologies
- II. Researcher in Educational Data Literacy
- III. Professional involved in supporting Educational Data in Higher Education and/or Professional Development

B. Practitioners in ID and/or Online Education/Training

1. Professional Instructional Designer and/or (e-) Tutor of Online and/or Blended Courses
2. Professional involved in supporting Teaching & Learning in Higher Education and/or Professional involved in supporting Professional Development

C. Managers in (Online) Education/Training

1. Senior Manager in a Higher Education Institute
2. Senior Manager in a Professional Development Service Provider
3. Senior Manager in an e-Learning Service Provider
4. Senior Manager in a Governmental Education Policy Making Institute

D. Academics/Researchers in ID and/or Online Education/Training

1. Academic involved in teaching Higher Education Courses on Digital Learning and/or Learning Technologies
2. Academic involved in teaching Higher Education Courses specifically for Instructional Designers and/or e-Tutors
3. Researcher in Instructional Design of Online and/or Blended Courses

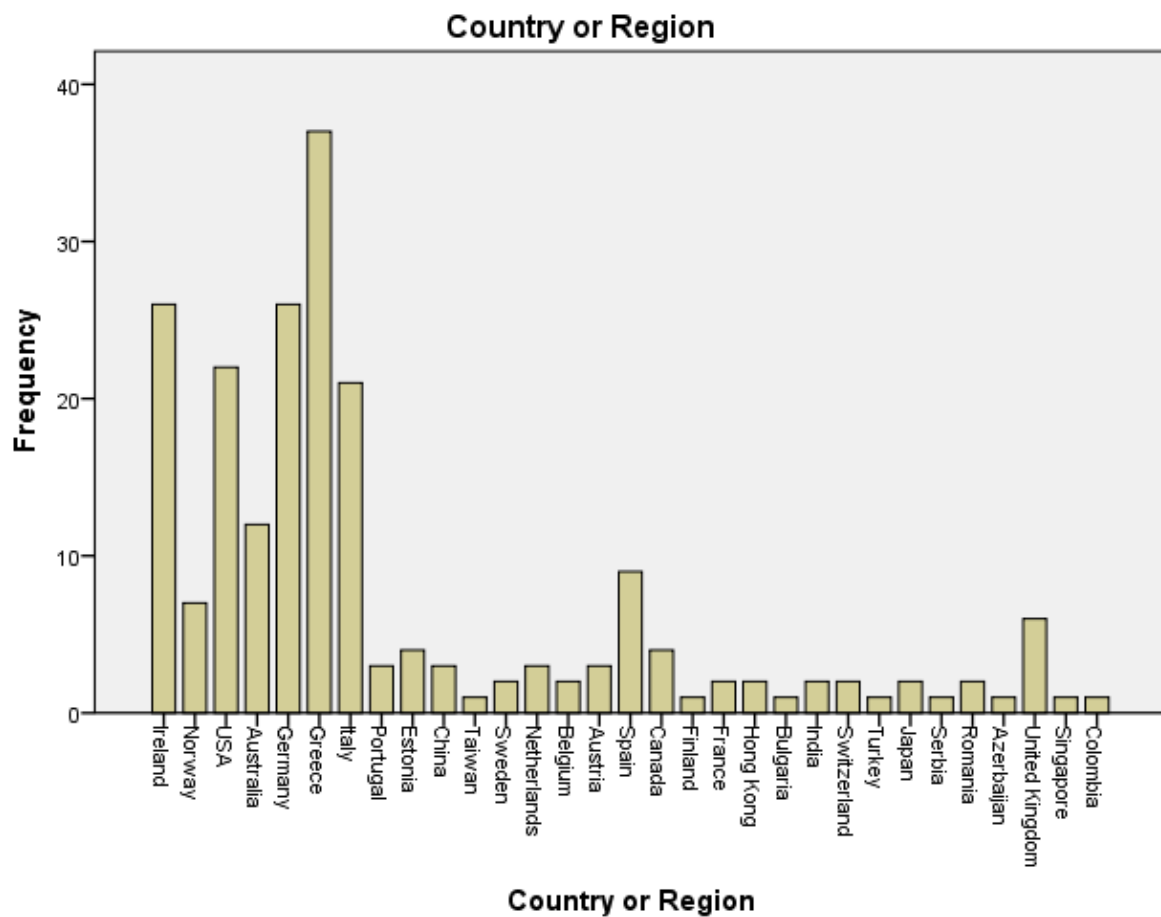
Appendix 4.2: Expertise in EDL

High	Self-Defined at Group A AND Grade 4 or 5 in Q1 @ Section 4 Self-Defined at Groups (B, C, D) AND Grade 5 in Q1 @ Section 4
Low	Self-Defined at Group A AND Grade 3 in Q1 @ Section 4 Self-Defined at Groups (B, C, D) AND Grade 3-4 in Q1 @ Section 4
None	Self-Defined at Group A AND Grade 1 or 2 in Q1 @ Section 4 Self-Defined at Groups (B, C, D) AND Grade 1 or 2 in Q1 @ Section 4

Appendix 5: Distribution of participants per Country -per Age-per # years involved in their professional role-per # years involved in field of Digital T & L

Distribution of participants per Country

Country or Region	Frequency	Percent
Ireland	26	12.4
Norway	7	3.3
USA	22	10.5
Australia	12	5.7
Germany	26	12.4
Greece	37	17.6
Italy	21	10.0
Portugal	3	1.4
Estonia	4	1.9
China	3	1.4
Taiwan	1	.5
Sweden	2	1.0
Netherlands	3	1.4
Belgium	2	1.0
Austria	3	1.4
Spain	9	4.3
Canada	4	1.9
Finland	1	.5
France	2	1.0
Hong Kong	2	1.0
Bulgaria	1	.5
India	2	1.0
Switzerland	2	1.0
Turkey	1	.5
Japan	2	1.0
Serbia	1	.5
Romania	2	1.0
Azerbaijan	1	.5
United Kingdom	6	2.9
Singapore	1	.5
Colombia	1	.5
Total	210	100.0



Distribution of particans per Age

Age	c_i = center	c_i^2	f_i = frequency	$c_i^2 \cdot f_i$	$c_i \cdot f_i$	%
25-30	27.5	756,25	19	14368,75	522,5	9,05
30-40	35	1225	61	74725	2135	29,05
40-50	45	2025	76	153900	3420	36,20
50-60	55	3025	45	136125	2475	21,43
60-70	65	4225	6	25350	390	2,86
70-80	75	5625	3	16875	225	1,43
Total			210	421343,8	9167,5	100.00
$\bar{x} = \frac{\sum f_i c_i}{\sum f_i} = \frac{9167,5}{210} = 43,65$ $s = \sqrt{\frac{\sum f_i c_i^2}{n} - \bar{x}^2} = \sqrt{\frac{421343,8}{210} - 43,65^2} = 10,05$						

Distribution of participants per years involved in their professional role

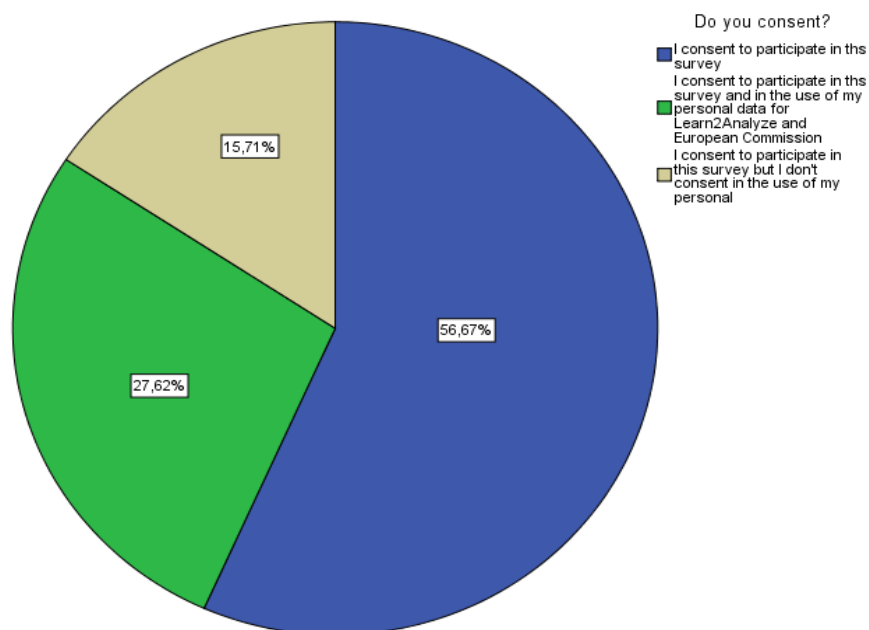
# years involved in their professional role	c_i = center	c_i^2	f_i = frequency	$c_i^2 \cdot f_i$	$c_i \cdot f_i$	%
1-5	3	9	55	495	165	26.20
6-10	8	81	56	4536	448	26.70
11-20	15.5	240,5	69	16594.5	1069.5	32.90
21-30	25.5	650,25	30	19507.5	765	14.2
Total			210	41133	2447.5	100.00
$\bar{x} = \frac{\sum f_i c_i}{\sum f_i} = 11.65$ $s = \sqrt{\frac{\sum f_i c_i^2}{n} - \bar{x}^2} = \sqrt{\frac{41133}{210} - 11,65^2} = 7.76$						

Distribution of participants per years involved in field of Digital T & L

# years involved in field of Digital T & L	c_i = center	c_i^2	f_i = frequency	$c_i^2 \cdot f_i$	$c_i \cdot f_i$	%
1-5	3	9	41	369	123	19.50
6-10	8	81	46	3726	368	21.90
11-20	15.5	240,5	84	20202	1302	40.00
21-30	25.5	650,25	39	25359.75	994.5	18.60
Total			210	49656.75	2787.5	100.00
$\bar{x} = \frac{\sum f_i c_i}{\sum f_i} = 13.27$ $s = \sqrt{\frac{\sum f_i c_i^2}{n} - \bar{x}^2} = \sqrt{\frac{49656.75}{210} - 13,27^2} = 7.77$						

Appendix 6: Distribution of participants per Consent feedback

Do you consent?		
	Frequency	Percent
I consent in the use of my personal data in a public version of the report to be produced	119	56,7
I consent in the use of my personal data in a confidential version to be shared only among Learn2Analyze and European Commission	58	27,6
I don't consent in the use of my personal data at all	33	15,7
Total	210	100,0



On the basis of the consent status

- 119 (56.7%) consented to openly share their data ,
- 58 (27.6%) consented to the use of their personal data in a confidential version to be shared only among Learn2Analyze Consortium partners and the European Commission of the report to be produced and
- 33 (15.7%) did not consent in the use of their personal data in neither a confidential nor a public version of the report to be produced

Note: Only a small sample, (15.71%), of the participants were reluctant to share their data. Whereas if we were to analyze the responses according to the first proposed group we would have the following frequency table were we see that only the 14.7% of the experts and the 15.9% of non-experts share the same opinion(see table below)

Do you consent? * What is your professional role? Crosstabulation

		What is your professional role?		Total
		Expert	NonExpert	
I consent in the use of my personal data in a public version of the report to be produced		22	97	119
I consent in the use of my personal data in a confidential version to be shared only among Learn2Analyze and European Commission		7	51	58
I don't consent in the use of my personal data at all		5	28	33
		34	176	210

Note: Taking into consideration the second proposed group of **professionals roles of high, low** and non-expertise, by running the analogous descriptive analysis tests we have the following frequency table were we see that the 10.6%, 20% and 16% refused to share their personal data from the high, low and non-expertise level respectively.

		Role grouping B way			Total
		High Expertise	Low expertise	None Expertise	
	I consent in the use of my personal data in a public version of the report to be produced	54	51	14	119
	I consent in the use of my personal data in a confidential version to be shared only among Learn2Analyze and European Commission	22	29	7	58
	I don't consent in the use of my personal data at all	9	20	4	33
		85	100	25	210

Appendix 7. Tables related with the Analysis of the Grades to the Questions of Sections 6-11 of the Questionnaire [section 4.2]

Table A7.1: Cronbach's Alpha for all items in every dimension

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1S1Q1	264,381	1119,835	,575	,973
D1S1Q2	264,357	1116,479	,601	,973
D1S1Q3	264,595	1108,587	,628	,973
D1S2Q1	264,381	1115,433	,607	,973
D1S2Q2	264,381	1117,758	,576	,973
D1S2Q3	264,467	1111,456	,636	,973
D1S3Q1	264,319	1111,855	,664	,973
D1S3Q2	264,238	1119,742	,562	,973
D1S3Q3:I believe that the EDL competence statement 1.3 is well written.	264,519	1108,404	,646	,973
D2S1Q1:I believe that the EDL competence statement 2.1 addresses well the EDL competence dimension #2.	264,490	1109,811	,673	,973
D2S1Q2:I believe that the EDL competence statement 2.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,743	1117,072	,457	,973
D2S1Q3:I believe that the EDL competence statement 2.1 is well written.	264,724	1110,517	,590	,973
D2S2Q1:I believe that the EDL competence statement 2.2 addresses well the EDL competence dimension #2.	264,400	1113,064	,656	,973
D2S2Q2:I believe that the EDL competence statement 2.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,619	1114,648	,521	,973
D2S2Q3:I believe that the EDL competence statement 2.2 is well written.	264,648	1107,894	,615	,973
D2S3Q1:I believe that the EDL competence statement 2.3 addresses well the EDL competence dimension #2.	264,476	1108,222	,697	,973
D2S3Q2:I believe that the EDL competence statement 2.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,676	1112,297	,548	,973
D2S3Q3:I believe that the EDL competence statement 2.3 is well written.	264,614	1106,066	,668	,973
D2S4Q1:I believe that the EDL competence statement 2.4 addresses well the EDL competence dimension #2.	264,367	1108,788	,714	,973

D2S4Q2:I believe that the EDL competence statement 2.4 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,467	1115,360	,535	,973
D2S4Q3:I believe that the EDL competence statement 2.4 is well written.	264,529	1107,858	,654	,973
D3S1Q1:I believe that the EDL competence statement 3.1 addresses well the EDL competence dimension #3	264,286	1111,497	,647	,973
D3S1Q2:I believe that the EDL competence statement 3.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,371	1119,632	,473	,973
D3S1Q3:I believe that the EDL competence statement 3.1 is well written.	264,543	1106,154	,604	,973
D3S2Q1:I believe that the EDL competence statement 3.2 addresses well the EDL competence dimension #3.	264,410	1107,343	,639	,973
D3S2Q2:I believe that the EDL competence statement 3.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,538	1114,518	,524	,973
D3S2Q3:I believe that the EDL competence statement 3.2 is well written.	264,771	1104,550	,575	,973
D3S3Q1:I believe that the EDL competence statement 3.3 addresses well the EDL competence dimension #3.	264,276	1112,450	,673	,973
D3S3Q2:I believe that the EDL competence statement 3.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,257	1123,637	,457	,973
D3S3Q3:I believe that the EDL competence statement 3.3 is well written.	264,538	1106,298	,642	,973
D4S1Q1:I believe that the EDL competence statement 4.1 addresses well the EDL competence dimension #4	264,333	1111,238	,636	,973
D4S1Q2:I believe that the EDL competence statement 4.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,410	1118,205	,510	,973
D4S1Q3:I believe that the EDL competence statement 4.1 is well written.	264,662	1104,780	,609	,973

D4S2Q1:I believe that the EDL competence statement 4.2 addresses well the EDL competence dimension #4.	264,529	1109,657	,596	,973
D4S2Q2:I believe that the EDL competence statement 4.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,500	1116,873	,507	,973
D4S2Q3:I believe that the EDL competence statement 4.2 is well written.	264,905	1108,163	,490	,973
D4S3Q1:I believe that the EDL competence statement 4.3 addresses well the EDL competence dimension #4.	264,167	1112,867	,732	,973
D4S3Q2:I believe that the EDL competence statement 4.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,305	1118,155	,529	,973
D4S3Q3:I believe that the EDL competence statement 4.3 is well written.	264,381	1104,036	,712	,973
D4S4Q1:I believe that the EDL competence statement 4.4 addresses well the EDL competence dimension #4.	264,533	1107,733	,587	,973
D4S4Q2:I believe that the EDL competence statement 4.4 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,381	1112,457	,566	,973
D4S4Q3:I believe that the EDL competence statement 4.4 is well written.	264,752	1105,737	,577	,973
D4S5Q1:I believe that the EDL competence statement 4.5 addresses well the EDL competence dimension #4.	264,257	1113,532	,677	,973
D4S5Q2:I believe that the EDL competence statement 4.5 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,157	1122,372	,522	,973
D4S5Q3:I believe that the EDL competence statement 4.5 is well written.	264,400	1108,700	,674	,973
D5S1Q1:I believe that the EDL competence statement 5.1 addresses well the EDL competence dimension #5.	264,262	1116,998	,619	,973
D5S1Q2:I believe that the EDL competence statement 5.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,176	1121,399	,613	,973

D5S1Q3:I believe that the EDL competence statement 5.1 is well written.	264,519	1105,571	,632	,973
D5S2Q1:I believe that the EDL competence statement 5.2 addresses well the EDL competence dimension #5.	264,281	1111,160	,672	,973
D5S2Q2:I believe that the EDL competence statement 5.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,457	1117,618	,499	,973
D5S2Q3:I believe that the EDL competence statement 5.2 is well written.	264,386	1104,267	,693	,973
D5S3Q1:I believe that the EDL competence statement 5.3 addresses well the EDL competence dimension #5.	264,362	1110,787	,707	,973
D5S3Q2:I believe that the EDL competence statement 5.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,395	1117,427	,524	,973
D5S3Q3:I believe that the EDL competence statement 5.3 is well written.	264,576	1101,920	,686	,973
D6S1Q1:I believe that the EDL competence statement 6.1 addresses well the EDL competence dimension #6.	264,152	1116,714	,677	,973
D6S1Q2:I believe that the EDL competence statement 6.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,243	1121,390	,495	,973
D6S1Q3:I believe that the EDL competence statement 6.1 is well written.	264,424	1109,461	,618	,973
D6S2Q1:I believe that the EDL competence statement 6.2 addresses well the EDL competence dimension #6.	264,038	1119,539	,690	,973
D6S2Q2:I believe that the EDL competence statement 6.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,067	1128,598	,465	,973
D6S2Q3:I believe that the EDL competence statement 6.2 is well written.	264,214	1111,806	,681	,973
D6S3Q1:I believe that the EDL competence statement 6.3 addresses well the EDL competence dimension #6.	264,114	1118,312	,681	,973

D6S3Q2:I believe that the EDL competence statement 6.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	264,152	1123,747	,523	,973
D6S3Q3:I believe that the EDL competence statement 6.3 is well written.	264,348	1111,194	,606	,973

Table A7.2: Cronbach's Alpha for all items in Dimension 1

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1S1Q1	34,190	24,021	,635	,880
D1S1Q2	34,167	23,594	,645	,878
D1S1Q3	34,405	22,376	,663	,877
D1S2Q1	34,190	23,131	,693	,875
D1S2Q2	34,190	23,810	,614	,881
D1S2Q3	34,276	22,574	,713	,873
D1S3Q1	34,129	23,318	,653	,878
D1S3Q2	34,048	24,170	,593	,882
D1S3Q3:I believe that the EDL competence statement 1.3 is well written.	34,329	22,863	,620	,881

Table A7.3: Cronbach's Alpha for all items in Dimension 2

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D2S1Q1:I believe that the EDL competence statement 2.1 addresses well the EDL competence dimension #2.	45,229	48,282	,684	,890
D2S1Q2:I believe that the EDL competence statement 2.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	45,481	48,672	,531	,898
D2S1Q3:I believe that the EDL competence statement 2.1 is well written.	45,462	47,905	,632	,892
D2S2Q1:I believe that the EDL competence statement 2.2 addresses well the EDL competence dimension #2.	45,138	49,277	,640	,892
D2S2Q2:I believe that the EDL competence statement 2.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	45,357	47,991	,622	,892
D2S2Q3:I believe that the EDL competence statement 2.2 is well written.	45,386	47,559	,640	,892

D2S3Q1:I believe that the EDL competence statement 2.3 addresses well the EDL competence dimension #2.	45,214	47,959	,709	,888
D2S3Q2:I believe that the EDL competence statement 2.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	45,414	48,033	,605	,893
D2S3Q3:I believe that the EDL competence statement 2.3 is well written.	45,352	47,358	,686	,889
D2S4Q1:I believe that the EDL competence statement 2.4 addresses well the EDL competence dimension #2.	45,105	49,156	,628	,892
D2S4Q2:I believe that the EDL competence statement 2.4 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	45,205	49,494	,530	,897
D2S4Q3:I believe that the EDL competence statement 2.4 is well written.	45,267	48,943	,569	,895

Table A7.4: Cronbach's Alpha for all items in Dimension 3

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D3S1Q1:I believe that the EDL competence statement 3.1 addresses well the EDL competence dimension #3	33,743	31,034	,701	,882
D3S1Q2:I believe that the EDL competence statement 3.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	33,829	31,865	,565	,892
D3S1Q3:I believe that the EDL competence statement 3.1 is well written.	34,000	29,359	,709	,881
D3S2Q1:I believe that the EDL competence statement 3.2 addresses well the EDL competence dimension #3.	33,867	29,982	,717	,880
D3S2Q2:I believe that the EDL competence statement 3.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	33,995	30,914	,618	,888
D3S2Q3:I believe that the EDL competence statement 3.2 is well written.	34,229	28,703	,698	,882

D3S3Q1:I believe that the EDL competence statement 3.3 addresses well the EDL competence dimension #3.	33,733	31,354	,716	,882
D3S3Q2:I believe that the EDL competence statement 3.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	33,714	32,951	,521	,894
D3S3Q3:I believe that the EDL competence statement 3.3 is well written.	33,995	29,871	,710	,881

Table A7.5: Cronbach's Alpha for all items in Dimension 4

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D4S1Q1:I believe that the EDL competence statement 4.1 addresses well the EDL competence dimension #4	59,195	72,483	,667	,898
D4S1Q2:I believe that the EDL competence statement 4.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	59,271	74,304	,533	,902
D4S1Q3:I believe that the EDL competence statement 4.1 is well written.	59,524	71,227	,602	,900
D4S2Q1:I believe that the EDL competence statement 4.2 addresses well the EDL competence dimension #4.	59,390	72,143	,614	,899
D4S2Q2:I believe that the EDL competence statement 4.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	59,362	74,309	,503	,903
D4S2Q3:I believe that the EDL competence statement 4.2 is well written.	59,767	72,362	,455	,907
D4S3Q1:I believe that the EDL competence statement 4.3 addresses well the EDL competence dimension #4.	59,029	73,377	,740	,896
D4S3Q2:I believe that the EDL competence statement 4.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	59,167	74,628	,531	,902

D4S3Q3:I believe that the EDL competence statement 4.3 is well written.	59,243	71,362	,694	,896
D4S4Q1:I believe that the EDL competence statement 4.4 addresses well the EDL competence dimension #4.	59,395	70,766	,656	,898
D4S4Q2:I believe that the EDL competence statement 4.4 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	59,243	72,692	,595	,900
D4S4Q3:I believe that the EDL competence statement 4.4 is well written.	59,614	70,688	,612	,900
D4S5Q1:I believe that the EDL competence statement 4.5 addresses well the EDL competence dimension #4.	59,119	73,627	,675	,898
D4S5Q2:I believe that the EDL competence statement 4.5 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	59,019	75,674	,535	,902
D4S5Q3:I believe that the EDL competence statement 4.5 is well written.	59,262	72,615	,651	,898

Table A7.6: Cronbach's Alpha for all items in Dimension 5

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D5S1Q1:I believe that the EDL competence statement 5.1 addresses well the EDL competence dimension #5.	34,295	26,113	,629	,873
D5S1Q2:I believe that the EDL competence statement 5.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	34,210	26,875	,621	,875
D5S1Q3:I believe that the EDL competence statement 5.1 is well written.	34,552	24,268	,632	,873
D5S2Q1:I believe that the EDL competence statement 5.2 addresses well the EDL competence dimension #5.	34,314	25,020	,707	,866

D5S2Q2:I believe that the EDL competence statement 5.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	34,490	25,725	,540	,880
D5S2Q3:I believe that the EDL competence statement 5.2 is well written.	34,419	24,359	,671	,869
D5S3Q1:I believe that the EDL competence statement 5.3 addresses well the EDL competence dimension #5.	34,395	24,967	,750	,863
D5S3Q2:I believe that the EDL competence statement 5.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	34,429	25,796	,561	,878
D5S3Q3:I believe that the EDL competence statement 5.3 is well written.	34,610	24,019	,658	,870

Table A7.7: Cronbach's Alpha for all items in Dimension 6

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D6S1Q1:I believe that the EDL competence statement 6.1 addresses well the EDL competence dimension #6.	35,848	20,034	,697	,878
D6S1Q2:I believe that the EDL competence statement 6.1 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	35,938	19,982	,590	,887
D6S1Q3:I believe that the EDL competence statement 6.1 is well written.	36,119	19,024	,612	,887
D6S2Q1:I believe that the EDL competence statement 6.2 addresses well the EDL competence dimension #6.	35,733	20,158	,772	,875
D6S2Q2:I believe that the EDL competence statement 6.2 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	35,762	21,082	,586	,887
D6S2Q3:I believe that the EDL competence statement 6.2 is well written.	35,910	19,422	,682	,879
D6S3Q1:I believe that the EDL competence statement 6.3 addresses well the EDL competence dimension #6.	35,810	19,983	,756	,875

D6S3Q2:I believe that the EDL competence statement 6.3 is important for an Instructional Designer and an e-Tutor of Online and/or Blended Courses.	35,848	20,455	,623	,884
D6S3Q3:I believe that the EDL competence statement 6.3 is well written.	36,043	18,845	,660	,882

Table A7.8. Frequency-percentage of scores 1, 2 and 3 for Q1 in each item (question Q1)

N=210	Frequency-Percentage		Frequency-Percentage		Frequency-Percentage
D1S1Q1	2+25 (1,0+11,9)%	D3S1Q1	8+30 (3,9+9)%	D4S5Q1	4+23 (1,9+11)%
D1S2Q1	6+27 (2,9+12,9)%	D3S2Q1	12+28 (5,7+13,3)%	D5S1Q1	5+18 (2,4+8,8)%
D1S3Q1	8+21 (3,8+10)%	D3S3Q1	5+22 (2,4+10,5)%	D5S2Q1	8+21 (3,8+10)%
D2S1Q1	7+36 (3,4+16,7)%	D4S1Q1	9+24 (4,3+11,4)%	D5S3Q1	4+30 (1,9+14,3)%
D2S2Q1	5+30 (2,4+14,3)%	D4S2Q1	13+37 (6,2+17,6)%	D6S1Q1	1+18 (0,5+8,6)%
D2S3Q1	9+32 (4,3+15,2)%	D4S3Q1	3+19 (1,4+9)%	D6S2Q1	1+13 (0,5+6,2)%
D2S4Q1	6+30 (2,9+14,3)%	D4S4Q1	14+41 (6,7+19,5)%	D6S3Q1	1+16 (0,5+7,6)%

Table A7.9. Frequency-percentage of scores 1, 2 and 3 for Q2 in each item (question Q2)

N=210	Frequency-Percentage Grade (1-2,3)		Frequency-Percentage		Frequency-Percentage
D1S1Q2	5+23 (2,4+11)%	D3S1Q2	9+27 (4,3+12,9)%	D4S5Q2	3+15 (1,5+7,1) %
D1S2Q2	6+21 (2,9+10)%	D3S2Q2	11+36 (5,2+17,1)%	D5S1Q2	1+15 (0,5+7,1)%
D1S3Q2	6+12 (2,9+5,7)%	D3S3Q2	5+22 (2,4+10,5)%	D5S2Q2	9+34 (4,3+16,2)%
D2S1Q2	20+42 (9,5+20)%	D4S1Q2	8+28 (3,9+13,3)%	D5S3Q2	8+30 (3,8+14,3)%
D2S2Q2	14+40 (6,7+19)%	D4S2Q2	10+35 (4,8+16,7)%	D6S1Q2	5+23 (2,4+11)%
D2S3Q2	14+43 (6,7+20,5)%	D4S3Q2	9+16 (4,3+7,6)%	D6S2Q2	2+10 (1+4,8)%
D2S4Q2	10+32 (4,8+15,2)%	D4S4Q2	10+30 (4,7+14,3)%	D6S3Q2	2+18 (1+8,6)%

Table A7.10. Frequency-percentage of scores 1, 2 and 3 for Q3 in in each item (question Q3).

N=210	Frequency-Percentage		Frequency-Percentage		Frequency-Percentage
D1S1Q3	13+32 (6,2+15,2)%	D3S1Q3	19+32 (9,0+15,2)%	D4S5Q3	8+34 (3,8+16,2)%

D1S2Q3	8+32 (3,8+15,2)%	D3S2Q3	28+42 (13,4+20)%	D5S1Q3	17+30 (8,1+14,3)%
D1S3Q3	12+31 (5,8+14,8)%	D3S3Q3	15+34 (7,2+16,2)%	D5S2Q3	12+29 (5,8+13,8)%
D2S1Q3	18+44 (8,6+21)%	D4S1Q3	18+42 (8,6+20)%	D5S3Q3	16+35 (7,6+16,7)%
D2S2Q3	17+35 (8,1+16,7)%	D4S2Q3	31+49(14,7+23,3)%	D6S1Q3	10+31 (4,7+14,8)%
D2S3Q3	13+40 (6,2+19)%	D4S3Q3	12+25 (5,8+11,9)%	D6S2Q3	7+19 (3,3+9)%
D2S4Q3	12+38 (5,7+18,1)%	D4S4Q3	23+44 (11+21)%	D6S3Q3	11+23 (5,3+11)%

Table A7.11. Frequency-percentage of scores 1, 2 and 3 for item Q1 for the sub-group Experts/Non-Experts.

	Frequency- Percentage Experts/Non- Experts			Frequency- Percentage Experts/Non- Experts			Frequency- Percentage Experts/Non- Experts	
D1S1Q1	0+4 (0+11,8)%	2+21 (1,2+11,9)%	D3S1Q1	2+2 (5,9+5,9)%	6+17 (3,4+19,7)%	D4S5Q1	0+2 (0+8,8)%	4+20 (2,3+11,4)%
D1S2Q1	1+6 (2,9+17,6)%	5+21 (2,8+11,9)%	D3S2Q1	3+4 (8,8+11,8)%	9+24 (5,1+13,6)%	D5S1Q1	0+3 (5,9+)%	5+16 (2,8+9,1)%
D1S3Q1	1+2 (2,9+5,9)%	7+19 (4+10,8)%	D3S3Q1	1+3 (2,9+8,8)%	4+19 (2,3+10,8)%	D5S2Q1	0+1 (0+2,9)%	8+20 (4,5+11,4)%
D2S1Q1	0+5 (0+14,7)%	7+30 (4+17)%	D4S1Q1	0+2 (0+5,9)%	9+22 (5,1+12,5)%	D5S3Q1	0+5 (0+14,7)%	4+25 (2,3+14,2)%
D2S2Q1	1+3 (2,9+8,8)%	4+27 (2,3+15,3)%	D4S2Q1	1+4 (2,9+11,8)%	12+33 (6,8+18,8)%	D6S1Q1	0+4 (0+11,8)%	1+14 (0,6+8)%
D2S3Q1	1+5 (2,9+14,7)%	8+27 (4,5+15,3)%	D4S3Q1	0+3 (0+8,8)%	3+16 (1,7+9,1)%	D6S2Q1	0+2 (0+5,9)%	1+11 (0,6+6,3)%
D2S4Q1	0 +4 (0+11,8)%	6+26 (3,4+14,8)%	D4S4Q1	1 +7 (2,9+20,6)%	13+34 (7,4+19,3)%	D6S3Q1	0+1 (0+2,9)%	1+15 (0,6+8,5)%

Table A7.12. Frequency-percentage of scores 1, 2 and 3 for item Q1 for the sub-group High/Low/Non-Expertise.

	Frequency- Percentage High/Low/Non- Expertise				Frequency- Percentage High/Low/Non- Expertise				Frequency- Percentage High/Low/Non-Expertise		
D1S1 Q1	1+5 (1,2+5, 9)%	0+15 (0+1 5)%	1+5 (4+20)%	D3S1 Q1	5+3 (5,9+3, 5)%	2+13 (2+1 3)%	1+3 (4+1 2)%	D4S5 Q1	0+6 (0+7,1) %	2+14 (2+14)%	2+3 (8+12) %
D1S2 Q1	2+11 (2,4+1 2,9)%	3+13 (3+1 3)%	1+3 (4+12)%	D3S2 Q1	6+9 (7,1+1 0,8)%	4+13 (4+1 3)%	2+6 (8+2 4)%	D5S1 Q1	2+4 (2,4+4, 7)%	3+10 (3+10)%	0+4 (0+16) %
D1S3 Q1	5+4 (5,9+4, 7)%	2+14 (2+1 4)%	1+3 (4+12)%	D3S3 Q1	3+6 (3,6+7, 1)%	1+13 (1+1 3)%	1+3 (4+1 2)%	D5S2 Q1	1+3 (1,2+3, 5)%	5+13 (5+13)%	2+5 (8+20) %
D2S1 Q1	1+8 (1,2+9, 4)%	5+19 (5+1 9)%	1+8 (4+32)%	D4S1 Q1	3+5 (3,6+5, 9)%	4+15 (4+1 5)%	2+4 (8+1 6)%	D5S3 Q1	1+8(1, 2+9,4) %	0+19 (0+19)%	3+3 (12+12)%
D2S2 Q1	1+4 (1,2+4, 7)%	4+17 (4+1 7)%	0+9 (0+36)%	D4S2 Q1	2+10 (2,4+1 1,8)%	10+2 2 (10+ 22)%	1+5 (4+2 0)%	D6S1 Q1	0+6 (0+7,1) %	1+8 (0+8) %	0+4 (0+16) %
D2S3	3+6	5+17	1+9	D4S3	0+5	1+12	2+2	D6S2	0+2	0+8	1+3

Q1	(3,5+7, 1)%	(5+1 7)%	(4+36)%	Q1	(0+5,9) %	(1+1 2)%	(8+8) %	Q1	(0+2,4) %	(0+8) %	(4+12) %
D2S4 Q1	3+4 (3,5+4, 7)%	3+21 (3+2 1)%	0+5 (0+20)%	D4S4 Q1	6+12 (7,1+1 4,1)%	4+22 (4+2 2)%	4+7 (16+ 28)%	D6S3 Q1	0+3 (0+3,5) %	0+10 (0+10)%	1+3 (4+12) %

Table A7.13. Frequency-percentage of scores 1, 2 and 3 for item Q2 in every statement and dimension for the sub-group Experts/Non-Experts.

	Frequency- Percentage Experts/Non-Experts			Frequency- Percentage Experts/Non-Experts			Frequency- Percentage Experts/Non-Experts	
D1S1Q2	2+3 (5,9+8,8)%	3+20 (1,7+11,4)%	D3S1Q2	1+4 (2,9+11,8)%	8+23 (4,6+13,1)%	D4S5Q2	0+3 (0+8,8)%	3+12 (1,5+6,8)%
D1S2Q2	2+1 (5,9+2,9)%	4+20 (2,3+11,4)%	D3S2Q2	2+4 (5,9+11,8)%	9+32 (5,1+18,2)%	D5S1Q2	0+1 (0+2,9)%	1+14 (0,6+8)%
D1S3Q2	1+1 (2,9+2,9)%	5+11 (2,8+6,3)%	D3S3Q2	1+2 (2,9+5,9)%	4+20 (2,2+11,4)%	D5S2Q2	0+4 (0+11,8)%	9+30 (5,1+17)%
D2S1Q2	3+5 (8,8+14,7)%	17+37 (9,7+21)%	D4S1Q2	0+6 (0+17,6)%	8+22 (4,5+17,5)%	D5S3Q2	0+4 (0+11,8)%	8+26 (4,6+14,8)%
D2S2Q2	4+4 (11,8+11,8)%	10+36 (5,7+20,5)%	D4S2Q2	1+2 (2,9+5,9)%	9+33 (5,1+18,8)%	D6S1Q2	1+4 (2,9+11,8)%	4+19 (2,3+10,8)%
D2S3Q2	2+6 (5,9+17,6)%	12+37 (6,8+21)%	D4S3Q2	0+2 (0+5,9)%	9+14 (5,1+8)%	D6S2Q2	0+1 (0+2,9)%	2+9 (1,1+5,1)%
D2S4Q2	2+4 (5,9+11,8)%	8+28 (4,5+15,9 0%	D4S4Q2	1+4 (2,9+11,8)%	9+26 (5,1+14,8)%	D6S3Q2	0+1 (0+2,9)%	2+17 (1,1+9,7)%

Table A7.14. Frequency-percentage of scores 1, 2 and 3 for item Q2 for the sub-group High/Low/Non-Expertise.

	Frequency- Percentage High/Low/Non- Expertise				Frequency- Percentage High/Low/Non- Expertise				Frequency- Percentage High/Low/Non- Expertise		
D1S1 Q2	1+7 (1,2+8,2) %	1+12 (1+12) %	3+4 (12+16)%	D3S1 Q2	5+8 (5,9+9,4) %	2+1 (2+1) %	2+8 (8+32) %	D4S5 Q2	0+4 (0+4,7) %	1+8 1+8 %	3+15 (1,5+7,1)%
D1S2 Q2	2+6 (2,4+7,1) %	0+14 (0+14) %	4+1 (16+4)%	D3S2 Q2	3+12 (3,6+14,1)%	2+2 (2+2) %	6+4 (24+16)%	D5S1 Q2	0+3 (0+3,5) %	1+8 1+8 %	0+4 (0+16)%
D1S3 Q2	3+3 (3,5+3,5) %	2+8+ (2+8) %	1+1 (4+4)%	D3S3 Q2	2+6 (2,4+7,1) %	1+1 (1+1) %	2+3 (8+12) %	D5S2 Q2	0+12 (0+14,1) %	5+1 5+17 %	4+5 (16+20) %
D2S1 Q2	6+14 (7,1+16,5)%	8+22 (8+22) %	6+6 (24+24)%	D4S1 Q2	1+9 (1,2+10,6)%	5+1 (5+1) %	2+5 (8+20) %	D5S3 Q2	1+6 (1,2+7,1)%	3+2 3+20 %	4+4 (16+16) %
D2S2 Q2	4+11 (4,7+12,9)%	4+20 (4+20) %	6+9 (24+36)%	D4S2 Q2	2+6 (2,4+7,1) %	5+2 (5+2) %	3+7 (12+2) 8%	D6S1 Q2	0+6 (0+7,1) %	2+1 2+14 %	3+3 (12+12) %
D2S3 Q2	4+13 (4,7+15,3)%	7+20 (7+20) %	3+10 (12+40)%	D4S3 Q2	1+4 (1,2+4,7) %	4+8 (4+8) %	4+4 (16+16)%	D6S2 Q2	0+2 (0+2,4) %	0+6 0+6 %	2+2 (8+8)%
D2S4 Q2	4+6 (4,7+7,1) %	1+22 (1+22) %	5+4 (20+16)%	D4S4 Q2	3+15 (3,6+15,3)%	3+1 (3+1) %	4+3 (16+12)%	D6S3 Q2	0+3 (0+3,5) %	1+1 1+10 %	1+4 (4+20)%

Table A7.15. Frequency-percentage of scores 1, 2 and 3 for item Q3 in every statement and dimension for the sub-group Experts/Non-Experts.

	Frequency-Percentage Experts/Non-Experts			Frequency-Percentage Experts/Non-Experts			Frequency-Percentage Experts/Non-Experts	
D1S1Q 3	2+6 (5,9+17,6) %	11+26 (6,3+14,8) %	D3S1Q 3	2+5 (5,8+14,7)%	17+27 (9,6+15,3%)	D4S5Q 3	1+9 (2,9+26,5) %	7+25 (4+14,2)%
D1S2Q 3	1+4 (2,9+11,8) %	7+28 (4+15,9)%	D3S2Q 3	4+9 (11,8+26,5) %	24+33 (13,6+18,8%)	D5S1Q 3	1+4 (2,9+11,8) %	16+26 (9,1+14,8) %
D1S3Q 3	1+3 (2,9+8,8)%	11+28 (6,3+15,9) %	D3S3Q 3	1+7 (2,9+20,6)%	14+27 (8,0+15,3%)	D5S2Q 3	0+3 (0+8,8)%	12+26 (6,8+14,8) %
D2S1Q 3	2+6 (5,9+17,6) %	16+38 (9,1+21,6) %	D4S1Q 3	3+8 (8,8+23,5)%	15+34 (8,5+19,3%)	D5S3Q 3	1+7 (2,9+20,6) %	15+28 (8,5+15,9) %
D2S2Q 3	2+5 (5,9+14,7) %	15+30 (8,5+17)%	D4S2Q 3	4+9 (11,7+26,5) %	27+40 (15,4+22,7%)	D6S1Q 3	1+6 (2,9+17,8) %	9+25 (5,1+14,2) %
D2S3Q 3	0+5 (0+14,7)%	13+35 (7,4+19,9) %	D4S3Q 3	1+3 (2,9+8,8)%	11+22 (6,3+12,5%)	D6S2Q 3	0+3 (0+8,8)%	7+16 (4+9,1)%
D2S4Q 3	0+6 (0+17,8)%	12+32 (6,8+18,2) %	D4S4Q 3	4+5 (11,7+15,4) %	19+39 (10,8+22,2%)	D6S3Q 3	2+3 (5,8+8,8)%	9+20 (5,1+11,4) %

Table A7.16. Frequency-percentage of scores 1, 2 and 3 for item Q2 for the sub-group High/Low/Non-Expertise.

	Frequency-Percentage High/Low/Non-Expertise				Frequency-Percentage High/Low/Non-Expertise				Frequency-Percentage High/Low/Non-Expertise		
D1S1 Q3	5+11 (5,9+1 2,9)%	4+17 (4+1 7)%	4+4 (16+1 6)%	D3S1 Q3	10+12 (11,7+1 4,1)%	5+17 (5+17)%	4+3 (16+1 2)%	D4S 5Q3	2+12 (2,3+ 14,1) %	4+16 (4+16) %	2+6 (8+24) %
D1S2 Q3	2+12 (2,4+1 4,1)%	4+17 (4+1 7)%	2+3 (8+12)%	D3S2 Q3	12+17 (14,1+2 0)%	10+2 0 (10+2 0)%	6+5 (24+2 0)%	D5S 1Q3	5+7 (5,9+ 8,2)%	8+19 (8+19) %	4+4 (16+1 6)%
D1S3 Q3	3+11 (3,6+1 2,9)%	6+17 (6+1 7)%	3+3 (12+1 2)%	D3S3 Q3	6+14 (7,1+16 ,5)%	5+15 (5+15)%	4+5 (16+2 0)%	D5S 2Q3	2+8 (2,4+ 9,4)%	7+16 (7+16) %	3+5 (12+2 0)%
D2S1 Q3	6+11 (7,1+1 2,9)%	7+28 (7+2 8)%	5+5 (20+2 0)%	D4S1 Q3	5+17 (5,9+20)%	7+20 (7+20)%	6+5 (24+2 0)%	D5S 3Q3	4+11 (4,7+ 12,9) %	6+21 (6+21) %	6+3 (24+1 2)%
D2S2 Q3	4+10 (4,7+1 1,8)%	8+20 (8+2 0)%	5+5 (20+2 0)%	D4S2 Q3	10+16 (11,8+1 8,8)%	15+2 3 (15+2 3)%	6+10 (24+4 0)%	D6S 1Q3	3+12 (3,6+ 14,1) %	4+16 (4+16) %	3+3 (12+1 2)%
D2S3 Q3	1+11 (1,2+1 2,9)%	6+25 (6+2 5)%	6+4 (24+1 6)%	D4S3 Q3	4+8 (4,7+9, 4)%	5+13 (5+13)%	3+4 (12+1 6)%	D6S 2Q3	1+5 (1,2+ 5,9)%	3+11 (3+11) %	3+3 (12+1 2)%
D2S4 Q3	2+8 (2,4+9,)	5+23 (5+2)	5+7 (20+2)	D4S4 Q3	9+12 (10,6+1)	9+26 (9+26)	5+6 (20+2)	D6S 3Q3	4+6 (4,7+)	2+13 (2+13))	5+4 (20+1)

	4)%	3)%	8)%		4,1)%	)%	4)%		7,1))	%	6)%
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Table A7.17. Correlation coefficient for Dimension 2

Spearman's rho	totalD2S1	Sig. (2-tailed)	D2SiQ1	D2SiQ2	D2SiQ3
D2S1Q1	,853**	,000	1,000	,525**	,670**
D2S1Q2	,793**	,000		1,000	,447**
D2S1Q3	,845**	,000			1,000
D2S2Q1	,821**	,000	1,000	,458**	,583**
D2S2Q2	,773**	,000		1,000	,387**
D2S2Q3	,824**	,000			1,000
D2S3Q1	,855**	,000	1,000	,547**	,688**
D2S3Q2	,794**	,000		1,000	,452**
D2S3Q3	,854**	,000			1,000
D2S4Q1	,845**	,000	1,000	,561**	,676**
D2S4Q2	,820**	,000		1,000	,541**
D2S4Q3	,871**	,000			1,000

Table A7.18. Correlation coefficient for Dimension 3

Spearman's rho	totalD3S1	Sig. (2-tailed)	D3SiQ1	D3SiQ2	D3SiQ3
D3S1Q1	,841**	,000	1,000	,456**	,627**
D3S1Q2	,750**	,000		1,000	,404**
D3S1Q3	,851**	,000			1,000
D3S2Q1	,830**	,000	1,000	,521**	,680**
D3S2Q2	,762**	,000		1,000	,504**
D3S2Q3	,902**	,000			1,000
D3S3Q1	,827**	,000	1,000	,475**	,653**
D3S3Q2	,694**	,000		1,000	,357**
D3S3Q3	,874**	,000			1,000

Table A7.19. Correlation coefficient for Dimension 5

Spearman's rho	totalD5S1	Sig. (2-tailed)	D5SiQ1	D5SiQ2	D5SiQ3
D5S1Q1	,889**	,000	1,000	,699**	,735**
D5S1Q2	,800**	,000		1,000	,588**
D5S1Q3	,921**	,000			1,000
D5S2Q1	,860**	,000	1,000	,626**	,750**
D5S2Q2	,855**	,000		1,000	,564**
D5S2Q3	,871**	,000			1,000
D5S3Q1	,899**	,000	1,000	,685**	,783**
D5S3Q2	,844**	,000		1,000	,608**
D5S3Q3	,909**	,000			1,000

Table A7.20. Correlation coefficient for Dimension 6

Spearman's rho	totalD6S1	Sig. (2-tailed)	D6SiQ1	D6SiQ2	D6SiQ3
D6S1Q1	,830**	,000	1,000	,597**	,687**
D6S1Q2	,787**	,000		1,000	,480**
D6S1Q3	,879**	,000			1,000
D6S2Q1	,818**	,000	1,000	,550**	,728**
D6S2Q2	,767**	,000		1,000	,495**
D6S2Q3	,890**	,000			1,000
D6S3Q1	,841**	,000	1,000	,576**	,714**
D6S3Q2	,789**	,000		1,000	,497**

D6S3Q3	,886**	,000			1,000
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Table A7.21. The mean scores for Q1, Q2 and Q3 for each dimension for the 210 participants.

4,3206 4,2476	MD1SiQ1- MD2SiQ1	4,3556 4,0548	MD1SiQ2- MD2SiQ2	4,1540 4,0524	MD1SiQ3- MD2SiQ3
4,3206 4,3571	MD1SiQ1- MD3SiQ1	4,3556 4,2921	MD1SiQ2- MD3SiQ2	4,1540 4,0635	MD1SiQ3- MD3SiQ3
4,3206 4,3171	MD1SiQ1- MD4SiQ1	4,3556 4,3305	MD1SiQ2- MD4SiQ2	4,1540 4,0610	MD1SiQ- MD4SiQ3
4,3206 4,3794	MD1SiQ1- MD5SiQ1	4,3556 4,3381	MD1SiQ2- MD5SiQ2	4,1540 4,1873	MD1SiQ3- MD5SiQ3
4,3206 4,5794	MD1SiQ1- MD6SiQ1	4,3556 4,5270	MD1SiQ2- MD6SiQ2	4,1540 4,3524	MD1SiQ3- MD6SiQ3
4,2476 4,3571	MD2SiQ1- MD3SiQ1	4,0548 4,2921	MD2SiQ2- MD3SiQ2	4,0524 4,0635	MD2SiQ3- MD3SiQ3
4,2476 4,3171	MD2SiQ1- MD4SiQ1	4,0548 4,3305	MD2SiQ2- MD4SiQ2	4,0524 4,0610	MD2SiQ3- MD4SiQ3
4,2476 4,3794	MD2SiQ1- MD5SiQ1	4,0548 4,3381	MD2SiQ2- MD5SiQ2	4,0524 4,1873	MD2SiQ3- MD5SiQ3
4,2476 4,5794	MD2SiQ1- MD6SiQ1	4,0548 4,5270	MD2SiQ2- MD6SiQ2	4,0524 4,3524	MD2SiQ3- MD6SiQ3
4,3571 4,3171	MD3SiQ1- MD4SiQ1	4,2921 4,3305	MD3SiQ2- MD4SiQ2	4,0635 4,0610	MD3SiQ3- MD4SiQ3
4,3571 4,3794	MD3SiQ1- MD5SiQ1	4,2921 4,3381	MD3SiQ2- MD5SiQ2	4,0635 4,1873	MD3SiQ3- MD5SiQ3
4,3571 4,5794	MD3SiQ1- MD6SiQ1	4,2921 4,5270	MD3SiQ2- MD6SiQ2	4,0635 4,3524	MD3SiQ3- MD6SiQ3
4,3171 4,3794	MD4SiQ1- MD5SiQ1	4,3305 4,3381	MD4SiQ2- MD5SiQ2	4,0610 4,1873	MD4SiQ3- MD5SiQ3
4,3171 4,5794	MD4SiQ1- MD6SiQ1	4,3305 4,5270	MD4SiQ2- MD6SiQ2	4,0610 4,3524	MD4SiQ3- MD6SiQ3
4,3794 4,5794	MD5SiQ1- MD5SiQ1	4,3381 4,5270	MD5SiQ2- MD5SiQ2	4,1873 4,3524	MD5SiQ3- MD5SiQ3

Table A7.22. The mean values for Q1, Q2 and Q3 for the sub-group of Experts/Non-Experts.

	MD1Q1	MD2Q1	MD3Q1	Total
Expert	4,3431	4,3015	4,4118	34
Nonexpert	4,3163	4,2372	4,3466	176
	MD4Q1	MD5Q1	MD6Q1	
Expert	4,4588	4,5294	4,6569	34
Nonexpert	4,2898	4,3504	4,5644	176
	MD1Q2	MD2Q2	MD3Q2	Total
Expert	4,3922	4,1250	4,4314	34
Nonexpert	4,3485	4,0412	4,2652	176
	MD4Q2	MD5Q2	MD6Q2	
Expert	4,4588	4,4412	4,6078	34
Nonexpert	4,3057	4,3182	4,5114	176
	MD1Q3	MD2Q3	MD3Q3	Total
Expert	4,2549	4,1691	4,1078	34
Nonexpert	4,1345	4,0298	4,0549	176
	MD4Q3	MD5Q3	MD6Q3	
Expert	4,1118	4,3235	4,4706	34
Nonexpert	4,0511	4,1610	4,3295	176

Table A7.23. Mean values of Qi's for the sub-group of High/Low/Non-Expertise.

	MD1Q1	MD2Q1	MD3Q1	MD4Q1	MD5Q1	MD6Q1
High Expertise	4,4627	4,5118	4,4745	4,5341	4,6275	4,7686
Low expertise	4,2267	4,0975	4,3033	4,1840	4,2233	4,4767
None Expertise	4,2133	3,9500	4,1733	4,1120	4,1600	4,3467
	MD1Q2	MD2Q2	MD3Q2	MD4Q2	MD5Q2	MD6Q2
High Expertise	4,4824	4,3147	4,4471	4,5529	4,60005	4,7255
Low expertise	4,3133	3,9750	4,2400	4,2300	4,2167	4,4233
None Expertise	4,0933	3,4900	3,9733	3,9760	3,9333	4,2667
	MD1Q3	MD2Q3	MD3Q3	MD4Q3	MD5Q3	MD6Q3
High Expertise	4,3216	4,3206	4,1233	4,2282	4,4353	4,5294
Low expertise	4,0867	3,9550	4,0824	4,0080	4,0667	4,3067
None Expertise	3,8533	3,5300	3,7600	3,7040	3,8267	3,9333

Table A7.24. Mann-Whitney U test for Experts/Non-Experts for Q1.

Role grouping A way	Mean Rank						N=210
	MD1Q1	MD2Q1	MD3Q1	MD4Q1	MD5Q1	MD6Q1	
Expert	104,99	108,04	115,96	114,90	115,97	110,15	34
NonExpert	105,60	105,01	103,48	103,68	103,48	104,60	176
Mann-Whitney U	2974,500	2905,500	2636,500	2672,500	2636,000	2834,000	
Z	-,056	-,271	-1,144	-1,003	-1,133	-,526	
Asymp. Sig. (2-tailed)	,956	,787	,253	,316	,257	,599	

Table A7.25. Mann-Whitney U test for Experts/Non-Experts for Q2.

Role grouping A way	Mean Rank						N=210
	MD1Q2	MD2Q2	MD3Q2	MD4Q2	MD5Q2	MD6Q2	
Expert	109,79	111,37	120,97	112,10	110,35	109,65	34
NonExpert	104,67	104,37	102,51	104,22	104,56	104,70	176
Mann-Whitney U	2846,000	2792,500	2466,000	2767,500	2827,000	2851,000	
Z	-,463	-,619	-1,664	-,699	-,521	-,459	
Asymp. Sig. (2-tailed)	,644	,536	,096	,484	,603	,646	

Table A7.26. Mann-Whitney U test for Experts/Non-Experts for Q3.

Role grouping A way	Mean Rank						N=210
	MD1Q3	MD2Q3	MD3Q3	MD4Q3	MD5Q3	MD6Q3	
Expert	113,82	111,90	108,93	107,93	111,47	115,35	34
NonExpert	103,89	104,26	104,84	105,03	104,35	103,60	176
Mann-	2709,000	2774,500	2875,500	2909,500	2789,000	2657,000	

Whitney U							
Z	-,885	-,676	-,367	-,256	-,639	-1,071	
Asymp. Sig. (2-tailed)	,376	,499	,714	,798	,523	,284	

Table A7.27. Kruskal-Wallis test for High/Low/Non-Expertise for Q1.

Role grouping B way	Mean Rank						N=210
	MD1Q1	MD2Q1	MD3Q1	MD4Q1	MD5Q1	MD6Q1	
High Expertise	118,83	130,41	117,96	123,45	128,80	122,98	85
Low expertise	95,63	90,52	98,60	93,66	89,96	93,81	100
None Expertise	99,66	80,76	90,74	91,84	88,46	92,82	25
Chi-Square	7,365	25,280	6,913	12,936	22,393	13,799	
df	2	2	2	2	2	2	
Asymp. Sig.	,025	,000	,032	,002	,000	,001	

Table A7.28. Mann-Whitney U test for Low/Non-Expertise for Q1.

Role grouping B way (Low-None)	Mean Rank						N=210
	MD1Q1	MD2Q1	MD3Q1	MD4Q1	MD5Q1	MD6Q1	
Low expertise	62,61	64,41	63,96	63,26	63,16	63,39	100
None Expertise	64,58	57,36	59,18	61,96	62,38	61,46	25
Mann-Whitney U	1210,500	1109,000	1154,500	1224,000	1234,500	1211,500	
Z	-,249	-,882	-,606	-,162	-,098	-,250	
Asymp. Sig. (2-tailed)	,803	,378	,545	,871	,922	,803	

Table A7.29. Kruskal-Wallis test for High/Low/Non-Expertise for Q2.

Role grouping B way	Mean Rank						N=210
	MD1Q2	MD2Q2	MD3Q2	MD4Q2	MD5Q2	MD6Q2	
High Expertise	117,46	128,75	120,20	127,36	130,25	124,55	85
Low expertise	99,43	94,53	97,91	93,11	92,01	93,02	100
None Expertise	89,12	70,34	85,88	80,76	75,32	90,66	25
Chi-Square	6,458	24,418	9,630	19,709	26,392	15,708	
df	2	2	2	2	2	2	
Asymp. Sig.	,040	,000	,008	,000	,000	,000	

Table A7.30. Mann-Whitney U test for Low/Non-Expertise for Q2.

Role grouping B way (Low-None)	Mean Rank						N=210
	MD1Q2	MD2Q2	MD3Q2	MD4Q2	MD5Q2	MD6Q2	
Low expertise	64,41	66,87	64,73	64,77	65,18	63,52	100
None Expertise	57,38	47,52	56,10	55,94	54,28	60,92	25

Mann-Whitney U	1109,500	863,000	1077,500	1073,500	1032,000	1198,000	
Z	-,889	-2,409	-1,085	-1,096	-1,369	-,331	
Asymp. Sig. (2-tailed)	,374	,016	,278	,273	,171	,741	

Table A7.31. Kruskal-Wallis test for High/Low/Non-Expertise for Q3.

Role grouping B way	Mean Rank						N=210
	MD1Q3	MD2Q3	MD3Q3	MD4Q3	MD5Q3	MD6Q3	
High Expertise	121,07	127,52	108,62	118,84	124,14	120,99	85
Low expertise	97,54	95,81	107,22	100,04	95,22	99,99	100
None Expertise	84,40	69,42	88,00	82,00	83,26	74,86	25
Chi-Square	10,604	22,899	2,482	8,774	14,796	13,671	
df	2	2	2	2	2	2	
Asymp. Sig.	,005	,000	,289	,012	,001	,001	

Table A7.32. Mann-Whitney U test for High/Low/Non-Expertise for Q3.

Role grouping B way (Low-None)	Mean Rank						N=210
	MD1Q3	MD2Q3	MD3Q3	MD4Q3	MD5Q3	MD6Q3	
Low expertise	64,47	66,55	65,41	65,23	64,44	66,02	100
None Expertise	57,14	48,80	53,38	54,08	57,26	50,92	25
Mann-Whitney U	1103,500	895,000	1009,500	1027,000	1106,500	948,000	
Z	-,916	-2,206	-1,510	-1,385	-,898	-1,911	
Asymp. Sig. (2-tailed)	,360	,027	,131	,166	,369	,056	

Table A7.33. KMO and Bartlett's Test for Dimension 1

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,788
Bartlett's Test of Sphericity Approx. Chi-Square	1098,102
df	36
Sig.	,000

Table A7.34. Total Variance for Dimension 1

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,822	53,581	53,581	4,822	53,581	53,581	3,460	38,449	38,449
2	1,115	12,387	65,967	1,115	12,387	65,967	2,477	27,519	65,967
3	,890	9,892	75,860						
4	,634	7,045	82,905						
5	,571	6,346	89,251						
6	,374	4,152	93,403						
7	,245	2,720	96,123						
8	,198	2,201	98,325						
9	,151	1,675	100,000						

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,822	53,581	53,581	4,822	53,581	53,581	3,460	38,449	38,449
2	1,115	12,387	65,967	1,115	12,387	65,967	2,477	27,519	65,967
3	,890	9,892	75,860						
4	,634	7,045	82,905						
5	,571	6,346	89,251						
6	,374	4,152	93,403						
7	,245	2,720	96,123						
8	,198	2,201	98,325						
9	,151	1,675	100,000						

Extraction Method: Principal Component Analysis.

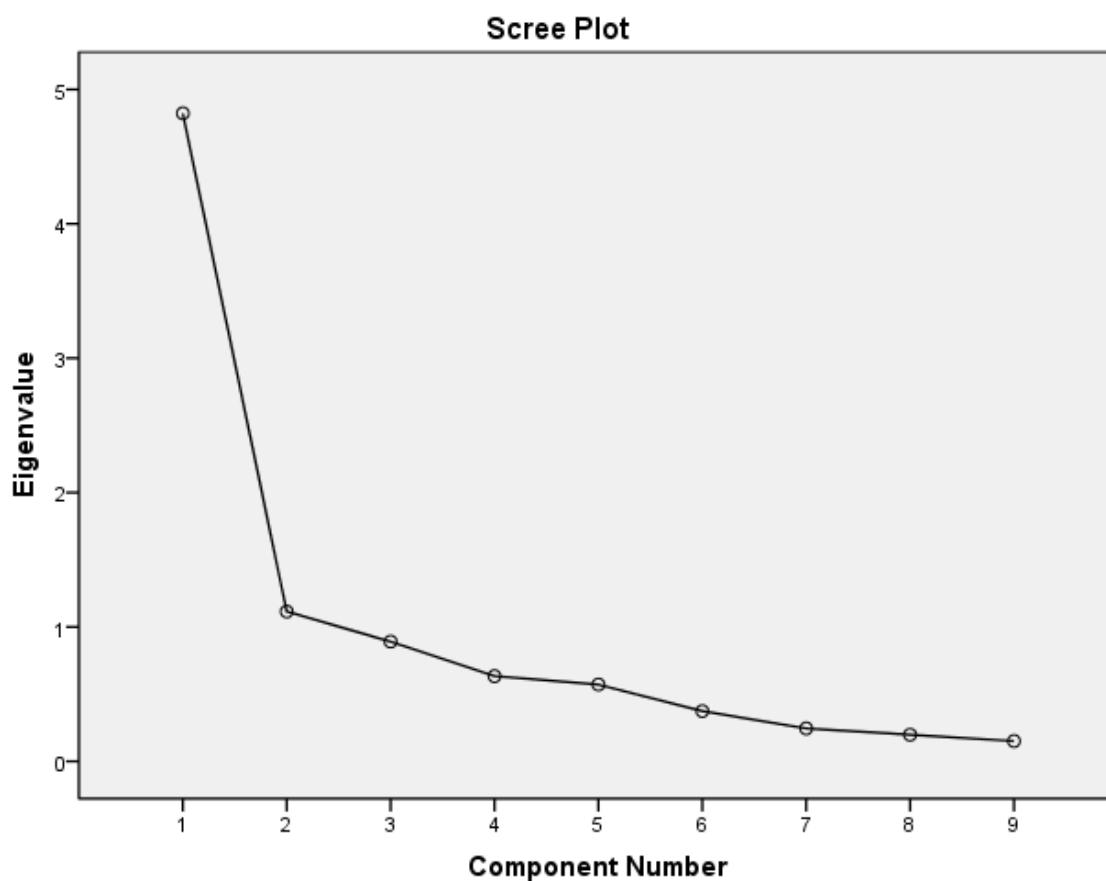


Figure. Scree Plot for Dimension 1

Table A7.36. Rotated Component Matrix^a

	Component	
	1	2
D1S1Q1	,762	,190
D1S1Q2	,301	,811
D1S1Q3	,778	,206
D1S2Q1	,688	,383
D1S2Q2	,207	,893

D1S2Q3	,714	,365
D1S3Q1	,755	,215
D1S3Q2	,281	,755
D1S3Q3:I believe that the EDL competence statement 1.3 is well written.	,714	,217

Appendix 8. Tables related with the Replies to the Open Text Questions of Sections 6-11 of the Questionnaire [section 4.3]

Appendix 8.1 Replies to Open Text Questions for Rewriting or Revising a given Statement of a given Dimension

How would you rewrite or revise this EDL competence statement to better address the EDL competence dimension #X?

R=Responder

D1S1Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D1S1	Responder's Grade in Q1 (Address Well) for D1S1	Responder's Grade in Q3 (Written Well) for D1S1
1	instead of 'right' use 'appropriate'	90.48%	Non Expert	None Expertise	5	5	4
2	I believe the term 'right' might be a bit general since what is right may change based on the purpose of the ID or eTut - Perhaps the definition can reflect this relativity .	95.24%	Expert	High Expertise	4	4	3
3	"right" isn't comprehensiv e enough - should be "right for the purpose" or "meaningful data/sources"	71.43%	Expert	High Expertise	4	5	4
4	Know where to find accurate and relevant data	90.48%	Non Expert	High Expertise	5	5	2
5	I know how to gather data and where to find the right data/data sources	90.48	Non Expert	None Expertise	2	3	1
6	Perhaps also the need to be able to judge whether this is indeed the "right" data for the intended purpose(s)	76.19%	Non Expert	Low Expertise	4	4	4

8	No need for change	71.43%	Expert	High Expertise	5	5	5
9	Can find the right data/data sources	76.19%	Non Expert	Low Expertise	5	4	2
10	Locate appropriate data and sources.	80.95%	Non Expert	High Expertise	4	4	3
11	1.1 Locate appropriate data / data sources	80.95%	Non Expert	Low Expertise	4	4	3
13	Ability to find the right data/data sources	76.19%	Expert	High Expertise	5	5	4
14	I would say that knowing how to obtain the relevant data is important. I say this as I imagine that instructional designers and tutors would be primarily interested in the data about the learners' interaction with the courses they designed / are teaching. Such data would be in the institutions learning platforms and knowing how to obtain that data - the procedure for getting access to it - would be important.	71.43%	Non Expert	Low Expertise	4	4	4
15	Know where to search for the right data/data sources	52.48%	Expert	None Expertise	2	5	4
16	Before data Collection we need to know what we don't know and how to identify the gap. Also we must know Methods for research design and sampling	42.86%	Non Expert	Low Expertise	5	5	3

	techniques. Data Data collection is the next step and is the process of finding the right data and data sources, and obtaining, accessing and gathering the data by considering their quality and limitations.						
17	Know where and how to find the right data/data sources	52.38%	Non Expert	Low Expertise	5	4	4
18	This statement is fine for me	52.38%	Expert	High Expertise	4	4	5
19	I would explicitly define what "the right data" means in this context.	52.38%	Non Expert	Low Expertise	4	5	2
20	Include data processing and normalization steps, which usually bears high computational costs	47.62%	Non Expert	Low Expertise	2	3	4
21	eg. you could insert <right data resources> instead of <right data/data sources>	52.38%	Non Expert	Low Expertise	5	4	4
25	The verb 'know' in the competence statement only indicates theoretical knowledge. It does not measure whether a person can actually find the right data or not. I would have preferred a slightly more 'actionable' verb, for example, 'Be	42.86%	Non Expert	Low Expertise	4	4	4

	able to find the right data'.						
26	Know where to find the ("appropriate" or "applicable") data	47.62%	Expert	High Expertise	5	5	5
29	Data collection is the process of obtaining the right data from quality data sources, after evaluating their quality and limitations.	47.62%	Non Expert	High Expertise	5	5	4
32	Know how to find identify and select appropriate data sources.	42.86%	Non Expert	High Expertise	4	4	4
33	indicate data/data sources of ...?	42.86%	Non Expert	None Expertise	5	5	3
35	The term "right" is the difficult part in the definition, we would need a more precise definition of that.	33.33%	Non Expert	Low Expertise	5	4	4
36	I believe I can find and critically evaluate data and data sources	42.86%	Non Expert	High Expertise	5	4	4
38	Distinguish between good and not so good data/data sources	42.86%	Non Expert	None Expertise	4	2	1
41	I know how to find appropriate data sources.	23.81%	Non Expert	Low Expertise	5	4	3
42	something more plain, accessible & practical. It feels very overallly technical. There also appears to be cross-over with statement 1.2	38.10%	Non Expert	None Expertise	3	3	1
43	Know the	38.10%	Non Expert	High	5	1	1

	protocol that you have to follow to find the right data, be familiar with the tools that you could apply to find and evaluate the quality of sources			Expertise			
44	Know where to find the right data/data sources and, if necessary, how to generate/collect new data types	33.33%	Non Expert	High Expertise	4	5	4
47	Know where to find different data sources	33.33%	Non Expert	Low Expertise	5	4	4
48	Know where to find the right data/data sources and how to use them considering the learning goals	33.33%	Non Expert	Low Expertise	5	3	3
50	perhaps look at what right could be defined as	23.81%	Non Expert	High Expertise	4	4	4
53	the word "right" is quite ambiguous	28.57%	Non Expert	None Expertise	5	5	4
55	Understand the process of discovering the data/data sources and verifying their relevance.	28.57%	Non Expert	Low Expertise	4	4	3
57	I'd rather rewrite this page since "competence dimension #1" and then "statement 1.1" are a bit confusing. coherent wording or more explanation on previous page would be helpful.	23.81%	Non Expert	None Expertise	3	4	4
58	What about creation / reassembling?	19.05%	Non Expert	None Expertise	3	4	2

60	Can find right data/data source	23.81%	Non Expert	Low Expertise	4	4	3
61	Know how to acquire the right	19.05%	Non Expert	High Expertise	4	4	3
71	Know where to find appropriate data/data sources	9.52%	Non Expert	High Expertise	3	3	3
72	change the data/data sources to Data And/or Data sources	14.26%	Non Expert	High Expertise	4	4	2
78	no change maybe a reference to the equipment that will be used to measure the data	9.52%	Non Expert	Low Expertise	4	4	4
81	Locate the required data and/or data sources	95,23%	Non Expert	High Expertise	4	4	3
83	Having knowledge of potential sources of educational data.	38,09%	Non Expert	Low Expertise	4	4	4
85	I am not sure that "right" is a right word here. It sounds like seeking for advantageous data. It may also be better to find a word to imply data from multiple sources. We use combinations and accumulation of different data for evaluation. all necessary data?	33,33%	Non Expert	Low Expertise	5	5	3

D1S2Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D1S2	Responder's Grade in Q1 (Address Well) for D1S2	Responder's Grade in Q3 (Written Well) for D1S2
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		Open Questions of this Category					
2	Perhaps the definition should also cover the possibility that the 'right' data are difficult to capture (especially in online environments and with the limitations of Teaching/Learning Analytics tools); therefore highlight the ability to find alternative data to measure the same thing	95.24%	Expert	High Expertise	4	4	4
3	I think this needs some distinction from finding data (1.1). What is meant by accessing data? - is it the use of data software packages to see the raw data? - or is it how to deal with potential encryption of databases?	71.43%	Expert	High Expertise	4	3	4
5	I know how to obtain/access data	90.48	Non Expert	None Expertise	2	4	2
7	Data accessibility options	57.14%	Non Expert	Low Expertise	4	4	4
9	Can obtain/access data --> difference between knowing and being able to do	76.19%	Non Expert	Low Expertise	5	5	2
11	Obtain or access data	80.95%	Non Expert	Low Expertise	4	4	3
13	Ability to obtain/access data	76.19%	Expert	High Expertise	5	5	4
14	It seems that	71.43%	Non Expert	Low Expertise	5	5	5

	this statement is related to what I commented on related to the statement #1.1						
16	Issues of accessibility and Know how to obtain/access data	42.86%	Non Expert	Low Expertise	5	5	3
20	include know how to search for the data	47.62%	Non Expert	Low Expertise	4	2	3
21	eg. you could insert <right data resources> instead of <right data/data sources>	52.38%	Non Expert	Low Expertise	5	4	5
25	Same comment as above with respect to the verb 'know'.	42.86%	Non Expert	Low Expertise	4	4	4
26	I am not sure why "obtain/access ". I understand these words to be synonymous. I prefer "acquire" or "obtain". "Access" kinda makes it sound as though the data has already been collected and is sitting somewhere waiting fo you to just enter some password and be granted permission. I realise this may be the case, but not necessarily. "acquire" and "obtain" lend themselves more to a collection aspect. Just my \$0.02	47.62%	Expert	High Expertise	5	4	4
27	The verb collect is also	28.57%	Non Expert	High Expertise	5	5	5

	good option to include in the statement						
32	Know how to obtain, access, store, maintain, and protect data.	42.86%	Non Expert	High Expertise	4	2	3
34	Add: "access or generate...data " to allow for course evaluation (formative, summative) and developmental testing	38.10%	Non Expert	High Expertise	5	5	5
36	Something additional to include seek consent for use of data that has been accessed?	42.86%	Non Expert	High Expertise	5	4	4
38	Know how to access/obtain suitable and accurate data for the purposes of research	42.86%	Non Expert	None Expertise	4	2	1
43	Know ethics protocol related to data privacy, accessing and gathering	38.10%	Non Expert	High Expertise	5	3	2
46	know the steps/tools/methods ... to obtain	33.33%	Non Expert	Low Expertise	4	4	2
50	Perhaps include something about different formats of data	23.81%	Non Expert	High Expertise	5	5	4
55	Understand how to obtain/access relevant data	28.57%	Non Expert	Low Expertise	4	4	3
60	Can obtain/access data	23.81%	Non Expert	Low Expertise	4	4	3
61	I do not understand why 1.1 and 1.2 have to be presented as different competences. My proposal is to present 1.1	19.05%	Non Expert	High Expertise	3	3	3

	and 1.2 as one competence: Data acquisition.						
70	Know how to collect, obtain and access data	14.26%	Non Expert	High Expertise	4	4	3
81	Assess data for quality and limitations (e.g., accuracy, completeness)	95,23%	Non Expert	High Expertise	5	5	3
83	Ability to evaluate the quality of available data and potential data limitations.	38,09%	Non Expert	Low Expertise	4	4	3
84	not clear what is meant by "data quality"	57,14%	Non Expert	Low Expertise	4	4	3
87	"obtain" and "access" are slightly different. Make it clear which verb accurately describes what you try to convey.	28,57%	Non Expert	None Expertise	5	4	3

D1S3Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D1S3	Responder's Grade in Q1 (Address Well) for D1S3	Responder's Grade in Q3 (Written Well) for D1S3
1	Select data based on quality and usefulness (e.g. accuracy, completeness)	90.48%	Non Expert	None Expertise	5	5	2
4	Determine if data is of useable quality	90.48%	Non Expert	High Expertise	5	2	1
5	I understand data quality and limitations	90.48	Non Expert	None Expertise	5	4	2
6	Perhaps make the statement a bit more precise, in that understanding of	76.19%	Non Expert	Low Expertise	5	4	4

	quality/limitations is in respect of specific data sets rather than a general concern						
7	Data quality challenges	57.14%	Non Expert	Low Expertise	4	4	4
8	I would follow the California State University CRAAP Test format: Currency, Relevance, Authority, Accuracy and Purpose - see https://www.csuchico.edu/lins/handouts/eval_websites.pdf	71.43%	Expert	High Expertise	5	4	4
9	Can assess/evaluate/judge data quality and limitations	76.19%	Non Expert	Low Expertise	5	5	2
10	Evaluate data quality and limitations.	80.95%	Non Expert	High Expertise	4	4	3
11	Assess data for its salience, validity, and completeness	80.95%	Non Expert	Low Expertise	4	4	3
12	The verb "understand" needs to be operationalized. Perhaps something related to evaluation?	76.19%	Non Expert	Low Expertise	4	2	2
13	Knowledge of data quality and limitations (e.g., accuracy, completeness)	76.19%	Expert	High Expertise	4	5	4
14	Maybe also to add trustworthiness of the data, in cases when data comes from external sources	71.43%	Non Expert	Low Expertise	5	4	4
15	Understand data accuracy and limitations (e.g., quality, validity, completeness)	52.48%	Expert	None Expertise	4	5	4

17	Understand data quality and limitations (e.g., accuracy, completeness, license)	52.38%	Non Expert	Low Expertise	5	4	4
18	understand data quality, risks and benefits	52.38%	Expert	High Expertise	4	4	5
19	I would choose "assess data quality" instead of "understand". So: "Assess data quality and understand limitations"	52.38%	Non Expert	Low Expertise	5	5	4
20	remove examples from a definition as they can confuse even more, instead clearly define what data quality means in this context	47.62%	Non Expert	Low Expertise	3	2	2
21	you could insert <(eg. accuracy, validity, reliability, completeness) >	52.38%	Non Expert	Low Expertise	5	4	4
31	Understand what the data reflect and limitations	38.10%	Non Expert	High Expertise	5	3	3
33	give examples of limitations	42.86%	Non Expert	None Expertise	5	5	5
34	add: (quality, accuracy, meaning)	38.10%	Non Expert	High Expertise	5	5	5
35	Again, terms could be more precise, e.g., quality. What is also important is context. For what reason were the data collected and does this differ from the current situation. You may see this as a limitation, but I feel it is a bit different.	33.33%	Non Expert	Low Expertise	5	4	3
42	I'm not sure I	38.10%	Non Expert	None	3	2	2

	can suggest something as the statement isn't clear to me overall.			Expertise			
43	Understand criteria for data quality and accuracy evaluation.	38.10%	Non Expert	High Expertise	4	4	3
46	separate questions for each one of them	33.33%	Non Expert	Low Expertise	5	5	1
49	add to examples "difficulty in collection"	33.33%	Non Expert	Low Expertise	4	5	4
52	Understand data quality and limitations (e.g., accuracy, reliability of sources, completeness)	14.26%	Non Expert	High Expertise	5	5	4
60	Determine accuracy and/or completeness of data. Determine validity/reliability of data	23.81%	Non Expert	Low Expertise	4	4	2
67	I would add 'relevance' that is: "Understand data relevance, quality and limitations (e.g., accuracy, completeness) "	9.52%	Non Expert	Low Expertise	4	5	4
68	It would be nice to provide an example what does data completeness and data accuracy means to you	16.05%	Non Expert	Low Expertise	4	3	3
72	needs to include validity	14.26%	Non Expert	High Expertise	5	2	2
76	Understand data quality and limitations (e.g., accuracy, completeness, biases in the data, sources of error from data collection	14.29%	Expert	High Expertise	5	4	3

	methods)						
81	Assess data for quality and limitations (e.g., accuracy, completeness)	95,23%	Non Expert	High Expertise	3	4	4
83	Ability to evaluate the quality of available data and potential data limitations.	38,09%	Non Expert	Low Expertise	4	4	3
84	not clear what is meant by "data quality"	57,14%	Non Expert	Low Expertise	5	4	3

D2S1Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D2S1	Responder's Grade in Q1 (Address Well) for D2S1	Responder's Grade in Q3 (Written Well) for D2S1
2	perhaps also add 'processes' of preserving data, since this task is usually driven by very strict methodologies and guidelines; something that ID/eTUT should probably be trained in	95.24%	Expert	High Expertise	5	5	4
4	Use appropriate technologies to gather, manipulate and preserve data	90.48%	Non Expert	High Expertise	2	1	2
5	I can identify the technologies needed to preserve data	90.48	Non Expert	None Expertise	1	2	2
6	It would be good to capture also the need to be able to assess what are the data preservation requirements	76.19%	Non Expert	Low Expertise	4	4	4

	in a given setting						
8	I would refrain from using the term 'technologies' and exchange it with educational software environment.	71.43%	Expert	High Expertise	5	3	3
9	Identify suitable technologies to preserve data	76.19%	Non Expert	Low Expertise	5	4	3
11	Identify mechanisms necessary for preserving data	80.95%	Non Expert	Low Expertise	4	4	3
14	No suggestions for rewriting the statement, it is just that I'm not sure that data preservation is the task for an instructional designer / tutor; I see it more as a technical task than someone from the institution's technical support team should handle	71.43%	Non Expert	Low Expertise	3	4	4
15	Identify the tools to preserve data	52.48%	Expert	None Expertise	4	4	4
16	Data management is the process of developing, executing and supervising plans, policies, programs and practices for data creation preservation, curation and re-use by employing data manipulation methods accordingly	42.86%	Non Expert	Low Expertise	5	5	3
17	Identify the technologies, the methodologies	52.38%	Non Expert	Low Expertise	5	5	3

	and legal rules to preserve data						
18	Identify the technology to store data	52.38%	Expert	High Expertise	3	4	4
19	i'm not sure what is meant by "technologies" here. Structures like databases and repositories?	52.38%	Non Expert	Low Expertise	2	3	2
20	preserve data' is confusing in this context, it means data storing? having data access? security?	47.62%	Non Expert	Low Expertise	4	2	2
21	e.g. you could insert the terms in a hierarchical setting such as <policies, plans, programs, practices)	52.38%	Non Expert	Low Expertise	5	5	4
22	Identify suitable tools/technologies to manage data	47.62%	Expert	None Expertise	2	4	3
26	Identify the technologies required to persist/preserve the data	47.62%	Expert	High Expertise	5	5	4
31	I would raise personal data safety issues	38.10%	Non Expert	High Expertise	5	5	5
32	Identify the technology and techniques to preserve data.	42.86%	Non Expert	High Expertise	4	5	4
33	More explicit mention of which technologies	42.86%	Non Expert	None Expertise	5	5	5
35	To be honest I am not sure what this means. Preserve means save in a secure place? Does it include ways to access the data too? Overall I have trouble with	33.33%	Non Expert	Low Expertise	2	4	2

	the questions in this survey. The first question always asks if the statement addresses well the competence, but it is always a part of the competence, so how can it not be?						
36	Not 100% sure I understand it	42.86%	Non Expert	High Expertise	5	4	3
38	Identify the technologies to preserve and backup data	42.86%	Non Expert	None Expertise	4	3	2
39	They should have basic understanding of data management, but no need to be data management experts and use relevant tech for everyone!	33.33%	Expert	High Expertise	3	4	4
40	Identify the suitable technologies to preserve data	38.10%	Non Expert	Low Expertise	5	5	3
41	Identify technologies and processes for capturing and preserving data	23.81%	Non Expert	Low Expertise	4	2	2
44	Could also be done at the institution level.	33.33%	Non Expert	High Expertise	2	4	3
45	"preserve" means what here ? "Store", "Secure, etc."?	33.33%	Non Expert	Low Expertise	4	3	3
47	is aware of the technologies for data preservation	33.33%	Non Expert	Low Expertise	5	4	3
48	Identify the technologies to collect, preserve and process data	33.33%	Non Expert	Low Expertise	5	4	2
49	Identify the technologies to store data.	33.33%	Non Expert	Low Expertise	5	5	4

50	Technologies and dataformats should be referenced together.	23.81%	Non Expert	High Expertise	5	5	3
51	Identify the technologies to manage (host, protect, analyze, ...) data	19.05%	Expert	High Expertise	5	5	2
57	Identify appropriate storage mediums/services to preserve data (if that's what the statement is about)	23.81%	Non Expert	None Expertise	4	3	2
59	contemporary technologies for the secure preservation of...	23.81%	Non Expert	High Expertise	5	4	4
80	Identify the technologies and/or techniques to preserve data	19,04%	Non Expert	High Expertise	4	5	4
81	Identify the appropriate technologies to storage and preserve data	95,23%	Non Expert	High Expertise	3	4	4
83	Ability to identify, select and use the appropriate technologies for data preservation purposes.	38,09%	Non Expert	Low Expertise	4	4	3
84	to preserve and manage data	57,14%	Non Expert	Low Expertise	5	4	3
85	Technology should be identified not only to preserve data?	33,33%	Non Expert	Low Expertise	4	5	3
86	insert 'appropriate' before technologies and drop 'the'	14,28%	Expert	High Expertise	4	4	4
87	Does "preserve" mean "store"?	28,57%	Non Expert	None Expertise	5	5	4

D2S2Ri OpTxtQ	Comment	% of Replies	Responder EDL Expertise	Responder EDL Expertise	Responder's Grade in Q2	Responder's Grade in Q1	Responder's Grade in Q3
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i=1-87		provided by the Responder to all Open Questions of this Category	(High, Low, None)	(Expert, Non-Expert)	(Importance) for D2S2	(Address Well) for D2S2	(Written Well) for D2S2
1	use 'Select appropriate' instead of 'know'	90.48%	Non Expert	None Expertise	5	5	2
2	The term 'manipulation' is probably used deliberately. Since it may have negative meanings in some cases, perhaps 'processing' could be considered	95.24%	Expert	High Expertise	5	5	4
4	Apply data manipulation methods [NOTE: know is enabling to apply and so not necessary]	90.48%	Non Expert	High Expertise	5	5	1
5	I know and can apply data manipulation methods	90.48	Non Expert	None Expertise	3	3	2
6	I would add that the methods should be "appropriate"	76.19%	Non Expert	Low Expertise	5	4	4
10	Identify and apply data manipulation methods.	80.95%	Non Expert	High Expertise	4	4	3
11	Apply methods of data manipulation	80.95%	Non Expert	Low Expertise	4	4	3
12	This is double-barreled. It focuses on two concepts, knowledge and application. This needs to be split into two statements, and the verb "know" needs to be better operationalized.	76.19%	Non Expert	Low Expertise	4	2	2
13	Select and	76.19%	Expert	High	5	5	4

	apply data manipulation methods			Expertise			
14	Maybe "working knowledge of data manipulation methods" or "knowing how to apply..."? The current statement does not sound as a competence	71.43%	Non Expert	Low Expertise	4	4	3
16	Know and apply data manipulation, aggregation and link methods	42.86%	Non Expert	Low Expertise	5	5	3
20	data manipulation is not usual in this context, data management or analysis is more usual.	47.62%	Non Expert	Low Expertise	4	3	2
21	e.g insert manipulation methods (ethics, validity, reliability)	52.38%	Non Expert	Low Expertise	5	4	4
23	The above statements suggests that the data may me altered in the manipulation process which is not the goal, instead I would propose "Know and apply data transformation and conversion methods."	33.33%	Non Expert	High Expertise	3	5	3
25	Suggest to add a qualifier 'Know and apply appropriate/suitable data manipulation methods'	42.86%	Non Expert	Low Expertise	4	5	4
34	change to "...appropriate data manipulation methods"	38.10%	Non Expert	High Expertise	5	4	4

35	I don't know what it means and the term data manipulation gives an association with fraud.	33.33%	Non Expert	Low Expertise	3	4	1
36	Not 100% I understand what it means	42.86%	Non Expert	High Expertise	4	4	3
39	See response to 2.2	33.33%	Expert	High Expertise	2	4	4
45	Know and apply data analysis methods	33.33%	Non Expert	Low Expertise	4	5	3
46	separate questions	33.33%	Non Expert	Low Expertise	4	4	2
47	Know and apply data processing methods	33.33%	Non Expert	Low Expertise	5	3	4
49	Know and apply data handling methods (manipulation has a negative connotation)	33.33%	Non Expert	Low Expertise	4	4	3
58	Manipulate sounds negative.	19.05%	Non Expert	None Expertise	2	4	1
63	I would use modification rather than manipulation as this sounds deceitful	23.81%	Non Expert	Low Expertise	4	4	3
65	It might be more about analyzing - manipulation sounds rather generic.	19.5%	Non Expert	None Expertise	3	3	2
67	I would use 'processing' rather than 'manipulation', so that it would be: "Know and apply data processing methods"	9.52%	Non Expert	Low Expertise	4	4	4
68	What is data manipulation method? Is it altering data to make it readable? Inserting data in DB? Retrieving data	16.05%	Non Expert	Low Expertise	4	3	2

	from DB? It would be nice to define it.						
69	Know, understand and apply data manipulation methods	9.52%	Non Expert	None Expertise	3	5	4
81	Apply data manipulation methods to clean and prepare data for curation, analysis, and re-use	95,23%	Non Expert	High Expertise	3	5	2
86	application implies knowledge so 'apply appropriate' could be used instead of 'know and apply'	14,28%	Expert	High Expertise	4	4	4
87	I thought the word "manipulation" is vague, unless it has been defined earlier.	28,57%	Non Expert	None Expertise	4	3	3

D2S3Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D2S3	Responder's Grade in Q1 (Address Well) for D2S3	Responder's Grade in Q3 (Written Well) for D2S3
1	use 'Select appropriate' instead of 'know'	90.48%	Non Expert	None Expertise	5	5	2
4	Apply methods for data curation and data reuse [NOTE: As above]	90.48%	Non Expert	High Expertise	5	5	1
5	I know and can apply data curation and data re-use methods	90.48	Non Expert	None Expertise	1	2	2
6	Similarly, I would add that the methods should be	76.19%	Non Expert	Low Expertise	5	4	4

	"appropriate"						
10	Identify and apply data curation and data re-use methods.	80.95%	Non Expert	High Expertise	5	4	3
11	Apply data curation methods	80.95%	Non Expert	Low Expertise	4	4	3
12	This is double-barreled. It focuses on two concepts, knowledge and application. This needs to be split into two statements, and the verb "know" needs to be better operationalized.	76.19%	Non Expert	Low Expertise	2	2	2
13	Select and apply data curation and data re-use methods	76.19%	Expert	High Expertise	4	3	4
14	The same comment as the one above (2.2)	71.43%	Non Expert	Low Expertise	4	4	3
16	Know and apply data curation and data search, retrieve, transform, classify information and re-use methods	42.86%	Non Expert	Low Expertise	5	5	3
17	Know, customize and apply data curation and data re-use methods	52.38%	Non Expert	Low Expertise	5	4	4
18	Know and apply data modification, use and re-use methods	52.38%	Expert	High Expertise	5	4	4
20	I think 'data curation' will not well understood by eTutors and alike. It'd better use the processes involving data curation: creation,	47.62%	Non Expert	Low Expertise	2	2	2

	management, maintenance and validation.						
25	Data curation and data reuse are not the same. Measurement of the competence statement may get tricky if they are both included in the same statement.	42.86%	Non Expert	Low Expertise	5	5	4
31	I would add 'to adress specific needs' eg I would add the dimension of purpose of use or re-use	38.10%	Non Expert	High Expertise	4	5	4
36	Must include reference to intellectual property - esp regarding 'reuse' surely?	42.86%	Non Expert	High Expertise	5	4	3
39	See response to 2.1	33.33%	Expert	High Expertise	2	4	4
49	Know and apply data maintenance and data re-use methods	33.33%	Non Expert	Low Expertise	4	4	3
51	It may be no so straightforward for practitioners to differentiate 2.2 and 2.3	19.05%	Expert	High Expertise	5	5	3
59	...ethically apply...	23.81%	Non Expert	High Expertise	5	5	4
77	Know and apply data organization methods	9.52%	Expert	High Expertise	5	5	3
79	can include items related to visualization	9.52%	Expert	High Expertise	4	5	5
81	Select and apply the appropriate methods for data curation and to facilitate data re-use	95,23%	Non Expert	High Expertise	3	5	4
82	can include items related to visualization	9,52%	Non Expert	Low Expertise	4	5	5
83	Knowledge and ability of	38,09%	Non Expert	Low Expertise	4	4	3

	application of data curation and data re-use methods.						
84	this is the same as data manipulation	57,14%	Non Expert	Low Expertise	4	5	3
87	I would probably separate the "data curation and data re-use methods" into two statements.	28,57%	Non Expert	None Expertise	5	4	4

D2S4Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D2S4	Responder's Grade in Q1 (Address Well) for D2S4	Responder's Grade in Q3 (Written Well) for D2S4
1	use 'Utilize' instead of 'know'	90.48%	Non Expert	None Expertise	5	5	2
2	Perhaps add "and apply" so the competence covers the action of not only understanding by also engaging in	95.24%	Expert	High Expertise	4	5	4
4	Interpret data descriptions (metadata)	90.48%	Non Expert	High Expertise	4	2	3
5	I understand metadata for data management	90.48	Non Expert	None Expertise	1	4	2
6	Add also the need to be able to make appropriate use of metadata	76.19%	Non Expert	Low Expertise	5	4	4
7	Data representation schemes	57.14%	Non Expert	Low Expertise	3	3	3
8	no need to change	71.43%	Expert	High Expertise	5	5	5
9	Understand and use Data Description	76.19%	Non Expert	Low Expertise	4	5	2
10	Identify data description	80.95%	Non Expert	High Expertise	4	4	3

	(metadata).						
11	Describe the use of metadata	80.95%	Non Expert	Low Expertise	3	4	3
12	The verb "understand" needs to be operationalized. What does it mean to understand metadata?	76.19%	Non Expert	Low Expertise	5	2	2
13	Select and interpret data description (metadata)	76.19%	Expert	High Expertise	4	4	3
15	Understand data description (data about data, i.e. metadata)	52.48%	Expert	None Expertise	5	4	3
16	Understand data taxonomies and codes as well as description (metadata)	42.86%	Non Expert	Low Expertise	5	5	3
21	Data management is the process of developing, executing and supervising policies, plans, programs and practices for data preservation, curation and re-use by employing data manipulation methods (ethics, validity, reliability) accordingly.	52.38%	Non Expert	Low Expertise	5	5	5
22	Understand data context and metadata	47.62%	Expert	None Expertise	4	4	3
25	While understanding metadata is very important, I do not clearly see how it addresses this competence dimension. In any case,	42.86%	Non Expert	Low Expertise	5	3	4

	statement 2.4 should be kept somewhere, and it somewhat fits for dimension #2.						
26	Understand the data description.	47.62%	Expert	High Expertise	5	5	4
28	in general I would be looking to see how the statement shows what people can demonstrate/be able to do rather than abstract understanding	47.62%	Non Expert	None Expertise	4	3	3
29	Understand metadata	47.62%	Non Expert	High Expertise	4	5	2
36	Again, relevance of this while useful for an instructional designer - may not be relevant for an e-Tutor	42.86%	Non Expert	High Expertise	4	4	3
37	Know how to describe data properly, i.e design and manipulate metadata	38.10%	Non Expert	High Expertise	5	5	3
38	Understand data description techniques using metadata	42.86%	Non Expert	None Expertise	1	4	2
39	See response to 2.1	33.33%	Expert	High Expertise	2	4	4
40	Understand the metadata of collected data	38.10%	Non Expert	Low Expertise	5	5	3
47	Understand educational metadata schemas	33.33%	Non Expert	Low Expertise	4	4	2
48	Understand data description (metadata) and properties	33.33%	Non Expert	Low Expertise	5	4	3
81	Not sure. Maybe "Interpret..."?	95,23%	Non Expert	High Expertise	4	5	4
83	Understand the use of	38,09%	Non Expert	Low Expertise	4	4	3

	metadata for data description purposes.						
84	this could be interpreted as data curation as well	57,14%	Non Expert	Low Expertise	5	5	4

D3S1Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D3S1	Responder's Grade in Q1 (Address Well) for D3S1	Responder's Grade in Q3 (Written Well) for D3S1
1	use 'Select appropriate' instead of 'know'	90.48%	Non Expert	None Expertise	5	5	2
2	The term 'basic' is somewhat confusing - at which point does a method stops being basic? If examples could be provided, then it should be clearer. Otherwise, perhaps it would make sense to omit this term completely	95.24%	Expert	High Expertise	5	5	4
4	Apply data analysis methods	90.48%	Non Expert	High Expertise	5	5	2
5	I know and can apply basic data analysis methods	90.48	Non Expert	None Expertise	3	4	2
6	Again, I would add "as appropriate"	76.19%	Non Expert	Low Expertise	5	4	4

8	It is unclear to me if data is only seen as numerical/quantitative data or if the analysis also includes qualitative data. It is unclear what (the basic ... methods) are. More clarity is needed.	71.43%	Expert	High Expertise	5	3	3
9	Apply basic data analysis methods	76.19%	Non Expert	Low Expertise	5	5	2
10	Identify and apply the basic data analysis methods.	80.95%	Non Expert	High Expertise	5	5	3
11	Apply basic methods for data analysis	80.95%	Non Expert	Low Expertise	4	4	3
12	This is double-barreled. It focuses on two concepts, knowledge and application. This needs to be split into two statements, and the verb "know" needs to be better operationalized. The article "the" can safely be omitted.	76.19%	Non Expert	Low Expertise	4	2	2
13	Select and apply the basic data analysis methods	76.19%	Expert	High Expertise	5	5	4
14	As in the case of some competence statements for dimension 2, here again, I would suggest changing the statement so that it implies having a working knowledge and skills required for data analysis. Another thing, it is unclear	71.43%	Non Expert	Low Expertise	4	4	4

	what is meant by basic (analytical methods).						
15	Know and apply the basic data analysis methods and tools	52.48%	Expert	None Expertise	3	4	4
18	Know and apply the basic data processing and analysis methods	52.38%	Expert	High Expertise	4	5	4
20	data analysis should not include data processing that comes earlier	47.62%	Non Expert	Low Expertise	4	2	3
21	e.g. insert (statistical criteria)	52.38%	Non Expert	Low Expertise	5	4	5
22	Know and apply basic data analysis methods	47.62%	Expert	None Expertise	4	4	4
23	It should be clarified what "basic data analysis methods" means. A first competency would be to be able to state an appropriate hypothesis based on a business observation. The next competency would be to identify which data are needed to evaluate the hypothesis. Then the techniques to actually evaluate available data.	33.33%	Non Expert	High Expertise	4	2	2
24	It's difficult to understand what is "basic" but I do not have a good solution.	47.62%	Expert	High Expertise	5	5	3
27	Would add "both basic AND ADVANCED" to the statement.	28.57%	Non Expert	High Expertise	5	5	2

28	what are "the basic data analysis methods"? I don't think people will know what is meant - this is extremely broad	47.62%	Non Expert	None Expertise	3	2	2
29	Know and apply common data analysis methods (basic sounds too simplistic).	47.62%	Non Expert	High Expertise	3	5	3
32	Know and apply the most appropriate basic and advanced data analysis methods for given situation.	42.86%	Non Expert	High Expertise	4	4	3
36	Include reference to specific outcomes - ie. why you would data analyse - give examples in the leading statement, to provide context - could be subject to interpretation	42.86%	Non Expert	High Expertise	5	5	4
37	Know which data analysis methods are proper for the given task and know how to apply them (there's so many and I don't think knowing just the "basic ones" are too useful in the long term...)	38.10%	Non Expert	High Expertise	5	5	1
38	Know and apply the basic data analysis methods such as Statistics, Data Visualisation, and Data Mining	42.86%	Non Expert	None Expertise	5	4	4
39	I don't think the skill should involved into the literacy at	33.33%	Expert	High Expertise	1	1	1

	all. We can't expect that everyone is a data scientist.						
40	Know (What) and apply (How) ==> What and How are together. Different from #1 Dimension.	38.10%	Non Expert	Low Expertise	5	5	3
43	Know and apply a range of data collection and analysis methods	38.10%	Non Expert	High Expertise	5	1	1
44	Know and apply the basic data analysis methods (e.g., descriptive statistics)	33.33%	Non Expert	High Expertise	5	5	3
45	"basic" appears fuzzy here, instead pick specific methods, e.g. able to understand statistical summary (or description) of data	33.33%	Non Expert	Low Expertise	5	5	3
46	methods like...	33.33%	Non Expert	Low Expertise	5	5	2
55	Understand and apply basic data analysis methods	28.57%	Non Expert	Low Expertise	5	3	5
56	Add a definition of what is meant by basic data analysis methods as this depends on the level of prior knowledge	19.05%	Non Expert	High Expertise	3	5	4
62	Know and apply basic data analysis methods X depending on situation Y.	19.05%	Non Expert	High Expertise	4	4	4
63	Data analysis and interpretation	23.81%	Non Expert	Low Expertise	4	4	4
68	What are the basic analysis methods you are referring to? It would be	16.05%	Non Expert	Low Expertise	5	3	4

	nice to have examples.						
69	Know, understand and apply the basic data analysis methods	9.52%	Non Expert	None Expertise	4	5	4
70	Know how to apply the basic data analysis methods	14.26%	Non Expert	High Expertise	3	4	3
71	Understand basic data analysis methods and their applications.	9.52%	Non Expert	High Expertise	2	2	2
73	Add an example for data analysis methods	9.52%	Non Expert	High Expertise	5	4	4
75	Know and apply basic data analysis methods	14.29%	Non Expert	High Expertise	4	5	4
81	Select and apply basic data analysis methods	95,23%	Non Expert	High Expertise	5	5	4
83	Example data analysis methods should be provided (e.g. application of descriptive statistics, such as calculation of mean value, median, variance, quartiles, etc.).	38,09%	Non Expert	Low Expertise	4	4	2
86	some clarification of the term 'basic' would improve this	14,28%	Expert	High Expertise	5	5	3

D3S2Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responde r to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D3S2	Responder's Grade in Q1 (Address Well) for D3S2	Responder's Grade in Q3 (Written Well) for D3S2
1	use 'Select appropriate' instead of	90.48%	Non Expert	None Expertise	5	5	2

	'understand'						
3	No clear distinction from 3.1. Is this not included in the analysis method?	71.43%	Expert	High Expertise	5	3	3
4	Follow a basic data analysis process	90.48%	Non Expert	High Expertise	4	5	2
5	I understand and can apply basic data analysis process steps	90.48	Non Expert	None Expertise	2	3	2
6	As for 3.1	76.19%	Non Expert	Low Expertise	5	4	4
9	Apply the basic data analysis process steps	76.19%	Non Expert	Low Expertise	5	5	2
10	Identify and apply the basic data analysis process steps.	80.95%	Non Expert	High Expertise	4	5	3
11	Apply basic processes for data analysis	80.95%	Non Expert	Low Expertise	4	4	3
12	This is double-barreled. It focuses on two concepts, understanding and application. This needs to be split into two statements, and the verb "understand" needs to be better operationalized. There is overlap with 3.1 in that application of methods (3.1) is not differentiated from application of procedures or "process steps" (3.2). The article "the" can safely be omitted.	76.19%	Non Expert	Low Expertise	4	2	2
13	Describe and apply the basic data analysis process steps	76.19%	Expert	High Expertise	4	4	3
14	I do not see a	71.43%	Non Expert	Low Expertise	4	4	3

	clear distinction between this and the previous statement (3.1). I suppose the former is about knowing methods in general, whereas the latter is knowing how to combine them, in what order to execute them, and the like. In any case, maybe a slight rewording to make the difference clearer.						
15	Understand and apply the basic data analysis process (procedures and steps)	52.48%	Expert	None Expertise	3	4	3
21	e.g. insert <processing (based on the right statistical criteria)	52.38%	Non Expert	Low Expertise	5	5	4
22	Remove - this is the same as 3.1	47.62%	Expert	None Expertise	1	1	1
23	see 3.1	33.33%	Non Expert	High Expertise	4	2	2
24	Again it's difficult to understand what are the basic processes. However, in this competence there is a limited number of these (not as for 3.1). Therefore, maybe it's possible to list these here?	47.62%	Expert	High Expertise	4	4	3
25	There seems to be some overlap between statements 3.1	42.86%	Non Expert	Low Expertise	5	5	3

	& 3.2.						
26	should it be "processing"?	47.62%	Expert	High Expertise	5	5	5
27	Would add "both basic AND ADVANCED" to the statement.	28.57%	Non Expert	High Expertise	5	5	3
28	same issue here - what steps?	47.62%	Non Expert	None Expertise	3	2	2
29	Understand and apply common data analysis process steps	47.62%	Non Expert	High Expertise	4	5	2
30	Undertake basic data analysis	33.33%	Non Expert	High Expertise	5	3	3
31	It is not clear what you mean by 'steps'	38.10%	Non Expert	High Expertise	4	5	4
33	Give examples of the steps	42.86%	Non Expert	None Expertise	5	5	5
34	"basic" is context-dependent, of course	38.10%	Non Expert	High Expertise	5	5	5
35	What are the basic steps?	33.33%	Non Expert	Low Expertise	2	4	2
37	Understand and apply the process for the analysis method that is being used (again, there's many)	38.10%	Non Expert	High Expertise	5	5	1
39	I don't think the skill should involved into the literacy at all. We can't expect that everyone is a data scientist.	33.33%	Expert	High Expertise	1	1	1
40	"Apply" should know the steps, it is better that 3.1 just Know or Understand, and 3.2 How to apply with concrete steps	38.10%	Non Expert	Low Expertise	5	5	2
44	The difference between Statements 3.1 and 3.2 is not obvious.	33.33%	Non Expert	High Expertise	4	5	3
45	Able to statistically summarise or	33.33%	Non Expert	Low Expertise	4	5	3

	describe data						
46	different things	33.33%	Non Expert	Low Expertise	5	5	2
51	It may not be easy to differentiate 3.1 and 3.2	19.05%	Expert	High Expertise	5	5	2
56	Definition of basic data analysis process steps	19.05%	Non Expert	High Expertise	3	5	4
57	Seems to be similar to statement 3.1	23.81%	Non Expert	None Expertise	5	3	3
68	very similar to the previous statement	16.05%	Non Expert	Low Expertise	3	3	3
74	What about mentioning also tools to undertake basic data analysis?	9.52%	Non Expert	Low Expertise	4	3	3
77	Understading process could be considered 3.1 before knowing methods.	9.52%	Expert	High Expertise	5	5	5
81	Not sure what it means or what it adds to 3.1. Maybe "Design and implement data analysis procedures"?	95,23%	Non Expert	High Expertise	3	3	2
83	Statement 3.2 could be merged with statement 3.1. For intance "Know and apply basic data analysis methods (e.g. application of descriptive statistics, such as calculation of mean value, median, variance, quartiles, etc.) and implement involved data analysis steps."	38,09%	Non Expert	Low Expertise	3	3	2
84	combine it with 3.1	57,14%	Non Expert	Low Expertise	3	5	3
85	Does #3.1 include #3.2? Or #3.1 should change to focus on a	33,33%	Non Expert	Low Expertise	5	4	2

	selection of methods.						
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D3S3Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D3S3	Responder's Grade in Q1 (Address Well) for D3S3	Responder's Grade in Q3 (Written Well) for D3S3
1	use 'Select appropriate' instead of 'understand'	90.48%	Non Expert	None Expertise	5	5	2
2	The term basic again might not be a great fit; perhaps make the competence more general by using "the appropriate data presentation methods" (for the specific educational question they aim to answer through data analysis and result presentation)	95.24%	Expert	High Expertise	5	5	3
4	Apply basic data presentation methods	90.48%	Non Expert	High Expertise	5	5	2
5	I understand and can apply the basic data presentation methods	90.48	Non Expert	None Expertise	2	4	3
6	As for 3.1	76.19%	Non Expert	Low Expertise	5	4	4
7	Data analytics	57.14%	Non Expert	Low Expertise	4	4	4
8	as above - not sure what 'the basic data presentation methods' are	71.43%	Expert	High Expertise	5	3	3
9	Apply basic data presentation methods	76.19%	Non Expert	Low Expertise	5	5	2
10	Identify and apply the basic data presentation methods.	80.95%	Non Expert	High Expertise	5	5	3

11	Apply basic methods for data presentation	80.95%	Non Expert	Low Expertise	4	4	3
12	This is double-barreled. It focuses on two concepts, understanding and application. This needs to be split into two statements, and the verb "understand" needs to be better operationalized. The article "the" can safely be omitted.	76.19%	Non Expert	Low Expertise	5	2	2
13	Select and apply the basic data presentation methods	76.19%	Expert	High Expertise	5	5	4
17	Understand, prepare and apply the basic data presentation methods	52.38%	Non Expert	Low Expertise	4	5	4
18	Understand and apply the basic data presentation and reporting methods	52.38%	Expert	High Expertise	5	4	4
22	Understand and apply basic data presentation methods to communicate ideas effectively	47.62%	Expert	None Expertise	5	4	3
23	I would suggest to separate two competences for data presentation: data presentation for instruction and data presentation for knowledge discovery. The latter I would add to the basic analytics	33.33%	Non Expert	High Expertise	5	5	4

	competencies or to 4..						
24	I'm not sure if this is only methods or there should be mentioned tools and (especially) principles as well (how to make data visible and support awareness of data for others).	47.62%	Expert	High Expertise	5	5	4
27	Would add "both basic AND ADVANCED" to the statement.	28.57%	Non Expert	High Expertise	5	4	3
28	I'm not clear on what analysis methods, steps or means of presentation are being talked about here. Examples might help.	47.62%	Non Expert	None Expertise	3	2	2
29	Understand and apply common data presentation methods	47.62%	Non Expert	High Expertise	4	5	2
32	Know and apply the most appropriate data presentation methods for given data and situation.	42.86%	Non Expert	High Expertise	4	3	3
36	To apply basic presentation of data analysed or other data? Unclear.	42.86%	Non Expert	High Expertise	5	5	4
37	Again, there's many representation methods, visualizations etc.	38.10%	Non Expert	High Expertise	5	5	1
39	I don't think the skill should involved into the literacy at all. We can't expect that everyone is a data scientist.	33.33%	Expert	High Expertise	1	1	1

43	Understand and apply a broad range of data presentation methods	38.10%	Non Expert	High Expertise	5	2	2
45	Able to understand and apply data visualization methods	33.33%	Non Expert	Low Expertise	4	5	3
47	"basic data presentation methods" seems ambiguous as term	33.33%	Non Expert	Low Expertise	4	3	3
48	Understand and apply the basic data visualization and dissemination methods	33.33%	Non Expert	Low Expertise	5	5	4
51	Understand and apply basic data presentation methods (without the article)	19.05%	Expert	High Expertise	5	5	3
56	Examples or a definition of the basic data presentation methods would be helpful	19.05%	Non Expert	High Expertise	4	5	4
58	Why basic?	19.05%	Non Expert	None Expertise	5	4	2
62	Again a pictorial representation of these methods would help	19.05%	Non Expert	High Expertise	3	3	3
63	Why presentation? What about using 'communication' instead?	23.81%	Non Expert	Low Expertise	5	4	4
73	Understand and apply the basic data presentation and dissemination methods	9.52%	Non Expert	High Expertise	5	4	4
75	Understand and apply basic data presentation methods	14.29%	Non Expert	High Expertise	4	5	4

80	I would use the term "data visualization" instead of "data presentation"	19,04%	Non Expert	High Expertise	4	5	4
81	Select and apply basic data presentation methods	95,23%	Non Expert	High Expertise	5	4	3
84	not clear what is meant by data "presentation", does this include modeling and visualization techniques as well?	57,14%	Non Expert	Low Expertise	3	4	3

D4S1Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D4S1	Responder's Grade in Q1 (Address Well) for D4S1	Responder's Grade in Q3 (Written Well) for D4S1
1	use 'Interpret' instead of 'understand'	90.48%	Non Expert	None Expertise	5	5	2
2	I think the statement mixes "Data" with "insights (from data analysis)". Perhaps the term data could be replaced with "insights from data analysis" or something along these lines	95.24%	Expert	High Expertise	5	5	3
3	put positive first (key take-away points), and perhaps add "weighting"	71.43%	Expert	High Expertise	5	5	4
4	Define key terms relating to data and its analysis	90.48%	Non Expert	High Expertise	1	1	1
5	I can comprehend and interpret	90.48	Non Expert	None Expertise	2	2	1

	data and can identify the key take-away points						
8	I would include 'biases' here too - see https://www.businessinsider.com.au/cognitive-biases-that-affect-decisions-2016-7	71.43%	Expert	High Expertise	5	4	4
9	Evaluate/Assess quality and limitations of analysis (e.g.,)	76.19%	Non Expert	Low Expertise	5	3	1
10	Interpret data (e.g., measurement error, discrepancies within data, key take-away points).	80.95%	Non Expert	High Expertise	5	5	3
11	Describe the dimensions of data (e.g., measurement error, discrepancies within data, key take-away points)	80.95%	Non Expert	Low Expertise	4	4	3
12	The verb "understand" must be operationalized. What does it mean to understand data?	76.19%	Non Expert	Low Expertise	5	2	2
13	This is a confusing construct. You have too much going on here and it confounds the meaning I think.	76.19%	Expert	High Expertise	5	5	1
14	Maybe not only to understand the data but also results of analytics methods (being applied on the data)	71.43%	Non Expert	Low Expertise	5	4	4
17	Understand data (e.g., underlying	52.38%	Non Expert	Low Expertise	4	4	4

	statistics, measurement error, discrepancies within data, key take-away points)						
24	It's a bit too short and the list of examples is limited. I do not have a good solution.	47.62%	Expert	High Expertise	5	5	4
26	Understand the data.	47.62%	Expert	High Expertise	5	5	4
27	add "underlying trends, outliers" to list	28.57%	Non Expert	High Expertise	5	4	3
28	I'm not seeing how a non-specialist/someone who is not a data analyst would be able to grasp this and use it - it's so abstract - what problems, what kinds of solutions? "understand data" is a very broad statement to make, to my reading	47.62%	Non Expert	None Expertise	3	3	2
30	This may be better placed with number 3	33.33%	Non Expert	High Expertise	5	2	2
31	Understand how they relate with interaction behaviour	38.10%	Non Expert	High Expertise	5	4	4
32	Understand the theoretical and applied nature of data and associated constructs (alternatively, meaning). (the elements of the current definition are statistics not data -- conflicts with the next statement).	42.86%	Non Expert	High Expertise	3	2	2
36	Quite 'nuanced' for a	42.86%	Non Expert	High Expertise	3	5	4

	competency, and would not apply across the board in terms of requirements?						
41	Understand data at a conceptual level	23.81%	Non Expert	Low Expertise	5	2	2
44	Understand raw data?	33.33%	Non Expert	High Expertise	5	5	5
45	Identify data dependencies and patterns	33.33%	Non Expert	Low Expertise	3	4	3
53	The expression is not clear... especially the connection between the examples and the statement itself	28.57%	Non Expert	None Expertise	4	4	3
63	Understand data validity/reliability	23.81%	Non Expert	Low Expertise	5	4	4
81	Identify and account as needed for the characteristics and limitations of the data, including measurement error, discrepancies within the data, and key take-away points	95,23%	Non Expert	High Expertise	5	5	3
83	Understand data analysis outcomes	38,09%	Non Expert	Low Expertise	4	4	3
84	understand what the data represents	57,14%	Non Expert	Low Expertise	4	5	4

D4S2Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D4S2	Responder's Grade in Q1 (Address Well) for D4S2	Responder's Grade in Q3 (Written Well) for D4S2
1	use 'Interpret' instead of 'understand'	90.48%	Non Expert	None Expertise	5	5	2
2	I think this statement is	95.24%	Expert	High Expertise	5	5	3

	very broadly defined and difficult to assess in a person. In the previous dimension there was mention of data analysis methods, which could be considered a sub-set of this statement as well. Perhaps limit the statement to the specific aspects of statistics that are relevant to the EDL Competence framework						
3	Too vague. Add examples in parenthesis (e.g. means, dispersion)	71.43%	Expert	High Expertise	5	3	3
4	Interpret statistics	90.48%	Non Expert	High Expertise	4	4	1
5	I understand statistics and the limitations of statistical analysis	90.48	Non Expert	None Expertise	2	4	2
6	Perhaps be a bit more expansive about what "understanding statistics" means in this context	76.19%	Non Expert	Low Expertise	5	4	4
9	In which way? Seems to be redundant.	76.19%	Non Expert	Low Expertise	5	1	1
10	Describe statistics.	80.95%	Non Expert	High Expertise	4	4	3
11	Describe the essential elements of statistics (e.g., randomness, central tendencies, mean, standard deviation, significance)	80.95%	Non Expert	Low Expertise	4	4	3
12	The term "understand" must be operationalize	76.19%	Non Expert	Low Expertise	4	2	2

	d. What does it mean to understand statistics?						
13	Select and apply appropriate descriptive and inferential statistics	76.19%	Expert	High Expertise	5	5	1
14	It is unclear to me what is meant here by "statistics" - the results of statistical analysis applied to data? Statistics methods and techniques? Both? Something else?	71.43%	Non Expert	Low Expertise	3	3	2
16	Understand descriptive and statistics inference	42.86%	Non Expert	Low Expertise	5	5	1
19	"Understand statistics" is too generic and can be misinterpreted . Maybe "Understand fundamental principles of statistical methods in educational contexts" or something similar that focuses on the methods used in Educational Research.	52.38%	Non Expert	Low Expertise	4	4	1
20	Statistics is not enough to comprehend data and extract conclusions	47.62%	Non Expert	Low Expertise	3	2	3
22	Understand basic statistics relevant for domain data	47.62%	Expert	None Expertise	4	4	3
23	As "statistics" is a wide field it is unclear what this really refers to. Which concepts indicate	33.33%	Non Expert	High Expertise	4	4	3

	sufficient understanding. I would propose certain relevant concepts, such as understanding correlation and regression.						
24	A very broad topic and, therefore, it's almost impossible to assess the level of this competence.	47.62%	Expert	High Expertise	5	5	3
25	Statistics is vast and diverse! This statement appears too broad. In fact statements 4.1 as well as 4.3 are also contained within statistics. Perhaps one way to scope this statement is to give examples of topics within statistics which are expected to be understood.	42.86%	Non Expert	Low Expertise	4	3	3
26	What statistics? Maybe be a *bit* more specific? This seems direct but also quite vague.	47.62%	Expert	High Expertise	4	3	2
28	This is a two word statement which says nothing about what the person could demonstrate/h ow they would show their understanding of statistics. Surely this is far too broad?	47.62%	Non Expert	None Expertise	3	2	2
29	Understand statistical	47.62%	Non Expert	High Expertise	4	5	2

	methods commonly used with educational data.						
30	Does this fit better with competence 3 ? Also since C\# 3 deals with basic data analysis, should this be basic statistics. this also brings into question what is meant by "Basic)	33.33%	Non Expert	High Expertise	5	3	3
32	Understand statistics and appropriate statistical methods.	42.86%	Non Expert	High Expertise	4	3	3
33	Elaborate what the statistics are for	42.86%	Non Expert	None Expertise	5	5	5
34	add: ...appropriate statistical concepts...	38.10%	Non Expert	High Expertise	5	5	3
35	there are many ways to understand statistics. many know the technical procedures but have no conceptual idea at all.	33.33%	Non Expert	Low Expertise	3	4	1
36	What type of statistics - to what level, for what purpose?	42.86%	Non Expert	High Expertise	3	3	4
37	Understand the statistics of the data? Understand statistics in general? (Both are important but I don't fully understand what is being meant here)	38.10%	Non Expert	High Expertise	5	5	1
38	Understand and use statistical methods to analyse data to improve decision making	42.86%	Non Expert	None Expertise	4	3	1
40	Just two words, better	38.10%	Non Expert	Low Expertise	5	5	1

	to be more descriptive.						
41	Understand key statistical concepts	23.81%	Non Expert	Low Expertise	5	2	2
42	perhaps further explanation / context to understand the breadth of the requirement	38.10%	Non Expert	None Expertise	3	3	3
43	Understanding and applying basic statistical methods using R	38.10%	Non Expert	High Expertise	5	2	2
44	Understand statistical inferences	33.33%	Non Expert	High Expertise	4	5	4
46	too general	33.33%	Non Expert	Low Expertise	4	3	2
49	I don't think this item is needed, it is already a part of 4.1	33.33%	Non Expert	Low Expertise	3	3	3
50	Under Stand statistics huge area, 2 words, should probably require a number of competencies for this areas along	23.81%	Non Expert	High Expertise	5	4	1
53	Statement that is too generic	28.57%	Non Expert	None Expertise	4	4	3
54	be specific	28.57%	Non Expert	High Expertise	4	4	3
56	A stronger relation to the overall definition #4	19.05%	Non Expert	High Expertise	5	4	4
57	Could be more specific	23.81%	Non Expert	None Expertise	4	4	3
59	understand statistics and relevant limitations	23.81%	Non Expert	High Expertise	5	5	4
62	Understand statistics and its use in different circumstances	19.05%	Non Expert	High Expertise	4	4	4
65	One might wonder what the difference is between data and a statistic..	19.5%	Non Expert	None Expertise	5	5	3
73	Understand statistics and	9.52%	Non Expert	High Expertise	4	4	4

	know how to apply basic statistical methods						
80	Also in other cases, I think the importance of a dimension is not necessarily the same for tutors and designers in the sense for example that tutors need to know what data mean (interpretation) but they don't have to fully understand statistics, whereas an instructional designer needs better understanding of statistics	19,04%	Non Expert	High Expertise	4	5	4
81	This is way too broad. Not sure exactly what you have in mind here	95,23%	Non Expert	High Expertise	5	5	1
83	This statement could be included in Dimension #3 that is about data analysis methods. It could be also stated in the following way: "Having knowledge of existing statistics methods".	38,09%	Non Expert	Low Expertise	4	2	3
84	this should be under Dimension #3 or combined with 4.1	57,14%	Non Expert	Low Expertise	3	2	4
85	This can appear in the earlier dimension, data collection or analysis.	33,33%	Non Expert	Low Expertise	5	1	5

D4S3Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responde r to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D4S3	Responder's Grade in Q1 (Address Well) for D4S3	Responder's Grade in Q3 (Written Well) for D4S3
1	I think you have this covered in the first two	90.48%	Non Expert	None Expertise	5	5	3
4	Interpret data according to context and requirements	90.48%	Non Expert	High Expertise	4	3	2
5	I know how to interpret data: I can identify and explain patterns, propose hypotheses, and connect multiple observations	90.48	Non Expert	None Expertise	2	4	2
7	Data patterns detection	57.14%	Non Expert	Low Expertise	3	3	3
8	nothing to add	71.43%	Expert	High Expertise	5	5	5
9	Can interpret data (e.g.,....)	76.19%	Non Expert	Low Expertise	5	5	2
10	Interpret data (e.g., explanations of patterns, identification of hypotheses, the connection of multiple observations)	80.95%	Non Expert	High Expertise	4	5	3
11	Interpret data through analysis of patterns, identification of hypotheses, and connection of multiple observations.	80.95%	Non Expert	Low Expertise	4	4	3
12	This could be improved by rewording as "Know how to interpret data by explaining patterns, identifying hypotheses, and connecting	76.19%	Non Expert	Low Expertise	4	4	3

	multiple observations."						
13	This is another confusing standard with too much going on. Also, at the interpretation stage, you don't identify a hypothesis. You test and interpret the meaning of the hypothesis.	76.19%	Expert	High Expertise	5	5	1
14	It seems that the term "data" is used to refer both to the data that serves as the input for analytics methods and the result of such methods. It introduces a bit of confusion (at least i my head); you might consider splitting the two.	71.43%	Non Expert	Low Expertise	5	4	4
17	Know how to interpret data (e.g., explanations of patterns, identification of hypotheses, connection of multiple observations) in different ways	52.38%	Non Expert	Low Expertise	4	4	5
19	i would add the aspect of theoretical underpinning when interpreting data	52.38%	Non Expert	Low Expertise	5	4	3
21	e.g. insert <connection of multiple meaningful observations>	52.38%	Non Expert	Low Expertise	5	5	4
24	How would you differentiate it from 4.5. These seem to be too close to	47.62%	Expert	High Expertise	5	5	4

	each other.						
25	It would be good for this statement to contain an application element in addition to knowledge. For example: Know how to interpret data and be able to carry out the interpretation in a given case.	42.86%	Non Expert	Low Expertise	5	5	4
26	So when you say "data" instead of "the data" it seems as though it is referring to just general data, as opposed to "the data" relevant to the question. This feedback applies to wording in several of the statements. I realise this might not be the feedback you care about since it's more english grammar but I figure I would offer it, and you can amend or not as you wish.	47.62%	Expert	High Expertise	5	5	5
28	Again it reads to me like a set of highly specialised data analysis skills which someone working full time in statistics would have, but unlikely everyone else has time/ability to develop those skills if it is not their job	47.62%	Non Expert	None Expertise	3	2	2
34	In all of 4.3, there needs to	38.10%	Non Expert	High Expertise	5	5	3

	be a qualification of level for the required decisions.						
48	Know how to critically interpret data	33.33%	Non Expert	Low Expertise	4	4	3
51	Not clear for me the difference with 4.2 and 4.3	19.05%	Expert	High Expertise	3	3	3
65	One might wonder what is the difference between interpret and understand.	19.5%	Non Expert	None Expertise	5	5	4
81	Interpret data to explain patterns, identify hypotheses, and connect multiple observations	95,23%	Non Expert	High Expertise	5	5	3

D4S4Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D4S4	Responder's Grade in Q1 (Address Well) for D4S4	Responder's Grade in Q3 (Written Well) for D4S4
2	This is a very important competence - perhaps the first one that explicitly mentions that we are in the educational field. I believe it could be rephrased slightly to "Elicit potential connections to inform" instruction/teaching or learning design/teaching process (whichever term you think	95.24%	Expert	High Expertise	5	5	4

	is more appropriate in this context)						
4	This is unclear. What is the objective? To link data findings to instructional programmes?	90.48%	Non Expert	High Expertise	1	1	1
5	I can connect patterns in data back to instructional design	90.48	Non Expert	None Expertise	2	2	2
6	Again, be a bit more detailed about what is meant by "connections to instruction"	76.19%	Non Expert	Low Expertise	5	4	4
7	From data sources to data processing steps	57.14%	Non Expert	Low Expertise	3	3	4
8	This statement is unclear. Need clarity about what 'general' and 'potential' means.	71.43%	Expert	High Expertise	5	3	3
10	Relate potential connections to instruction.	80.95%	Non Expert	High Expertise	5	5	3
12	There is nothing in EDL competence dimension #4 dimension or definition related to instruction. What is meant by the term "instruction"?	76.19%	Non Expert	Low Expertise	4	1	4
13	Generate potential connections to learning situation. Not all data is about the instruction itself. Some data might be contextual and be equally important to decision making.	76.19%	Expert	High Expertise	5	5	3
15	Leverage data as instructional	52.48%	Expert	None Expertise	5	4	4

	assets						
19	I agree that connections to instruction are important but i cannot see this fitting in this dimension because connecting results from data-driven approaches to instruction also require pedagogical reasoning	52.38%	Non Expert	Low Expertise	4	1	1
24	A bit short - connections of what?	47.62%	Expert	High Expertise	5	4	4
25	Suggest to include a phrase that denotes the context. My interpretation of the dimension was that the emphasis was primarily on generating potential connections to instruction in the course at hand rather than generic instructional practices.	42.86%	Non Expert	Low Expertise	5	5	4
26	"Identify relevance to instruction/pedagogy"? Generate makes it sound as though you are creating it. But doesn't the connection or relevance already exist, and is just waiting for someone to pick it out and identify it's potential importance or application? Why don't we care about the potential connections to the learners?	47.62%	Expert	High Expertise	5	3	4

	Isn't that direction important to consider as well?						
29	Generate potential connections from EDL data to instruction	47.62%	Non Expert	High Expertise	5	5	4
31	'...instruction and learning'	38.10%	Non Expert	High Expertise	5	5	4
32	Connect data patterns to instructional design and outcomes.	42.86%	Non Expert	High Expertise	4	3	4
33	Give examples of the connections	42.86%	Non Expert	None Expertise	5	5	5
34	maybe "use data to drive design and use decisions"? to be consistent with 4.5	38.10%	Non Expert	High Expertise	5	5	5
37	? I don't understand what "Instruction" means here.	38.10%	Non Expert	High Expertise	3	3	1
38	This statement does not make sense - "connections"?	42.86%	Non Expert	None Expertise	2	3	1
40	Readers would have problem not sure what to respond to this question.	38.10%	Non Expert	Low Expertise	5	5	3
41	Identify links to instructional approaches	23.81%	Non Expert	Low Expertise	4	3	3
43	Generate potential connections to discover and solve academic, management and marketing problems	38.10%	Non Expert	High Expertise	5	2	2
47	Generate connections to instruction	33.33%	Non Expert	Low Expertise	5	5	3
49	Generate potential implications for instruction	33.33%	Non Expert	Low Expertise	5	5	4
50	gain insights on potential connections perhaps?	23.81%	Non Expert	High Expertise	5	4	4
52	Not sure what	14.26%	Non	High	2	2	2

	you mean.		Expert	Expertise			
66	Generate potential connections to areas and aspects of instruction	9.52%	Non Expert	None Expertise	5	5	5
73	Do you mean "connections to instructional methods an/or material"	9.52%	Non Expert	High Expertise	5	2	2
74	The description of this item is not clear to me	9.52%	Non Expert	Low Expertise	3	3	3
81	Generate actionable insights from the data and determine potential implications for instruction	95,23%	Non Expert	High Expertise	5	5	3
83	Ability to identify ways in which data analysis outcomes may drive interventions in provided instruction.	38,09%	Non Expert	Low Expertise	4	4	4
84	first the word instruction should be in the dimension statement in order to generate this EDL competence statement, second, I think this should focus on learning not instruction, or both	57,14%	Non Expert	Low Expertise	5	5	3
86	IDs and e-Tutors are learning professionals so when you say above "for the purpose of generating possible solutions and arriving at informed conclusions as a basis for decision-making." it will	14,28%	Expert	High Expertise	5	4	2

	always imply 'for learning' So I would suggest the competence is: Use data to design instruction and bring about intended learning outcomes						
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D4S5Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responde r to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D4S5	Responder's Grade in Q1 (Address Well) for D4S5	Responder's Grade in Q3 (Written Well) for D4S5
2	Perhaps this could be merged with the previous competence and form one, more elaborate, joint competence. Also, I think it should explicitly mention terms such as instruction, learning design etc, to make it clear that the focus of these decisions is on improving teaching and learning in a data-driven manner	95.24%	Expert	High Expertise	5	5	5
3	educational decisions should be taken in a complementary way, not only on data, but also other evidence, e.g. analog situation/behaviour, scientific evidence. Cf. DigCompEdu framework (EC	71.43%	Expert	High Expertise	5	4	3

	2018).						
5	I can make decisions based on data	90.48	Non Expert	None Expertise	4	4	3
6	Include a bit more detail about what kinds of decisions?	76.19%	Non Expert	Low Expertise	5	4	4
7	Data driven decision making	57.14%	Non Expert	Low Expertise	4	3	3
8	I don't like this statement. It is not that data, but the analysis of the data in a specific context that allows for informed and evidence supported decision making. Hence, I would use the term 'evidence-based' and/or 'data-informed decision making	71.43%	Expert	High Expertise	5	3	3
9	Decisions directed to? Maybe: "Draw conclusions for instruction"	76.19%	Non Expert	Low Expertise	4	4	3
10	Formulate decisions based on data.	80.95%	Non Expert	High Expertise	5	5	3
14	Whereas the previous statement (4.4) makes a clear connection to instruction, this one is general (decision making). I prefer the one that directly mentioning instruction as it makes the competence statement well contextualized	71.43%	Non Expert	Low Expertise	5	4	4
17	Make decisions and create policies based on data	52.38%	Non Expert	Low Expertise	4	3	3
18	Make	52.38%	Expert	High	5	5	5

	decisions based on data after evaluating it			Expertise			
19	As in 4.4	52.38%	Non Expert	Low Expertise	3	4	2
22	Make data-informed decisions	47.62%	Expert	None Expertise	4	4	3
24	Check the comment in 4.3.	47.62%	Expert	High Expertise	5	5	5
27	Make decisions based on data interpretation	28.57%	Non Expert	High Expertise	5	4	4
29	Make educational assessment and design decisions based on data	47.62%	Non Expert	High Expertise	5	5	4
33	Elaborate on the type/what decisions	42.86%	Non Expert	None Expertise	5	5	5
37	Make decisions based on the data analysis results	38.10%	Non Expert	High Expertise	5	5	4
38	Make evidence-based decisions using data	42.86%	Non Expert	None Expertise	2	5	3
40	General connection and make decision are kind of hand by hand in sequence.	38.10%	Non Expert	Low Expertise	5	5	3
41	Make decisions informed by data	23.81%	Non Expert	Low Expertise	4	2	2
46	it is not clear the level or the goal of the decisions	33.33%	Non Expert	Low Expertise	3	3	2
48	Make decisions based also on data	33.33%	Non Expert	Low Expertise	4	4	3
54	be specific	28.57%	Non Expert	High Expertise	5	3	3
55	Make informed decisions based on relevant data	28.57%	Non Expert	Low Expertise	4	3	3
58	Make educational decisions...	19.05%	Non Expert	None Expertise	4	2	2
63	Make	23.81%	Non Expert	Low Expertise	5	4	4

	instructional decisions based on data						
76	Make decisions based on data or offer support for decision-making	14.29%	Expert	High Expertise	4	4	3
79	have to know how to advise teachers how to revise the course	9.52%	Expert	High Expertise	5	5	5
81	I suggest dividing this one up in to "instructional design decisions" and "instructional decisions"	95,23%	Non Expert	High Expertise	5	5	3
82	have to know how to advise teachers how to revise the course	9,52%	Non Expert	Low Expertise	5	5	5

D5S1Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D5S1	Responder's Grade in Q1 (Address Well) for D5S1	Responder's Grade in Q3 (Written Well) for D5S1
2	Perhaps make it more explicit, for example: translate the insights from data analysis to improvements in the teaching/learning design and delivery process	95.24%	Expert	High Expertise	5	5	4
4	Use data to inform programme / instructional design	90.48%	Non Expert	High Expertise	4	4	2
5	I know how to use data to inform instructional	90.48	Non Expert	None Expertise	4	4	2

	design						
6	Give a bit more detail of how instruction might be informed by data?	76.19%	Non Expert	Low Expertise	5	4	4
7	Data aware recommendations	57.14%	Non Expert	Low Expertise	4	3	3
8	maybe 'instructional change' or 'improvement' could be used here to emphasise the importance of data-driven educational improvement.	71.43%	Expert	High Expertise	5	5	5
9	I can only guess what is meant by this item. Alternative maybe: "Use data to adapt instruction"	76.19%	Non Expert	Low Expertise	5	5	2
10	Apply data to inform instruction.	80.95%	Non Expert	High Expertise	5	5	3
12	I'm not sure what is meant by instruction. Does this mean design of instruction, act of physical instruction, digital instruction, etc...?	76.19%	Non Expert	Low Expertise	4	4	3
13	Again, it is not always about the instruction. Environmental variables could also be relevant. I would say learning situation or something similar.	76.19%	Expert	High Expertise	5	5	3
14	I find the statement is ambiguous. I would suggest revising it to indicate that the data would be wisely used to improve the instruction	71.43%	Non Expert	Low Expertise	4	4	3

16	Use data to redesign or inform instruction	42.86%	Non Expert	Low Expertise	5	5	3
19	again, it is important to define the role of pedagogy when providing instruction even if a data-driven approach is used	52.38%	Non Expert	Low Expertise	5	2	1
20	It should say to use the knowledge extracted from data analysis to inform/support instruction since raw data is meaningless	47.62%	Non Expert	Low Expertise	3	2	2
28	I'm not sure if it is just my reading of these statements or some lack of experience but I find them far too vague and broad - I'm not sure what data, what kinds of instruction?	47.62%	Non Expert	None Expertise	3	3	2
29	this overlaps it seems with the previous EDL competencies. Could they be combined?	47.62%	Non Expert	High Expertise	5	5	4
31	I would add the time dimension eg. on the fly	38.10%	Non Expert	High Expertise	5	5	5
33	Give examples of the instruction	42.86%	Non Expert	None Expertise	5	5	5
34	add a competency for selection and application, not just design	38.10%	Non Expert	High Expertise	5	5	5
35	I have trouble understanding the competency. What does data sharing and citation	33.33%	Non Expert	Low Expertise	4	4	3

	have to do with each other and with informing instruction?						
37	Use data analysis results to modify or improve the instruction	38.10%	Non Expert	High Expertise	5	5	2
41	Use data to inform instructional approaches	23.81%	Non Expert	Low Expertise	4	3	3
42	Could more practical words be used rather than expressing everything as 'data'. what data? where does it come from? are we talking about learning content from the ID? Were trainers or learning professional consulted? it feels like it's written by authors not involved in learning or training activity.	38.10%	Non Expert	None Expertise	3	3	2
48	Use data to inform and integrate instruction	33.33%	Non Expert	Low Expertise	4	4	3
54	be specific	28.57%	Non Expert	High Expertise	3	3	3
57	Could be more specific	23.81%	Non Expert	None Expertise	3	3	3
59	Use data to revise instruction	23.81%	Non Expert	High Expertise	5	5	5
65	One could wonder who or what exactly is meant by "instruction"	19.5%	Non Expert	None Expertise	4	4	3
69	Use data to inform and influence instruction	9.52%	Non Expert	None Expertise	4	5	5
73	As I mentioned previously, "inform Instruction" looks like	9.52%	Non Expert	High Expertise	4	2	2

	abstract to me.						
80	Inform how? It seems connected to the decision making in the previous page. It could include the term "strategies" to make it more accurate/clear	19,04%	Non Expert	High Expertise	4	4	4
81	Too vague - And it seems to overlap with the previous dimension	95,23%	Non Expert	High Expertise	5	3	2
84	use data to inform instruction and instructional designs or learning designs	57,14%	Non Expert	Low Expertise	5	5	3
85	inform instruction? This is little confusing.	33,33%	Non Expert	Low Expertise	5	5	2

D5S2Ri OpTxt Q, i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Non Expert	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D5S2	Responder's Grade in Q1 (Address Well) for D5S2	Responder's Grade in Q3 (Written Well) for D5S2
2	I am not sure what this competence refers to. Sharing data might be merged under the previous competence of how data need to be stored/curated. Citing data may be important, however I am not entirely sure what it relates to 100%.	95.24%	Expert	High Expertise	3	5	3

	Perhaps a more elaborate definition (with an example?) could alleviate this.						
4	Cite data correctly; Share data [2 different objectives]	90.48%	Non Expert	High Expertise	5	4	2
6	Add with what categories of stakeholders the sharing might be?	76.19%	Non Expert	Low Expertise	5	4	4
7	Data sharing methodologies	57.14%	Non Expert	Low Expertise	4	3	3
9	I'd change the order of item 5.2 and 5.3	76.19%	Non Expert	Low Expertise	3	3	5
10	Manage and cite data.	80.95%	Non Expert	High Expertise	5	5	3
11	Share and cite applicable data	80.95%	Non Expert	Low Expertise	4	4	3
12	This is double-barreled (share, cite). Split into two statements.	76.19%	Non Expert	Low Expertise	4	4	2
13	I am honestly not sure I understand what you mean here.	76.19%	Expert	High Expertise	4	5	3
14	This comment is not about wording of the statement; instead, I wanted to say that IMHO this competence belongs more to Dimension 6 (Data Ethics)	71.43%	Non Expert	Low Expertise	4	3	4

17	Know how to share. disseminate and cite data	52.38%	Non Expert	Low Expertise	5	4	4
19	maybe it could be more focused, citing and sharing data for what purposes?	52.38%	Non Expert	Low Expertise	2	4	4
20	"cite data" is confusing. "Share data" is meaningless.	47.62%	Non Expert	Low Expertise	2	2	2
22	Know how to share and cite data appropriately	47.62%	Expert	None Expertise	4	4	4
28	Not sure if this is relevant to this point, but people are extremely concerned about data sharing and the reasons for it. I think any statements around this have to be very carefully constructed to show when, why sharing of data is appropriate. This is too vague to explain what the benefits might be or why we would do it in certain scenarios.	47.62%	Non Expert	None Expertise	3	3	3
38	Know how to share and cite data sources	42.86%	Non Expert	None Expertise	5	5	5
42	Again further	38.10%	Non Expert	None	3	2	2

	clarification would be required to advise. In what context is this 'data' being shared? beyond the e-training module? in an LMS?			Expertise			
43	Know the policy regarding sharing and citing data	38.10%	Non Expert	High Expertise	5	4	3
44	A nice-to-have competence but in many cases might not have to be used.	33.33%	Non Expert	High Expertise	3	4	4
53	I cannot understand the "data sharing and citation" in this context...	28.57%	Non Expert	None Expertise	3	3	3
54	be specific	28.57%	Non Expert	High Expertise	3	3	3
62	Know how to share and cite data and give proper attribution	19.05%	Non Expert	High Expertise	4	4	4
63	Know whether and how to share and cite data	23.81%	Non Expert	Low Expertise	5	4	4
81	Employ accepted practices and standards for the sharing and citation of data	95,23%	Non Expert	High Expertise	3	3	3
84	I think this should be under dimension #4	57,14%	Non Expert	Low Expertise	3	2	2
87	Separate this statement into two statements. It has involves two	28,57%	Non Expert	None Expertise	5	4	3

	actions: (a) share, and (b) cite						
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D5S3Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responde r to all Open Questions of this Category	Responde r EDL Expertise (High, Low, None)	Responde r EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D5S3	Responder's Grade in Q1 (Address Well) for D5S3	Responder's Grade in Q3 (Written Well) for D5S3
2	This is a bit confusing; if by 'intervention' we mean the teaching process, then the whole of the EDL CF is related to this, so I don't think that one competence is necessary. If we mean the actual process of data collection-analysis-comprehension-redesign, then it makes more sense, however it may need to be re-phrased to make it clearer.	95.24%	Expert	High Expertise	3	5	3
4	Evaluate interventions / programmes [NOTE: The assumption here is that the interaction is based on data, but is it really data driven? All programme design should be based on data – the question is whether it's the right data).	90.48%	Non Expert	High Expertise	4	4	1
5	I know how to evaluate data-driven interventions in instructional	90.48	Non Expert	None Expertise	3	3	2

	design						
6	Add for what purposes the evaluation might be?	76.19%	Non Expert	Low Expertise	5	4	4
7	Data validation mechanisms	57.14%	Non Expert	Low Expertise	4	4	3
9	I'd change the order of item 5.2 and 5.3	76.19%	Non Expert	Low Expertise	5	5	5
11	Evaluate data-driven interventions	80.95%	Non Expert	Low Expertise	4	4	3
12	The article "the" can be safely omitted.	76.19%	Non Expert	Low Expertise	4	4	3
15	Evaluate effective use of data in instructions	52.48%	Expert	None Expertise	4	4	1
16	Evaluate the data-driven intervention	42.86%	Non Expert	Low Expertise	5	5	4
18	Evaluate the data-driven intervention, outputs and outcomes	52.38%	Expert	High Expertise	5	5	4
23	It should be more clear what "interventions" in this context are. Is it a data-driven learning intervention or is it about data-driven decisions?	33.33%	Non Expert	High Expertise	4	4	3
24	It's not clear what does it mean.	47.62%	Expert	High Expertise	4	4	5
28	I don't understand the statement, it is very unclear to me	47.62%	Non Expert	None Expertise	2	2	2
31	Too general	38.10%	Non Expert	High Expertise	5	5	4
32	Evaluate data-driven interventions.	42.86%	Non Expert	High Expertise	4	4	4
33	Give examples of the interventions	42.86%	Non Expert	None Expertise	5	5	5
36	Unclear as to what this means?	42.86%	Non Expert	High Expertise	3	3	2
38	Not sure what this statement means??	42.86%	Non Expert	None Expertise	4	4	3
41	Evaluate data-driven	23.81%	Non Expert	Low Expertise	4	3	3

	interventions						
42	Again, difficult to answer. Is it to evaluate the elearning / etraining etc ? Surely then it should be part of the broader learning evaluation? which should include all content and its mediums	38.10%	Non Expert	None Expertise	2	2	2
46	methods, tools etc	33.33%	Non Expert	Low Expertise	5	5	3
47	Design and implement the evaluation of data-driven interventions	33.33%	Non Expert	Low Expertise	4	3	1
52	Not sure what you mean	14.26%	Non Expert	High Expertise	3	3	3
54	be specific	28.57%	Non Expert	High Expertise	5	3	3
59	...intervention or revision to the instruction	23.81%	Non Expert	High Expertise	5	5	4
66	Critically evaluate the data-driven intervention	9.52%	Non Expert	None Expertise	5	5	5
75	Evaluate data-driven interventions	14.29%	Non Expert	High Expertise	5	5	3
77	Evaluate the data-informed intervention	9.52%	Expert	High Expertise	5	5	4
84	it's not clear which intervention is being referred to here, is it the instructional intervention? If yes, then what is data application? are we using data to inform the design of an instructional intervention?	57,14%	Non Expert	Low Expertise	5	3	4
85	Evaluate? Encourage?	33,33%	Non Expert	Low Expertise	5	4	3
86	evaluate data driven intervention strategies	14,28%	Expert	High Expertise	4	4	3

D6S1Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responde r to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D6S1	Responder's Grade in Q1 (Address Well) for D6S1	Responder's Grade in Q3 (Written Well) for D6S1
2	consider adding "...and apply.."	95.24%	Expert	High Expertise	5	5	4
4	Gain informed consent	90.48%	Non Expert	High Expertise	4	4	1
5	I can explain the use of informed consent	90.48	Non Expert	None Expertise	2	3	3
6	Understand the concept of informed consent and be able to apply it in a given context	76.19%	Non Expert	Low Expertise	5	4	3
7	Data ethics roadmaps	57.14%	Non Expert	Low Expertise	4	4	4
12	Do you only want to explain the "use" of informed consent? Perhaps "Explain the purpose of informed consent."	76.19%	Non Expert	Low Expertise	4	4	2
14	I would say that it is not sufficient to know how to explain the use of informed consent, but also to know for what data items an informed consent should be requested	71.43%	Non Expert	Low Expertise	5	4	4
15	Understand the importance of informed consent and make use of it	52.48%	Expert	None Expertise	2	4	2
16	Ask and Explain the use of informed consent	42.86%	Non Expert	Low Expertise	5	5	3
22	Understand and explain	47.62%	Expert	None Expertise	4	4	4

	the use of informed consent						
24	"The use" is a bit narrow.	47.62%	Expert	High Expertise	5	5	4
27	Explain the use of informed consent, i.e. correctly, comprehensively and clearly	28.57%	Non Expert	High Expertise	5	5	4
29	Understand issues related to informed consent and its application to the development of instructional systems.	47.62%	Non Expert	High Expertise	5	4	3
30	Explain the use of informed consent for data collection and use.	33.33%	Non Expert	High Expertise	5	5	3
36	This is KEY to the whole process/competencies- and should move higher up the 'hierarchy' competency framework	42.86%	Non Expert	High Expertise	5	5	5
42	Would this be an organisational requirement rather than individual? Yes, the individual needs to understand the foundations of privacy and confidentiality but perhaps an the Data Controller in the org would best advise on implementation locally?	38.10%	Non Expert	None Expertise	2	3	2
49	Understand the use of informed consent	33.33%	Non Expert	Low Expertise	4	5	3
53	Explain to whom?	28.57%	Non Expert	None Expertise	5	5	3
54	be specific	28.57%	Non Expert	High Expertise	4	3	3
63	Understand	23.81%	Non Expert	Low Expertise	5	5	4

	and explain the use of informed consent						
69	Explain the use and necessity of informed consent	9.52%	Non Expert	None Expertise	3	5	4
74	Not sure how it can be rephrased but it appears too general.	9.52%	Non Expert	Low Expertise	5	5	3
81	Is it just the ability to explain? How about justifying/defending use of data based on the principles of informed consent?	95,23%	Non Expert	High Expertise	5	5	4
85	Explain? Employ informed consent?	33,33%	Non Expert	Low Expertise	5	5	3

D6S2Ri OpTxt Q, i=1-87	Comment	% of Replies provided by the Respond er to all Open Question s of this Category	Respond er EDL Expertise (High, Low, None)	Respond er EDL Expertise (Expert, Non-Expert)	Responder' s Grade in Q2 (Importanc e) for D6S2	Responder 's Grade in Q1 (Address Well) for D6S2	Responder's Grade in Q3 (Written Well) for D6S2
1	Change 'know how to' to 'actively'	90.48%	Non Expert	None Expertise	5	5	2
2	consider amending with "Know and apply methods to ..."	95.24%	Expert	High Expertise	5	5	4
3	Only to a small amount in the hands of an Instructional Designer or online tutor.	71.43%	Expert	High Expertise	4	4	4
4	Maintain / Ensure the privacy, confidentialit	90.48%	Non Expert	High Expertise	4	4	2

	y, integrity and security of personal data						
5	I understand data privacy and I know how to protect individuals' data privacy	90.48	Non Expert	None Expertise	2	3	2
7	Data protection, privacy, and security	57.14%	Non Expert	Low Expertise	4	4	4
9	Protect individuals' data privacy,	76.19%	Non Expert	Low Expertise	5	5	2
10	Demonstrate how to protect individuals' data privacy, confidentiality, integrity and security.	80.95%	Non Expert	High Expertise	5	5	3
11	Explain ways to protect individuals' data privacy, confidentiality, integrity and security	80.95%	Non Expert	Low Expertise	5	4	3
12	The terms could be better defined. "Data privacy" is jargon.	76.19%	Non Expert	Low Expertise	4	4	3
13	Protect an individuals' data privacy, confidentiality, integrity and security	76.19%	Expert	High Expertise	5	5	3
18	Know how to protect individuals' data privacy, confidentiality, security, integrity and security	52.38%	Expert	High Expertise	5	5	5
37	"privacy" and "confidentiality" sound like	38.10%	Non Expert	High Expertise	5	5	4

	they describe the same thing here.						
55	Understand how to protect individuals' data privacy, confidentiality, integrity and security	28.57%	Non Expert	Low Expertise	4	4	4
72	include GDPR statement	14.26%	Non Expert	High Expertise	5	5	4
81	Change "Know how to ..." to "Take appropriate steps to..."	95,23%	Non Expert	High Expertise	5	5	3

D6S3Ri OpTxtQ , i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D6S3	Responder's Grade in Q1 (Address Well) for D6S3	Responder's Grade in Q3 (Written Well) for D6S3
1	Change 'understand' to 'negotiate appropriate'	90.48%	Non Expert	None Expertise	5	5	2
2	Data sharing was mentioned again in a previous dimension. Perhaps consider amending this potential overlap	95.24%	Expert	High Expertise	5	5	5
4	Apply definitions of ... authorship etc. to your work	90.48%	Non Expert	High Expertise	4	4	2
6	Is there a need to go a bit beyond just "understanding" these concepts?	76.19%	Non Expert	Low Expertise	5	5	4
7	Data accessing rights	57.14%	Non Expert	Low Expertise	4	4	4
9	Understand and respect authorship....	76.19%	Non Expert	Low Expertise	5	5	3

10	Interpret authorship, ownership, data access (governance), re-negotiation and data-sharing.	80.95%	Non Expert	High Expertise	5	5	3
11	Characterize the key aspects of authorship, ownership, data access (governance), re-negotiation and data-sharing.	80.95%	Non Expert	Low Expertise	5	4	3
12	"Understand" needs to be better operationalized. Perhaps "describe in his or her own words"?	76.19%	Non Expert	Low Expertise	4	4	2
13	Again, too much going on here. I would clarify and re-chunk.	76.19%	Expert	High Expertise	4	4	1
15	Shorten it :)	52.48%	Expert	None Expertise	4	4	2
18	Understand authorship, ownership, data governance, code of conduct and data-sharing.	52.38%	Expert	High Expertise	4	4	4
21	eg. you could insert <the ethics of algorithms (how artificial intelligence and machine learning interpret/share data) and <the ethics of practices>	52.38%	Non Expert	Low Expertise	5	4	4
30	Re-negotiation is opaque. Do you mean 're-use of data'? Data access is clear however what is meant by data access (governance)	33.33%	Non Expert	High Expertise	5	3	2
31	Data sharing again?	38.10%	Non Expert	High Expertise	5	5	4

45	"re-negotiation" appears unclear here!	33.33%	Non Expert	Low Expertise	4	4	3
53	Probably, the term "re-negotiation" is unclear	28.57%	Non Expert	None Expertise	5	5	4
55	authorship - never heard of this word (though it does exist)	28.57%	Non Expert	Low Expertise	4	3	4
61	the term re=negotiation has to be further explained	19.05%	Non Expert	High Expertise	5	4	4
67	I'm not sure that re-negotiation is a concept that should be key for an instructional designer or an e-Tutor. Maybe an external (i.e. from within the organisation or even not) support might help.	9.52%	Non Expert	Low Expertise	4	5	4
81	Again, I think "Understand" should be replaced with an active verb.	95,23%	Non Expert	High Expertise	5	5	3
87	There are too many action verbs within one statements (e.g., understand, re-negotiate, and data sharing). It would be better to separate them into different statements.	28,57%	Non Expert	None Expertise	5	5	3

Appendix 8.2 Replies to Open Text Questions related to Proposing an Additional EDL Competence Statement for a given Dimension i i=1-6

If you would propose an additional EDL competence statement for competence dimension #X, which one would that be

R=Responder

D1RiOpTxtQ, i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D1Si, i=1,2,3			Responder's Grade in Q1 (Address Well) for D1Si, i=1,2,3			Responder's Grade in Q3 (Written Well) for D1Si, i=1,2,3		
2	Perhaps a competence explicitly addressing the knowledge of available tools to collect data and the skill to select the most appropriate based on the purpose of the ID or eTUT	33.33%	Expert	High Expertise	4	4	5	4	4	5	3	4	5
4	Determine data requirements	33%	Non Expert	High Expertise	5	5	5	5	5	2	2	5	1
5	I know what data is the most important	16.67%	Non Expert	None Expertise	2	2	5	3	4	4	1	2	2
7	Data quality engineering	100%	Non Expert	Low Expertise	4	4	4	4	4	4	4	4	4
8	see above - I would follow CRAAP	50%%	Expert	High Expertise	5	5	5	5	5	4	5	5	4
15	I think in a web 2.0 world there should be some focus on identifying and assessing trusted sources as well as original sources (as opposed to variations, repurposed versions, unofficial sources etc)	83.33%	Expert	None Expertise	2	2	4	5	5	5	4	4	4
16	Types of information, The characteristics of the different types of information source, The currency of information	83.33%	Non Expert	Low Expertise	5	5	5	5	5	5	3	3	5
21	<ethics>	16.67%	Non Expert	Low Expertise	5	5	5	4	4	4	4	5	4

23	There is the aspect of understanding the sensitivity of collected data and understanding the consequences of exposure of sensitive data that is missing.	66.67%	Non Expert	High Expertise	4	4	5	5	5	5	5	5	5
25	All the three current statements are related to knowledge, not whether that knowledge can be applied in practical situations. If demonstrating the competency is important, an additional statement related to the application can be added, for example: 'Be able to judge the quality and limitations of the data while gathering data'. In that case, the verb 'know' can stay, because the new statement will capture the application competence.	13.33%	Non Expert	Low Expertise	4	4	4	4	4	4	4	4	4
31	Be aware when and what for I need data	33.33%	Non Expert	High Expertise	5	5	5	5	5	3	5	5	3
35	I would also include the speed or efficiency of finding data.	33.33%	Non Expert	Low Expertise	5	5	5	4	4	4	4	4	3
50	data format and whats right or not, could be addressed more.	16.67%	Non Expert	High Expertise	4	5	5	4	5	4	4	4	5
51	What about the "1.4 Understand what data can be ethically collected"; "1.5 Know how to ethically collect data". I don't know if ethics & data privacy should be separated or transversal	33.33%	Expert	High Expertise	5	5	5	5	5	5	5	5	5

58	See above	16.67%	Non Expert	None Expertise	3	4	4	4	4	5	2	4	3
62	Some example sources of data may be useful although it will vary depending on context.	16.67%	Non Expert	High Expertise	4	4	4	4	4	4	4	4	4
64	Probably IPR should be explicitly stated here (as possible data limitation), if not in the following sections.	50%	Non Expert	Low Expertise	5	5	5	5	5	5	5	5	5
66	How to prepare and facilitate instruction for data collection	33.33%	Non Expert	None Expertise	4	4	5	5	5	5	3	4	4
70	I suggest to move the competence statement 1.3 to the dimension 2 data management and to add to dimension 1 the following competence: 1.3 know how to store the data	16.67%	Non Expert	High Expertise	5	4	4	5	4	2	5	3	4
71	Accurately attribute data sources	33.33%	Non Expert	High Expertise	3	5	5	3	5	5	3	5	5
73	Understand how data are connected between different sources (For example if we extract data from different sources and we need to combine them together for a single report. For example questionnaires to MOOC participants and MOOC platform log files which can be connected through Student_id)	16.67%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5
77	To know how to determine the necessary data/data sources	16.67%	Expert	High Expertise	5	4	5	5	5	5	5	5	5
78	maybe equipment that provides data	16.67%	Non Expert	Low Expertise	4	5	4	4	4	4	4	4	4
87	I may want to add another question about the ability	16,67%	Non Expert	None Expertise	5	5	5	4	4	5	4	3	5

	to judge the validity of the data sources on top of 1.3.												
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D2RiOpTxtQ, i=1-87	Comment	% of Replies provided by the Responder to all Open Questions of this Category	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D2Si, i=1,2,3,4				Responder's Grade in Q1 (Address Well) for D2Si, i=1,2,3,4				Responder's Grade in Q3 (Written Well) for D2Si, i=1,2,3,4			
6	Perhaps the development and supervision aspects of this dimension should be explicitly addressed by an additional competence statement	33.33%	Non Expert	Low Expertise	4	5	5	5	4	4	4	4	4	4	4	4
7	From data sources to data models	100%	Non Expert	Low Expertise	4	4	4	3	4	4	4	3	4	4	4	3
8	maybe 'data governance' could be included here - see http://www.datagovernance.com/defining-data-governance/	50%%	Expert	High Expertise	5	5	5	5	3	5	5	5	3	5	5	5
15	Data security is key here, though maybe addressed in another dimension it should be tightly related to this one.	83.33%	Expert	None Expertise	4	4	4	5	4	4	4	4	4	4	4	3
16	Identify technologies and the available search tools	83.33%	Non Expert	Low Expertise	5	5	5	5	5	5	5	5	3	3	3	3
18	Data transformation	13.33%	Expert	High Expertise	3	3	5	4	4	4	4	5	4	4	4	5
23	Understanding the impact of legislation on the storage and processing of sensitive data	66.67%	Non Expert	High Expertise	3	3	5	5	5	5	5	5	5	3	5	5

	(e.g. backdoor access to data in certain countries).																		
27	Identify the data curation formats for future-proofing	83.33%	Non Expert	High Expertise	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
30	Understand the security / confidentiality requirements for the management of data (or does this come under data curation 2.3).	50%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
31	See above	33.33%	Non Expert	High Expertise	5	5	4	5	5	5	5	5	5	5	5	5	4	5	5
37	Know anonymization procedures for sensitive data	16.67%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3
41	Be able to develop data management policies	50%	Non Expert	Low Expertise	4	4	4	4	2	4	4	4	4	2	4	4	4	4	4
51	Who should/can have access to the data?	33.33%	Expert	High Expertise	5	5	5	5	5	5	5	5	5	2	5	3	5	5	5
52	I would not add. My note is that in some cases data curation is not assigned to ID /eTutors but rather to HR managers/system administrators	50%	Non Expert	High Expertise	3	5	4	5	5	5	5	5	5	4	5	5	5	5	5
67	I'd rather propose to merge 2.2 and 2.3 this way: "Know and apply data processing, curation and re-use methods"	33.33%	Non Expert	Low Expertise	4	4	4	5	5	4	4	5	5	5	4	5	5	5	5
80	I am not sure if data curation includes filtering of screening of data, especially for reducing redundancies	33,33%	Non Expert	High Expertise	4	5	4	4	5	5	5	5	5	4	5	5	5	5	5
86	understand' is very general - I would use 'appreciate the significance of data description'	66,67%	Expert	High Expertise	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3

D3RiOpTxtQ, i=1-87	Comment	% of Replies provide d by the Respond er to all Open Questio ns of this Categor y	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D3Si, i=1,2,3			Responder's Grade in Q1 (Address Well) for D3Si, i=1,2,3			Responder's Grade in Q3 (Written Well) for D3Si, i=1,2,3		
2	Perhaps add an additional competence directly related to "knowledge of and capacity to use data analytics tools", not only knowledge of methods	33.33%	Expert	High Expertise	5	5	5	5	5	5	4	5	3
6	Perhaps include explicitly the transformation and modelling aspects of this dimension.	33.33%	Non Expert	Low Expertise	5	4	5	4	4	4	4	4	4
7	Data analyst profiles	100%	Non Expert	Low Expertise	4	3	4	4	3	4	4	4	4
8	include 'data visualisation techniques'	50%%	Expert	High Expertise	5	5	5	3	3	3	3	3	3
14	It is also important to know to choose adequate methods for the (data analytics) task at hand. Also, to know to how to check if a method is applicable (i.e. if assumptions for its use are satisfied). Not sure that these two	16.67%	Non Expert	Low Expertise	4	4	4	4	4	4	4	3	4

	things are covered in the first two statements.												
16	Understand and apply the basic educational indexes	83.33%	Non Expert	Low Expertise	5	4	5	5	5	5	5	5	5
17	Data analysis is a process of mining, inspecting, processing, transforming , modeling and presenting data with the goal of discovering useful information, informing conclusions, and supporting decision-making	50%	Non Expert	Low Expertise	4	5	4	5	5	5	5	5	4
18	Data analysis and reporting	13.33%	Expert	High Expertise	4	3	5	5	5	4	4	5	4
19	I found hard to identify the limits between dimensions #2 and #3. I felt like there was some overlapping	16.67%	Non Expert	Low Expertise	5	3	5	5	5	5	5	5	5
20	In general, for this page and the previous ones, you should follow the standard ETL process, which is quite mature and popular. No need to reinvent the wheel.	33.33%	Non Expert	Low Expertise	4	2	4	2	3	3	3	3	2
23	see 3.1	66.67%	Non Expert	High Expertise	4	5	5	2	2	5	2	2	4
26	side note: I am just curious who defines what is considered as "basic"?	16.67%	Expert	High Expertise	5	4	5	5	5	5	5	5	5

27	Understand and apply both basic and advanced data modeling methods	83.33%	Non Expert	High Expertise	5	4	5	5	5	4	2	3	3
30	Competence 3 and 4 (following) appear to cover similar territory. Would 4.1 and 4.3 be better placed with competence 3?	50%	Non Expert	High Expertise	5	5	5	5	3	5	5	3	5
35	I don't this designers need to have this competency, they can leave this to experts. They have to have some basic understanding but should not be able to apply these methods.	33.33%	Non Expert	Low Expertise	2	4	2	4	4	4	4	2	4
39	They at most need to be able to describe the data analysis process, but not carry it out.	16.67%	Expert	High Expertise	1	1	1	1	1	1	1	1	1
41	Does there need to be a requirement for a more than basic level of analysis for this competency ?	50%	Non Expert	Low Expertise	5	3	5	3	3	3	3	3	3
52	Not an addition. Comment: data presentation methods is a bit vague. Maybe add a classification /list such as:	50%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5

	tabular views, graphs, infographics, animations, etc...												
64	You can probably add knowledge about privacy here (in addition to the ethics of the last section)	50%	Non Expert	Low Expertise	5	5	5	5	5	5	5	5	5
67	I think that this competence is a nice to have but that likely any organisation requires to have a data analyst / specialist within that might support all other professionals such as instructional designers and e-Tutors	33.33%	Non Expert	Low Expertise	3	5	3	5	5	5	5	5	5
74	I think that the use of tools to support analysis and data visualization are missing	16.67%	Non Expert	Low Expertise	5	5	4	5	3	3	5	3	3
85	I am not sure why the statements in dimension #3 is limited to "basic." A word, "appropriate" is more suitable here? If the "basic" stays, then a skill to instruct a specialist to prosecute advanced analyses can be included.	16,67%	Non Expert	Low Expertise	5	5	5	5	4	5	5	2	4

D4RiOpTxt Q, i=1-87	Comment	% of Repli es provi ded by the Resp onde r to all Open Ques tions of this Categ ory	Respon der EDL Expertis e (High, Low, None)	Responde r EDL Expertise (Expert, Non- Expert)	Responder's Grade in Q2 (Importance) for D4Si, i=1,2,3,4,5					Responder's Grade in Q1 (Address Well) for D4Si, i=1,2,3,4,5					Responder's Grade in Q3 (Written Well) for D4Si, i=1,2,3,4,5				
3	Combine evidence from data with other trusted information sources (science, experience)	100%	Expert	High Expertise	5	5	5	5	5	5	3	5	5	4	4	3	5	5	3
7	Data insights harvesting	100%	Non Expert	Low Expertise	4	3	3	3	4	3	3	3	3	3	4	3	3	4	3
15	Interpretation and ethics are very tightly related: the way you present data defines the way average readers/learners will interpret data. People should be able to identify patterns and connections as well as false indicators and biases. Trainers and Instructional Designers should refrain from "oversimplifying" data interpretations (as often the press does) as this may be misleading.	83.33 %	Expert	None Expertise	4	4	5	5	4	5	4	5	4	4	2	4	4	4	4
16	Understand and apply the basic data dissemination methods	83.33 %	Non Expert	Low Expertise	5	5	5	5	5	5	5	5	5	5	5	1	5	5	5
17	Data comprehension and interpretation is the skill that leads to a successful process of understanding data and reviewing it for the purpose of generating	50%	Non Expert	Low Expertise	4	4	4	3	4	4	4	4	3	3	4	5	5	3	3

	possible solutions and arriving at informed conclusions as a basis for decision-making.																		
22	4.6 Understand and avoid common pitfalls when interpreting data (e.g. correlation does not imply causation.	16.67	Expert	None Expertise	5	4	4	4	4	4	4	4	4	4	4	3	4	4	3
24	Missing are questions about validity and reliability of analyses.	16.67 %	Expert	High Expertise	5	5	5	5	5	5	5	5	4	5	4	3	4	4	5
27	Generate potential causations from instruction	83.33 %	Non Expert	High Expertise	5	5	5	5	5	4	5	5	5	4	3	5	5	5	4
66	Identify potential areas of improvement based on data	33.33 %	Non Expert	None Expertise	5	4	5	5	4	5	5	5	5	5	5	3	5	5	4
80	I think that 4.4 and 4.5 are connected somehow and I wouldn't object to have them joined in one or leaving them two distinct elements	33,33 %	Non Expert	High Expertise															
					4	4	5	5	5	5	5	5	5	5	5	4	5	5	5
86	something on machine learning?	66,67 %	Expert	High Expertise	4	4	4	5	4	5	4	4	4	4	4	4	4	2	3

D5RiOpTxtQ, i=1-87	Comment	% of Replies provide d by the Respond er to all Open Questio ns of this Categor y	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D5Si, i=1,2,3			Responder's Grade in Q1 (Address Well) for D5Si, i=1,2,3			Responder's Grade in Q3 (Written Well) for D5Si, i=1,2,3		
4	Select appropriate data sources for programme evaluation	33%	Non Expert	High Expertise	4	5	4	4	4	4	2	2	1
7	Data empowered applications	100%	Non Expert	Low Expertise	4	4	4	3	3	4	3	3	3
15	Intellectual property rights	83.33%	Expert	None Expertise	5	5	4	5	5	4	3	5	1
16	data-driven intervention	83.33%	Non Expert	Low Expertise	5	5	5	5	5	5	3	5	4

	assesment												
17	Data application is the process of using data appropriately for informing instruction, and with respect to widely-accepted data sharing, disseminating and data citation method, with a follow-up evaluation of the intervention	50%	Non Expert	Low Expertise	5	5	4	5	4	5	5	4	5
23	The different levels of the use of data analytics should be more explicitly reflected in the competencies: data analytics to support instruction on one hand and analytics of performance and learning data to design and plan an intervention on the other (I and likely others get confused which competence is referring to what)	66.67%	Non Expert	High Expertise	5	5	4	5	5	4	5	5	3
27	Ensure optimisation by regularly reviewing and refining the application processes and findings	83.33%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5
64	In one of the statements	50%	Non Expert	Low Expertise	5	5	5	5	5	5	5	5	5

	of this section, you can add a reference to the "integration" of data into the culture of the organisation.												
84	I don't think this dimension is well defined, it overlaps with #4, specifically with 4.4 and 4.5	16,67%	Non Expert	Low Expertise	5	3	5	5	2	3	3	2	4
86	as before machine learning (although that may be implied here)	66,67%	Expert	High Expertise	4	4	4	4	4	4	4	4	3

D6RiOpTxtQ, i=1-87	Comment	% of Replies provide d by the Respond er to all Open Questio ns of this Categor y	Responder EDL Expertise (High, Low, None)	Responder EDL Expertise (Expert, Non-Expert)	Responder's Grade in Q2 (Importance) for D6Si, i=1,2,3			Responder's Grade in Q1 (Address Well) for D6Si, i=1,2,3			Responder's Grade in Q3 (Written Well) for D6Si, i=1,2,3		
1	Apply data literacy skills with the end goal to improve performance as well as learning. In other words, don't design the best x just because the client requested the training or instruction if it isn't going to solve the problem to begin with.	100%	Non Expert	None Expertise	5	5	5	5	5	5	5	2	2
7	Data ethics boundaries	100%	Non Expert	Low Expertise	4	4	4	4	4	4	4	4	4

9	Produce/use only data that is ethically acceptable	16.67%	Non Expert	Low Expertise	5	5	5	5	5	5	5	2	3
15	Ethics is also about what "instruction" you build out of a piece of data. See my previous comment on this.	83.33%	Expert	None Expertise	2	4	4	4	4	4	2	4	2
20	The competence s of this chapter should be in line with the new European General Data Protection Regulation	33.33%	Non Expert	Low Expertise	3	4	4	3	4	4	3	3	3
25	Since data ethics is very important, perhaps an overview statement on the understanding of data ethics can be added. For example: Understand the importance of data ethics and the key concepts related to right and wrong behaviour while dealing with personal data.	13.33%	Non Expert	Low Expertise	5	5	5	5	5	5	5	5	5
27	Defend anonymized data usage by reasonable arguments Understand acceptable levels of data ethics both legally and peer-agreed	83.33%	Non Expert	High Expertise	5	5	5	5	5	5	4	5	5
30	Would it be	50%	Non Expert	High	5	5	5	5	5	3	3	5	2

	better to have governance as a separate statement?			Expertise									
34	be honest with data: don't intentionally cherry pick, distort, invent or misrepresent analysis, statistics or data	16.67%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5
41	Understand the wider ethical implications of data collection and use	50%	Non Expert	Low Expertise	4	4	4	4	4	4	4	4	4
52	Know and understand relevant national and international regulations	50%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5
56	In the first or in this dimension it could be added something like "Knowing which data is relevant for what purpose"	16.67%	Non Expert	High Expertise	4	4	5	5	5	5	5	5	5
71	Understand bias and methods of bias mitigation.	33.33%	Non Expert	High Expertise	5	5	5	5	5	5	5	5	5
79	strongly agree to have this one	16.67%	Expert	High Expertise	5	5	5	5	5	5	5	5	5

Appendix 9. Tables related with the Analysis of the Comments to the Open Text Questions of Sections 6-11 of the Questionnaire [section 4.3]

Table A9.1: Percentages for every item DiSi and Di for Experts responders with comments

N=87	Percentage of the Comments,	Percentage of those with Grade (Q3) <=3+Com.	Percentage of Experts with Com.	Percentage of Experts with Com. and grade(Q3) <=3	Percentage of Experts with Com. and grade(Q3) >=4	Percentage of Experts with Com. in DiRiOpTxtQi over the number of Com. on each Di
D1S1	45/87=51.7%	22/87=25.29%	6/15=40%	1/15=6.67%	5/15=33.33%	
D1S2	30/87=34.5%	18/87=20.69%	5/15=33.3%	0	5/15=33.33%	
D1S3	35/87=40.22 %	18/87=20.69%	5/15=33.3%	1/15=6.67%	4/15=26.67%	
D1	17/87		5/15=33.3%			5/17=29.41%
D2S1	42/87=48.3%	26/87=29.88%	9/15=60%	3/15=20%	6/15=40%	
D2S2	32/87=36.8%	20/87=22.98%	4/15=26.67%	0/15=0	4/15=26.67%	
D2S3	25/87=28.73 %	15/87=17.24%	6/15=40%	2/15=13.33%	4/15=26.67%	
D2S4	29/87=33.33 %	21/87=21.14%	5/15=33.33%	3/15=20%	2/15=13.33%	
D2	23/87=26.43 %		3/15=20%			5/23=21.73%
D3S1	45/87=51.72 %	26/87=29.88%	9/15=60%	4/15=26.67%	5/15=33.33%	
D3S2	42/87=48.3%	35/87=40.22%	9/15=60%	7/15=46.67%	2/15=13.33%	
D3S3	39/87=44.83 %	26/87=29.89%	9/15=60%	5/15=33.33%	4/15=26.67%	
D3	22/87=25.28 %		5/15=33.3%			5/22=22.72%
D4S1	29/87=33.33 %	18/87=20.68%	5/15=33.33%	2/15=13.33%	3/15=20%	
D4S2	52/87=59.8%	41/87=47.1%	7/15=46,7%	6/15=40%	1/15=6.67%	
D4S3	22/87=25.29 %	15/87=17.24%	3/15=20%	2/15=13.33%	1/15=6.67%	
D4S4	35/87=40.23 %	17/87=19.54%	7/15=46,7%	5/15=33.3%	2/15=13.33%	
D4S5	31/87=35.63 %	19/87=21.83%	8/15=53.33%	4/15=26.67%	4/15=26.67%	
D4	11/87=12.64 %		5/15=33.3%			5/11=45.45%
D5S1	32/87=36.78 %	24/87=27.58%	3/15=20%	1/15=6.67%	2/15=13.33%	
D5S2	25/87=28.73 %	16/87=18.39%	3/15=20%	2/15=13.33%	1/15=6.67%	
D5S3	31/87=35.63 %	20/87=22.98%	6/15=40%	3/15=20%	3/15=20%	
D5	10/87=11.49 %		2/15=13.33%			2/10=20%
D6S1	24/87=27.58 %	14/87=16.09%	4/15=26.67%	1/15=6.67%	3/15=20%	
D6S2	16/87=18.39 %	10/87=11.49%	4/15=26.67%	1/15=6.67%	3/15=20%	

D6S3	22/87=25.28 %	12/87=13.79%	4/15=26.67%	2/15=13.33%	2/15=13.33%	
D6	16/87=18.39 %		3/15=20%			3/16=18.75%

Table A9.2: Percentages for every item DiSi and Di for Experts responders with comments

N=87	Percentage of Experts with Com.	Percentage of Experts with Com. and grade(Q3) <=3	Percentage of Experts with Com. and grade(Q3) <=3 over the number of Experts with comments	Percentage of Experts with Com. in DiRiOpTxi over the number of Com. on each Di
D1S1	6/15=40%	1/15=6.67%	1/6=16.67%	
D1S2	5/15=33.3%	0	0	
D1S3	5/15=33.3%	1/15=6.67%	1/5=20%	
D1	5/15=33.3%			5/17=29.41%
D2S1	9/15=60%	3/15=20%	3/9=33.33%	
D2S2	4/15=26.67%	0/15=0	0	
D2S3	6/15=40%	2/15=13.33%	2/6=33.33%	
D2S4	5/15=33.33%	3/15=20%	3/5=60%	
D2	3/15=20%			5/23=21.73%
D3S1	9/15=60%	4/15=26.67%	4/9=44.44%	
D3S2	9/15=60%	7/15=46.67%	7/9=77.78%	
D3S3	9/15=60%	5/15=33.33%	5/9=55.56%	
D3	5/15=33.3%			5/22=22.72%
D4S1	5/15=33.33%	2/15=13.33%	2/5=40%	
D4S2	7/15=46,7%	6/15=40%	6/7=85.71%	
D4S3	3/15=20%	2/15=13.33%	2/3=66.67%	
D4S4	7/15=46,7%	5/15=33.3%	5/7=71.43%	
D4S5	8/15=53.33%	4/15=26.67%	4/8=50%	
D4	5/15=33.3%			5/11=45.45%
D5S1	3/15=20%	1/15=6.67%		
D5S2	3/15=20%	2/15=13.33%	2/3=66.67%	
D5S3	6/15=40%	3/15=20%	3/6=50%	
D5	2/15=13.33%			2/10=20%
D6S1	4/15=26.67%	1/15=6.67%	1/4=25%	
D6S2	4/15=26.67%	1/15=6.67%	1/4=25%	
D6S3	4/15=26.67%	2/15=13.33%	2/4=50%	
D6	3/15=20%			3/16=18.75%

Table A9.3: Percentages for every item DiSi and Di for High and Low Expertise responders with comments

N=87	Percentage of the Comments,	Percentage of those with Grade (Q3) <=3+Com.	Percentage of High Exp. with Com.	Percentage of Low Exp. with Com.	Percentage of High Exp. with Com. and grade(Q3) <=3	Percentage of Low Exp. with Com. and grade(Q3) <=3	Percentage of High Exp. with Com. and grade(Q3) >=4	Percentage of Low Exp. with Com. and grade(Q3) >=4	Percentage of High Exp. with Com. in DiRiOpTxi over the number of Com. on each Di	Percentage of Low Exp. with Com. in DiRiOpTxi over the number of Com. on each Di
D1S1	45/87=51.7%	22/87=25.29%	17/40=42.5%	19/32=59.38%	8/40=20%	9/32=28.13%	9/40=22,5%	10/32=31,25%		
D1S2	30/87=34.5%	18/87=20.69%	14/40=35%	13/32=40.63%	5/40=12.5%	6/32=18.75%	9/40=22,5%	7/32=21,88%		

D1S3	35/87= 40.22 %	18/87=20. 69%	13/40=3 2%	16/32=5 0%	8/40=20 %	10/32=31. 25%	5/40=12,5 %	6/32=18, 75%		
D1	24/87= 27.59 %								11/24=4 5.83%	7/24=29. 17%
D2S1	42/87= 48.3%	26/87=29. 88%	16/40=4 0%	19/32=5 9.38%	6/40=15 %	13/32=40. 63	10/40=25 %	6/32=18, 75%		
D2S2	32/87= 36.8%	20/87=22. 98%	10/40=2 5%	16/32=5 0%	5/40=12. 5%	11/32=34. 38%	5/40=12,5 %	5/32=15, 63%		
D2S3	25/87= 28.73 %	15/87=17. 24%	13/40=3 2.5%	11/32=3 4.38%	6/40=15 %	7/32	7/40=17,5 %	4/32=12, 5%		
D2S4	29/87= 33.33 %	21/87=21. 14%	9/40=22. 5%	12/32=3 7.5%	7/40=17. 5%	8/32=25%	2/40=5%	4/32=12, 5%		
D2	17/87= 19.54 %								10/17=5 8.82%	5/17=29. 41%
D3S1	45/87= 51.72 %	26/87=29. 88%	25/40=6 2.5%	13/32=4 0.63%	16/40=4 0%	7/32=21.8 8%	9/40=22,5 %	6/32=18, 75 %		
D3S2	42/87= 48.3%	35/87=40. 22%	20/40=5 0%	13/32=4 0.63%	15/40=3 7.5%	13/32=40. 63%	5/40=12,5 %	0		
D3S3	39/87= 44.83 %	26/87=29. 89%	22/40=5 5%	12/32=3 7.5%	13/40=3 2.5%	7/32=21.8 8%	9/40=22,5 %	5/32=15, 63%		
D3	22/87= 25.28 %								9/22=40. 90%	13/22=5 9.09%
D4S1	29/87= 33.33 %	18/87=20. 68%	15/40=3 7.5%	8/32=25 %	9/40=22. 5%	5/32=15.6 2%	6/40=15%	3/32=9,4 %		
D4S2	52/87= 59.8%	41/87=47. 1%	25/40=6 2.5%	17/32=5 3.13%	16/40=4 0%	14/32=43. 75%	9/40=22,5 %	3/32=9,4 %		
D4S3	22/87= 25.29 %	15/87=17. 24%	8/40=20 %	10/32=3 1.25%	6/40=15 %	6/32=18.7 5%	2/40=5%	4/32=12, 5%		
D4S4	35/87= 40.23 %	17/87=19. 54%	18/40=4 5%	11/32=3 4.37	10/40=2 5%	6/32=18.7 5%	8/40=20%	5/32=15, 63%		
D4S5	31/87= 35.63 %	19/87=21. 83%	13/40=3 2.5%	12/32=3 7.5%	6/40=15 %	9/32=28.1 2%	7/40=17,5 %	3/32=9,4 %		
D4	11/87= 12.64 %								5/11=45. 45%	3/11=27. 27%
D5S1	32/87= 36.78 %	24/87=27. 58%	14/40=3 5%	13/32=4 0.6%	7/40=17. 5%	11/32=34. 3%	7/40=17,5 %	2/32=6,3 %		
D5S2	25/87= 28.73 %	16/87=18. 39%	9/40=22. 5%	11/32=3 4.3%	6/40=15 %	5/32=15.6 %	3/40=7.5 %	6/32=18, 75%		
D5S3	31/87= 35.63 %	20/87=22. 98%	14/40=3 5%	11/32=3 4.3%	8/40=20 %	7/32=21.8 %	6/40=15%	4/32=12, 5%		
D5	10/87= 11.49 %								4/10=40 %	5/10=50 %

D6S1	24/87=27.58%	14/87=16.09%	9/40=22.5%	9/32=28.1%	4/40=10%	5/32=15.6%	5/40=12.5%	4/32=12.5%		
D6S2	16/87=18.39%	10/87=11.49%	9/40=22.5%	5/32=5.6%	4/40=10%	3/32=9.3%	5/40=12.5%	2/32=6.3%		
D6S3	22/87=25.28%	12/87=13.79%	9/40=22.5%	9/32=28.1%	5/40=12.5%	4/32=12.5%	4/40=10%	5/32=15.63%		
D6	16/87=18.39%								6/16=37.5%	6/16=37.5%

Table A9.4: Percentages for every item DiSi and Di for High and Low Expertise responders with comments

N=87	Percent age of High Exp. with Com.	Percent age of Low Exp. with Com.	Percent age of High Exp. with Com. and grade(Q3) <=3	Percentage of High Exp. with Com. and grade(Q3) <=3 over the number of High Experts with comments	Percentage of Low Exp. with Com. and grade(Q3) <=3	Percentage of Low Exp. with Com. and grade(Q3) <=3 over the number of Low Experts with comments	Percentage of High Exp. with Com. in DiRiOpTxtQi over the number of Com. on each Di	Percentage of Low Exp. with Com. in DiRiOpTxtQi over the number of Com. on each Di
D1S1	17/40=42.5%	19/32=59.38%	8/40=20%	8/17=47.05%	9/32=28.13%	9/19=47.37%		
D1S2	14/40=35%	13/32=40.63%	5/40=12.5%	5/14=35.71%	6/32=18.75%	6/13=46.13%		
D1S3	13/40=32.5%	16/32=50%	8/40=20%	8/13=61.54%	10/32=31.25%	10/16=62.5%		
D1							11/24=45.83%	7/24=29.17%
D2S1	16/40=40%	19/32=59.38%	6/40=15%	6/16=37.5%	13/32=40.63%	13/19=68.42%		
D2S2	10/40=25%	16/32=50%	5/40=12.5%	5/10=50%	11/32=34.38%	11/16=68.75%		
D2S3	13/40=32.5%	11/32=34.38%	6/40=15%	6/13=46.15%	7/32=21.88%	7/11=63.63%		
D2S4	9/40=22.5%	12/32=37.5%	7/40=17.5%	7/9=77.78%	8/32=25%	8/12=66.67%		
D2							10/17=58.82%	5/17=29.41%
D3S1	25/40=62.5%	13/32=40.63%	16/40=40%	16/25=64%	7/32=21.88%	7/13=53.85%		
D3S2	20/40=50%	13/32=40.63%	15/40=37.5%	15/20=75%	13/32=40.63%	13/13=100%		
D3S3	22/40=55%	12/32=37.5%	13/40=32.5%	13/22=59.09%	7/32=21.88%	7/12=58.33%		
D3							9/22=40.90%	13/22=59.09%
D4S1	15/40=37.5%	8/32=25%	9/40=22.5%	9/15=60%	5/32=15.62%	5/8=62.5%		
D4S2	25/40=62.5%	17/32=53.13%	16/40=40%	16/25=64%	14/32=43.75%	14/17=82.35%		
D4S3	8/40=20%	10/32=31.25%	6/40=15%	6/8=75%	6/32=18.75%	6/10=60%		
D4S4	18/40=45%	11/32=34.37%	10/40=25%	10/18=55.55%	6/32=18.75%	6/11=54.54%		
D4S5	13/40=32.5%	12/32=37.5%	6/40=15%	6/13=46.15%	9/32=28.12%	9/32=28.13%		
D4							5/11=45.45%	3/11=27.27%

D5S1	14/40=35%	13/32=40.6%	7/40=17.5%	7/14=50%	11/32=34.3%	11/13=84.62%		
D5S2	9/40=22.5%	11/32=34.3%	6/40=15%	6/9=66.67%	5/32=15.6%	5/11=45.45%		
D5S3	14/40=35%	11/32=34.3%	8/40=20%	8/14=57.14%	7/32=21.8%	7/11=63.63%		
D5							4/10=40%	5/10=50%
D6S1	9/40=22.5%	9/32=28.1%	4/40=10%	4/9=44.44%	5/32=15.6%	5/9=55.56%		
D6S2	9/40=22.5%	5/32=15.6%	4/40=10%	4/9=44.44%	3/32=9.3%	3/5=60%		
D6S3	9/40=22.5%	9/32=28.1%	5/40=12.5%	5/9=55.56%	4/32=12.5%	4/9=44.44%		
D6							6/16=37.5%	6/16=37.5%

Appendix 10: Qualitative clustering of participants' responses to Open Ended questions

Table A10.1: Frequencies of clustered responses per statement per dimensionS1D1	Frequency
replace "right" with: appropriate/accurate/relevant	11
where and how to find (locate/acquire/ ability to find/identify and select/discovery)	19
equipment/tools/methods to measure data	3
quality in data	3
data processing and normalization	1
"data resources" instead of "data/data sources"	1
use "and/or" instead of "/"	1
creation/reassembling	1
methods for research design and sampling techniques before data collection	1
S2D1	Frequency
replace "know how to" with: "I can, I am able to, understand how, acquire"	9
clarify "access data" (use "acquire" instead/ obtain, access, store, maintain, and protect)	3
data formats/alternative data/ suitable-accurate data	3
collect, obtain and access (data acquisition) - merge 1.1 and 1.2	2
ethics	2
use "or" instead of "/"	1
"data resources" instead of "data/data sources"	1
tools/methods ... to	1
S3D1	Frequency
"determine" data quality - add to examples: "license, meaning, difficulty in collection, trustworthiness, validity, reliability, biases in the data, sources of error from data collection methods" + examples of limitations	10
make statement more precise	2
"assess"/"evalaute" quality...	2
"can" assess/evaluate/judge ...	1
"select" data based on...	1
"knowledge" of...	1
use the California State University CRAAP Test format	1
replace "limitations" with "risks and benefits"	1
replace "quality" with "accuracy" and "accuracy" with "quality"	1
make two statements instead of one	1
D1	Frequency
data requirements (connectivity, quality engineering, what data is important)	4
ethics	4
examples of data sources (determine data/data sources, attribute data sources)	3
data formats and information types	2
instruction for data collection (when and what for I need data)	2
move 1.3 to dimension 2, replace with "Know how to store data"	1
extend to higher bloom taxonomy (from "know" to "apply")	1
S1D2	Frequency
add/replace to "technologies": dataformats, methodologies, processes, techniques, storage mediums/services, tools, mechanisms, educational software environment	9
add/replace to "preserve": backup, persist, capture, manage, gather, manipulate, store, collect, process	7
clarify "preserve"	3
ethics (safety, security, legal rules)	3
add "suitable" before "technologies"	2
clarify "technologies"	2

data preservation is not a task for ID/eTUT	1
basic understanding of data management - no need to be data experts	1
S2D2	Frequency
replace "manipulation" with: analyzing, processing, manage, modification, transformation, handling	12
remove/replace "know" with: select, identify, understand	6
manipulation sounds negative	4
add "appropriate" before data manipulation	3
split in two statements (know how to... and apply...)	2
add "aggregation and link" to "manipulation"	1
replace "know and apply" with "know how to apply"	1
add examples of manipulation	1
S3D2	Frequency
remove/replace "know" with: select, identify	5
replace "curation" with: creating, management, maintenance and validation, modification, organization	4
add "purpose" for data re-use	1
S4D2	Frequency
replace "understand": apply, describe the use of, identify, interpret, select and interpret, utilize, be able to do, use - clarify "understand"	9
what is the relevance of the statement with ID/eTUT?	1
D2	Frequency
determine "data access" issues	1
data curation is not assigned to ID/eTUT	1
S1D3	Frequency
explain "basic data analysis methods"	10
replace "know" by: identify, select, understand	5
give examples of methods (e.g., statistics, data visualization, data mining)	4
remove "know"	3
add "appropriate" and "advanced" data analysis methods + give examples of context (e.g., for a given situation)	2
replace "basic" by "common"	2
include "data processing" with "data analysis"	1
split into two statements: "know..." and "apply..." + explain "know"	1
state appropriate hypotheses first, next identify data needed, and then analysis techniques	1
what kinds of data (quantitative/qualitative)	1
add "understand" to know and apply	1
S2D3	Frequency
no difference from 3.1	10
define "basic"	3
define "steps"	3
remove "understand"	2
replace "understand" by "select appropriate"/"identify"	2
replace "understand and apply" by "follow"/"undertake"	2
add: based on the right statistical criteria	2
replace "basic" by "common"	1
add "advanced" next to "basic"	1
replace "steps" by "procedures and steps"	1
give examples of tools for data analysis	1
exclude competence: not everybody is a data scientist	1

S3D3	Frequency
replace "presentation" by "communication"/"visualization"/"dissemination"/"data analytics"	6
replace "basic" by "broader range"/"appropriate" /"basic and advanced"/"common"	5
remove "understand"	3
define "presentation methods"	3
define "basic"	3
remove "the"	2
add "prepare" to "understand and apply"	1
split the statement in two	1
add: "for given data and situation" next to presentation methods	1
add "reporting" next to "presentation methods"	1
include "tools and principles" to "methods"	1
separate two competences for data presentation: data presentation for instruction and data presentation for knowledge discovery	1
exclude competence: not everybody is a data scientist	1
D3	Frequency
increase level of analysis beyond basic and level of competence beyond knowledge (to application)	3
ID/eTUT do not need this competence- leave it to data experts	2
overlap between dimension 2 and dimension 3	1
include "data visualization techniques"	1
add: the use of tools for analysis and visualization	1
clarify more the data presentation methods statement	1
add: know how to choose methods for data analysis/check appropriateness of method	1
define "basic"	1
rename "dimension" to "data analyst profiles"	1
rename dimension to "data analysis and reporting"	1
ethics	1
S1D4	Frequency
give examples (e.g., underlying statistics, measurement error, discrepancies with data, key take-away points, underlying trends, outliers)	4
replace "understand" with: "interpret"/"describe dimensions"/"define key term"	4
add: "at a conceptual level"/"validity-reliability" next to data	2
replace "data" with "insight from data analysis"	1
replace statement with: "evaluate/assess quality and limitations of analysis"	1
include "results of analytics methods"	1
replace the statement with: "comprehend and interpret data and identify key take-away points"	1
swap 4.1 with 4.3	1
define "understand"	1
replace the statement with: "identify data dependencies and patterns"	1
include "biases"	1
S2D4	Frequency
replace "statistics" with "appropriate statistical concepts"/"descriptive and statistics inference"/"fundamental principles of statistical methods"/"relevant statistical concepts"/"statistics relevant for domain"/"statistical methods to analyse data to improve decision making" data"/"statistical methods commonly used with educational data"/"essential elements of statistics, such as randomness, central tendencies, mean, standard deviation, significance"	12
give examples of statistics	10
very general	10

replace "understand" by "describe"/"interpret"/"select and apply"/"understand and apply"/"understand and know"/"use"	6
add: "understand the limitations of statistical analysis"	1
overlap with all statements in dimension 4	1
it is part of 4.1	1
statement fits better to dimension 3 (about basic data analysis)	1
statistics is not enough	1
S3D4	Frequency
give examples (e.g., explanation of patterns, identification of hypotheses, connection of multiple observations)	7
replace "know" with "can"/"apply"	2
replace the statement with: "interpret data according to context and requirements"	1
split data that serve as input for analytics methods from data that serve as the result of such methods	1
difference between "interpret" and "understand"	1
overlap with 4.1 and 4.2	1
overlap with 4.2	1
overlap with 4.5	1
S4D4	Frequency
replace "instruction" with: "learning situation"/"instructional design"/"instructional methods and-or material"/"academic, management and marketing problems"	5
replace "generate" with: "gain insights"/"identify"/"pick up"/"relate"/"use"	5
replace "connections" with: "implications"/"drive design and decisions"	2
irrelevant statement - does not fit in the data-driven dimension	2
replace the statement with: "elicit potential connections to inform instruction/teaching"	1
remove "potential"	1
define "connections"	1
define "instruction"	1
include "learning" along with "instruction"	1
S5D4	Frequency
replace "based on data" by "data-informed"/"evidence-based"/"data-driven"	7
merge 4.5 with 4.4	3
add: "educational"/"instructional" before "decisions"	2
give examples of "decisions"	2
educational decisions should consider other evidence as well, beyond data	1
replace "data" by "data interpretation"	1
replace statement with: "draw conclusions for instruction"	1
replace statement with: "know how to advise teachers how to revise the course"	1
replace statement with: "offer support for decision-making"	1
replace "decisions" by "educational assessment and design decisions"	1
replace "make" by "formulate"	1
D4	Frequency
add statement: "understand and avoid pitfalls when interpreting data (e.g., correlation does not imply causation)"	1
general definition of the data comprehension and interpretation process	1
relation with ethics	1
replace dimension with: "data insights harvesting"	1
replace dimension with: "generate potential causations from instruction"	1
replace dimension with: "identify potential areas of improvement based on data"	1
replace dimension with: "understand and apply basic data dissemination methods"	1
validity and reliability of analyses is missing	1

S1D5	Frequency
replace "instruction" by "instructional approaches"/"instructional design"/"learning situation"/"programme"	4
replace "inform" by "adapt"/"improve"/"revise"	3
add before "inform": "influence", "integrate", "redesign"	3
replace "data" by "data analysis results" and "inform" by "improve"	2
replace "use" by "apply"	1
add: "use data wisely"	1
add: "on the fly"	1
replace statement with: data aware recommendations	1
define "inform instruction"	1
examples of informing instruction by data	1
replace the statement with: translate the insights from data analysis to improvements in the teaching/learning design and delivery process	1
define the role of pedagogy	1
overlap with previous competences	1
S2D5	Frequency
nice-to-have but not necessary	2
add next to the statement: "to give proper attribution"/"appropriately"	2
split in two statements: cite data; share data	2
change "data" to "data sources"	1
replace "share" by "manage"	1
swap 5.2 and 5.3	1
policy issues	1
move statement to dimension 6	1
define "cite data" and "share data"	1
S3D5	Frequency
remove "the"	5
add: purpose of the evaluation	3
add: "critically" prior to "evaluate"	1
examples of interventions	1
replace "intervention" by "revision"	1
remove "data-driven"	1
replace "data-driven" by "effective use of data"	1
replace "evaluate" by "design and implement the evaluation"	1
swap 5.2 and 5.3	1
add: "outputs and outcomes" next to "intervention"	1
D5	Frequency
general definition of the data application process	1
intellectual property rights	1
appropriate data source selection	1
rename statement to: "data-driven intervention assessment"	1
ensure optimization	1
highlight the use of data-analytics	1
S1D6	Frequency
add to "explain": "understand"/"apply"/"ask"	5
add: "the purpose and necessity of informed consent"	3
add: "understand" to "explain" + add: "application" to the "use"	2
replace "explain" by "understand"/"gain"	2
replace statement with: "data ethics roadmaps"	1
move the statement higher up	1

this is an organizational requirement	1
S2D6	Frequency
replace "know" by: "demonstrate"/"protect"/"maintain/ensure"/"understand"/"explain"	6
"privacy" and "confidentiality" are the same thing	1
include GDPR statement	1
not a competence for ID/ eTUT	1
rename statetment: Data protection, privacy and security	1
add: "actively"	1
S3D6	Frequency
replace "understand" by": "describe"/"interpret"/"negotiate"/"characterize"	5
define "re-negotiation"	4
data-sharing was mentioned again	2
define "authorship"	2
shorten the statement	2
re-negotiation is not a competence for ID/eTUT	1
remove "re-negotiate"	1
rename statement to: " data accessing rights"	1
rename statement to: "ethics of practices"	1
add: "respect" next to "understand"	1
D6	Frequency
add: "know and understand relevant national and international regulations"	1
add: "know what data is relevant for purpose"	1
add: "understand bias and methods of bias mitigation"	1
add: defend anonymised data usage/understand acceptable levels of data ethics	1
add: ethical use of data for instruction	1
apply data literacy skills to improve performance and learning	1
data honesty	1
include "data governance" as a separate statement	1
include additional statement: "understanding of data ethics"	1
rename dimension: "data ethics boundaries"	1
align the dimension with GDPR	1