Manual for the use of the Deep Learning Strategies questionnaire

(DLS-Q)

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This manual is part of a package that also includes the questionnaire ready for administration, a one-page scoring guide (in Spanish), the SPSS syntax file and an Excel scoring template.

Manual for the use of the Deep Learning Strategies questionnaire

The Deep Learning Strategies questionnaire (DLS-Q) is an inventory measuring the use of learning and regulatory strategies. It is created around typical learning scenarios which are situational and context specific. The questionnaire includes 30 items to be answered in a five-point Likert scale. The items are organized around four first order scales grouped in one general second order scale: the *Deep learning strategies* scale.

The names of the four first order scales are: (1) *Basic learning self-regulation strategies* (8 items), (2) *Visual elaboration and summarizing strategies* (8 items), (3) *Deep information processing strategies* (8 items), and (4) *Social learning self-regulation strategies* (6 items). The items should be summed to obtain the scores in each of the four scales but four items from the *Visual elaboration and summarizing strategies* need to be reversed. To calculate the second order scale the scores in the four first order scales need to be summed.

The validation article reference is: Panadero, E., Alonso-Tapia, J., García-Pérez, D., Fraile, J., Sánchez Galán, J. M., & Pardo, R. (2021). Deep learning self-regulation strategies: Validation of a situational model and its questionnaire. *Revista De Psicodidactica 26*(1), 10-19. https://doi.org/10.1016/j.psicoe.2020.11.003

It can be downloaded from:
http://ernestopanadero.es/Publications/Articles/050_Panadero_et_al_2020_Deep_learning_self_regulation_strategies.pdf

SPSS syntax to compute scales

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*SPSS syntax to compute DLS-Q first and second-order scales.

* First, the reversed items need to be recoded.

 RECODE DLSQ_5 DLSQ_9 DLSQ_21 DLSQ_25 (1=5) (2=4) (3=3) (4=2) (5=1) INTO DLSQ_5X DLSQ_9X DLSQ_21X DLSQ_25X.

 EXECUTE.

 *To compute first-order scales for the DLS-Q.

 COMPUTE DLSQBasicLearningSR= DLSQ_1 + DLSQ_4 + DLSQ_8 + DLSQ_12 + DLSQ_16 + DLSQ_20 + DLSQ_24 + DLSQ_28.

 EXECUTE.

 COMPUTE DLSQVisualElaborationSummarizing= DLSQ_2 + DLSQ_5X + DLSQ_9X + DLSQ_13 + DLSQ_17 + DLSQ_21X + DLSQ_25X + DLSQ_29.

 EXECUTE.

 COMPUTE DLSQDeepInformationProcessing= DLSQ_3 + DLSQ_6 + DLSQ_10 + DLSQ_14 + DLSQ_18 + DLSQ_22 + DLSQ_26 + DLSQ_30.

 EXECUTE.

 COMPUTE DLSQSocialLearningSR= DLSQ_7 + DLSQ_11 + DLSQ_15 + DLSQ_19 + DLSQ_23 + DLSQ_27.

 EXECUTE.

 *To compute the second-order scale for the DLS-Q.

COMPUTE DeepLearningStrategiesSecondOrder=DLSQBasicLearningSR + DLSQVisualElaborationSummarizing + DLSQDeepInformationProcessing + DLSQSocialLearningSR.

 EXECUTE.

*Adding labels.

VARIABLE LABELS DLSQBasicLearningSR 'Basic learning self-regulation strategies'

 DLSQVisualElaborationSummarizing 'Visual elaboration and summarizing strategies'

 DLSQDeepInformationProcessing 'Deep information processing strategies'

 DLSQSocialLearningSR 'Social learning self-regulation strategies'

 DeepLearningStrategiesSecondOrder 'Deep Learning Strategies'.

*To calculate **Reliability** indexes with your sample (Alpha Cronbach).

*Reliability first scale DLSQ: Basic Learning SR.

RELIABILITY

  /VARIABLES=DLSQ_1 DLSQ_4 DLSQ_8 DLSQ_12 DLSQ_16 DLSQ_20 DLSQ_24 DLSQ_28

  /SCALE('Basic Learning SR') ALL
```

```
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
*Reliability second scale DLSQ: Visual Elaboration Summarizing.
RELIABILITY
  /VARIABLES=DLSQ_2 DLSQ_5X DLSQ_9X DLSQ_13 DLSQ_17 DLSQ_21X DLSQ_25X DLSQ_29
  /SCALE('Visual Elaboration Summarizing') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
*Reliability third scale DLSQ: Deep Information Processing.
RELIABILITY
  /VARIABLES=DLSQ_3 DLSQ_6 DLSQ_10 DLSQ_14 DLSQ_18 DLSQ_22 DLSQ_26 DLSQ_30
  /SCALE('Deep Information Processing') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
*Reliability fourth scale DLSQ: Social Learning SR.
RELIABILITY
  /VARIABLES=DLSQ_7 DLSQ_11 DLSQ_15 DLSQ_19 DLSQ_23 DLSQ_27
  /SCALE('Social Learning SR') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
```

Deep Learning Strategies questionnaire DLS-Q

© Panadero, Alonso-Tapia, García-Pérez, Fraile, Sánchez-Galán & Pardo, 2021*

	Items	First order scale
1	Analizo en profundidad la tarea a realizar para que me quede claro qué tengo que hacer. .84	Basic learning self-regulation strategies
2	A menudo elaboro esquemas o dibujos para representarme lo que estudio o los problemas que tengo que realizar. .81	Visual elaboration & summarizing strategies
3	Cuando leo o escucho una afirmación o conclusión en clases, pienso en las alternativas posibles. .60	Deep information processing strategies
4	Una vez que he entendido lo que tengo que hacer procuro visualizar de forma concreta lo que tengo que ir haciendo y consiguiendo. .76	Basic learning self-regulation strategies
5	No suelo organizar la información en cuadros o tablas al estudiar porque no sirve de mucho para aprender. -.65	Visual elaboration & summarizing strategies
6	Relaciono lo que estoy aprendiendo en clases con ideas propias. .70	Deep information processing strategies
7	A menudo comento con mis compañeros ideas o aspectos de lo que he estado estudiando. .66	Social learning self-regulation strategies
8	Mientras hago una tarea compruebo si los pasos que voy dando son los adecuados .76	Basic learning self-regulation strategies
9	Salvo que me lo pida el profesor, no suelo hacer resúmenes de los textos que estudio. -.71	Visual elaboration & summarizing strategies
10	Cuando estudio relaciono el material que leo con lo que ya sé. .81	Deep information processing strategies
11	Normalmente participo de modo activo en las clases, preguntando o haciendo comentarios al profesor. .37	Social learning self-regulation strategies
12	Si el profesor me entrega alguna herramienta que me permita evaluar si el modo de proceder al realizar una tarea está bien, habitualmente la uso. .71	Basic learning self-regulation strategies
13	Cuando estudio para una evaluación escribo pequeños resúmenes con las ideas y conceptos principales de las lecturas. .70	Visual elaboration & summarizing strategies
14	Relaciono ideas de la clase con otras ideas cada vez que sea posible. .67	Deep information processing strategies
15	Pido la opinión de mis compañeros de clase sobre cómo estoy haciendo un trabajo. .31	Social learning self-regulation strategies
16	Cuando estoy haciendo una tarea me paro a comprobar si avanzo según lo previsto. .70	Basic learning self-regulation strategies
17	Suelo estudiar utilizando estrategias diferentes (memorizar, hacer esquemas, etc.) según la materia de que se trate. .73	Visual elaboration & summarizing strategies
18	Al estudiar a menudo relaciono mentalmente los contenidos que estoy trabajando con los de otras asignaturas. .70	Deep information processing strategies
19	Si los profesores nos proporcionan las presentaciones, tomo las notas sobre las mismas porque así me queda todo más claro. .51	Social learning self-regulation strategies
20	Al acabar una actividad de la universidad repaso lo que he hecho para ver si lo he entendido y si está bien. .66	Basic learning self-regulation strategies
21	No suelo elaborar mapas conceptuales para relacionar los conceptos que estudio porque son de poca utilidad. -.71	Visual elaboration & summarizing strategies
22	Al estudiar suelo buscar posibles relaciones entre lo que estudio y las situaciones a las que podría aplicarse. .76	Deep information processing strategies
23	Cuando algo no me ha ido muy bien en un trabajo o examen pido al profesor que me dé más información sobre cómo mejorar. .61	Social learning self-regulation strategies
24	Antes de ponerme a realizar una tarea, planifico cuidadosamente lo que tengo que hacer. .64	Basic learning self-regulation strategies
25	No suelo hacer gráficos o diagramas mientras estudio o resuelvo problemas porque no me ayudan a aprender. -.66	Visual elaboration & summarizing strategies
26	Busco situaciones a las que aplicar los contenidos del curso. .71	Deep information processing strategies
27	Intento, siempre que puedo, comentar con mis compañeros ideas o aspectos de lo que he estado estudiando con el fin de profundizar. .61	Social learning self-regulation strategies
28	Leo las instrucciones de los ejercicios y los exámenes las veces necesarias para comprender en profundidad que se pide. .60	Basic learning self-regulation strategies
29	Normalmente, si es posible construyo tablas para organizar la información contenida en textos y problemas. .63	Visual elaboration & summarizing strategies
30	Por lo general estudio tratando de imaginarme y "visualizar" las situaciones a que hace referencia el contenido. .57	Deep information processing strategies

NOTE: Numbers after the items indicate the load of that item in its corresponding scale. The ones highlighted in yellow have negative loads.

(Spanish, layout for application)

Deep Learning Strategies questionnaire DLS-Q

© Panadero, Alonso-Tapia, García-Pérez, Fraile, Sánchez-Galán & Pardo, 2021*

Estamos tratando de entender qué pasa por la mente de los alumnos mientras trabajan con el propósito de determinar qué ayudas dar para facilitar el aprendizaje. Por eso te pedimos que señales en qué grado **te pasan por la cabeza pensamientos como los que aparecen a continuación cuando estás realizando tareas académicas**. Utiliza la siguiente escala:

1	2	3	4	5
Totalmente en desacuerdo	Más bien en desacuerdo	Indiferente	Más bien de acuerdo	Totalmente de acuerdo

1	Analizo en profundidad la tarea a realizar para que me quede claro qué tengo que hacer	1	2	3	4	5
2	A menudo elaboro esquemas o dibujos para representarme lo que estudio o los problemas que tengo que realizar	1	2	3	4	5
3	Cuando leo o escucho una afirmación o conclusión en clases, pienso en las alternativas posibles	1	2	3	4	5
4	Una vez que he entendido lo que tengo que hacer procuro visualizar de forma concreta lo que tengo que ir haciendo y consiguiendo	1	2	3	4	5
5	No suelo organizar la información en cuadros o tablas al estudiar porque no sirve de mucho para aprender	1	2	3	4	5
6	Relaciono lo que estoy aprendiendo en clases con ideas propias	1	2	3	4	5
7	A menudo comento con mis compañeros ideas o aspectos de lo que he estado estudiando	1	2	3	4	5
8	Mientras hago una tarea compruebo si los pasos que voy dando son los adecuados	1	2	3	4	5
9	Salvo que me lo pida el profesor, no suelo hacer resúmenes de los textos que estudio	1	2	3	4	5
10	Cuando estudio relaciono el material que leo con lo que ya sé	1	2	3	4	5
11	Normalmente participo de modo activo en las clases, preguntando o haciendo comentarios al profesor	1	2	3	4	5
12	Si el profesor me entrega alguna herramienta que me permita evaluar si el modo de proceder al realizar una tarea está bien, habitualmente la uso	1	2	3	4	5
13	Cuando estudio para una evaluación escribo pequeños resúmenes con las ideas y conceptos principales de las lecturas	1	2	3	4	5
14	Relaciono ideas de la clase con otras ideas cada vez que sea posible	1	2	3	4	5
15	Pido la opinión de mis compañeros de clase sobre cómo estoy haciendo un trabajo	1	2	3	4	5
16	Cuando estoy haciendo una tarea me paro a comprobar si avanzo según lo previsto	1	2	3	4	5
17	Suelo estudiar utilizando estrategias diferentes (memorizar, hacer esquemas, etc.) según la materia de que se trate	1	2	3	4	5
18	Al estudiar a menudo relaciono mentalmente los contenidos que estoy trabajando con los de otras asignaturas	1	2	3	4	5
19	Si los profesores nos proporcionan las presentaciones, tomo las notas sobre las mismas porque así me queda todo más claro	1	2	3	4	5
20	Al acabar una actividad de la universidad repaso lo que he hecho para ver si lo he entendido y si está bien	1	2	3	4	5
21	No suelo elaborar mapas conceptuales para relacionar los conceptos que estudio porque son de poca utilidad	1	2	3	4	5
22	Al estudiar suelo buscar posibles relaciones entre lo que estudio y las situaciones a las que podría aplicarse	1	2	3	4	5
23	Cuando algo no me ha ido muy bien en un trabajo o examen pido al profesor que me dé más información sobre cómo mejorar	1	2	3	4	5
24	Antes de ponerme a realizar una tarea, planifico cuidadosamente lo que tengo que hacer	1	2	3	4	5
25	No suelo hacer gráficos o diagramas mientras estudio o resuelvo problemas porque no me ayudan a aprender	1	2	3	4	5
26	Busco situaciones a las que aplicar los contenidos del curso	1	2	3	4	5
27	Intento, siempre que puedo, comentar con mis compañeros ideas o aspectos de lo que he estado estudiando con el fin de profundizar	1	2	3	4	5
28	Leo las instrucciones de los ejercicios y los exámenes las veces necesarias para comprender en profundidad que se pide	1	2	3	4	5
29	Normalmente, si es posible construyo tablas para organizar la información contenida en textos y problemas	1	2	3	4	5
30	Por lo general estudio tratando de imaginarme y “visualizar” las situaciones a que hace referencia el contenido	1	2	3	4	5

(English version, scales structure)

Deep Learning Strategies questionnaire DLS-Q

© Panadero, Alonso-Tapia, García-Pérez, Fraile, Sánchez-Galán & Pardo, 2021*

	Items	First order scale
1	I analyze in depth the task I have to complete so that it is clear to me what I have to do .84	Basic learning self-regulation strategies
2	I often make diagrams or drawings to represent what I study .81	Visual elaboration & summarizing strategies
3	When I read or hear an idea or a conclusion in class, I think of possible alternatives .60	Deep information processing strategies
4	When I figure out what I have to do, I try to visualize it and follow through .76	Basic learning self-regulation strategies
5	I do not usually organize information that I study in tables because it does not help me to learn -.65	Visual elaboration & summarizing strategies
6	I relate what I am learning in class to my own ideas .70	Deep information processing strategies
7	I often discuss with my classmates ideas or aspects of what I have been studying .66	Social learning self-regulation strategies
8	While I perform a task I check if the steps I am taking are appropriate .76	Basic learning self-regulation strategies
9	Unless the teacher asks me, I do not usually summarize the texts I study -.71	Visual elaboration & summarizing strategies
10	When I study I relate the material I read to what I already know .81	Deep information processing strategies
11	I usually participate in class discussions, asking questions or making comments to the teacher .37	Social learning self-regulation strategies
12	If the teacher gives me a tool to self-assess I would use it .71	Basic learning self-regulation strategies
13	When I study for an assessment task (e.g. exam) I write short summaries with the main ideas and concepts of the readings .70	Visual elaboration & summarizing strategies
14	I relate ideas from the class with other ideas whenever possible .67	Deep information processing strategies
15	I ask the opinion of my classmates on how I am doing on a task .31	Social learning self-regulation strategies
16	When I'm working on a task I stop to check if I'm progressing as planned .70	Basic learning self-regulation strategies
17	I usually study using different strategies (memorize, make diagrams, etc.) depending on the subject in question .73	Visual elaboration & summarizing strategies
18	When studying, I often mentally relate the content I am working on to other subjects .70	Deep information processing strategies
19	If the teachers provide us with presentations, I take notes in them because it makes everything clearer .51	Social learning self-regulation strategies
20	At the end of a task I review what I have done to evaluate if I did it correctly .66	Basic learning self-regulation strategies
21	I don't usually make concept maps to relate the concepts I study because they are of little use -.71	Visual elaboration & summarizing strategies
22	When studying, I look for possible relations between what I study and the situations to which it could be applied .76	Deep information processing strategies
23	If I don't do a good job on a task or an exam, I ask the teacher to give me more information about how to improve .61	Social learning self-regulation strategies
24	Before I start working on a task, I carefully plan what to do .64	Basic learning self-regulation strategies
25	I don't usually make graphs or diagrams while studying or solving problems because they don't help me learn -.66	Visual elaboration & summarizing strategies
26	I look for situations to apply course content .71	Deep information processing strategies
27	Whenever I can, I try to discuss with my classmates ideas or aspects of what I have been studying to learn more .61	Social learning self-regulation strategies
28	I read instructions for the assignments and exams as many times as necessary to understand what is required .60	Basic learning self-regulation strategies
29	If possible, I create tables to organize the information contained in texts and assignments .63	Visual elaboration & summarizing strategies
30	I usually study trying to visualize the task context .57	Deep information processing strategies

NOTE: Numbers after the items indicate the load of that item in its corresponding scale. The ones highlighted in yellow have negative loads.

(English version, layout for application)

Deep Learning Strategies questionnaire DLS-Q

© Panadero, Alonso-Tapia, García-Pérez, Fraile, Sánchez-Galán & Pardo, 2021*

We are trying to understand what goes through the minds of learners while they study. Our purpose is to determine what instructional scaffolds we shall offer to students to facilitate their learning. Therefore, we ask you to point out **to what degree thoughts like the ones below cross your mind when you are performing academic assignments**. Using the following scale:

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

1	I analyze in depth the task I have to complete so that it is clear to me what I have to do	1	2	3	4	5
2	I often make diagrams or drawings to represent what I study	1	2	3	4	5
3	When I read or hear an idea or a conclusion in class, I think of possible alternatives	1	2	3	4	5
4	When I figure out what I have to do, I try to visualize it and follow through	1	2	3	4	5
5	I do not usually organize information that I study in tables because it does not help me to learn	1	2	3	4	5
6	I relate what I am learning in class to my own ideas	1	2	3	4	5
7	I often discuss with my classmates ideas or aspects of what I have been studying	1	2	3	4	5
8	While I perform a task I check if the steps I am taking are appropriate	1	2	3	4	5
9	Unless the teacher asks me, I do not usually summarize the texts I study	1	2	3	4	5
10	When I study I relate the material I read to what I already know	1	2	3	4	5
11	I usually participate in class discussions, asking questions or making comments to the teacher	1	2	3	4	5
12	If the teacher gives me a tool to self-assess I would use it	1	2	3	4	5
13	When I study for an assessment task (e.g. exam) I write short summaries with the main ideas and concepts of the readings	1	2	3	4	5
14	I relate ideas from the class with other ideas whenever possible	1	2	3	4	5
15	I ask the opinion of my classmates on how I am doing on a task	1	2	3	4	5
16	When I'm working on a task I stop to check if I'm progressing as planned	1	2	3	4	5
17	I usually study using different strategies (memorize, make diagrams, etc.) depending on the subject in question	1	2	3	4	5
18	When studying, I often mentally relate the content I am working on to other subjects	1	2	3	4	5
19	If the teachers provide us with presentations, I take notes in them because it makes everything clearer	1	2	3	4	5
20	At the end of a task I review what I have done to evaluate if I did it correctly	1	2	3	4	5
21	I don't usually make concept maps to relate the concepts I study because they are of little use	1	2	3	4	5
22	When studying, I look for possible relations between what I study and the situations to which it could be applied	1	2	3	4	5
23	If I don't do a good job on a task or an exam, I ask the teacher to give me more information about how to improve	1	2	3	4	5
24	Before I start working on a task, I carefully plan what to do	1	2	3	4	5
25	I don't usually make graphs or diagrams while studying or solving problems because they don't help me learn	1	2	3	4	5
26	I look for situations to apply course content	1	2	3	4	5
27	Whenever I can, I try to discuss with my classmates ideas or aspects of what I have been studying to learn more	1	2	3	4	5
28	I read instructions for the assignments and exams as many times as necessary to understand what is required	1	2	3	4	5
29	If possible, I create tables to organize the information contained in texts and assignments	1	2	3	4	5
30	I usually study trying to visualize the task context	1	2	3	4	5

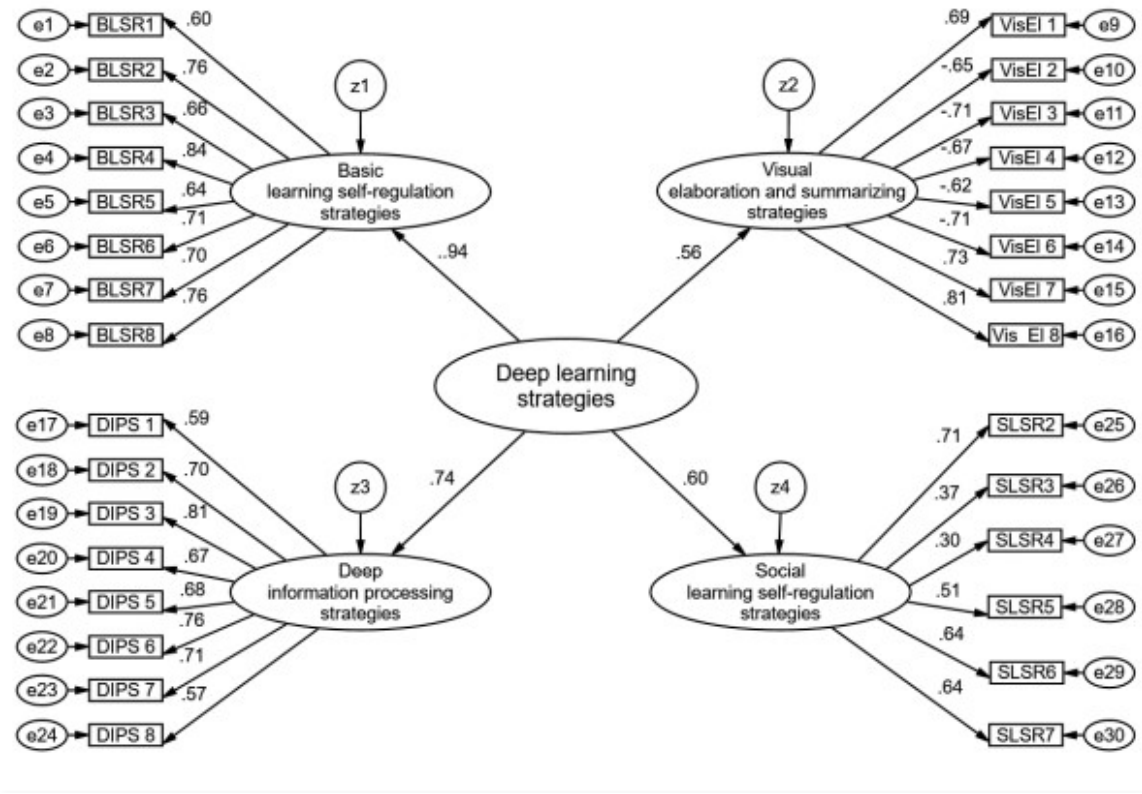
Historical development and use of the DLS-Q

Document created by Ernesto Panadero (ernesto.research@gmail.com) and Jesús Alonso-Tapia

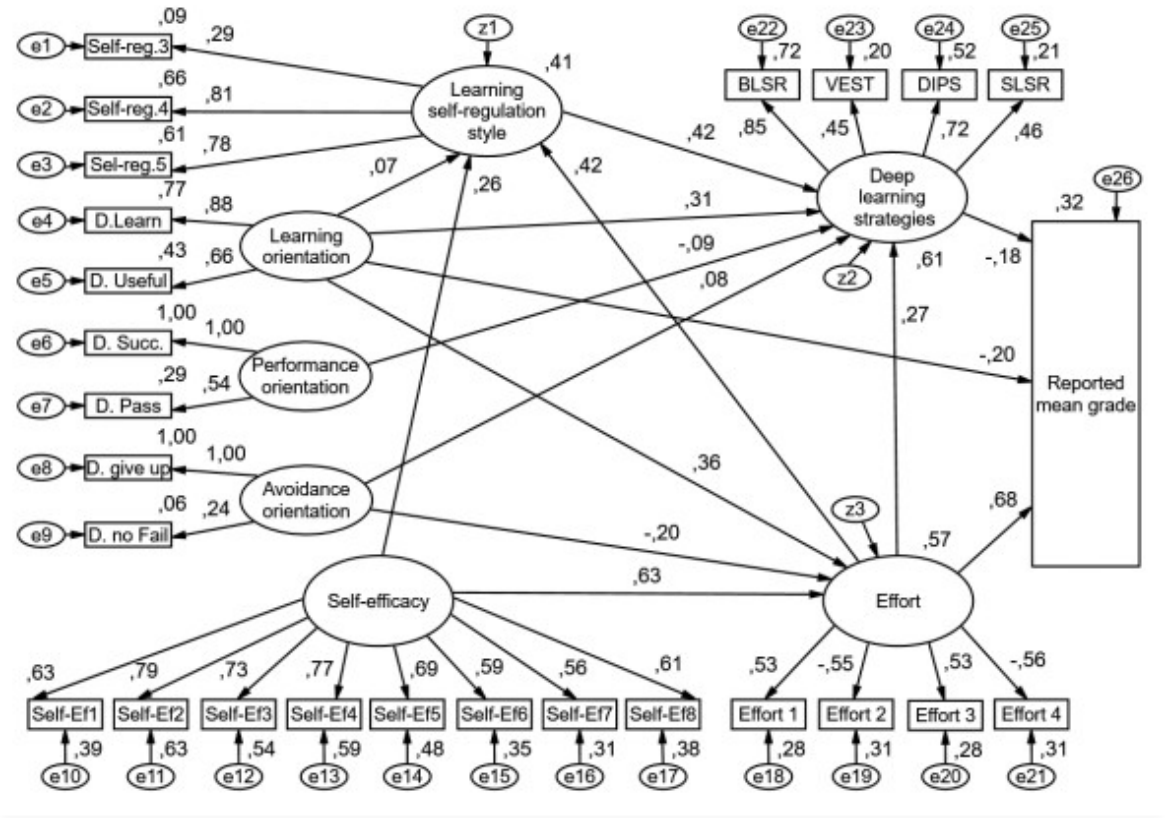
This document provides a historical development of the DLS-Q. This questionnaire was developed within Ernesto Panadero research project (Ministerio de Economía y Competitividad, Reference number: EDU2016-79714-P). Jesús Alonso-Tapia participated as expert in the development and validation of questionnaires.

Study	Study aim	Participants	Conclusions	Observations
Panadero, Alonso-Tapia, García-Pérez, Fraile, Sánchez-Galán & Pardo, 2021*	To explore and validate the questionnaire in its structure of four first order scales (8 items in three scales, 6 in the Social scale) organized around a second order scale. Additionally, the external validity of the model was tested.	601 higher education students from four different universities in Madrid participated in this study. Regarding their description 51.1% were women; the average age was 20.44 (SD = 3.96, range 17 - 53); 47.1% were freshmen, 35.1% sophomore, 17.8% junior; 43,6% were Psychology undergraduates, 47.4% Physical Activity and Sport undergraduates, and 8.8% from a combined programme on Psychology + Criminology	Both, the internal structure and the external validity of the model reached appropriate values. Therefore, the questionnaire was validated.	None.
NOTE: in the translation of items to English, while keeping the original intended message, some of the items were translated for an Anglo-Saxon sample. This was done in April 2020. Importantly, the English version needs to be validated.				

Statistical data from Panadero et al. (2021*)
Spanish higher education students



Factor structure CFA. Sample Spanish Higher education students.



Path analysis: measurement weights, regression coefficients, and explained variance of dependent variables.

Table 1. *Goodness of fit statistics for each baseline model tested and for multi-group cross-validation analysis*

Analysis	χ^2	*df*	*p*	χ^2/df	TLI	CFI	RMSEA
Model 1 – Correlated factors CFA-1 (n = 301)	966.46	399	<.0001	2.42	.91	.92	.069
Model 1 – Cross validation CFA-2 (n_1 = 301; n_2 = 300)	2282.49	1036	<.0001	2.20	.91	.91	.063
Model 2 – Hierarchical CFA-3 (n =301)	948.88	401	<.0001	2.36	.91	.92	.067
Model 2 – Cross validation CFA-4 (n_1 = 301; n_2 = 300)	**2254.03**	**1040**	**<.0001**	**2.16**	**.92**	**.91**	**.062**

Table 2. *Reliability indexes of the Deep learning strategies questionnaire scales*

First order scales & general second order scale	Cronbach α	McDonald ω
Basic learning self-regulation strategies	.85	.94
Visual elaboration and summarizing strategies	.84	.94
Deep information processing strategies	.85	.94
Social learning self-regulation strategies	.64	.83
General: *Deep learning strategies*	.86	.89

Table 3. *Path analysis: Goodness of fit statistics for group-1 and for multi-group cross-validation analysis*

Analysis	χ^2	*df*	*p*	χ^2/df	TLI	CFI	RMSEA
Path for Group 1 (n =301)	954.65	288	<.0001	3.31	.70	.76	.08
Cross validation (n_1 = 301; n_2 = 300)	1952,43	641	<.0001	3.04	.75	.78	.05

Table 4. *Path analysis. Variance explained of mediators and final variables, and total, direct and indirect effects*

Mediators and criterion	*Effort*	*Learning self-regulatory style*			*Deep Learning strategies*			*Reported mean grade*		
Variance explained	57%	41%			*61%*			*32%*		
Effects Predictors	*Total*	*Total*	*Direct*	*Indirect*	*Total*	*Direct*	*Indirect*	*Total*	*Direct*	*Indirect*
Self-efficacy	*.634*	*.528*	.259	.269	*.395*		. 395	*.362*		.362
Avoidance orientation	*-.196*	*-.083*	-	-.083	*.011*	.077	-.089	*-.132*		-.132
Learning orientation	*.357*	*.218*	.067	.151	*.500*	.312	.312	*-.051*	-.203	.152
Effort		*.424*	.424		*.451*	.273	. 178	*.601*	.684	-.082
Learning SR style					*.419*	.419		*-.077*		.077
Performance orientation								*.016*		.016
Deep Learning strategies								*-.183*	-.183	

Historical development of the DLS-Q

The table below provides a historical development of the DLS-Q.

Publication	General description	Observations
Panadero, Alonso-Tapia, García-Pérez, Fraile, Sánchez Galán, & Pardo, (2021) https://doi.org/10.1016/j.psicoe.2020.11.003	Original validation of the questionnaire with a Spanish sample.	-
Yaguarema, Zambrano, & Salavarría, 2022 https://doi.org/10.3389/feduc.2022.1004874	Validation study with Ecuadorian students	Read article as they found some structural changes in their study for the Ecuadorian context.
Martins & Ruiz-Bueno, 2024 https://doi.org/10.1344/reire.46895	Validation study with Catalonian students	Read article as they performed some minor changes. Catalonian version of the questionnaire can be found in the article