

Design of instruments to determine the impact of IBSE on students' learning

Questionnaire 1A: Feedback after a learning unit

for older pupils from upper secondary schools (about 16 – 19 years)

It contains 25 items with a seven-point scale adopted from the IMI and it focuses on assessing the three dimensions.

Interest/Enjoyment subscale shows the extent to which students like the performed activity and find it interesting. This subscale comprises a total of 8 items, namely 3, 5, 7, 11, 12-R, 15, 17, and 23. The "R" with item no. 12 means that a reverse score is needed. It is possible to gain 56 points in total.

Perceived choice subscale shows how students perceive their choice when performing a given activity. This subscale comprises a total of 8 items, namely 2, 8-R, 9, 14-R, 18-R, 20-R, 22 and 24-R. The "R" means that a reverse score is needed. It is possible to gain 56 points in total.

Value/Usefulness subscale shows how students perceive the value/usefulness of a given activity for themselves. This subscale comprises a total of 9 items, namely 1, 4, 6, 10, 13, 16, 19, 21, and 25. It is possible to gain 63 points in total.

The second part of the questionnaire was taken from the CLES. It contains 6 items and it is possible to gain 30 points in total.

Questionnaire 1B: Feedback after a learning unit

for younger pupils from lower secondary schools (about 12 – 15 years)

It contains 17 items with a seven-point scale adopted from the IMI and it focuses on assessing the two following dimensions: Interest/Enjoyment and Value/Usefulness.

Interest/Enjoyment subscale shows the extent to which students like the performed activity and find it interesting. This subscale comprises a total of 8 items, namely 2, 4, 6, 8, 9 - R, 11, 13 a 16. The "R" with item no. 9 means that a reverse score is needed. It is possible to gain 56 points in total.

Value/Usefulness subscale shows how students perceive the value/usefulness of a given activity for themselves. This subscale comprises a total of 9 items, namely 1, 4, 6, 10, 13, 16, 19, 21, and 25. It is possible to gain 63 points in total.

The second part of the questionnaire was taken from the CLES. It contains 6 items and it is possible to gain 30 points in total.

IMI questionnaire

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78,

Available on-line <<http://www.selfdeterminationtheory.org/questionnaires/10-questionnaires/50>>

CLES questionnaire

Taylor, P. C., Fraser B. J., & White, L. R. (1994). CLES An instrument for monitoring the development of constructivist learning environments. Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

1A Feedback after a learning unit for UPPER secondary schools

Hello,

the following items concern your experience with the activities in the learning unit. Please answer all items. We are very much interested in your answers!

About you

My name is _____ I am  or  , and I am ___ years old.

Part 1

For each of the following items, please indicate how true the statement is for you. Use the following scales as a guide.

1 2 3 4 5 6 7
not at all somewhat very
true true true

		1	2	3	4	5	6	7
1	I believe that doing activities in the learning unit could be of some value for me.							
2	I believe I had some choice about doing activities in the learning unit.							
3	While I was doing activities in the learning unit, I was thinking about how much I enjoyed it.							
4	I believe that doing activities in the learning unit is useful for improved concentration.							
5	Activities in the learning unit were fun to do.							
6	I think activities in the learning unit are important for my improvement.							
7	I enjoyed doing activities in the learning unit very much.							
8	I really did not have a choice about doing activities in the learning unit.							
9	I did activities in the learning unit because I wanted to.							
10	I think this is an important learning unit.							
11	I felt like I was enjoying activities while I was doing them.							
12	I thought these were very boring activities.							
13	It is possible that activities in the learning unit could improve my studying habits.							
14	I felt like I had no choice but to do activities in the learning unit.							
15	I thought this was a very interesting learning unit.							
16	I am willing to do activities in the learning unit again because I think it is somewhat useful.							
		1	2	3	4	5	6	7

		1	2	3	4	5	6	7
17	I would describe activities in the learning unit as very enjoyable.							
18	I felt like I had to do activities in the learning unit.							
19	I believe doing activities in the learning unit could be somewhat beneficial for me.							
20	I did activities in the learning unit because I had to.							
21	I believe doing activities in the learning unit could help me do better in school.							
22	While doing activities in the learning unit I felt like I had a choice.							
23	I would describe activities in the learning unit as very fun.							
24	I felt like it was not my own choice to do activities in the learning unit.							
25	I would be willing to do activities in the learning unit again because it has some value for me.							

Part 2

For each of the following items, please indicate how often the activity happened during the learning unit. Use the following scales as a guide.

1	2	3	4	5
almost never	seldom	sometimes	often	almost always

In this class during the learning unit ...		1	2	3	4	5
1	I got the chance to talk to other students.					
2	I talked with other students about how to solve problems.					
3	I explained my ideas to other students.					
4	I asked other students to explain their ideas.					
5	Other students asked me to explain my ideas.					
6	Other students explained their ideas to me.					

1B Feedback after a learning unit for LOWER secondary schools

Hello,

the following items concern your experience with the activities in the learning unit. Please answer all items. We are very much interested in your answers!

About you

My name is _____ I am  or  , and I am ____ years old.

Part 1

For each of the following items, please indicate how true the statement is for you. Use the following scales as a guide.

1 2 3 4 5 6 7
not at all somewhat very
true true true

		1	2	3	4	5	6	7
1	I believe that doing activities in the learning unit could be of some value for me.							
2	While I was doing activities in the learning unit, I was thinking about how much I enjoyed it.							
3	I believe that doing activities in the learning unit is useful for improved concentration.							
4	Activities in the learning unit were fun to do.							
5	I think activities in the learning unit are important for my improvement.							
6	I enjoyed doing activities in the learning unit very much.							
7	I think this is an important learning unit.							
8	I felt like I was enjoying activities while I was doing them.							
9	I thought these were very boring activities.							
10	It is possible that activities in the learning unit could improve my studying habits.							
11	I thought these were very interesting activities.							
12	I am willing to do activities in the learning unit again because I think it is somewhat useful.							
13	I would describe activities in the learning unit as very enjoyable.							
14	I believe doing activities in the learning unit could be somewhat beneficial for me.							
15	I believe doing activities in the learning unit could help me do better in school.							
16	I would describe activities in the learning unit as very fun.							
17	I would be willing to do activities in the learning unit again because it has some value for me.							
		1	2	3	4	5	6	7

Part 2

For each of the following items, please indicate how often the activity happened during the learning unit. Use the following scales as a guide.

1 2 3 4 5
 almost seldom sometimes often almost
 never

In this class during the learning unit ...		1	2	3	4	5
1	I got the chance to talk to other students.					
2	I talked with other students about how to solve problems.					
3	I explained my ideas to other students.					
4	I asked other students to explain their ideas.					
5	Other students asked me to explain my ideas.					
6	Other students explained their ideas to me.					