

Teaching-learning materials compiled by the PARSEL consortium
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Cooperating Institutions and Universities within the PARSEL-Project:



Assessment for the Adaptation of the PARSEL Materials in Practice – selected by the PARSEL Group of Freie Universität Berlin

Assessment Criteria

All PARSEL modules can be evaluated using the “Questionnaires for the Assessment of the ‘Motivational Learning Environment’ (MoLE)”; and the PARSEL group from Freie Universität Berlin recommends doing this.

To evaluate the adaptation of the PARSEL materials (especially those selected by the PARSEL group from Freie Universität Berlin) we recommend using the “Questionnaires for the Assessment of the ‘Motivational Learning Environment’ (MoLE)”. Therefore, you/the teacher collect data by asking the students about their own perceptions and assessment regarding the following “dimensions of the motivational learning environment” (Bolte 2006):

- Satisfaction,
- comprehensibility/requirements,
- subject orientation,
- relevance of the topics,
- students’ opportunities to participate,
- class cooperation and
- individual student’s willingness to participate.

Collect these data by focusing on the three following perspectives:

- 1st focus on the students’ perceptions and assessment in general,
- 2nd ask the students to tell you about their expectations in terms of how they would like the motivational learning environment in their science lessons to be and
- 3rd look at the students’ perceptions and assessment regarding a specific (the just experienced) science lesson.

To obtain specific insights into the assessment and the development of the motivational learning environments within the projects, we recommend questioning the students at least three times.

- 1st Before the start (t_0) of the instruction using the PARSEL materials, the students are questioned on
- how they, looking back at their previous science lessons, regarded the motivational learning environment in general (t_0 -REAL) and
 - how they would like the motivational learning environment in their science lessons to be (t_0 -IDEAL).

- 2nd In the course of the instruction using the PARSEL materials (t_1 to t_{n-1}), the students are asked to evaluate
- how they, looking back at the just experienced PARSEL science lesson, regarded the motivational learning environment specifically (t_1 to t_{n-1} -TODAY)

- 3rd At the end (t_n) of the instruction using the PARSEL materials, the students are asked to evaluate
- how they, looking back at all the PARSEL science lessons, regarded the motivational learning environment in general (t_n -REAL)

This course of action provides insight into the motivational learning environment during past lessons. This can be an insight into the lessons before the PARSEL intervention (t_0 -REAL), the PARSEL lessons in general (t_n -REAL) or into specific PARSEL lessons (t_1 to t_{n-1} -TODAY).

Additionally, statements can be made on how students would generally like their science lessons to be (t_0 -IDEAL).

	t_0 -IDEAL	t_0 -REAL	t_n -REAL	t_1 -TODAY	...	t_{n-1} -TODAY	
t_0 -IDEAL		t_0 -REAL / t_0 -IDEAL	t_n -REAL / t_0 -IDEAL	t_1 -TODAY / t_0 -IDEAL	...	t_{n-1} -TODAY / t_0 -IDEAL	t_0 -IDEAL
t_0 -REAL			t_n -REAL / t_0 -REAL	t_1 -TODAY / t_0 -REAL	...	t_{n-1} -TODAY / t_0 -REAL	t_0 -REAL
t_n -REAL				t_1 -TODAY / t_n -REAL	...	t_{n-1} -TODAY / t_n -REAL	t_n -REAL
t_1 -TODAY					...	t_{n-1} -TODAY / t_1 -TODAY	t_1 -TODAY
...					
t_{n-1} -TODAY							t_{n-1} -TODAY

Table 1

The comparison of the data from each of the questionings provides an insight into several differentiated aspects (see Table 1). This can be, for example, in how far “wish” and “reality” coincide when considering the science lessons

- before the PARSEL intervention (t_0 -REAL / t_0 -IDEAL) and/or
- during specific PARSEL lessons (t_1 to t_{n-1} -TODAY / t_0 -IDEAL) and/or
- of the PARSEL intervention in general (t_n -REAL / t_0 -IDEAL).

The process of analysing the data further allows the comparison of previously experienced science lessons with the PARSEL science lessons, so as to prove optimisation effects; for example:

- comparison of the previously experienced science lessons with the PARSEL science lessons in general (t_0 -REAL / t_n -REAL),
- comparison of specific PARSEL science lessons with the PARSEL science lessons in general (t_1 to t_{n-1} -TODAY / t_n -REAL),
- comparison of specific PARSEL science lessons with the previously experienced science lessons in general (t_1 to t_{n-1} -TODAY / t_0 -REAL).

Of course this course of action of analysing the data also allows the comparison of specific cohorts, e.g.:

- male and female students,
- well performing and less well performing students,
- students with and without a migration background,
- students of different age groups,
- specific class types (single-sex and coeducational; differently combined student populations; different types of teacher personality),
- classes from different types of schools,
- classes from different grades,
- etc..

The “Questionnaires for the Assessment of the ‘Motivational Learning Environment’ (MoLE)” are versatile and universally applicable. Questioning the students using the MoLE questionnaires is not particularly time consuming. Thus, further assessments can be added to the analyses of the learning environment in order to link verifiable effects (e.g. the correlation between the MoLE dimensions and the different dimensions of (scientific) competence and/or dimensions of scientific literacy). There are English translations beside the German versions.

If you are interested in assessing the “motivational learning environment” in your science classes, please feel free to contact: claus.bolte@fu-berlin.de.

References

Bolte, Claus (2006, April): As Good as It Gets: The MoLE-Instrument for the Evaluation of Science Instruction. Paper presented at the Annual Meeting of the National Association for the Research on Science Education (NARST), San Francisco, USA, April 2006 (Polyscript).

Bolte, Claus (2001): How to Enhance Students’ Motivation and Ability to Communicate in Science Class-Discourse. In: Behrendt, H. and others (Eds.): Research in Science Education - Past, Present, and Future. London: Kluwer Academic Publishers. Pp. 277-282.

Bolte, Claus (1995): Conception and Application of a Learning Climate Questionnaire based on Motivational Interest Concepts for Chemistry Instruction at German Schools. In: D.L. Fisher (1995, ed.): The Study of Learning Environments. Vol. 8. Curtin University. Perth, Australia, pp. 182-192.