ILIA STATE UNIVERSITY

PROFILES

Professional Reflection Oriented Focus on Inquiry-based Learning and Education through Science

ISU Report #2 on the PROFILES Students Gains Evaluation – Insights into the Analyses of the Rural-Urban Differences for the Second (2014) Year Sample

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Aim and Purpose

Aim and purpose of this ISU (Georgian Team) report on the Students' Gains Evaluation is to present findings about the intervention differences between the rural and urban schools of PROFILES group at ISU in the frame of Work Package 7: "Evaluation of Students Gains". Evaluation means analysing the MoLE questioner data, which are collected during 2014 year.

General Question of Interest regarding this report

The general question regarding this report is: to find out how PROFILES intervention effects on students' motivation to learn science and if are there differences between rural and urban school students' gains.

Design of the Students Gains Evaluation for the ISU Report #2

In order to answer the general question mentioned above, the working group at ISU chose a (treatment-) pre-post-test design/a treatment control group design. Therefore, data has been collected at the same time by Pre- and Post- questionnaire in the intervention classes and control classes as well.

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During the two trails of PROFILES intervention10 different modules were implemented. Some of them were translated from PROFILES consortium partners and adopted, and some of them were created by the PROFILES teachers and ISU team.

Here is the total list of implemented PROFILES modules:

1. "Stumbling over Biodiversity"	Translated in Georgian and adopted /Science, Biology
2. "Preventing Holes in Teeth"	Translated in Georgian and adopted /Science, Chemistry
3. "Brushing up on Chemistry"	Translated in Georgian and adopted/ Science, Chemistry
4. "Traffic Accident: Who is to blame"	Translated in Georgian and adopted/ Science, Physics
5. "Cola and Diet Cola"	Translated in Georgian and adopted /Science, Physics
6. "Cheese making: which to use – modern technology or nature's way? "	Created by ISU team/ Science, Biology
7. "What material keeps information for a long time?"	Created by ISU team/ Science, Biology
8. "Is all that shines Gold?"	Created by ISU team/ Science, Chemistry
9. "Why jam, comfiture and salted products aren't spoiled for a long time?"	Created by ISU team/ Science, Biology
10. "Who likes Chocolate?"	Created by ISU team/ Science, Chemistry

Specific Question of Interest and Research regarding Report #2

In the context of the pre-post-test the students assess their regular and ideal classes, and after intervention of PROFILES, their PROFILES classes.

1. *How do rural and urban schools students (who take part in the PROFILES intervention of the ISU group) retrospectively assess their previous science education?*
2. *How rural and urban schools students of the PROFILES interventions of the ISU team perceived and assess the motivational learning environment of the „PROFILES lessons"?*

3. *Which wishes and priorities do rural and urban schools students link to their science education?*
4. *Which wish-reality-differences can be identified a) in the pre-test survey and b) in the post-test survey?*

   And last but not least:

5. *Which (statistically significant) changes can be identified in the students' feedback of the pre-post-test / in the treatment and control group surveys a) regarding the possibly different REAL-assessments of the students b) which (statistically significant) changes/differences can be discovered regarding the (calculated) wish-reality-differences (of the pre-test and the post-test analyses) c) which (statistically significant) differences can be discovered regarding the rural and urban school students?*

These 5 research questions outlined in this context are supposed to help structuring the reporting of results achieved in the frame of the ISU Students Gains Evaluation(s).

Total sample of the ISU Treatment Group for the 2014 year

The total treatment sample of ISU evaluation for 2014 year consists of students from 19 different schools.

Table 1.PROFILES modules Sample for the ISU Students' Gains Evaluation Report #2

	No. of Students[1]					
	Rural			Urban		
	REAL (Pre-Test)	REAL (Pre-Test)	IDEAL	REAL (Post-Test)	IDEAL	REAL (Post-Test)
Treatment Group	132	132	128	362	362	322
Control Group[2]	128	128	123	279	279	293

[1]Deviation regarding the numbers of cases (data set) for pre - and post- trails are caused by attendance the classis.
[2]In addtion, ISU collected data for controll groups from 19 different schools.

Results and Findings of the ISU Treatment 2014 year Sample

a) Rural Schools

Figure 1 provides the mean scores of the MoLE scales – differentiated by the pre- and the post-test treatment group analyses of the students' REAL-assessments and IDEAL-assessments of the ISU sample for rural schools..

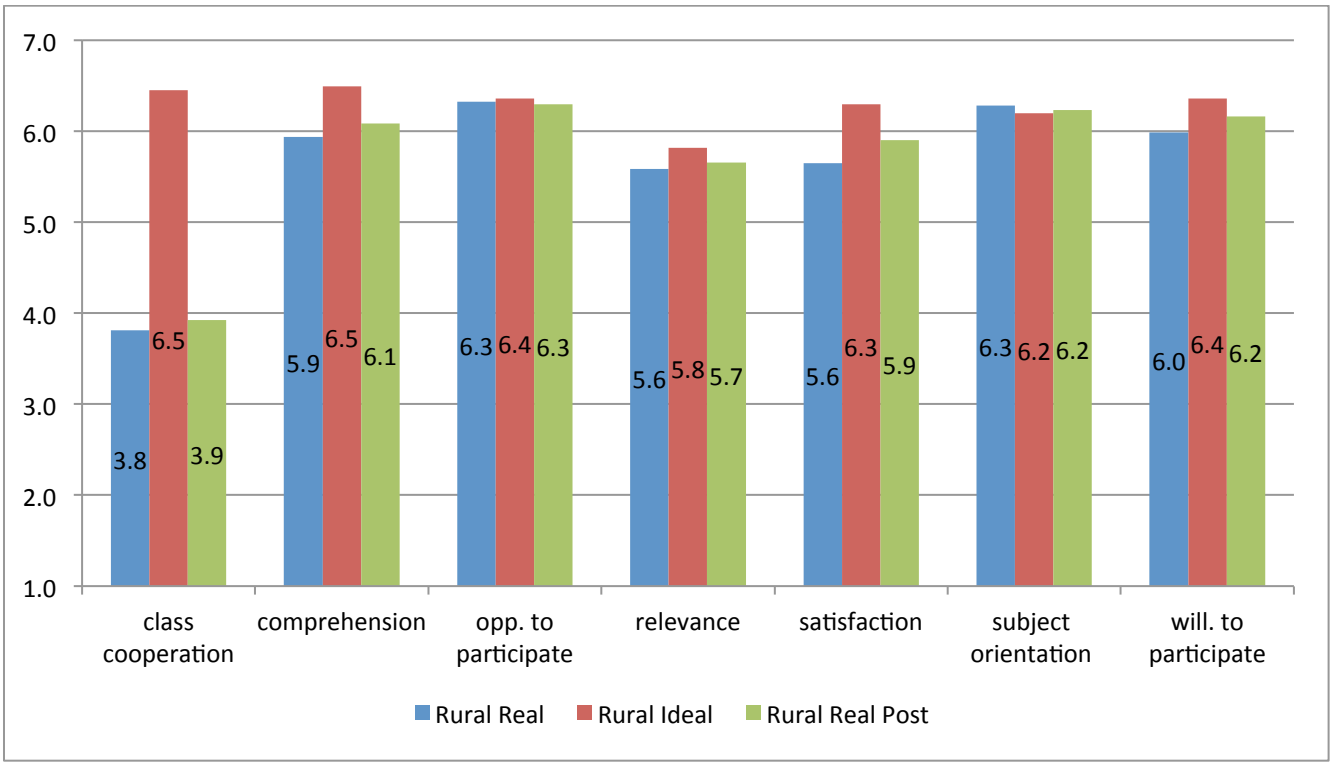


Fig. 1. Mean scores of the seven MoLE scales differentiated by pre- and post-test / treatment group analyses for the Rural Schools.

Focusing on the rural schools students' priorities and wishes regarding science lessons – Analyses of the students' feedback on the MoLE IDEAL-version:

The students' wishes regarding science expressed in their feedback on the scales of the MoLE questionnaire's IDEAL-version is that the priorities of the students are given to comprehension and class cooperation (M= 6.5, Range #1). also they gave high score to willingness to participate and opportunity to cooperate (M=6.4, Range #2). Next priorities are given to satisfaction and (M= 6.3, Range #3). The Relevance is less important in the feedbacks of the students (M= 5.8, Range #5).

Focusing on the rural schools students' assessments regarding their regular science lessons (before the PROFILES intervention started /of the control group)-Analyses of the students' feedbackon the MoLE REAL-version in the pre-test/control group:

In the pre-test the highest mean score are found regarding the students' assessmentof their perception of the subject orientation and opportunities to participate (both M=6.3, range #1). The lowest mean score is found for the class cooperation (M=3.8, Range # 5).

Focusing on the rural schools students' assessments regarding their PROFILES science lessons of the PROFILES intervention - Analyses of the students' feedbackon the MoLE REAL-version in the post-test of the treatment group:

In the post-test the students gave the highest range to opportunity to participate (M=6.3, Range #1). The next in the range are the subject orientation and willigness to participate (M=6.2, Range#2). The lowest score is given to class cooperation (M=3.9, Range#6).

Comparing the rural schools students' assessments regarding the PROFILES science lessons before and after the PROFILES intervention – Analyses of the pre- and post-test-data sources:

For the analysing the pre- and post-test findings we compere wish-to-reality differences (Fig. 2). For most of variables we found positive changes, but for some there were not observable progress. The significant progress is for satisfaction,comprehension and willingness to participate (mean progress score 0.2). There are no changes in assessing of the relevance.

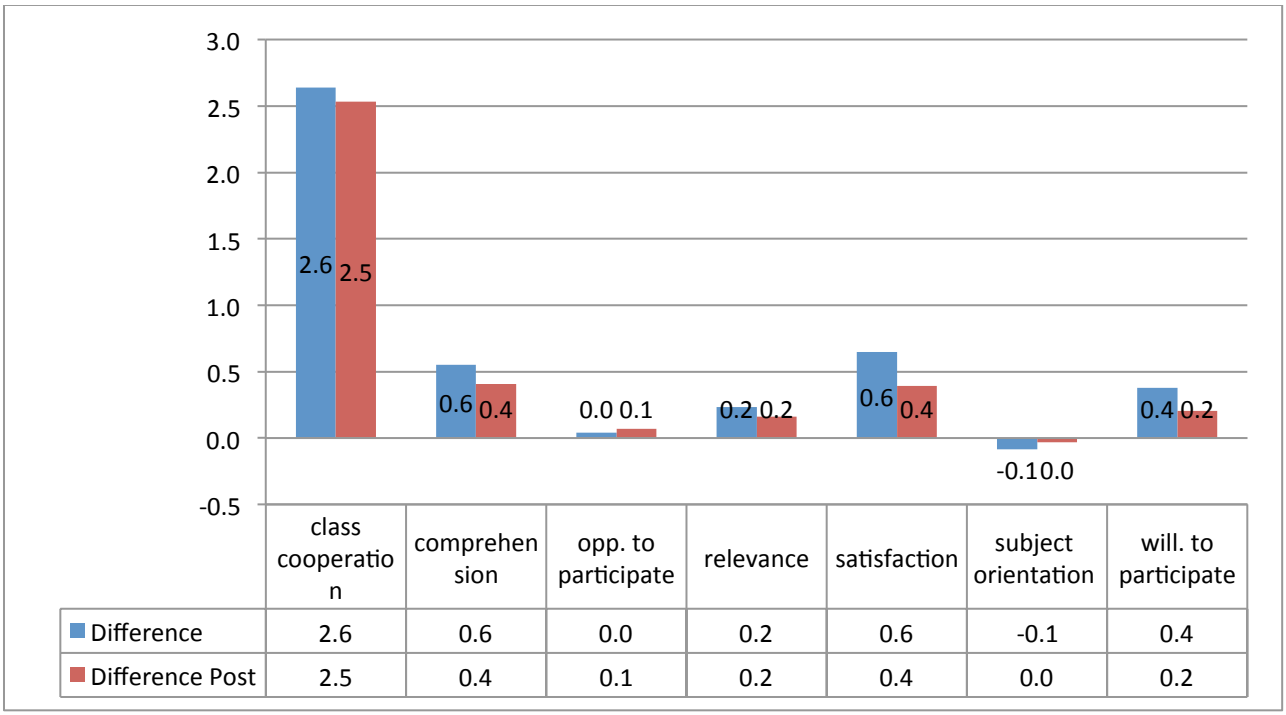


Fig. 2. Calculated wish-to-reality-differences regarding the seven MoLE scales differentiated by pre- and post-test analyses of the rural schools students' assessments (IDEAL-minus-pre-REAL-assessments and IDEAL-minus-post-treatment-group-REAL-assessments) for the rural schools.

b) Urban Schools

Figure 3 provides the mean scores of the MoLE scales – differentiated by the pre- and the post-test treatment group analyses of the urban schools students' REAL-assessments and IDEAL-assessments of the ISU sample for urban schools for 2014 year.

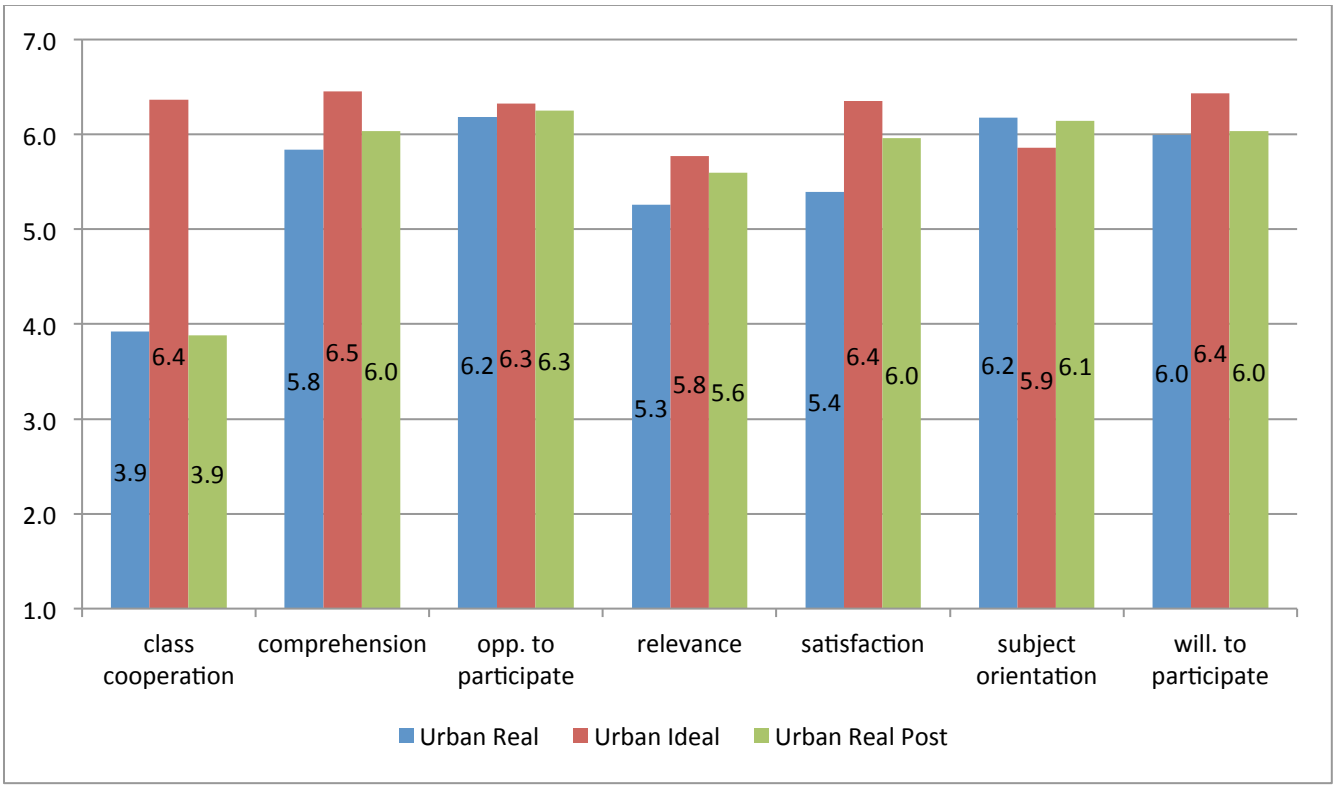


Fig. 3. Mean scores of the seven MoLE scales differentiated by pre- and post-test / treatment group analyses for the urban schools.

Focusing on the urban schools students' priorities and wishes regarding science lessons – Analyses of the students' feedback on the MoLE IDEAL-version:

The students' wishes regarding science expressed in their feedback on the scales of the MoLE questionnaire's IDEAL-version is that the priorities of the students are given to comprehension (M= 6.5, Range #1), also willingness to participate, satisfaction and class cooperation (M=6.4, Range #2). Next priority is given to opportunity to participate (M= 6.3, Range #3). The Relevance is less important in the feedbacks of the students (M= 5.8, Range #5).

Focusing on the students' assessments regarding their regular science lessons (before the PROFILES intervention started/of the control group)- Analyses of the students' feedback on the MoLEREAL-version in the pre-test/control group:

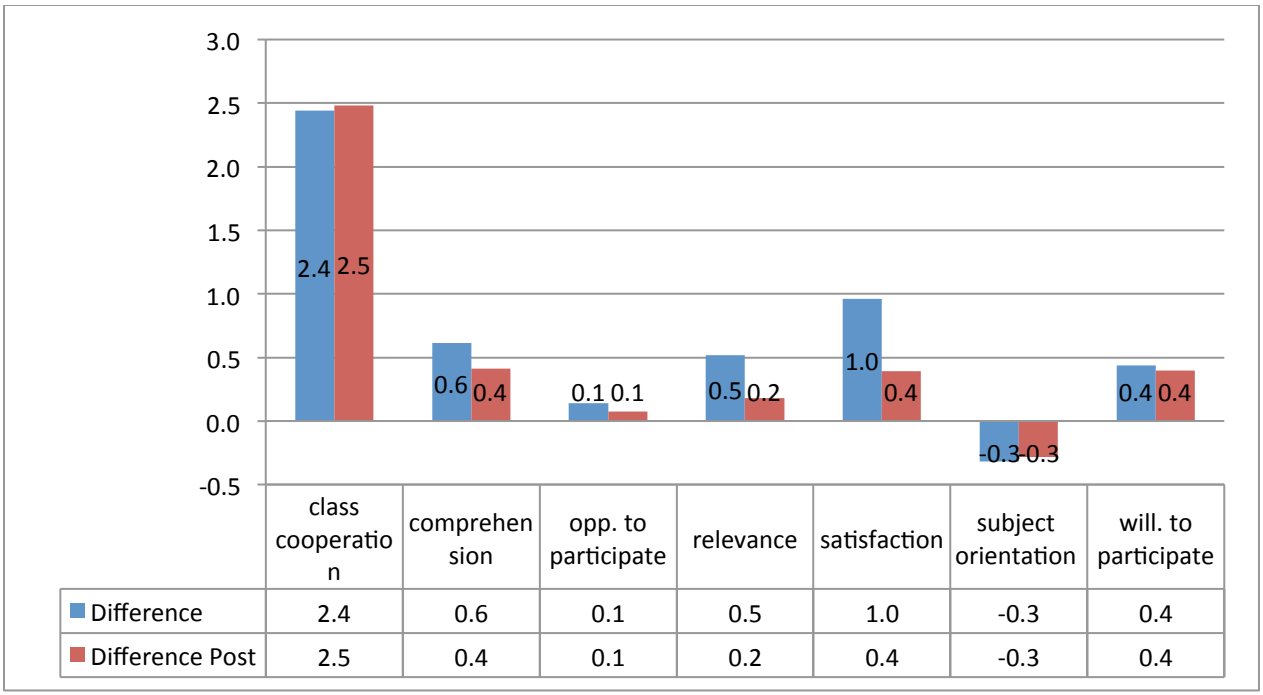
In the pre-test the highest mean score is found regarding the students' assessment of their perception of the subject orientation and opportunities to participate (M=6.2,Range#1). The lowest mean score is found for the class cooperation (M=3.9, Range#6).

Focusing on the students' assessments regarding their PROFILES science lessons of the PROFILES intervention - Analyses of the students' feedback on the MoLEREAL-version in the post-test of the treatment group:

In the post-test the students gave the highest range to opportunity to participate (M=6.3, Range #1). The next in the range is the subject orientation (M=6.1, Range#2). The lowest score is given to class cooperation (M=3.9, Range#5).

Comparing the students' assessments regarding the PROFILES science lessons before and after the PROFILES intervention – Analyses of the pre- and post-test-data sources:

For the analysing the pre- and post-test findings we compare wish-to-reality differences (Fig. 4). For most of variables we found positive changes, but for some there were not observable progress. The significant progress is for satisfaction, comprehension and relevance. There are no changes in assessing the class cooperation and opportunity to participate.



	class cooperation	comprehension	opp. to participate	relevance	satisfaction	subject orientation	will. to participate
Difference	2.4	0.6	0.1	0.5	1.0	-0.3	0.4
Difference Post	2.5	0.4	0.1	0.2	0.4	-0.3	0.4

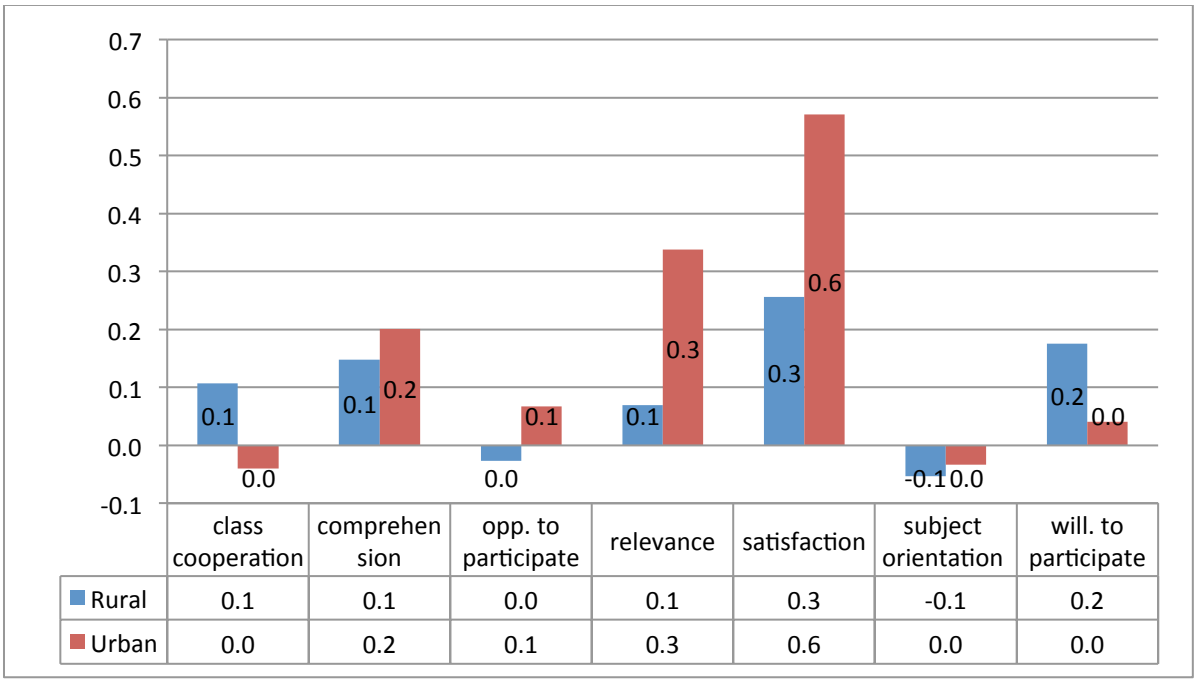
Fig. 4. Calculated wish-to-reality-differences regarding the seven MoLE scales differentiated by pre- and post-test analyses of the students' assessments (IDEAL-minus-pre-REAL-assessments and IDEAL-minus-post-treatment-group-REAL-assessments) for the urban schools.

Comparing Rural and Urban School wish-to-reality-differences

For the analysing of post-test findings we compare wish-to-reality differences (Fig. 5). For some of variables we found positive changes, but for some there were not observable progress.

The significant progress is for satisfaction for urban (D=0.6) and rural (D=0.3) schools' students. But the progress is more significant for urban schools students than for rural.

For comprehension, opportunity to participate, relevance and satisfaction we can see more progress in urban schools than in rural. But for class cooperation and willingness to participate more progress is observed for rural school student's assessments.



	class cooperation	comprehension	opp. to participate	relevance	satisfaction	subject orientation	will. to participate
Rural	0.1	0.1	0.0	0.1	0.3	-0.1	0.2
Urban	0.0	0.2	0.1	0.3	0.6	0.0	0.0

Fig. 5.Calculated difference between wish-to-reality-differences regarding the seven MoLE scales (Difference - minus-Difference Post) for the rural and urban schools.

Conclusions regarding the MoLE analyses

We can conclude that more significant progress is visible for urban school students' assessments, than for rural.

By means of this students' gains evaluation the PROFILES working group of ISU is able to conclude that PROFILES intervention has no the same results for rural and for urban schools. It means that training modules needs to be modified for rural and urban schools students. The mean scores of the students' motivational learning environment assessment for rural and urban school students are in four cases higher in the post-test than they are in the pre-test, but the cases are differnt. We can conclude that PROFILES interventaion in Georgia will lead to increase of students motivation to learn science and needs specific approaches for rural and urban schools. With the comparing of the scores of students' assessment the bigest difference between the pre- and post- real classes is visible for satifaction. It means that PROFILES intervention promotes students satifaction during the learning process both for rural and urban students.

Outlook

In this report of the ISU Students' Gains Evaluation we have introduced the analyses of rural-urban (No.3) differences (second trial). In the next reports of the ISU team we will focus on the levels of education (No.3).