Characteristics of Socio Scientific Issues that are interesting to pupils and teachers

A report from the research project “Science for Life”

Aim

to investigate what features in content and organization of the SSI that affect the development of interest, knowledge and self-efficacy among the pupils.

Research questions

•How do the task characteristics relate to students' affective and cognitive experiences during the work with the cases?
•Which components of the tasks are most influential on students' interest to work with socio-scientific issues in secondary school?
•Will the context influence boys and girls differently?

Table 1. Boys’ and girls’ judgement of the cases

		The case was interesting				
		1 Do not agree	2	3	4	5 Agree
Sex	Girls	36	69	136	143	102
	Boys	61	73	144	117	80
	Total	97	142	280	260	183

Results. This is preliminary results of which components of the tasks that are most influential on students' interest to work with socio-scientific issues in secondary school.

You are what you eat

image from the TV-programme

Me, my family and global warming

•“You are what you eat” and “Me, my family and global warming” most popular
•Most pupils were in grade 8.
•All cases were considered interesting and related to a current issue.
•Girls found the cases more interesting than boys (Table 1).
•The most important factor “Work forms” contain components like student autonomy, perceived relevance of the assignment and successful co-operative learning.
•The case “Laser treatment …” was considered to be the case where the students developed most new knowledge.
•Irrespective of how interesting the student found the case, they claim that they learned new facts.
•The student reports that they learned to argue for their stand-point and to scrutinize information.

Methods and analysis

The pupils answered one questionnaire before and one after working with the case.

The instrument was used to measure the affective domain of students' attitudes towards, and interest in, science.

The teacher answered one questionnaire after finishing a case.

1400 pupils in secondary school in Sweden have worked with one or several of the cases.

1. You are what you eat?
2. Laser treatment and near sightedness
3. To hear or not to hear?
4. Me, my family and global warming
5. Are mobiles hazardous?
6. Climate-friendly food in school?

Table 2. Students self-reported learning outcome

The case was interesting.		I have learned new facts.	It was fun to discuss the questions	I am better at finding information	I am better at scrutinize information	I can argue for my standpoint	I have learned science during the assignment
1 Agree	Mean	1,37	1,87	2,12	2,16	1,69	1,86
	N	194	192	194	191	193	191
	Std. Dev	0,702	1,146	1,207	1,056	,927	,955
2	Mean	1,59	2,33	2,35	2,40	2,03	2,25
	N	296	299	298	300	295	298
	Std. Dev	,744	1,033	1,088	,981	,820	0,974
3	Mean	1,99	2,93	2,66	2,61	2,33	2,44
	N	311	307	312	306	302	311
	Std. Dev	,971	1,044	1,114	1,054	1,043	1,054
4	Mean	2,56	3,32	3,06	3,11	2,60	3,02
	N	150	151	151	151	149	152
	Std. Dev	1,114	1,146	1,313	1,108	1,089	1,268
5 Do not agree	Mean	2,86	4,07	3,45	3,41	2,91	3,29
	N	105	105	103	104	103	104
	Std. Dev	1,369	1,219	1,377	1,398	1,566	1,492

Presentations from Science for life:
Ekborg et al, synopsis 125
Ideland & Malmberg, synopsis 4
Lindahl & Rosberg,. Synopsis 50
Winberg & Lindahl, synposis 97

Ottander, C. & Ekborg, M.
Department of Mathematics, Technology and Science Education, Umeå university, Sweden
christina.ottander@educ.umu.se

SISC
Science In Social Context

Margareta Ekborg
Christina Ottander
Mikael Winberg

Britt Lindahl
Maria Rosberg

Malin Ideland
Claes Malmberg
Agneta Rehn

Funded by
Vetenskapsrådet