

Appendix 4: Crosswalk of Student Survey Items

Revised: June 8, 2011

Crosswalk of Student Survey Items to Research Questions, Uses in Analysis, and Source of Item

Survey Item	Research Question ¹	Purpose of Item ²	Source of Item ³	Grade level version of survey ⁴
Respondent Background				
First and last name	RQ1	A	A	B
Birthday		A	A	B
Today's date		A	A	B
Grade level in fall 2011		A, C, D	A	B
Name of school in fall 2011		A	A	B
Attitude and Interest Toward Science				
Attitude toward science scale ⁵				
<i>Science is boring</i>	RQ2	O	B	B
<i>I enjoy my science class</i>	RQ2	O	B	B
<i>I like science a lot</i>	RQ2	O	B	B
<i>I think scientists are cool people</i>	RQ2	O	B	B
<i>Everyone should learn about science</i>	RQ2	O	B	B
<i>I have good feelings about science</i>	RQ2	O	B	B
<i>I would enjoy being a scientist</i>	RQ2	O	B	B
Career interest in science scale ⁶				
<i>When I leave school, I would like to work with people who make discoveries in science</i>	RQ2	O	C	M
<i>I do not want a job in a science laboratory after I leave school</i>	RQ2	O	C	M
<i>Working in a science laboratory would be an interesting way to earn a living</i>	RQ2	O	C	M
<i>I would like to teach science when I leave school</i>	RQ2	O	C	M
<i>I would like to be a science teacher when I grow up</i>	RQ2	O	C	E
<i>A job as a scientist would be interesting</i>	RQ2	O	C	M
<i>I do not want to be a scientist when I leave school</i>	RQ2	O	C	M
<i>I do not want to be a scientist when I grow up</i>	RQ2	O	C	E
<i>A career in science would dull and boring</i>	RQ2	O	C	M
<i>A job as a scientist would be boring</i>	RQ2	O	C	M
<i>I do not want to become a scientist because it needs too much education</i>	RQ2	O	C	M
<i>I would like to be a scientist when I leave school</i>	RQ2	O	C	M
<i>I would like to be a scientist when I grow up</i>	RQ2	O	C	E
Leisure interest in science scale ⁷				
<i>I would like to belong to a science club</i>	RQ2	O	C	B
<i>I get bored watching science programs on TV at home</i>	RQ2	O	C	B
<i>I would like to be given a science book or a piece of scientific equipment as a present</i>	RQ2	O	C	B
<i>I do not like reading books about science during my free time</i>	RQ2	O	C	B
<i>I would like to do science experiments at home</i>	RQ2	O	C	B
<i>I would enjoy having a job related to science during my summer vacation</i>	RQ2	O	C	B
<i>I do not like looking at websites about science</i>	RQ2	O	C	B
<i>I would enjoy visiting a science museum on the weekend</i>	RQ2	O	C	B
<i>Talking to friends about science after school would be boring</i>	RQ2	O	C	B
<i>Watching movies about science would be boring</i>	RQ2	O	C	B
Interest in NASA related activities				
<i>Doing additional hands-on science activities in my classroom</i>	RQ2	O	A	B
<i>Having a college internship in science</i>	RQ2	O	A	M

Talking with a scientist or engineer	RQ2	O	A	B
Participating in a rocket or space shuttle launch event	RQ2	O	A	B
Participating in a live video downlink event from the International Space Station or Space Shuttle	RQ2	O	A	B
Visiting a science museum, science center, or planetarium	RQ2	O	A	B
Participating in a science competition	RQ2	O	A	B
Attending a science career fair	RQ2	O	A	M
Attending an after-school science club or activity	RQ2	O	A	B
Interest Toward non-Science Careers				
I would like to be a police officer when I grow up	RQ2	C	A	B
I would like to be a lawyer when I grow up	RQ2	C	A	B
I would enjoy being a business person	RQ2	C	A	B

¹Research Questions Answered by Student Survey

RQ1: Who participates in Sol?

RQ2: Does student interest in science change significantly between the baseline and follow-up surveys? If so, are these changes larger among students at some awardee/Center sites than others?

²Purpose of Item

A: indicates that the variable from this item is used for administrative purposes (e.g., longitudinal tracking, pre and post survey data linking)

D: indicates that the variable from this item is used in descriptive analysis

O: indicates that the variable from this item is used as an outcome

C: indicates that the variable from this item is used as a control variable

³Source of Item

A: Program specific item developed for the national evaluation of Sol

B: School and Social Experiences Questionnaire from Singh, K., Chang, M., & Dika, S. (2006). Affective and motivational factors in engagement and achievement in science. *International Journal of Learning* 12(6), 1447-9540.

C: Test of Science Related Attitudes from Fraser, B.J. (1981). *TOSRA test of science related attitudes handbook*. Hawthorn, Victoria, Australia: Australia Council for Educational Research.

⁴Grade Level Version of Survey

E: Item only appears on the 4th-5th grade version of the survey (elementary level)

M: Item only appears on the 6th-9th grade version of the survey (middle school level)

B: Item appears on both versions of the survey (elementary and middle school levels)

⁵Attitude Toward Science Scale

Modified original scale of a four-point Likert type where 1=strongly disagree to 4=strongly agree to a five-point Likert-type where 1=Really disagree to 5=Really agree.

Items had a Cronbach alpha of 0.93 in pilot tests with high school students in grades 9 through 12 (N=1589). Most of the students in the sample were White (94.7%), and in grades 9 (38.8%) and 10 (32.7%).

⁶Career Interest in Science Scale

Items had a Cronbach alpha of 0.72 for 7th grade and 0.70 for 8th grade in pilot tests with students in a metropolitan area of Sydney, Australia. N=1337 (n=340 7th grade students; n=335 8th grade students; n=338 9th grade students; n=324 10th grade students).

⁷Leisure Interest in Science Scale

Items had a Cronbach alpha of 0.93 for 7th grade and 0.92 for 8th grade in pilot tests with students in a metropolitan area of Sydney, Australia. N=1337 (n=340 7th grade students; n=335 8th grade students; n=338 9th grade students; n=324 10th grade students).