

World of Viruses Summative Evaluation Process

Testing the Pilot Study Instrument

World of **VIRUSES**



March 2011

by Amy Spiegel, Ph.D.
Center for Instructional Innovation

With help from:
Amanda Richardson and Nicole Bryner
Bureau of Sociological Research

SEPA SCIENCE EDUCATION
PARTNERSHIP AWARD
Supported by the National Center for Research Resources, a part of the National Institutes of Health

UNIVERSITY OF
Nebraska
Lincoln

World of Viruses is funded by the National Center for Research Resources at the National Institutes of Health through the Science Education Partnership Award (SEPA) Grant No. R25 RR024267-01 (2007- 2012). Its content is solely the responsibility of the authors and does not necessarily represent the official views of NCRR or NIH.

World of Viruses Summative Evaluation Process Testing the Pilot Study Instrument

Amy N. Spiegel
March 2011

Date of Cognitive Testing: 22 February 2011

Interviewers: Amanda Richardson, Nicole Bryner, Amy Spiegel

Participants: Three high school students (2 M, 1 F) enrolled in the High School Science Focus Program at Lincoln Public Schools

Purpose: Cognitive testing is typically conducted near the end of the survey instrument development process to identify potential sources of response error in questionnaires. Using the feedback from cognitive interviews increases the likelihood that the potential respondents interpret and comprehend the items and terms used in a manner similar to that intended, are able to recall the information requested and respond accurately, and that the items and response categories are framed appropriately. It is one of the final steps used in survey development.

Cognitive testing was used in the development of the pilot survey for the World of Viruses Summative Evaluation to improve the items developed for assessing attitudes about viruses and people who work with viruses, and to improve the items developed for assessing personal variables about individual characteristics. We wanted to be sure that the language we used was understandable and appropriate for the teens who would be answering the survey, and to make sure that the items were accessing the information we were seeking.

Methods: After survey development, at the point when content and items were well defined, we tested a near-final draft of the pilot survey instrument using cognitive interviewing. Participants from the target population (teens) individually completed the four-page survey and were asked to make note of items that they did not understand, found awkward, were worded oddly, or were unable to answer. In one-on-one interviews, researchers probed participants about the items they had identified, as well as about their understanding and interpretation of other survey items. The script for the cognitive interview with specific probes can be found in Appendix A. Researchers took notes about student responses and comments, and asked the teens to make written notes or suggested changes where appropriate on the surveys. The cognitive interviewing took about one hour to complete, and was conducted in a local high school classroom after school.

Results: Using feedback from the participants' responses to the cognitive interviews, researchers slightly reworded some of the attitudinal items to be more closely aligned to the teens' language use, and re-ordered them so that the negatively worded items were not at the beginning of the survey. Researchers also added and/or changed response categories to some of the personal variable items to reflect teens' lives more closely. These were the final changes made to the survey prior to its use in the pilot study.

Appendix A

WoV Questionnaire with probes

As you might remember we were here a few weeks ago with ipads. Now we have a survey that is meant to be taken after you read the comic. Please take your time and complete this survey. We know that it is not perfect and we want your feedback. After you are finished we will go over the questions together and you can tell me about any questions you found confusing, sound stupid, couldn't answer or your answer wasn't there, you think need changing or rewording. Basically I want your help to make a better survey.

Suggested probes to use as needed throughout interview:

What does the term "____" mean to you?

Can you repeat the question I just asked in your own words?

How did you arrive at that answer?

Was that easy or hard to answer?

You just read some materials about viruses. Had you read these materials before today?

Yes

No

I don't know

Which of these statements most applies to you:

I would never want to read more materials like these.

I don't care if I read more materials like these.

I might want to read more materials like these.

I want to read more materials like these.

Below are statements. For each mark if you strongly agree...

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I would not hang out with a person who works with viruses.					
People who work with viruses are not fun.					
The world is better because people study viruses.					
It would be cool to have a job that works with viruses.					
I don't want to know more about viruses.					
Knowing about viruses helps prevent disease.					
Studying viruses is a waste of time.					
Learning about viruses is not relevant to my life.					
People should understand viruses because it affects their lives.					
Work with viruses is only useful for scientists.					
My friends would respect me if I had a job working with viruses.					

Probe: How would you say this in your own words?

Probe: What does this question mean to you?

It is important that viruses are studied.

Viruses are cool.

Understanding viruses doesn't help me better understand the world.

I don't want to know more about jobs that work with viruses.

People who study viruses could change the world.

Life would be boring without viruses.

I think people who work with viruses should be paid a lot.

Probe: What does "paid a lot" mean to you? Can you repeat the question in your own words? When you hear about jobs that are paid a lot, what kinds of jobs do you think of?

I would like class more if we spent more time studying viruses.

I would never have a job working with viruses.

I would use the Web to learn more about viruses.

People are more healthy because of science.

Viruses are boring.

Learning science is not important for my future.

It can be fun to learn about viruses.

I would date someone interested in viruses.

I would become a "fan" of virology (the science of viruses) on Facebook.

If we were to change this question to: "I would become a fan of "viruses" on Facebook," would it mean the same thing to you?

Jobs that work with viruses are lame.

My friends would think it was awesome if I studied viruses.

It would be interesting to have a job that works with viruses.

Viruses can be interesting.

Overall for this section, what are we trying to get at? What are we asking about?

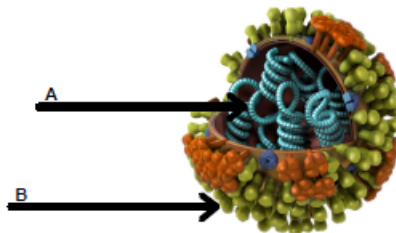
4. The image to the right is a flu virus.

What does A do?

- Makes energy.
- Contains genetic information.
- Converts sunlight.
- Produces cells.

What does B do?

- Propels the virus.
- Divides the virus.
- Attaches the virus to cells.
- Defends the virus.



Probe: Explain in your own words what both A & B do? What don't they do?

Next are statements about viruses. For each...

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

Viruses can kill you.

Viruses are everywhere.

Viruses need a host to reproduce.
 Viruses can multiply inside of cells.
 There are more humans than viruses.
 The body's immune system fights viruses.
 Viruses take over cells to make more viruses.
 Viruses do not have genes.
 Cells and viruses are about the same size.
 T-cells fight viruses.
 Viruses have their own DNA or RNA.

Next are statements about vaccines. For each...

Was it easy or hard to answer these questions?

Describe what you think about when you think about vaccines.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Vaccines prevent disease.					
Vaccines cause harm.					
Vaccines benefit the world.					
Vaccines are more hurtful than helpful.					
I want to learn more about vaccines.					
Vaccines protect against viruses.					
I want to be vaccinated.					

Probe: How would you say this?

Are you:

- Female
- Male

How old are you? [][]

What is your race/ethnicity? Please select all that apply.

- Black or African American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- White
- Hispanic or Latino
- Other

How interesting are most of your courses to you? Probe: Are there answer choices that aren't offered that you'd like? Was it an easy choice?

- Very interesting
- A little interesting
- Not at all interesting

How important are the things you are learning in school? Probe: Are there answer choices that aren't offered that you'd like? Was it an easy choice?

- Very important
- Fairly important
- Not at all important

Do you plan to go to college?

- Yes
- No
- I don't know

What is your mother's highest level of education?

Was this easy or hard to answer? Where their choices that you were looking for that weren't there? Is this something you actually knew or did you just guess?

- No diploma
- High School diploma/GED
- Some college but no degree
- Technical, Associate, Junior College (2-year degree)
- Bachelor's Degree (4-year degree, BA/BS)
- Graduate Degree (Masters, PhD, Law, Medicine/Doctor)
- I don't know

What is your father's highest level or education?

Was this easy or hard to answer? Where their choices that you were looking for that weren't there? Is this something you actually knew or did you just guess?

- No diploma
- High School diploma/GED
- Some college but no degree
- Technical, Associate, Junior College (2-year degree)
- Bachelor's Degree (4-year degree, BA/BS)
- Graduate Degree (Masters, PhD, Law, Medicine/Doctor)
- I don't know

How many vehicles does your family own? [] []

What types of vehicles did you include when you answered this question? (ie cars, trucks etc)

Do you have your own bedroom?

- No, I share
- Yes

During the past 12 months, how many times did you travel on vacation with your family?

What kinds of trips did you count when you answered this question?

- Not at all
- Once
- Twice
- More than twice

How many computers are in your house? [] []

What types of computers did you include when you answered this question? (laptops, desktops? I pads or gaming consoles?)

Do you have your own computer?

Is this computer a desktop or laptop? Is it in your room? Do you share this computer?

- Yes
- No

Thinking about the place you live in now, do your parents own it or rent it?

Was it easy or hard to answer this question?

- They own it or have a mortgage
- They rent it
- I don't know

Do you have the option of free or reduced lunchtime meals at school?

Did this question make sense? Is it applicable to the lunch system at your school?

- Yes
- No

How many times in the past year did you visit the public library?

What kind of libraries do you think of when you think of the public library?

- Never in the past year
- Once or twice in the past year
- A few times in the past year
- Once or twice a month
- At least once a week

Below are statements about hospitals. Please check all that are true for you.

Was it easy or hard to answer this question?

- I haven't visited a hospital
- I was admitted to a hospital
- I know someone who works at a hospital
- I visited someone who was sick at a hospital
- I don't remember visiting or going to a hospital

Have you been vaccinated? Please check all that apply.

Was it easy or hard to answer this question?

- Childhood vaccines
- Flu
- HPV
- Other
- None
- I don't know

Thinking about the grades you normally get in school, which is most true for you?

Was it easy or hard to answer this question? (probe about categories) Did you want to choose more than one category?

- I get mostly F's
- I get mostly D's
- I get mostly C's
- I get mostly B's
- I get mostly A's

Thinking about the grades you normally get in science, which is most true for you?

Was it easy or hard to answer this question? (probe about categories) Did you want to choose more than one category?

- I get mostly F's
- I get mostly D's

I get mostly C's
I get mostly B's
I get mostly A's

How often do you read comic books or graphic novels? Do you call them graphic novels and/or comic books? Did you know what we were talking about? How did you pick which category? Would you suggest different categories?

Never in the past year
Once or twice in the past year
A few times in the past year
Once or twice a month
At least once a week
Every day

Which of the following, if any, World of Viruses Comics had you read before today? Please check all that apply.

Curse of the Treeman (HPV)
(Foot and Mouth)
The Frozen Horror (Influenza)
The Lost Continent (Ebola)
The Never Ending Battle (Ocean Viruses)
Phantom Planet (HIV)
I've read at least one, but I don't know which
None

When you have free time, what one thing from the list below are you most likely to do? What do you like to do in your free time? If you were going to make a list, what would be on it? Did you feel like you fit into these categories? Was it easy for you to pick?

Play sports
Read
Watch TV
Hang out with friends
Play video games