Views About Science Survey (VASS)

Version P05.07

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Format: Pre/post, Multiple-choice
Duration: 40 minutes
Focus: Beliefs / Attitudes (structure and validity of scientific knowledge, scientific methodology, learnability of science, reflective thinking, personal relevance of science)
Level: Intro college, High school

How to give the test

- Give it as both a pre- and post-test. This measures student learning.
  - Give the pre-test before you cover relevant course material.
  - Give the post-test at the end of the term.
- Use the whole test, with the original wording and question order. This makes comparisons with other classes meaningful.
- Make the test required, and give credit for completing the test (but not correctness). This ensures maximum participation from your students.
- Tell your students that the test is designed to evaluate the course (not them), and that knowing how they think will help you teach better. Tell them that correctness will not affect their grades (only participation). This helps alleviate student anxiety.
- Refer to the test by a generic title like "Beliefs / Attitudes Survey" to prevent students from looking up the answers.
- For more details, read the **PhysPort Guides** on implementation:
  - **PhysPort VASS implementation guide** (www.physport.org/implementation/VASS)
  - **PhysPort Expert Recommendation on Best Practices for Administering Belief Surveys** (www.physport.org/expert/AdministeringBeliefSurveys/)

How to score the test

- Each student's score is their percentage of expert-like responses out of 39 questions.
- See the **PhysPort Expert Recommendation on Best Practices for Administering Belief Surveys** for instructions on calculating normalized gain and effect size (www.physport.org/expert/AdministeringBeliefSurveys/)
- Use the **PhysPort Assessment Data Explorer** for analysis and visualization of your students' responses (www.physport.org/explore/VASS)

Views About Science Survey
IBD - Physics

Dear Student:

Research is conducted to compare student views about learning physics across various grade levels and instructional settings. The attached Views About Science Survey (VASS) is used to this end. We would like you to participate by responding to the survey.

Your participation is voluntary. If you choose not to participate or to withdraw at any time, there will be no penalty (it will not affect your grade). Return of the completed survey will be considered your consent to participate.

Results of the research may be published, but your identity will never be disclosed.

VASS is part of the Inventories of Basic Dispositions (IBD) battery of instruments developed by Prof. Ibrahim A. Halloun, in collaboration with educators in many countries around the world. For any information about IBD or VASS, please visit: www.halloun.net, or send an email to: Prof.Halloun@idm.net.lb.

Please:

*Do **not write** anything on the survey.*

*Follow instructions given by your teacher to fill in your **Name and/or other personal information** on the answer sheet.*

*Record your answers on the **answer sheet** following the instructions given on this sheet.*

*Mark **only one** answer per survey question on the answer sheet.*

*Answer **all questions** to the best of your knowledge. Do not skip any question.*

*Avoid guessing. Your answers should reflect what **you** honestly think.*

*Note that questions in this survey are **not** multiple-choice. They are formulated following Halloun's Contrasting Alternatives rating scale (CArs). As explained next, selection of one alternative in a given question does not necessarily exclude the other.*

Plan to finish the survey in 40 minutes.

Thank You.

Views About Science Survey
IBD - Physics

Please carefully read the following instructions before answering the survey questions:

Each survey question presents a given issue about the ***physics course in which you are currently enrolled***, with two viewpoints (a) and (b) that you need to contrast on a 5-point scale. For example:

My physics course covers:

(a) abstract themes;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) practical applications.

You might favor one viewpoint over the other, or regard both viewpoints equally. Please indicate your position by choosing one, and ***only one***, of the five responses shown in the middle, between alternatives (a) and (b). Responses 1 and 2 favor, to different extents, viewpoint (**a**) over viewpoint (b). In contrast, responses 4 and 5 favor, to different extents, viewpoint (**b**) over viewpoint (a). Response 3 regards viewpoints (a) and (b) equally. More specifically, the five response choices mean the following:

1. (a) >> (b): Mostly (a), rarely (b), or Most often (a), seldom (b)

2. (a) > (b): More (a) than (b), or (a) more often than (b)

3. (a) = (b): Equally (a) and (b), or (a) as often as (b)

4. (a) < (b): More (b) than (a), or (b) more often than (a)

5. (a) << (b): Mostly (b), rarely (a), or Most often (b), seldom (a)

In the case of the example above, the five choices would mean the following:

1. My physics course covers *mostly* abstract themes and *rarely* any practical applications.

2. My physics course covers *more* abstract themes *than* practical applications.

3. My physics course covers *as much* abstract themes *as* practical applications.

4. My physics course covers *more* practical applications *than* abstract themes.

5. My physics course covers *mostly* practical applications and *rarely* any abstract themes.

1. Studying this course is for me:

(a) a frustrating experience;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) an enjoyable experience.

2. Learning this course requires:

(a) a special talent;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) a serious effort.

3. I put enough effort in this course to:

(a) pass my exams;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) understand the covered material.

4. My understanding of topics in this course depends on:

(a) how well the teacher explains things in class;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) how much effort I put into studying.

5. Going over this course material at home before discussing it in class:

(a) gets me confused;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) helps develop my reasoning skills.

6. Seeking information about this course in sources other than my textbook:

(a) gets me confused;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) helps develop my reasoning skills.

7. When I experience difficulty while studying this course:

(a) I seek help or put the matter of difficulty aside until we discuss it in class;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I try to figure things out on my own.

8. When my classmates present an idea that is different from mine in this course:

(a) I do not pay attention to their idea;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I check whether their idea could be better than mine.

9. Working together in a group with classmates in this course helps me:

(a) complete the assigned task;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) develop my reasoning skills.

10. When I first started working on this course, I was:

(a) afraid that I would not understand covered material;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) confident that I would understand covered material.

11. At this point, I am:

(a) not sure that I understand covered material;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) confident that I understand covered material.

12. When studying this course:

(a) I look for important information and memorize it as presented;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I reconstruct the material in my own way so that I can make sense of it.

13. As I go from one step to another while solving any problem in this course:

(a) I do so without justifying why I have done things the way I did;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I try to justify why I have done things the way I did.

14. After I answer all questions in any problem given in this course:

(a) I stop working on the problem;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I check my answers and the way I obtained them.

15. My success in solving a problem in this course depends on my ability to:

(a) recall the solution of a similar problem done in class or textbook;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) come up with an appropriate plan for solving the problem.

16. After successfully solving a problem in this course:

(a) I memorize the successful method in case I need it for solving similar exam problems;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I try to figure out under what conditions I can apply the same method to other problems.

17. When I fail to answer a question or solve a problem on my own in this course, I expect the teacher to provide:

(a) the correct answer or solution;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) guidelines for getting to the correct answer.

18. After the teacher presents the correct solution to a problem for which I got a wrong solution in this course:

(a) I discard my solution and learn the correct one;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I try to figure out how my solution differs from the correct one.

19. In order to realize the utility of what I learn in this course, I need to:

(a) solve, on paper, exercises and problems given in the course;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) apply what I learn in real life situations.

20. My exam performance in this course helps me figure out:

(a) where I stand relative to my classmates;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) what I need to do in order to better understand the covered material.

21. In this course, it is important for me to:

(a) memorize technical terms and formulas;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) relate things to each other in particular ways.

22. In order to decide whether a new problem in this course can be solved like a certain familiar problem, the first thing I do is to:

(a) check whether the new problem involves the same variables as the familiar problem;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) find relevant information in the new problem and represent it in ways to make sense of it.

23. Solving a problem in more than one way in this course:

(a) gets me confused;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) helps develop my reasoning skills.

24. Ways followed to solve problems in this course are good for solving:

(a) similar problems pertaining to this particular course;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) problems in other areas of physics.

25. Mathematical representations used in this course (like graphs, diagrams or formulas) help me:

(a) find numerical answers to some problems;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) relate concepts in meaningful ways.

26. When different kinds of representation (like graphs, diagrams, or formulas) can be used to depict information in any given problem:

(a) I concentrate on one particular kind;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) I use and compare different kinds.

27. Mathematical representations (like graphs, diagrams or formulas) used in this course should be interpreted:

(a) differently by different people;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) the same way by different people.

28. Carrying out, on my own, the derivation of one concept from another in this course:

(a) gets me confused;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) helps develop my reasoning skills.

29. Graphing calculators or computers help me in this course:

(a) find numerical answers to problems;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) develop my reasoning skills.

30. With regard to this course, graphing calculators or computers are good for doing things that normally:

(a) can be done on paper;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) cannot be done on paper.

31. What I have learned in this course is good for:

(a) physics;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) science and other areas.

32. What I have learned in my other science courses is good for:

(a) the respective science;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) physics.

33. What I have learned in this course is:

(a) good for physicists;

1	2	3	4	5
a>>b	a>b	a=b	b>a	b>>a

(b) helpful in everyday life.