STATISTICAL LITERACY USING A LEARNING OBJECT

BACKGROUND: Respondents attended a 3 hour workshop. The "**material presented**" involved describing and comparing percentages in pie charts, tables and graphs in ordinary English. The "**learning object**" was a web-based program that reads such descriptions and comparisons in ordinary English and gives immediate feedback. See www.StatLit.org/GC. Of the 24 participants, 23 completed this anonymous survey. The first 14 questions were multiple choice with these answers: a. strongly disagree b. disagree c. neutral d. agree e. strongly agree.

OVERALL RESULTS: *This material is valuable (Q4-5), it can be difficult for college students (Q2-3) and others are unlikely to teach it (Q6 – 10). So IASSIST should support teaching this to social science majors (Q11).*

DETAILED RESULTS: Shown below are these 14 questions, the cumulative percentage who agree (answered d or e), the percentage who strongly agreed (just e), the average score (where zero is "strongly disagree" and four is "strongly agree") and the number of answers received (#). The highest possible average score is 4.0.

Q	STATEMENT	Cum. Agree	Strongly Agree	Ave. score	#
1.	The web-based program is a good learning object for college students.	**100%**	**50%**	**3.5**	22
2.	Using English to describing percentages can be difficult for college students.	**87%**	**30%**	**3.1**	23
3.	Using English to compare percentages can be difficult for college students.	**96%**	**39%**	**3.4**	23
4.	Describing & comparing percentages in tables & graphs is valuable for citizens.	**100%**	**52%**	**3.5**	23
5.	Describing & comparing percentages in tables & graphs is valuable in business.	**100%**	**70%**	**3.7**	23
6.	*Mathematics* teachers are likely to teach this material.	**22%**	**9%**	**1.9**	23
7.	*English* teachers are likely to teach this material.	**9%**	**4%**	**1.1**	23
8.	*Business communications* teachers are likely to teach this material.	**19%**	**10%**	**1.7**	21
9.	*Statistics* teachers are likely to teach this material.	**43%**	**13%**	**2.1**	23
10.	*Social Science* teachers are likely to teach this material.	**35%**	**9%**	**2.2**	23
11.	IASSIST should support teaching this material to students in the social sciences.	**95%**	**50%**	**3.5**	22
12.	IASSIST should support teaching this material to all college students.	**91%**	**36%**	**3.3**	22
13.	This was a good workshop for an IASSIST conference.	**100%**	**61%**	**3.6**	23
14.	IASSIST should have more workshops on statistical literacy.	**95%**	**41%**	**3.5**	23

The following are the comments made by the respondents to the open-ended questions: Q15 on.

15. What is the most interesting or important aspect of this learning object?

Recognizing need for this material among data librarians. Repeatable, flexibility to practice

Syntax for organizing semantics

Exposure to multitude of ways of expressing [the] same concept. And multitude of ways to screw up. Important exposure to tool for assisting.

Ease of use and practicality

How different this basic stuff is. We "think" we can read tables until we are asked to articulate the story in English

Unpacking the issue -- See it in a more complex fashion now. Headache right at moment, but in a good way. This is important.

Creating awareness of the difficulty of interpreting/describing tables and charts.

The answer analysis is crucial -- it should work better.

Simplified and non-intimidating way to deal with stat lit.

Eye opening. Very practical way of learning about Stat Literacy.

Program shows you when you have problems with your answers when they are incorrect.

The guidance aspects of the program. [It has] "More Details" to help if the answer was wrong on 1st try.

Understanding how English can be a foe @ times! Not always as clear as one first assumes.

The examples, the ability to change the parameters to allow for a range of examples to be described.

Web-based program

Reuse by anyone. Trial and error. Immediate feedback.

16. What is the least interesting or important aspect of this learning object?

Analysis not always helpful (compared unit is incorrect). How do I … calculate the correct compare unit?

Well, numbers are boring to some. And other do not believe the numbers anyway. So why bother learning how to read the story if you do not trust the numbers I the first place?

Most frustrating part is just complexity of the issue and fact that I personally am only minorly literate in this myself.

It all seems important

BTW Syntax sometimes confusing. "Wrong position", etc.
Nothing really. Maybe its [lack of] visual pizzazz but that is not important when the content is so good.
Doesn't use real data
I was intimidated by the running tally of #'s of correct answers. It made me less likely to try to learn by trail and error -- especially to try alternative wordings.

17. Why should IASSIST take on teaching this material to social science majors?

Critical to cultural literacy
Because it is unlikely to be done by others.
It is an area generally left out by many fields -- some social science fields do teach it - but only if they value and use quantitative data. (?)
Because no one else is doing this?
IASSIST should become a leader advocating stronger presence in college curriculum for stronger presence in college curriculum for stat lit, etc. Could collaborate with other organizations to craft msg. exert influence. (?)
This fills a gap -- This is an important issue for the soc. Science majors, but it is often not addressed in a standard curriculum.
Because they [soc.sci majors] are least likely to know it firmly. It seems as though it should be common sense, but it isn't.
I believe that everyone saw that this material had excellent content. Its' value should be self-evident to everyone working in a field of soc. sci.
No one else is doing it, increase visibility
There appears to be a gap in student knowledge especially at the undergraduate level.
Explaining simple concepts clearly is a scarce skill in any field, including the social sciences.
Encourage Statistical Literacy -- Not covered elsewhere in the curriculum
Part of its mission.
IASSIST can provide support & encouragement but not role of association to take on a teaching role as wide as this.
To advocate Data, Information Literacy
If social science majors don't get it right and start perpetuating it into the general population -- there'll potentially be big problems.

18. Why should IASSIST *NOT* take on teaching this material to all college students?

Data Librarians would have to be the teachers and they do not know this stuff themselves. Not all data librarians were ever social science majors themselves.
[It is] Not IASSIST's function to be direct teachers of students, but to advocate or influence development of curriculum policy, application, etc. We could participate in developing model curriculum, standards, assessment instruments, etc.
Can't see any reason not to take on teaching this material.
Significant time investment.
Not "IASSIST" business. [?] support members doing it in respective institutions. This is the goal of [?] that would be an excellent support to schools but [not?] as in house. [??]
University/college's role -- incorporate it in curriculum.
It is the responsibility of faculty to do so.

21. How could this workshop be improved?

Make it longer. I'd like to see a summer program class on this -- 3 day? 5 day?
More time for play and get help with the harder stuff.
Lengthen it a bit. Also work to be more clear on component design, instructions, when to start/stop. You were trying to cover lots of very important content and of times wer were moving on JUST as I was starting to get a hold of something. Not your fault
Workshop was very good!
It was fine as is. Thanks for the lively teaching and breaks.
Should be held in a more intimate computer lab? Excellent workshop on an important issue.
Don't know. Very good for [a] concept that I don't feel comfortable with.
Probably a little more time to practice would help, but 3 hrs. was good.
Add a 2nd "advanced workshop" to go into more detail on the 1/2 tables, etc.
More backup to Statistical [Literacy?] literature.
Small group discussions. Short cases.
More breakdown on the "likely" concept.
Those of us who think spatially could benefit more from pictures first -- like you did with the smokers/runners pie chart. I found that when I sketched the description or the tables first, the process was much easier.

19. How ready is this learning object for wide-spread deployment?

I'd say, needs more problems. I encountered repeated [100% table] problems in ""likely"" language after 3 examples. But generally works well!"
Close
Looks good to me -- and I will take advantage of it and introduce it in my workshops.
If you build they will come?
Think the content is good -- needs work w/dictionary and also with visual design, layout of interface, also usability testing.
Not quite ready -- needs usability testing to improve web site layout and design.
Ready except for more responsive answer.
Fairly ready -- sooner the better.
Add explanation on [??? ??] comments -- deploy like Linux for comments and tweakings.
Some programming glitches, but very nearly ready.
Very ready -- I plan to pass it around widely.
? Without facilitator, web may not be sufficient??
Ready
It needs to be even more structured, i.e., level 1, level 2 … to be wide spread deployed.
Aside from the Answer Analysis (ie. vocabulary used), I can see being ready now.
I certainly want to spend more time with it myself.

20. How could this learning object be improved?

Images of percentage pie charts could be more accurate.
[Follow the] suggested comments from the group; parse English (three vs. "3"), etc.
User interface could be cleaner and should appear the same way in IE and Mozilla -- there were box size differences in today's session.
Enhance dictionary. Work on interface design. Bricks good, but construction/order needs polish.
Needs some gloss to appeal to students and needs to be fixed to work better with Firefox.
Add drawing tool/feature to explain syntax errors -- have people put together wholes and parts into a picture first, or as part of the overall exercise.
Recognizing written numbers.
More graphics => Use XML type coding. Use real data sets.
Vocabulary in the answer analysis.
Reduce the typing. Add cut/paste.