

# Have you seen this...ARTIST?

Contributed by: Peter Holmes, RSS Centre for Statistical Education Email: Peter\_Holmes@btinternet.com

ARTIST is an acronym for *Assessment Resource Tools for Improving Statistical Thinking*. It is a US based project funded by the National Science Foundation which is developing assessment resources for introductory statistics courses. The project is in its early stages and has a web site at <http://www.gen.umn.edu/artist/index.html>. The lead investigator is Joan Garfield of the University of Minnesota ([jbg@umn.edu](mailto:jbg@umn.edu)) and others involved with the project include Beth Chance, Alan Rossman of Cal Poly, San Luis Obispo and Robert delMas also of the University of Minnesota.

Address <http://www.gen.umn.edu/artist/>

**Assessment Resource Tools for Improving Statistical Thinking**

WEB Artist

Welcome to the ARTIST web site!

Our goal is to help teachers assess:

- **Statistical literacy**
- **Statistical reasoning**
- **Statistical thinking**

in first courses of statistics.

This web site provides a variety of assessment resources for teaching first courses in Statistics. Currently we provide articles and weblinks related to assessing student outcomes. In the near future, this site will contain assessment items and tasks, provide online testing, offer guidelines for using the assessment items and tasks, and allow for the collection and compilation of data for research and evaluation purposes.

NSF UNIVERSITY OF MINNESOTA Cal Poly Learn by Doing

For more information about this project, please contact Professor Joan Garfield by email: [jbg@umn.edu](mailto:jbg@umn.edu).

News

**Roundtable Conference**

Public Page

[Assessment Builder](#)

[Resources](#)

[Ways to participate](#)

[Publications and Presentations](#)

[Project Summary](#)

[Principal Investigators](#)

[Advisory Group](#)

[Project Sponsors](#)

[Contributors](#)

[Contact Information](#)

[Glossary](#)

In a survey of elementary statistics courses in US universities, Joan Garfield found that about 80% of them had moved away from the traditional statistics course relying primarily on lectures and not using technology, having a content associated with traditional courses. US statistics lecturers talk about *reform* textbooks in content and approach. By this they mean the content and approach associated with books by David Moore, Beth Chance and Alan Rossman, Jessica Utts and many others. Joan Garfield found that although the content and approach had changed for these courses the same was not true for assessment. Here few instructors reported anything other than traditional examinations used only to assign grades. Such assessments emphasised recall, recognition of definitions, performing calculations and correctly carrying out procedures. These items are not at the forefront of the objectives of the newer courses so there is a mismatch between course objectives and assessment methods. These traditional assessment methods are

unable to evaluate the true impact of reformed teaching and are in danger of undermining the very teaching itself.

ARTIST very specifically aims to link the assessment methods with the teaching and the ways of thinking that the new courses are hoping to develop. It will provide a resource base for university lecturers to draw on and add to. The web site states that the goal is to help teachers assess Statistical literacy, Statistical reasoning, and Statistical thinking in first courses in statistics. They describe what they mean by these terms in the following ways (adapted and abbreviated from their web site):

*Statistical literacy* includes basic and important skills that may be used in understanding statistical information or research results. It also includes an understanding of concepts, vocabulary and symbols, and an understanding of probability as a measure of uncertainty.

*Statistical reasoning* is defined as the way people reason with statistical ideas and make sense of statistical information. This involves making interpretations based on data. It may involve connecting one concept to another or may combine ideas about data and chance. It means being able to understand and explain statistical processes and interpret statistical results.

*Statistical thinking* involves an understanding of why and how statistical investigations are conducted and the "big ideas" that underlie statistical investigations.

The Web ARTIST project promises to produce the following products:

- A collection of high quality assessment items and tasks, coded according to content (eg., normal distribution, measures of centre, bivariate data) and type of cognitive outcome (eg., statistical literacy, reasoning, or thinking).
- A Website that contains the assessment items and tasks, provides online testing, offers guidelines for using the assessment items/tasks in various ways, and allows for the collection and compilation of data for research and evaluation purposes.
- Faculty development workshops and mini-courses to encourage and assist statistics instructors in how to use the assessment resources to improve student learning, improve their courses, and evaluate course outcomes.
- A comprehensive test that measures desired outcomes of a first course in statistics.

The ARTIST Web site will include a variety of item formats and types of performance assessments. Instructors will have a centralized resource to help them better evaluate student attainment of particular outcomes, rather than global measures of achievement. Specifically, outcomes to evaluate include statistical literacy (eg. understanding words and symbols, being able to read and interpret graphs and terms), statistical reasoning (eg., reasoning with statistical information, using statistics to make predictions or judgment), statistical thinking (eg., the type of thinking that statisticians use when solving problems that involve data, such as choosing appropriate procedures and checking assumptions).

The web site gives an open invitation to participate in the ARTIST Project. They give three possible ways:

- You are invited to contribute assessment materials.
- You are invited to apply to become a pilot-tester of items.
- You can tell the project the types of assessment information that you would like to see on their web site, that would be most useful to you as a teacher of statistics.

You may contribute in one, two, or all three of these ways.

#### **Your advert could be here!**

This newsletter reaches teachers and course developers at all levels and in all areas of mathematics, statistics and OR in all higher education institutions in the UK. It also has an overseas mailing list.

The total circulation at present exceeds 2300.

Workshops, conferences, meetings etc will be given free publicity.

**Advertisement rates remain at 2002 rates till Dec 2004 VAT exclusive - please tell your contacts!**

	colour	mono		
<b>Full page back cover</b>	<b>475</b>		<b>Quarter page (landscape or portrait)</b>	<b>75</b>
<b>Full page inside cover</b>	<b>450</b>			
<b>Full page in newsletter</b>	<b>400</b>	<b>300</b>	<b>one page insertion</b>	<b>350</b>
<b>Half page</b>	<b>260</b>	<b>150</b>	<b>extra pages (each)</b>	<b>100</b>

**Reductions for regular or bulk advertisers. Copy date for the next issue is 3 April 2004.**

Further details from the editor and at

<http://ltsn.mathstore.ac.uk/newsletter/advert/adinfo2002.htm>