# **Quantitative Literacy: Quick History**

# MILO SCHIELD,

Augsburg College Director, W. M. Keck Statistical Literacy Project Vice President, National Numeracy Network US Rep, International Statistical Literacy Project

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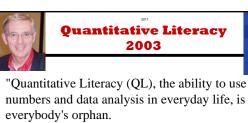
Slides at www.StatLit.org/pdf/2011SchieldMAAQL6up.pdf

# Why Numbers Count 1997 · Numeracy is the new literacy of our age · The relentless quantification of society continues unabated • In short an innumerate citizen today is as vulnerable as the illiterate peasant of Gutenberg's time. • Although the widespread availability of data should enrich public discourse, inevitable over-simplifications and misinterpretations may ultimately cheapen it. · Innumeracy thus becomes another means of

disenfranchisement: by reinforcing the idea that truth is



- "In the twenty-first century, literacy and numeracy will become inseparable qualities of an educated person."
- · "Although quantitative literacy is a recent and still uncommon addition to the curriculum, its roots in data give it staying power."
- "Numeracy will thrive similarly because it is the natural tool for comprehending information in the computer age."
- · "Numeracy is not the same as mathematics, nor is it an alternative to mathematics."



relative and unknowable ...

Despite every person's need for QL, in the discipline-dominated K-16 education system in the United States, there is neither an academic home nor an administrative promoter for this critical competency." p. 153 Bernard Madison

## **Quantitative Literacy** 2003

QUANTITAT LITERAL

Numeracy lies at the intersection of statistics, mathematics and democracy.

Like statistics, numeracy is centered on interpretation of data; like mathematics, numeracy builds on arithmetic and logic. But the unique niche filled by numeracy is to support citizens in making decisions informed by evidence."

Numeracy is largely an approach to thinking about issues that employs and enhances both statistics (the science of data) and mathematics (the science of patterns). Yet unlike statistics, which is primarily about uncertainty, numeracy is often about the logic of certainty. And unlike mathematics, which is primarily about the Platonic realm of abstract structures, numeracy often is anchored in data derived from and attached to the empirical world

# **OL: Peer Review**

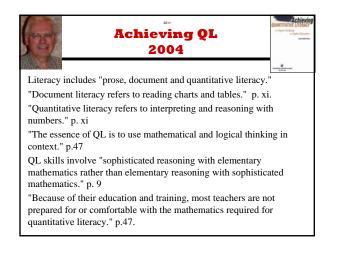


QUANTITATIV LITERACY

• "QL is anchored in context; the objects of QL are data."

2004

- "Averages, like percentages, are also a source of mysteries."
- "QL is sufficiently sophisticated to warrant inclusion in college study and, more important, that without it students cannot intelligently achieve major goals of college education."
- · "Quantitative literacy is not just a set of precollege skills. It is as important, as complex, and as fundamental as the more traditional branches of mathematics."





### Current Practice in QL 2006

*Current Practices in Quantitative Literacy* present a wide sampling of efforts being made on campuses across the country to achieve our common goal of having a quantitatively literate citizenry.

The essays suggest that we have moved forward a long way in our understanding of quantitative literacy and our ability to implement effective programs to teach it.

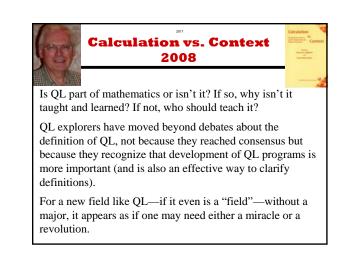
Read the stories of other institutions who have worked through some of these issues and begin a dialogue on your own campus.



K–12 education is responsible for much of QL, and K–12 teachers need to be able to guide students toward QL.

Although QL should be an aim of education across all subjects in K-12, a large part of the responsibility falls to K-12 mathematics, which includes data analysis, statistics, and probability.

QL education is largely about connecting learning and reasoning in mathematics and other college disciplines' classrooms to contextual situations in the contemporary world.



# Calculation vs. Context 2008

Special thanks are owed to Robert Orrill whose curiosity, persistence, and deceptively simple questions which defied simple answers launched the QL movement that has now spread to multiple disciplines, scores of campuses, and thousands of students.

Education and Democracy: Re-imagining Liberal Learning in America (1998) by Robert Orrill

The Condition of American Liberal Education: Pragmatism and a Changing Tradition by Bruce A. Kimball and Robert Orrill (1995)

# <sup>201</sup> **QL is Growing**Q/L is advancing at US colleges. 17% of US four-year colleges offer Q/L (Schield, MAA 2010) Q/L has two organizations: NNN: Without funding or sponsor, NNN has established its place in higher education.

• SIGMAA-QL: Special Interest Group of the MAA on Quantitative Literacy.

Q/L is advancing academically.

 Numeracy, NNN's peer-reviewed journal, is in the EBSCO database, Education Research Complete.