

■ ANDREW VAZSONYI, Feature Editor, McLaren School of Business, University of San Francisco

# Math Deficit Disorder

by Andrew Vazsonyi, Feature Editor

*When I heard the learn'd astronomer  
When the proofs, the figures, were ranged in columns before me,  
When I was shown the charts and diagrams, to add, divide and measure them  
How soon unaccountable I became tired and sick.  
—Walt Whitman*

Some time ago the INFORMS Business School Education Task Force questioned 2,200 university teachers of OR/MS. Question #6 was, "What are the principal teaching problems or student learning problems that exist in offering your course?" The majority (77%) said, "Math background of students or fear of mathematics."

The stage for math was set by the classic OR text *Introduction to Operations Research* by Churchman, Ackoff, Arnoff (Wiley, 1957). On page 13, the general form of an O.R. model is stated as

$$E = f(x_i, y_j).$$

For almost a half of a century we have been seeking students who can understand this. Even though we have lost most of our battles, many of us still think that we will win the war. Not so. We are aware that all of us deep down have a number sense but ignore that the formula cannot be reached by our Korzybski ladder of abstraction; it is way above our ceiling.

It was said best by the famous psychoanalyst Dr. Carl Jung:

It is an asinine prejudice that mathematics has anything to do with the training of the mind. Mathematics is not a function of intelligence or logic. When I was at school I never understood higher mathematics. So I think you waste your time absolutely when you try to study mathematics. Mathematics is a hellish and perfectly useless torture for somebody who hasn't a gift in that way.

As is so often the case, the artist can say it better than the specialist. The mindset of a person with Math Deficit Disorder is illustrated by a dialog based on a 1951 play

of the Romanian-born French playwright Eugene Ionesco, *La Leçon*.

*Professor:* Let us see how is your math . . . . How much are one and one?

*Pupil:* One and one make two.

*Professor:* Very good. Let's push on: how much are two and one?

*Pupil:* Three.

*Professor:* Three and one?

*Pupil:* Four.

*Professor:* Four and one?

*Pupil:* Five.

*Professor:* Excellent. Now tell me how many are four minus three?

*Pupil:* . . . Four minter three? . . . Four minus three?

*Professor:* Yes. I mean to say: subtract three from four.

*Pupil:* That makes . . . seven?

*Professor:* I am sorry, no. Four minus three does not make seven. You are confused: four plus three makes seven, four minus three does not make seven . . . . This is not addition anymore, we must subtract now.

*Pupil:* Trying to understand: Yes . . . yes . . .

*Professor:* Four minus three makes . . . How many? . . . How many? . . .

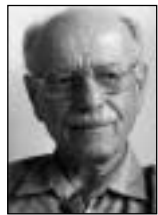
*Pupil:* Four?

*Professor:* No, that's not it.

*Pupil:* Three, then.

*Professor:* Not that either. . . . Pardon, I'm sorry . . . I ought to say, that's not it . . . excuse me.

*Pupil:* Four minus three . . . Four minus three . . . Four minus three? . . . But now doesn't that make ten? . . .



### Andrew Vazsonyi

is an internationally recognized author, researcher and educator. He is the author of over 70 technical articles, and seven textbooks, in English, German, Spanish, French, Russian, Japanese and Hungarian. Dr. Vazsonyi received a Ph.D. from the University of Budapest.

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## Board of Directors Report

President F. Robert Jacobs (Indiana University) chaired the Board of Directors meeting that was held on Saturday, November 17, 2001, in San Francisco, California. The following is a report of the actions taken by the Board and matters brought to its attention. The Executive Committee also met on Saturday, November 17, 2001. Its recommendations to the Board are included in the items reported below.

1. The minutes of the April 28, 2001 meeting of the Board of Directors were approved.
2. The audit report for FY 2000-2001 was accepted.
3. The financial statement for the period ended June 30, 2001 was approved.
4. The financial statement for the period ended October 28, 2001 was approved.
5. FY 2001-02 Midwest, Northeast, Southeast, Southwest and Western regional budgets were reviewed and accepted.
6. The Publications Committee's recommendation to contract with an external publisher for the *DSJ* and the *DSJIE* was accepted.
7. Blackwell Publishers was accepted as the external publisher for *DSJ* and *DSJIE* for contractual negotiations for discussion and review by the Board at its January 2002 meeting.
8. Proposed charges for the 2002 Ad hoc Home Office Review Committee were approved.
9. A review was made of marketing-related issues presented by the Institute's Marketing Director, Terry Williams, Western Washington University.
10. The following reports and information items were reviewed and accepted:
  - a) Review of a membership suggestion forwarded to the 2001-02 Member Services Committee Chair
  - b) 2001 Asia-Pacific regional meeting
  - c) Slate of Nominees for the 2002 election of officers
  - d) Schedule and locations of the 2002 Executive Committee and Board of Directors meetings
  - e) Board representation at the 2002 annual regional meetings
  - f) Report from the Southwest Region
  - g) Report on the 2001 Annual Meeting (oral) ■

### SPECIALIST, from page 18

*Professor:* Count then, if you will, please.

*Pupil:* One . . . two . . . and after two, comes three . . . then four . . .

*Professor:* Stop there. Which number is larger? Three or four?

*Pupil:* Uh . . . Three or four? Which is the larger? The larger of three or four? In what sense larger?

*Professor:* Some numbers are smaller and others are larger. In the larger numbers there are more units than in the small . . .

*Pupil:* Excuse me, Professor . . . What do you mean by the larger number? Is it the one that is not so small as the other?

*Professor:* That's it, perfect. You have understood me very well.

*Pupil:* Then, it is four.

*Professor:* What is four—larger or smaller than three?

*Pupil:* Smaller . . . no, larger.

*Professor:* Excellent. How many units are there between three and four? . . . Or between four and three, if you prefer?

*Pupil:* There aren't any units, Professor, between three and four. Four comes immediately after three; there is nothing at all between three and four!

*Professor:* Look here. Here are three matches. And here is another one, that makes four. Now watch carefully—we have four matches, I take one away, now how many are left?

*Pupil:* Five. If three and one make four, four and one make five.

*Professor:* Let's start again. Be careful. Here are five matches. . . One, two, three, four and five. I take away four. What is left?

*Pupil:* One, Two, Three and Five.

*Professor becomes raving mad and kills his pupil.*

Does the math taught in our schools help to construct the Korzybski ladder to  $E = f(x_i, y_j)$ ? No! We must find a better way to give first-hand understanding of what a math model is. Fortunately, the alternate way exists today.

Managing scenarios and simulation with Microsoft Excel provides us with the artificial ladder. And millions climb on this prop everyday. And there is a growing number of textbooks that use this approach. After a half century of struggle, the resolution of the math OR/MS predicament is at hand. ■

### KNOWLEDGE MANAGEMENT, from previous page

Specific questions regarding the suitability of the research topic should be directed to the Guest Editor of this special issue. The submission deadline for manuscripts for this special issue is **March 1, 2002**.

All papers will be reviewed according to the standard *Decision Sciences* Journal procedures. A submission fee (check or money order) of \$25 U.S. for DSI members or \$50 U.S. for non-members should accompany each submission. Papers that are

judged to have high merit but do not fit well thematically with the compendium of papers ultimately published in the special issue will be considered for publication in a regular issue of the journal.

All authors submitting papers are encouraged to review the paper submission guidelines at

<http://www.decisionsciences.org>

Authors can submit their papers electronically (see <http://www.bus.msu.edu/>

*dsjonline* for instructions) or through mail. If choosing mail, send five copies of your paper to:

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