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Author(s)	Ramakrishnan Menon
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RESEARCH DEBATE

Researchers, Abandon Statistical Significance Testing!

Dr Ramakrishnan Menon
School of Science, NIE

A renewed call

The call to abandon statistical significance testing (SST) and replace it with alternative statistical procedures has been renewed recently by Schmidt (1996). What makes this renewed call different from previous ones (e.g. Carver, 1978; Coats, 1970; Falk, 1986; Meehl, 1978; and Menon, 1993) is that:

- It is given by the 1994 president of the Division of Evaluation, Measurement and Statistics of the influential American Psychological Association.
- Some specific alternatives are discussed.

Examples are given of how reliance on SST retards the growth of cumulative research knowledge.

The alternatives suggested are (a) point estimates of effect size and confidence intervals for individual studies and (b) meta-analyses for multiple studies. The interested reader is strongly recommended to read Schmidt (1996) for further clarification.

According to Schmidt (1996), research based solely on SST usually goes through the following sequence:

- Initial optimism that social science research can answer important questions in the face of uncertainty and allow policy makers to implement certain changes.

The several studies conducted result in con-

flicting or non-conclusive results.

- More research is undertaken to study the moderator or intervening variables, resulting in more conflicting results.

Research sponsors and the public become disenchanted and cynical of research enterprises.

- Researchers themselves begin to become cynical of their work.

Schmidt (1996) shows that these alternatives to SST will allow quantitative research methods to point to less contradictory research results and more constructive suggestions.

Implications for NIECER and educational research in Singapore

While Singapore prides itself on being competitive, on being an intelligent island, on spending millions on R & D, and on upgrading and developing professionally, researchers (both would-be and current) are still using and/or being taught SST, even though SST has been shown to be illogical and mathematically flawed (e.g. Menon, 1993). Recently, Schmidt (personal communication) stated that the American Psychological Association "now has a Task Force studying whether researchers should be discouraged from using significance testing in their research and in APA publications." Rather than waiting for the APA to take the lead in abandoning

the use of SST, could not NIECER and other bodies/associations in Singapore that have a research arm and/or journal (e.g. *The Asia Pacific Journal of Education*, *The Mathematics Educator*) be more proactive, by (a) actively discouraging the use of SST in research and research methodology courses and (b) rejecting articles that rely solely on SST for the credibility of their research results?

In doing so, not only will we be able to augment our research knowledge and help suggest some innovations in education arising directly from such research results, but we will also be one of the first to discontinue an outmoded, illogical, flawed and slavishly-followed method of statistical decision making.



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