

HF Constructs and the Explosive Use of the NASA-TLX

De Winter (2014)

Operationalism

- Mental workload is a highly operationalized construct
- Operationally defined constructs do not arise from directly observable system attributes. They do not purport to describe empirical reality but, instead, are designed to predict rather than explain phenomena of interest
- Pragmatic and application oriented

Operationalism

“The key to operationalism is that the measurement procedure simultaneously defines concepts and measures them...

An attribute is defined by its measurement procedure, no more and no less, and has no ‘real’ existence beyond that....

Therefore, special care should be taken towards the construction of the measuring instrument and the precision of the definition.”

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But, what is “measurement”?

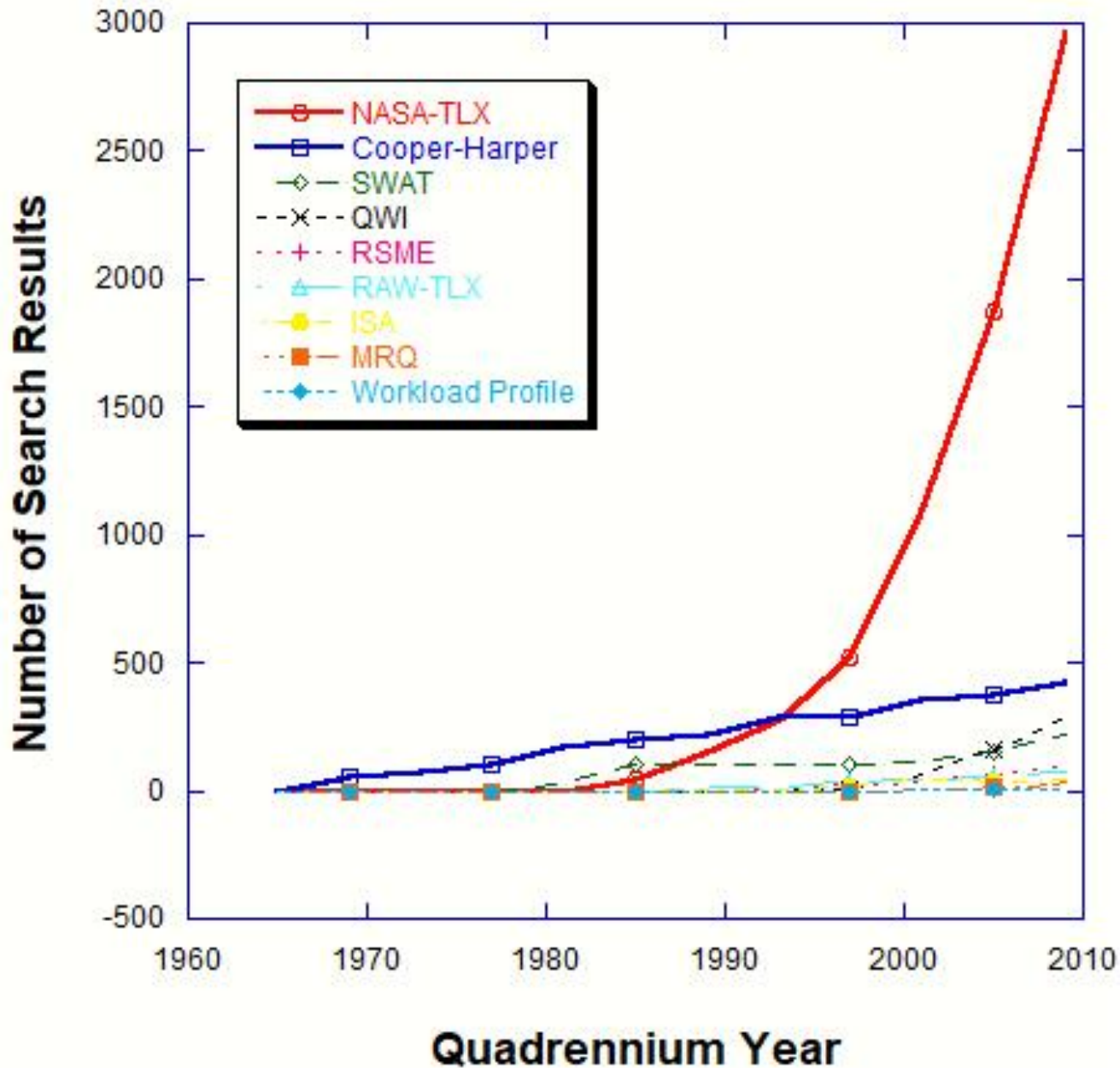
“Measurement is the assignment of numbers to an object or event according to a rule” (S.S.Stevens)

Taxonomy of Measurement

<u>TYPE</u>	<u>PROPERTIES</u>	<u>STATISTICS</u>
Nominal	categories	mode, frequency
Ordinal	rank order	median
Interval	rank, equal intervals, arbitrary zero	mean
Ratio	rank, equal intervals, absolute zero	universal linear, nonlinear ops

Reification of Mental Workload...

and its name is the **NASA-TLX**



TLX – Task Load Index

Cooper-Harper

SWAT – Subjective Workload Assessment Technique

~~QWI – Quantitative Workload Index~~

RSME – Rating Scale Mental Effort

ISA – Instantaneous Self-Assessment

MRQ – Multiple Resources Questionnaire

WP – Workload Profile

Culturomic Analysis