



Perceptions of Competence of Social Scientists and Natural Scientists

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FIELDS ARRANGED BY PURITY

← MORE PURE →

SOCIOLOGY IS
JUST APPLIED
PSYCHOLOGY

PSYCHOLOGY IS
JUST APPLIED
BIOLOGY.

BIOLOGY IS
JUST APPLIED
CHEMISTRY

WHICH IS JUST
APPLIED PHYSICS.
IT'S NICE TO
BE ON TOP.

OH, HEY, I DIDN'T
SEE YOU GUYS ALL
THE WAY OVER THERE.



SOCIOLOGISTS

PSYCHOLOGISTS

BIOLOGISTS

CHEMISTS

PHYSICISTS

MATHEMATICIANS

Interdisciplinary Research Addresses Complex Problems

Journal of Public Health | Vol. 40, No. 1, pp. 175–182 | doi:10.1093/pubmed/fdx027 | Advance Access Publication March 14, 2017

Interdisciplinary working in public health research:
a proposed good practice checklist

I. Gavens¹, J. Holmes¹, G. Bühringer², J. McLeod¹, M. Neumann².

Review

Systems Biology—an interdisciplinary approach

Alain Friboulet, Daniel Thomas*

UMR CNRS 6022 – Génie Environnemental et Cellulaire Université de Technologie de Compiègne R.P. 20529 – 60205 Compiègne Cedex France

Professional Biologist

The Elusive Pursuit of Interdisciplinarity at the Human–Environment Interface

ERIC D. ROY, ANITA T. MORZILLO, FRANCISCO SEIJO, SHEILA M. W. REDDY, JEANINE M. RHEMTULLA,
JEFFREY C. MILDER, TOBIAS KUEMMERLE, AND SHERRY L. MARTIN

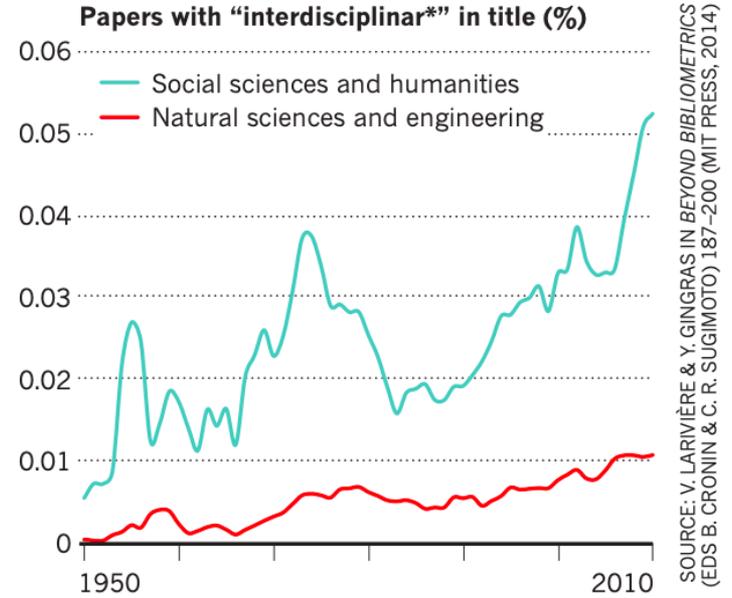


Image: Van Noorden. 2015. *Nature*.

Do scientists' perceptions of natural and social science impact their willingness to collaborate?

Competence is an Important Perception



Respect

- I admire the work that [social/natural] scientists do
- [Social/natural] scientists have many admirable talents and skills

Intelligence

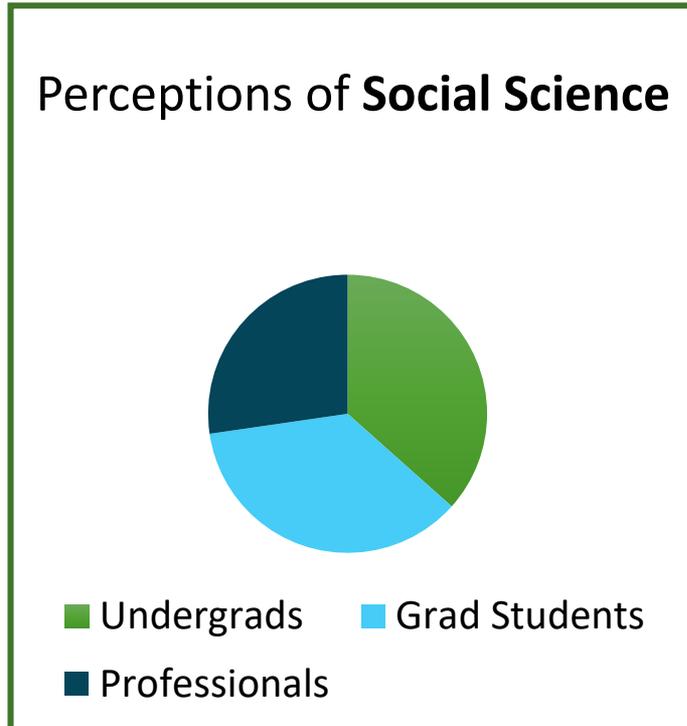
- Incompetent ----- Competent
- Unintelligent ----- Intelligent

Methodological Rigor

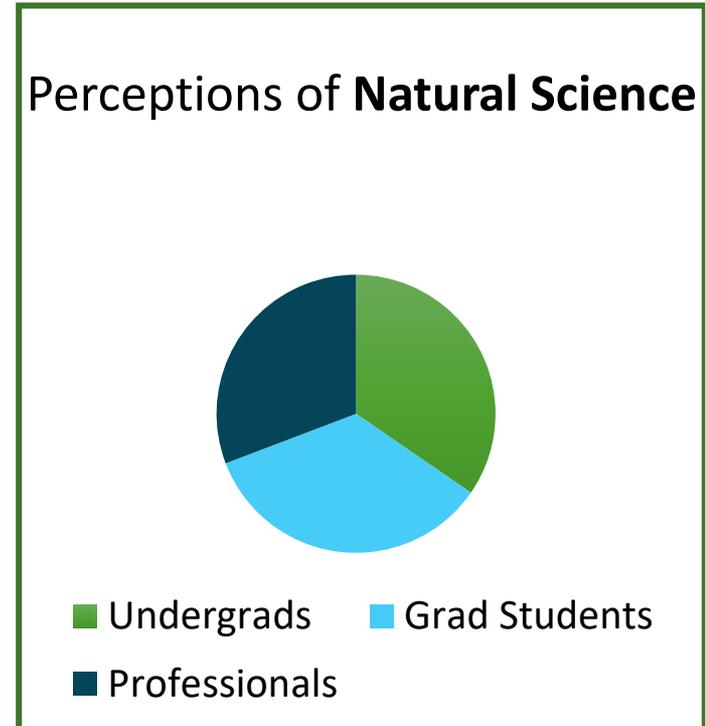
- It is difficult for [social/natural] scientists to be objective
- Many [social/natural] science studies are difficult to reproduce

We Surveyed 449 Natural Scientists

↓ n=257



↓ n=261



Results: Scales of Competence

Scale	# of Items	Example Item	Cronbach's Alpha
Respect	10	I admire the work that [social/natural] scientists do	0.932

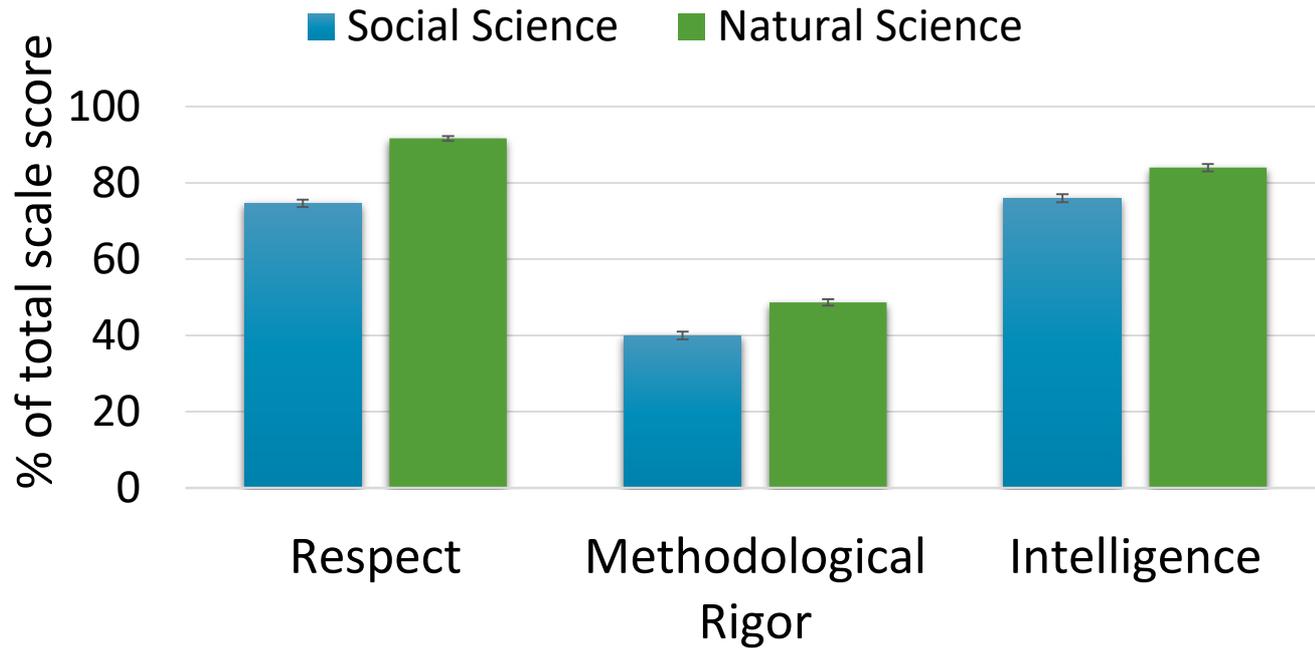
Results: Scales of Competence

Scale	# of Items	Example Item	Cronbach's Alpha
Respect	10	I admire the work that [social/natural] scientists do	0.932
Intelligence	5	Incompetent---Competent	0.874

Results: Scales of Competence

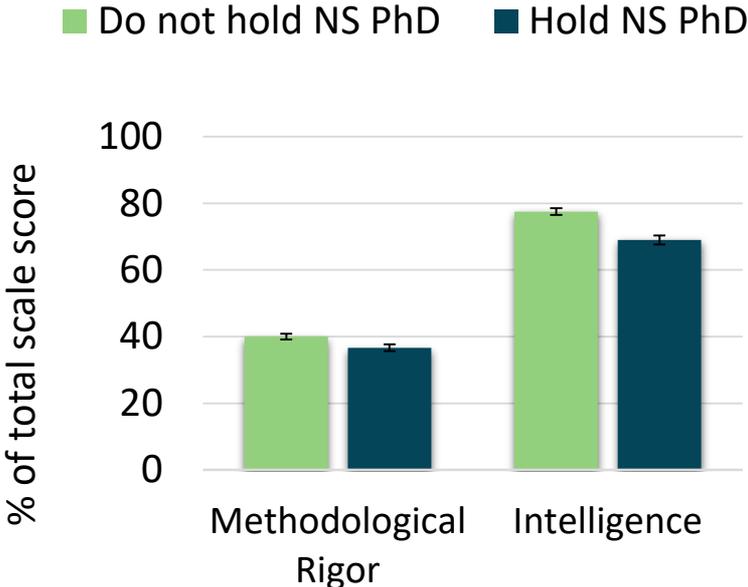
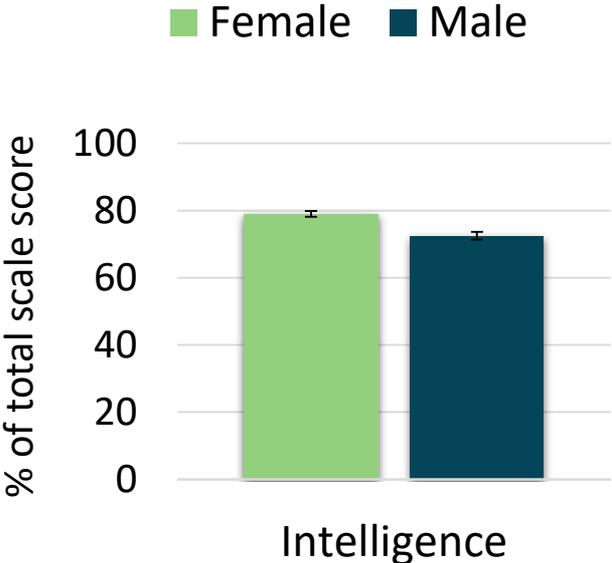
Scale	# of Items	Example Item	Cronbach's Alpha
Respect	10	I admire the work that [social/natural] scientists do	0.932
Intelligence	5	Incompetent---Competent	0.874
Methodological Rigor	5	It is difficult for [social/natural] scientists to be objective	0.646

Natural Scientists Perceive Natural Scientists as More Competent



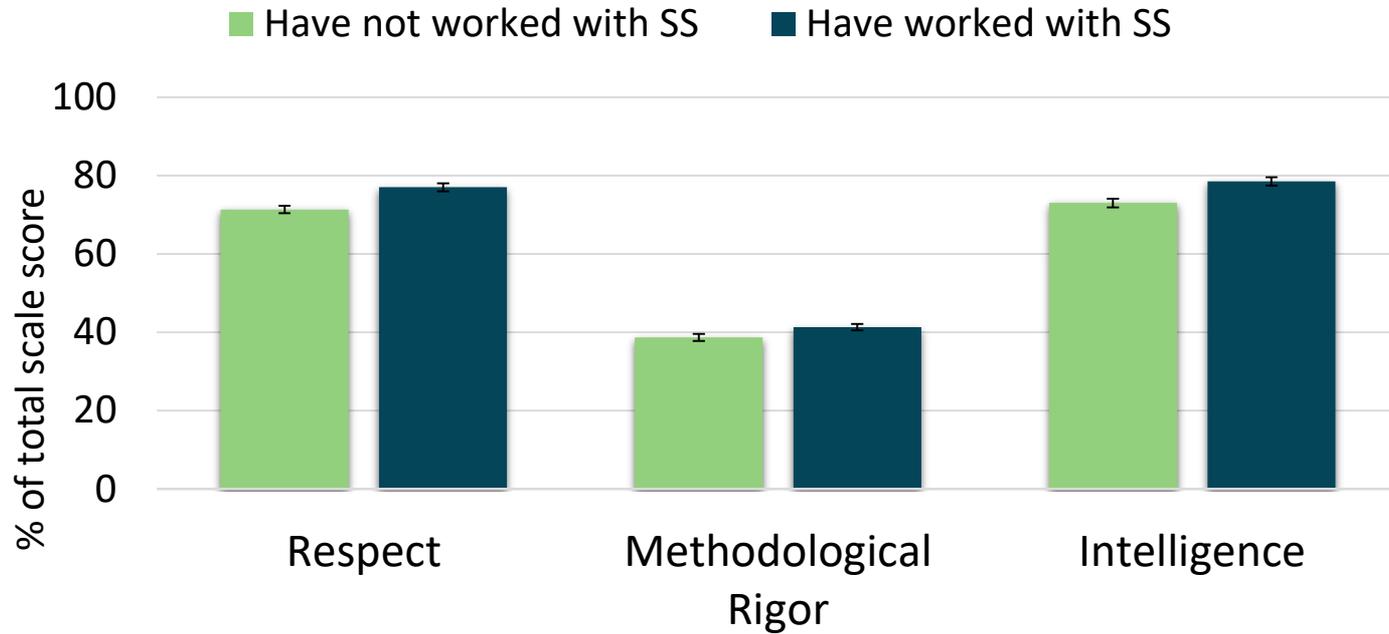
Multilevel multivariate analysis indicates all differences are significant at $p < 0.001$

Gender and Education Alter Perceptions of Social Science



Multilevel multivariate analysis indicates all differences are significant at $p < 0.05$

Interdisciplinary Experience Alters Perceptions of Social Science



Multilevel multivariate analysis indicates all differences are significant at $p < 0.05$

Contextualizing Results

- Gender

- Females often rank others as more intelligent than do males
 - Furnham. 2001. *Pers Individ Dif*; Anderson et al. 2011. *Int J Public Opin*.

- Education Level

- Mere Exposure Effect
 - Bornstein. 1989. *Psychol Bulletin*; Zajonc. 1968. *J Pers Soc Psychol*

Contextualizing Results

- **Interdisciplinary Experience**
 - Mere Exposure Effect
 - Found also in Urbanska et al. 2019
- **Overall Difference between SS and NS**
 - Hierarchy of the Sciences
 - Mooney et al. 2013. *Proc Natl Acad of Sci.*; and others

Implications and Future Work

- Survey across more disciplines, including social scientists
- Increase interdisciplinary opportunities
 - Measure pre- and post- impact

Kirby, C.K., P. Jaimes, A.R. Lorenz-Reaves, and J.C. Libarkin. 2019. Development of a measure to evaluate competence perceptions of natural and social science: PLOS One 14(1).

Respect

Social/natural scientists have admirable talents and skills [2]

Social/natural science research is beneficial for society

I respect the work of social/natural scientists

Social/natural scientists are worth listening to [2]

I admire the work that social/natural scientists do [2]

Social/natural science research is worthwhile

I value the knowledge gained from social/natural science research

More funding should be allocated for social/natural science research

Reliable conclusions can be drawn from social/natural science studies [1]

Social/natural scientists are members of a respect worthy group [2]

Methodological Rigor

The implications of social/natural science research are often unclear

Many social/natural science studies are difficult to reproduce [1]

Social/natural science research contains many sources of potential error

Many assumptions are required to perform social/natural science research [1]

It is difficult for social/natural scientists to be objective [1]

Intelligence [3]

Incompetent --- Competent

Ignorant --- Knowledgable

Irresponsible --- Responsible

Unintelligent --- Intelligent

Foolish --- Sensible

Sources

[1] Albert M, Laberge S, Hodges BD, Regehr G, Lingard L. Biomedical scientists' perception of the social sciences in health research. *Soc Sci Med.* 2008; 66(12):2520–31.

[2] Frei JR, Shaver PR. Respect in close relationships: prototype definition, self-report assessment, and initial correlates. *Pers Relatsh.* 2002; 9(2):121–39.

[3] Bartneck C, Kulić D, Croft E, Zoghbi S. Measurement instruments for the anthropomorphism, animacy, likeability, perceived intelligence, and perceived safety of robots. *Int J Soc Robot.* 2009; 1(1):71–81.