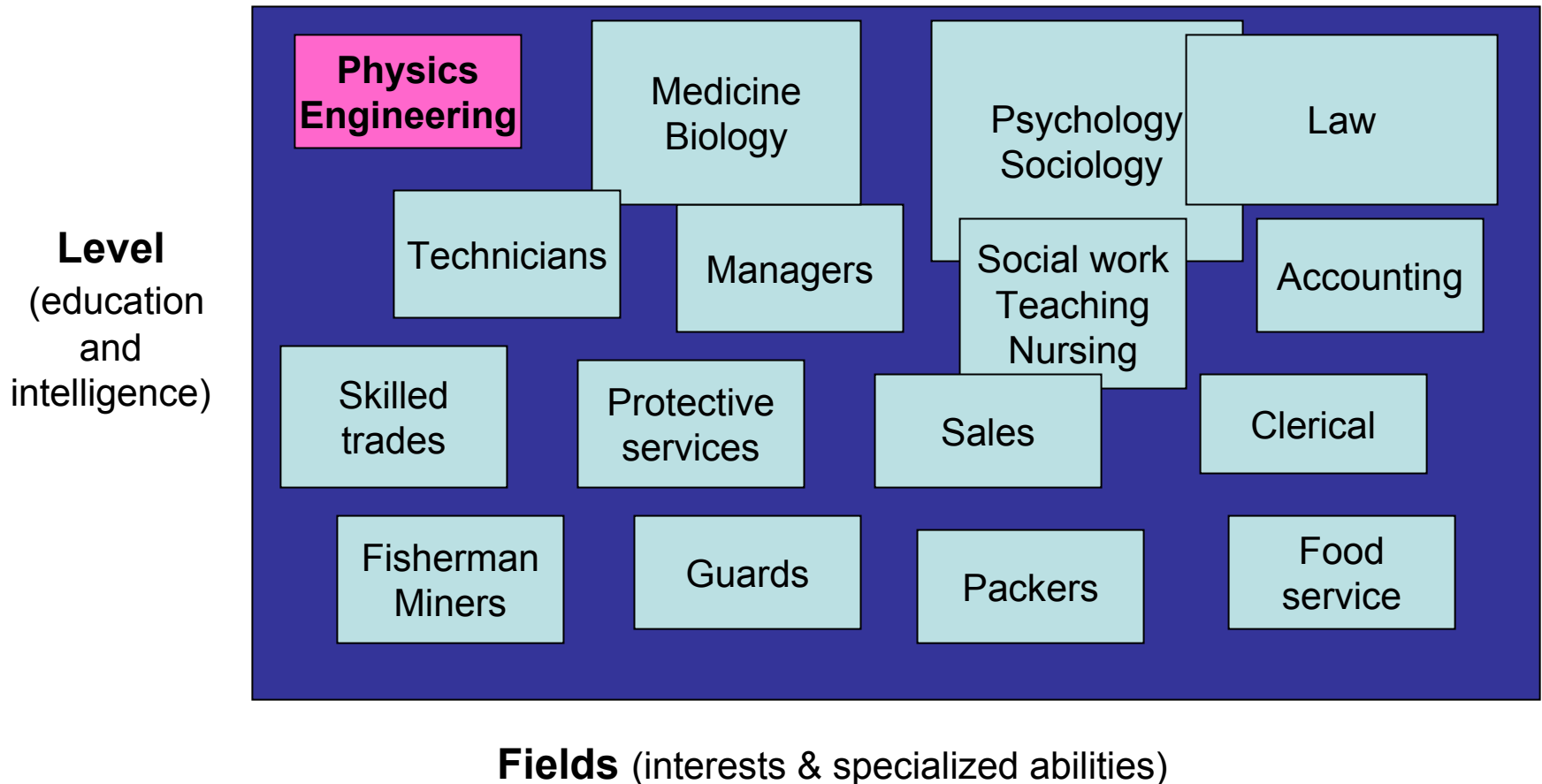


**“What’s Holding Women Back
in Science?”
Wrong Question**

**Linda S. Gottfredson
University of Delaware**

Broader Perspective

World of Work



Trends in Degrees Awarded: % Women

	<u>BA</u>	<u>MA</u>	<u>Doct</u>	<u>Prof</u>
1970	43	40	13	2
	↓	↓	↓	↓
2002	57	59	46	47

	PhD: <u>Educ</u>	<u>Social</u>	<u>Life</u>	<u>Physical</u>	<u>Eng</u>
1980	45	35	25	12	4
	↓	↓	↓	↓	↓
2001	65	54	47	26	17

People ←————→ **Things**

Degrees in Specialities—% Women (2001)

Engineering BA	%	Engineering PhD	%
Bio/biomedical	45	Bio/biomedical	29
Chemical	37	Chemical	29
<i>Total</i>	<i>26</i>	<i>Total</i>	<i>21</i>
Electrical	15	Electrical	12
Mechanical	13	Mechanical	12
All follow the people-things gradient			
Social Sciences BA	%	Psychology PhD	%
Sociology	71	Counseling	71
Anthropology	68	Clinical	70
<i>Total</i>	<i>62</i>	<i>Total</i>	<i>68</i>
Political science	48	Experimental	62
Economics	34	Industrial-organizational	54

Source of Sex Differences

2 Competing Hypotheses

	Inner compass	Modeling clay
Genetic tilt	50%	0%
Socialization & bias	50%	100%

Which best fits the evidence?

All the Evidence

Can't pick & choose by results

(Anecdotes don't negate or
constitute good evidence)

More Evidence for Genetic Tilt:

Abilities, Interests, Temperament

Average differences	<u>Male</u>	<u>Female</u>
<ul style="list-style-type: none"> • Chromosomes • Hormone balance • Brain bilaterality • Abilities 	<ul style="list-style-type: none"> • Y • testosterone • less connected • spatial 	<ul style="list-style-type: none"> • X • estrogen • more • verbal
<ul style="list-style-type: none"> • Interests 	<ul style="list-style-type: none"> • things (non-living) • “realistic” 	<ul style="list-style-type: none"> • people, living things • “social”
<ul style="list-style-type: none"> • Interest at 1 day old 	<ul style="list-style-type: none"> • mechanical mobile 	<ul style="list-style-type: none"> • faces
<ul style="list-style-type: none"> • Values • Personality traits 	<ul style="list-style-type: none"> • “theoretical,” “ideas” • “assertive” • “dominant” 	<ul style="list-style-type: none"> • “social,” “feelings” • “agreeable” • “nurturant”
<ul style="list-style-type: none"> • Response to frustrating task (infant) • Mode of aggression 	<ul style="list-style-type: none"> • tried again • physical 	<ul style="list-style-type: none"> • stopped & cried • verbal

Persistent, consistent, most confirmed worldwide

Differences in Everyday Knowledge

Large male advantage	Small male advantage	No difference	Female advantage
Sport	Literature	Film	Cooking
History	Jazz & blues	Art	Medicine
Finance	Biology	Class Music	
Politics	Geography	Fashion	
Games	History science	Pop music	
Exploration			
Science			

Inner Compass: Example

- “Active gene-environment correlation”
People select and modify their environments



Children resist redesign

Complaints Themselves Illustrate Sex Differences

- Summers, the ~~man~~ male
 - Disagreeable, domineering, socially insensitive
 - “Why can’t he be more like a woman?”
- Summers’ theorizing
 - Verbally assaulted women
 - Created emotional pain
 - “The standard for judging ideas should be emotional impact, not intellectual merit.” (Note: It is appropriate for mothering behavior.)
- Physics & engineering
 - Would interest more women if emphasized how they help people
 - “Why can’t the content of physics and engineering be more like medicine and sociology?”

0% Genetic Is Not Plausible (And Never Was)

- There is no plausible non-genetic explanation for the pattern of results
- Sex differences in basic traits, physical and behavioral, are an evolutionary fact
- Cultures can narrow or magnify their expression, but not eliminate them
- Insisting on 0% genetic as the default hypothesis is “re-creationism”
practical & emotional
- It also ignores the huge challenges[^] facing women committed to both children and careers.

Yet Broader Perspective

World of Work

