

Faculty Perceptions of Their Disciplinary Cultures: Re-Evaluating Biglan's Dimensions

Emily Braught
Stephen C. Hiller
Thomas F. Nelson Laird

Indiana University Bloomington

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Purpose

- How we understand disciplinary cultures and make distinctions between disciplines plays a **critical role in shaping narratives around faculty work**
- For 50 years, **Biglan's dimensions have been a key framework** for understanding disciplinary differences/cultures
- Yet, **cultures can change**. And faculty have changed quite a bit in the past 50 years
- How Biglan's dimensions have been traditionally used may also **skew our understandings of disciplinary cultures**

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Research Questions

- 1 How do faculty perceptions of the level of consensus about knowledge and inquiry in their disciplines, the level of application of knowledge and inquiry in their disciplines, and how their disciplines engage with living or social systems **relate** to one another?
- 2 How do faculty perceptions of these qualities of their disciplines **compare** to the Biglan dimensions?
- 3 How do disciplines **cluster** according to their aggregated faculty perceptions and how do those clusters compare to Biglan's categorization?

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Biglan's Dimensions	Disciplinary Cultures
<ul style="list-style-type: none"> • Biglan sought to identify characteristics that distinguish disciplines from each other • Empirically identified 3 dimensions: <ul style="list-style-type: none"> ◦ Hard vs. Soft ◦ Pure vs. Applied ◦ Life vs. Non-Life • Substantial work has validated their use, largely treated as truth • Research has tended to show the hard/soft dimension as the strongest influence on disciplinary cultures • Originally identified as continuous; however, almost universally applied dichotomously 	<ul style="list-style-type: none"> • Largely informed by how faculty engage with their disciplines and the narratives they form about their engagement • Disciplinary cultures shape both method and content of instructional choices • Changes to composition of the faculty suggest the possibility that the disciplinary cultures that faculty perceive and work in today are not the same as they were fifty years ago • Cultures tend to become harder and more applied

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Data and Respondents

FSSE faculty survey of student engagement

- 2022 administration
- 691 faculty representing 100 unique disciplines

Faculty Disciplines	%
Arts & Humanities	19.4
Biological Sciences, Agriculture, & Natural Resources	6.2
Business	10.8
Communications, Media, & Public Relations	4.9
Education	8.8
Engineering	1.0
Health Professions	13.0
Physical sciences, Mathematics, & Computer Science	13.0
Social Sciences	13.2

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Measures and Methods

- **Items**
 - 8 items faculty perceptions of the descriptive qualities and cultural aspects of Hard, Soft, Pure, Applied, Life, and Nonlife disciplines applied to their own discipline
 - Qualities rated on a scale from 0 (does not describe my discipline) to 10 (perfectly describes my discipline)
- There is substantial agreement about the core content knowledge and theories in my field/discipline
- Scholars in my field/discipline focus on the practical application of theory and content to professional practice (reverse-coded)
- Knowledge and inquiry in my field/discipline is primarily concerned with social systems

0 ←→ 10
Soft Applied Nontlife Hard Pure Life

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Measures and Methods

RESEARCH QUESTION 1

- EFA to develop and examine scales, including reliability analysis of each scale, descriptive statistics, and correlations between scales

RESEARCH QUESTION 2

- Examined how individual faculty scale scores compare to overall scale means and relative to Biglan's dimensions
- Examined mean scale scores by discipline (continuous and dichotomous), with comparison to Biglan's dimensions

RESEARCH QUESTION 3

- Cluster analysis, using the disciplinary means of the three scales to classify disciplines into groups

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How do faculty perceptions of the level of consensus about knowledge and inquiry in their disciplines, the level of application of knowledge and inquiry in their disciplines, and how their disciplines engage with living or social systems relate to one another?

- Consensus and application of knowledge scales have high Cronbach's alphas (>.7), while life systems scale = .54
- Intraclass coefficients suggest that reasonable proportions of variance in the scale scores are attributable to faculty disciplines, especially the living and social systems scale (.34)
- Scales ranged in their correlation with one another from very low (Consensus–Life Systems, $r = .092$) to medium (Life Systems–Application, $r = -.328$; Consensus–Application, $r = -.499$)

	Mean	SD	α	ICC by Discipline
Consensus	7.38	1.66	.8	.13
Application	2.72	1.8	.77	.11
Life Systems	5.48	2.9	.54	.34

- On average, faculty perceived their disciplines as having high levels of consensus (mean=7.38) and application (mean=2.72)

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How do faculty perceptions of these qualities of their disciplines compare to the Biglan dimensions?

(Relative to Overall Mean) Percentage of Faculty Perceiving Their Discipline with...

	More Consensus	Less Consensus	More Application	Less Application	More Life Systems	Less Life Systems		
Hard	70.4%	29.6%	Pure	46.7%	53.3%	Life	78.7%	21.3%
Soft	47.5%	52.5%	Applied	71.4%	28.6%	Nonlife	28.4%	71.6%
Overall	53.4%	46.6%	Overall	59.4%	40.2%	Overall	52.1%	47.9%

- Most faculty perceptions seem to align with Biglan dimensions, **BUT...**
- There's clearly **more nuance** than we tend to acknowledge
- Faculty in Soft disciplines perceive them as **HARDER**
- Faculty in Pure disciplines perceive them as more **APPLIED**

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How do faculty perceptions of these qualities of their disciplines compare to the Biglan dimensions?

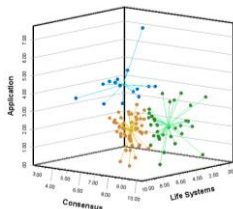
Traditional discipline Biglan classifications vs. two ways of classifying disciplines using their mean scale scores...

	Biglan Classifications	Dichotomized by Scale Midpoint*	Dichotomized by Scale Mean
Hard	35%	98%	55%
Soft	65%	1%	45%
Pure	43%	2%	36%
Applied	57%	98%	64%
Life	50%	63%	58%
Nonlife	50%	33%	42%

*For Hard-Soft and Life-Nonlife, the remaining disciplines were "neutral" with mean discipline scale scores of 5.0

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How do disciplines cluster according to their aggregated faculty perceptions and how do those clusters compare to Biglan's categorization?



Note: Application and Consensus scales are truncated for improved visibility

	Consensus		Application		Life Systems	
	Mean	SD	Mean	SD	Mean	SD
Cluster 1	8.30	0.69	2.25	0.91	3.85	1.61
Cluster 2	7.42	0.75	2.15	0.67	6.90	1.22
Cluster 3	5.81	0.90	4.35	0.95	5.01	2.14

Reminder... 10
 ← More Consensus
 → Less Application
 More Life Systems Focus

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Discussion and Significance

- Though survey items were designed to align with the most common aspects attributed to Biglan's Hard-Soft, Pure-Applied, and Life-Nonlife dimensions, **faculty on average viewed their disciplines as having greater levels of consensus and application** than scholars would have assumed based on prior scholarship
- Disciplines are traditionally assigned to eight categories that were simply interactions of the dichotomous classifications of the Biglan dimensions (or four categories if researchers only used the Hard-Soft and Pure-Applied dimensions). However, our findings clearly indicate **greater fluidity in disciplinary cultures across our three scales.**

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So What?

- Even if the three Biglan dimensions continue to identify central aspects of disciplinary cultures, we more modestly conclude that that the ways faculty perceive their disciplinary cultures today are not the same as what was originally conceptualized fifty years ago by Biglan's (1973a, b) work.
- Educational developers may consider seeking to understand more about levels of consensus, application, and engagement with living or social systems **across and within** disciplines when designing professional development.
- While classifying disciplines, dichotomously or into multiple categories, may be expeditious in research and aid in identifying broad differences, researchers should further consider the nuance and value that can be added by conceptualizing disciplinary cultures as more fluid and continuous.

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Thanks so much for joining us!

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Questions about the paper can be directed to:

Stephen C. Hiller
 Assistant Research Scientist
 Center for Evaluation, Policy, & Research
schiller@indiana.edu



Slides and Paper

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