Measuring Instructional Climate and Practices: Two New Instruments

Emily M. Walter
Andrea L. Beach
Charles Henderson
Cody T. Williams

Center for Research on Instructional Change in Postsecondary Education (CRICPE)

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WESTERN MICHIGAN UNIVERSITY

Background

- Instructional change efforts have had only modest success
- Institutional environments and structures may be a barrier to these change initiatives (Beach, Henderson, & Finkelstein, 2012; Henderson, Beach, & Finkelstein, 2011)
  - One measure of an instructional environment is *climate*
- **Primary argument:** Valid and reliable measures of *organizational climate* and *instructional practices* are essential to plan better change initiatives (AAAS, 2013)

Study Overview

- Developed and validated two new instruments to measure organizational climate for instructional improvement and instructional practices in higher education settings
- Research Tool 1 – Survey of Climate for Instructional Improvement (SCII)
- Research Tool 2 - Postsecondary Instructional Practices Survey (PIPS)

Research Tool 1 – Survey of Climate for Instructional Improvement (SCII)

Why study climate?

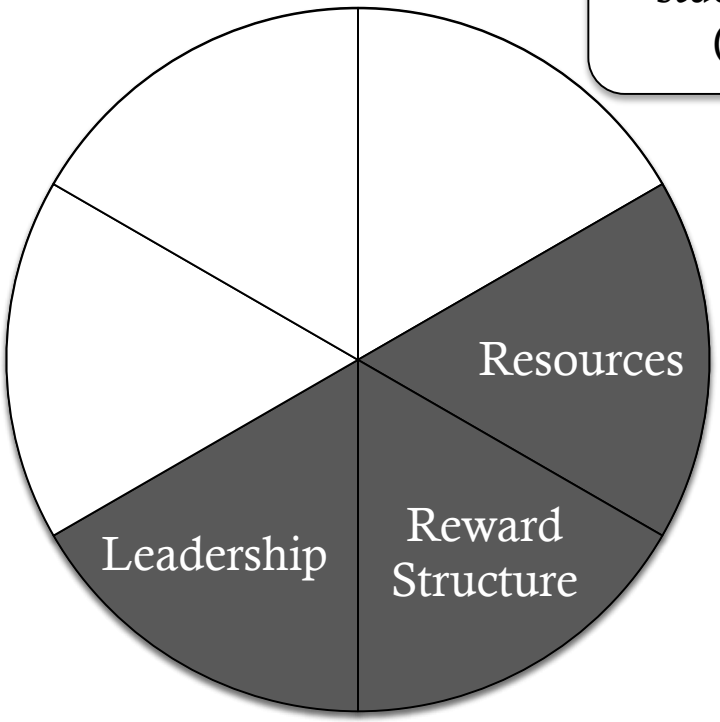
- Climate is more immediately accessible and malleable than other constructs (e.g. culture) (Schneider, Ehrhart, & Macey, 2013)
  - Can be changed through policy and actions of the administration or organization members
- Climate is researched as related to a specific outcome – i.e. climate *for* something (Schneider, 1975)
  - We focused on climate for *instructional improvement*
  - *Instructional improvement* - the action or process of making changes in instruction with the goal of achieving the best possible learning outcomes

Conceptual Framework

- Elements of faculty work (Gappa, Austin, & Trice, 2007)
- Aligns with related literature on:
  - Workplace 'climate for change' (Bouckenooghe, Devos, & Van den Broeck, 2009)
  - Academic work and workplaces (Massy, Wilger, & Colbeck, 1994)
  - Departmental teaching climate (Beach, 2002; Knorek, 2012)
  - Leadership for teaching (Ramsden, Prosser, Trigwell, & Martin, 2007)

Defining Relevant Climate Elements

Shared perceptions of students & teaching (Beach, 2002)



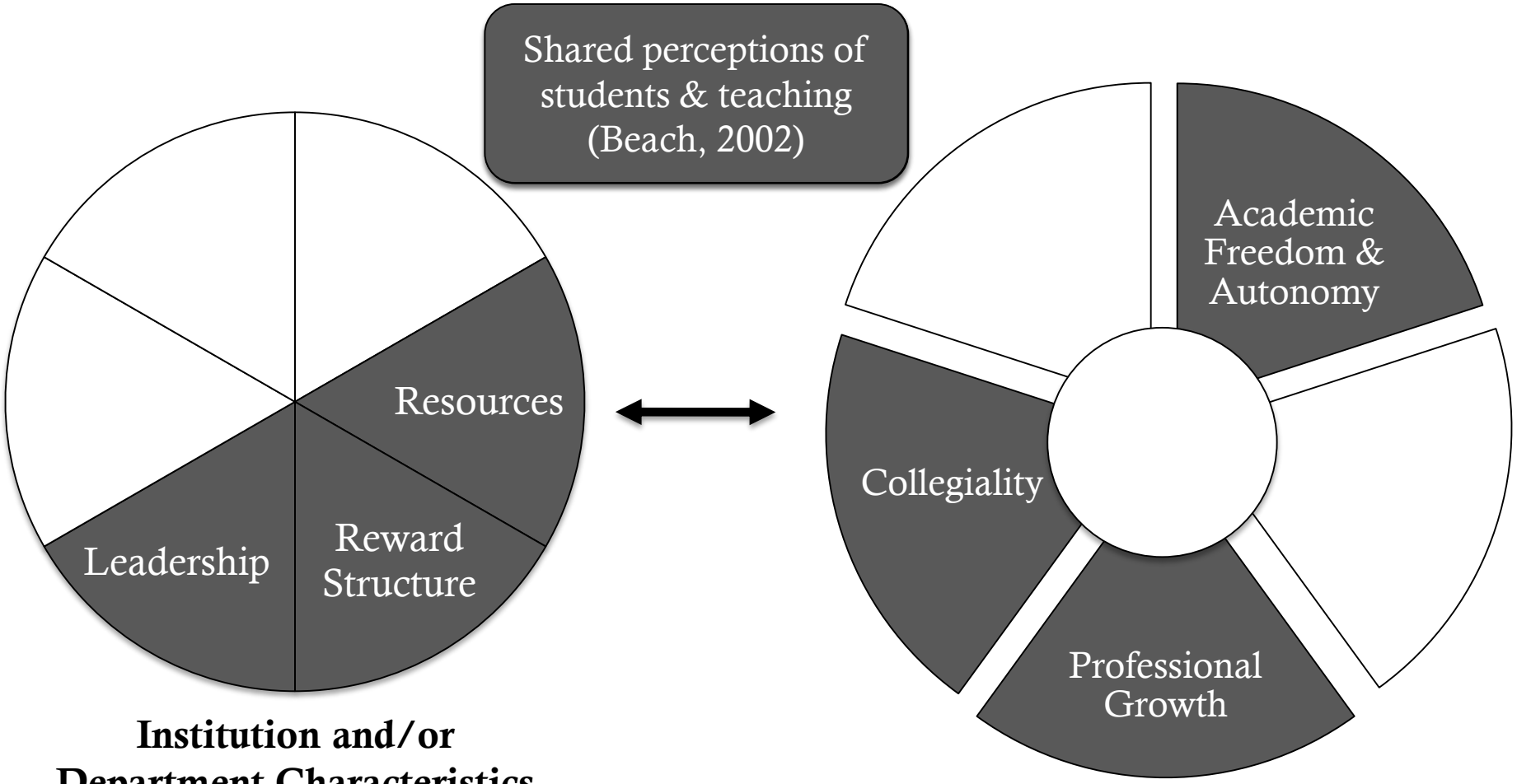
Institution and/or Department Characteristics

(Model from Gappa et al., 2007, p. 134)
(see also Beach, 2002; Bouckenooghe, Devos, & Van den Broeck, 2009, Knorek, 2012, Ramsden, Prosser, Trigwell, & Martin, 2007)

Essential Elements of the Faculty Work Experience

(Gappa et al., 2007, p. 137)
(see also Massy, Wilber, & Colbeck, 1994)

Defining Relevant Climate Elements



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Essential Elements of the Faculty Work Experience

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Item Development

- Started with items from existing surveys and self-generated items as necessary
  - Organizational Climate Questionnaire (Bouckenooghe et al., 2009)
  - HERI (Hurtado, Eagan, Pryor, Whang, & Tran, 2011)
  - Faculty Teaching Climate (Knorek, 2012)
  - Academic leadership/approaches to teaching (Ramsden et al., 2007)
- To elicit organizational and not psychological climate:
  - Items revised to refer to *group* rather than individual perceptions
    - e.g. “the instructors in my department think” rather than “I think”

SCII Scale and Sample Items

Scale

- Strongly Disagree
- Mostly Disagree
- Somewhat Disagree
- Somewhat Agree
- Mostly Agree
- Strongly Agree

Sample Items

"In my department, evidence of effective teaching is valued when making decisions about continued employment and/or promotion."

"Instructors in my department are willing to align the content of their courses to improve student learning."

"The department chair encourages instructors to go beyond traditional approaches to teaching."

Research Tool 2 - Postsecondary Instructional Practices Survey (PIPS)

Why design a new instrument?

- More than 10 surveys of instructional practices already exist
  - Summarized in a recent AAAS report (AAAS, 2013)
  - Wieman & Gilbert (2014)

- We created a new survey to address the **limitations of existing instruments:**
  - Lengthy
  - Inconsistent scales
  - Discipline-specific (e.g. Borrego et al., 2013; Zieffler et al., 2012)
  - Elicit elements other than teaching practices (e.g. beliefs, ATI, Trigwell & Prosser, 2004)
  - Available only on a proprietary basis (NSOPF, HERI)

PIPS Conceptual Framework

- There is no standard conceptual framework of instructional practice
- We therefore shaped our framework by compiling items from and then finding themes among:
  - Developed instruments (FSSE, ATI)
  - Teaching observation protocols (RTOP, TDOP)
  - Patterns in research on instructional practice (Iverson, 2011; Meltzer & Thornton, 2012; Pascarella & Terenezini, 1991; 2005)

PIPS Item Development

- The compiled set of 153 items was revised to 24 items by:
  - Removing redundant items, items that did not refer to actual teaching practices, and lists of general practices
  - Eliminating educational jargon
  - Developing new items that better addressed our areas of interest
- Items are designed to describe the participant's the largest enrollment, lowest level course taught in the last 2 years
- 5-point Likert-style scale was used to maximize variability (Bass et al., 1974)

PIPS Scale and Sample Items

Scale

- Very descriptive of my teaching
- Mostly descriptive of my teaching
- Somewhat descriptive of my teaching
- Minimally descriptive of my teaching
- Not at all descriptive of my teaching

Sample Items

"I guide students through major course topics as they listen and take notes."

"I structure class so that students discuss the difficulties they have related to the course with other students."

"I use student assessment results to guide the direction of my instruction during the semester."

Pilot Testing Process

Pilot Testing (889 instructors)

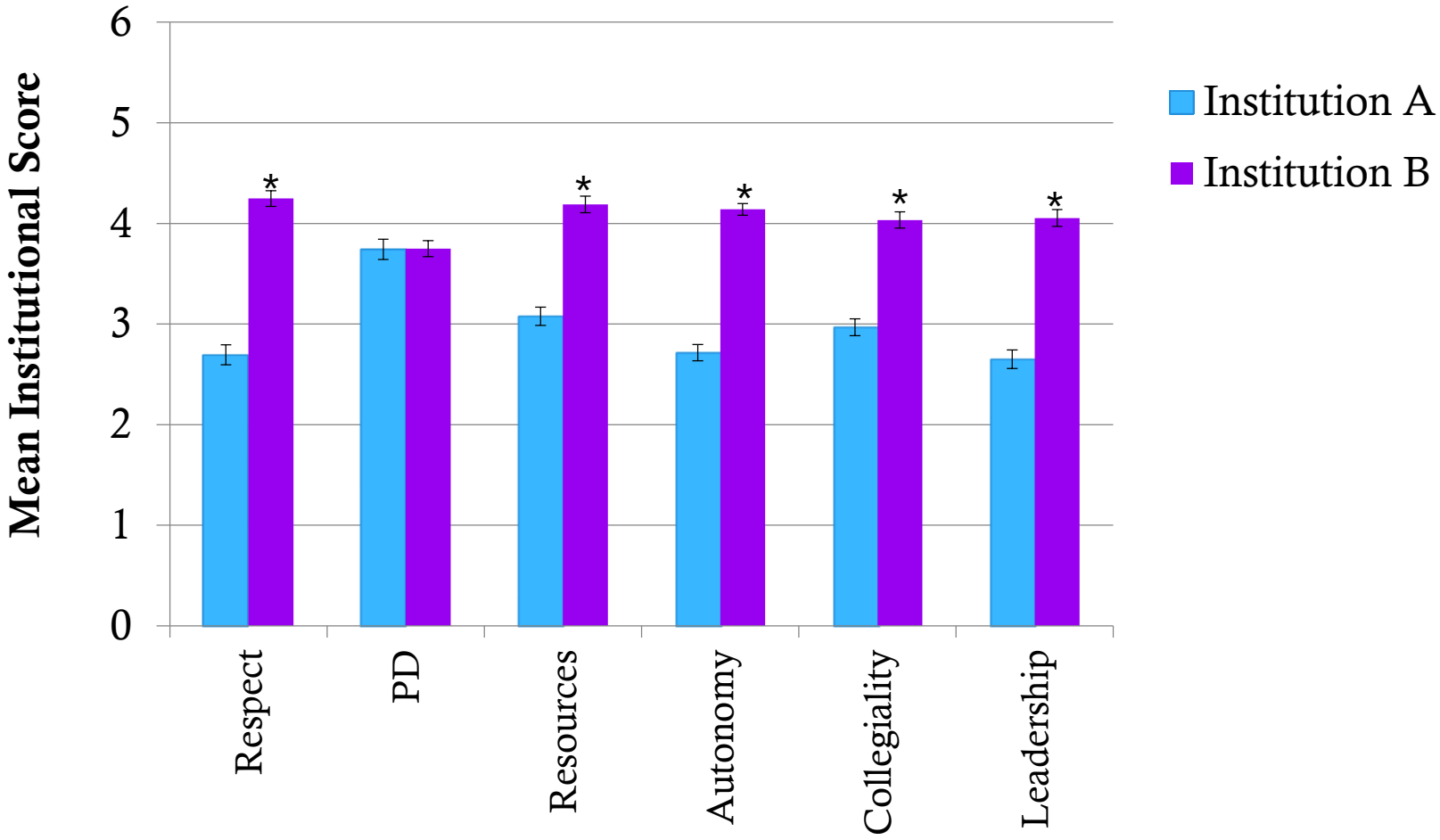
	Institution A	Institution B	Institution C	Institution D
Instructors	214	164	87	424
Departments	18	9	10	40
Surveys	PIPS; SCII	PIPS; SCII	PIPS	PIPS
Disciplines	STEM & Applied Sciences	STEM	Biological Sciences	All Depts
Carnegie Classification	High research activity	Very high research activity	Very high research activity	Masters University (larger program)

Analyses

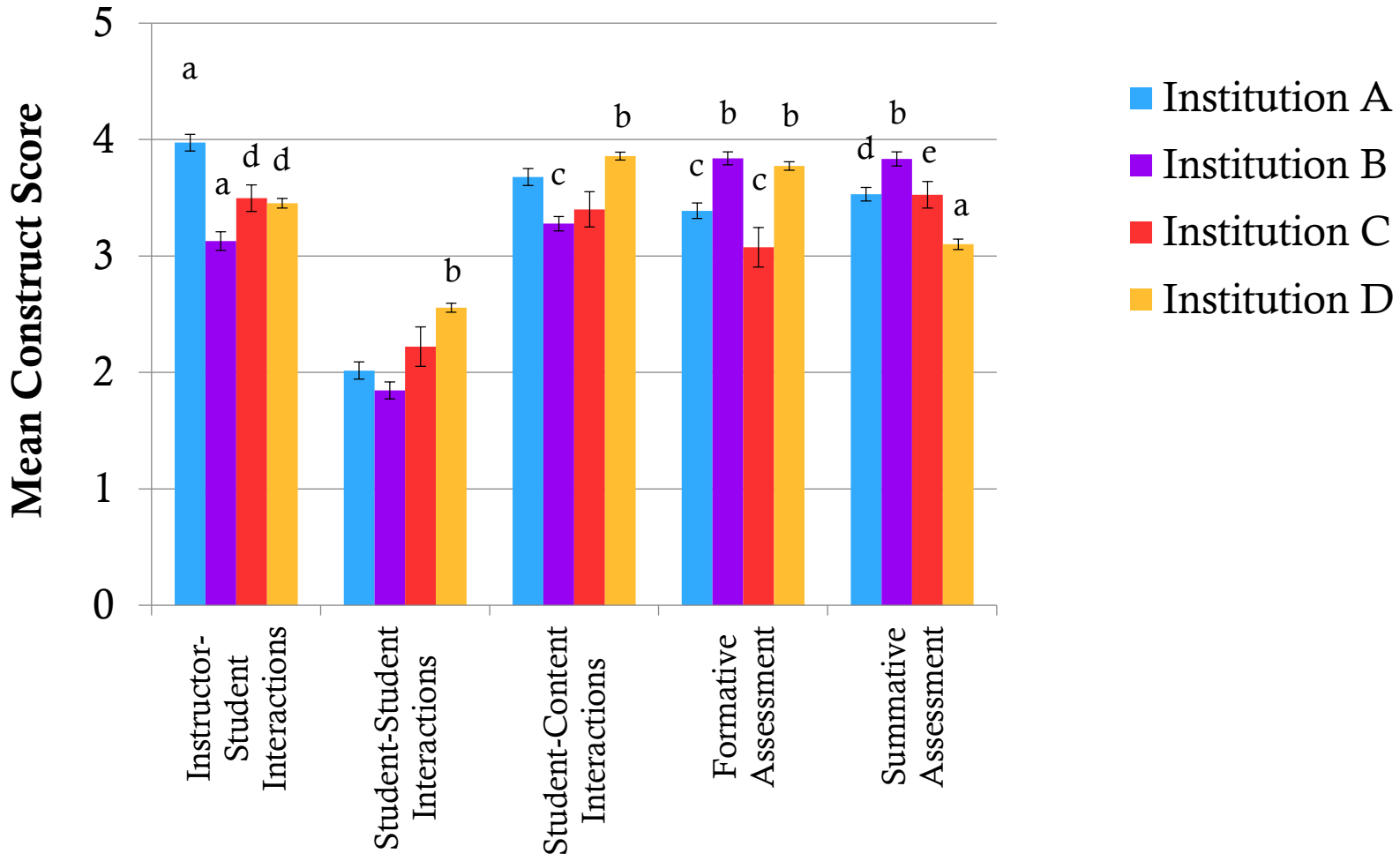
- Construct development through exploratory and confirmatory factor analyses
- Reliability statistics

	SCII	PIPS
Constructs	6	5
Number of Items	26	20
N	300	661
Reliability (α)	.943	.812

Organizational Climate (SCII) Comparisons



Instructional Practice (PIPS) Comparisons



Note. [a] Significantly different than the other 3 institutions ($p < .05$), [b] Significantly higher ($p < .05$) than the 2 lowest scoring institutions, [c] Significantly lower ($p < .05$) than the 2 highest scoring institutions, [d] Significantly different ($p < .05$) than the lowest and highest scoring institution, [e] Significantly higher ($p < .05$) than the lowest scoring institution.

Findings and Transferability

- Reliable, easy to use, and collect a large amount of data quickly
- Non-proprietary
- Our instruments are modular - can be used together or separately
- Can distinguish among distinct elements of:
    - Climate for Instructional Improvement (6 constructs)
        - Leadership, Collegiality, Resources, Professional Development, Autonomy, and Respect
    - Instructional Practice (5 constructs)
        - Instructor-Student Interactions, Student-student interactions, student-content interactions, formative assessment, summative assessment

PIPS Instrument Features

- Unique features:
  - Elicits instructional practices and only those practices
    - Not beliefs, intent, or other facets of instruction
  - Interdisciplinary
  - Descriptive (non-evaluative)
  - Concise
  - Consistent and clear item scale

SCII Instrument Features

- Unique features:
  - Unlike any available climate instrument
  - Aligned with and provides empirical support for the elements of faculty work described by Gappa et al. (2007)
  - Clear and consistent item scale
  - Identifies potential change levers in the institutional environment that influence instructional change initiatives

Future Work

- Hierarchical linear models to better understand the sources of variance within the data
- Triangulation of survey results using teaching observation data (TDOP) and interviews

TDOP Teaching Dimensions Observation Protocol

Questions?

SCII. Survey of Climate for Instructional Improvement

- Leadership
- Collegiality
- Resources
- Professional Development
- Autonomy
- Respect

PIPS. Postsecondary Instructional Practices Survey

- Instructor-Student Interactions
- Student-Student Interactions
- Student-Content Interactions
- Formative Assessment
- Summative Assessment

Instruments and the paper are available online:
http://homepages.wmich.edu/~chenders/
If you use the instruments, we request that you use them in their entirety and share the data with our research team.

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