



# Will it work here? Validating a fit survey for a new student population

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# Today's presentation

- Background
  - Institutional Context
  - Literature on Student-Institution Fit
- IUPUI Administration
- Analysis of items
  - Mplus
  - Qualitative
- Where we go from here



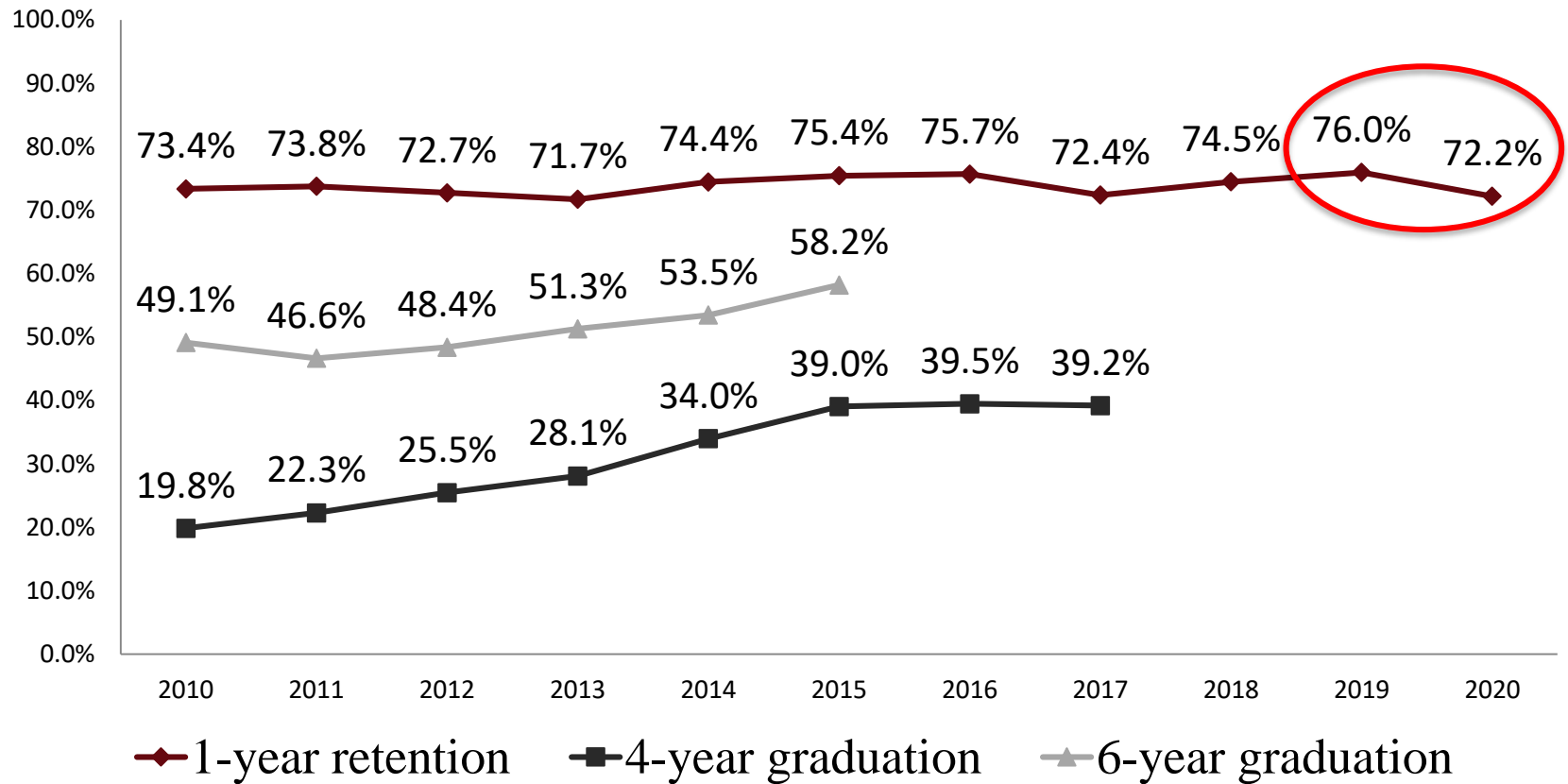
# Background

# IUPUI

- Fall 2021
  - 19,197 degree-seeking undergraduate students (across 3 locations)
  - 3,496 new beginners
  - 1,248 external (non-IU) transfers
- Fall 2019
  - 21,173 degree-seeking undergraduate students
  - 4,295 new beginners
  - 1,347 external transfers



# Indianapolis Only First-Time, Full-Time Cohort Retention and Graduation Rate Any IU Campus (Bachelor's, Associate, and Certificate)



# Student-Institution Fit

## Person-Environment Fit

- Holland's theory of work environments

## Needs-Supplies Fit

## Temporal nature of fit

## Student-Institution Fit in Higher Education Research

- Murray
- CCI / CUES
- Coyne
- Move toward engagement



# Gilbreath, Kim, & Nichols (2011)

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Derived  
Student-  
Institution  
Fit  
instrument

32 item  
instrument

“How important are the following to you?”

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“To what degree does your institution provide these things?”

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3 scales

Academic Environment

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Social Environment

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Physical Environment

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Analysis

Polynomial regression

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Satisfaction increases as needs approach supplies

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Improved Satisfaction => Retention

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# Gilbreath, Kim, & Nichols (2011)

Item	Need Reliability <sup>1</sup>	Supply Reliability <sup>1</sup>
<b>Academic Environment fit</b>	0.59	0.72
<b>A1</b> A scholarly/intellectual campus climate		
<b>A2</b> State-of-the-art classrooms, labs, library		
<b>A3</b> A highly regarded academic reputation		
<b>A4</b> Great school size		
<b>Social Environment fit</b>	0.80	0.79
<b>S1</b> Enjoyable social life		
<b>S2</b> Sports and recreational opportunities		
<b>S3</b> Great student body		
<b>S4</b> A highly regarded athletic reputation		
<b>S5</b> Great support services (e.g. academic counseling, health care, and placement center)		
<b>S6</b> Great non-academic facilities (e.g. gyms, dining, and game room)		
<b>S7</b> A diverse student body		
<b>Physical Environment fit</b>	0.54	0.62
<b>P1</b> Great geographic location		
<b>P2</b> A safe environment		
<b>P3</b> A pleasing physical environment (aesthetics)		
<b>P4</b> Convenient campus lay-out		
<b>P5</b> Great affordability		

*Notes: Adapted from Gilbreath, Kim, & Nichols (2011).<sup>1</sup>*

*Cronbach alpha estimates obtained from Gilbreath, Kim, & Nichols (2011)*





## **Bowman & Denson (2014)**

“institutions could use the SIFI [Student-Institution Fit Instrument] as an early monitoring system to identify students who may be considering dropping out.”

p.139

## Question (for now)

**Is the Gilbreath et. al instrument valid to be used with the population here at IUPUI?**



# **IUPUI Student-Institution Fit Survey**

# IUPUI Student-Institution Fit Survey

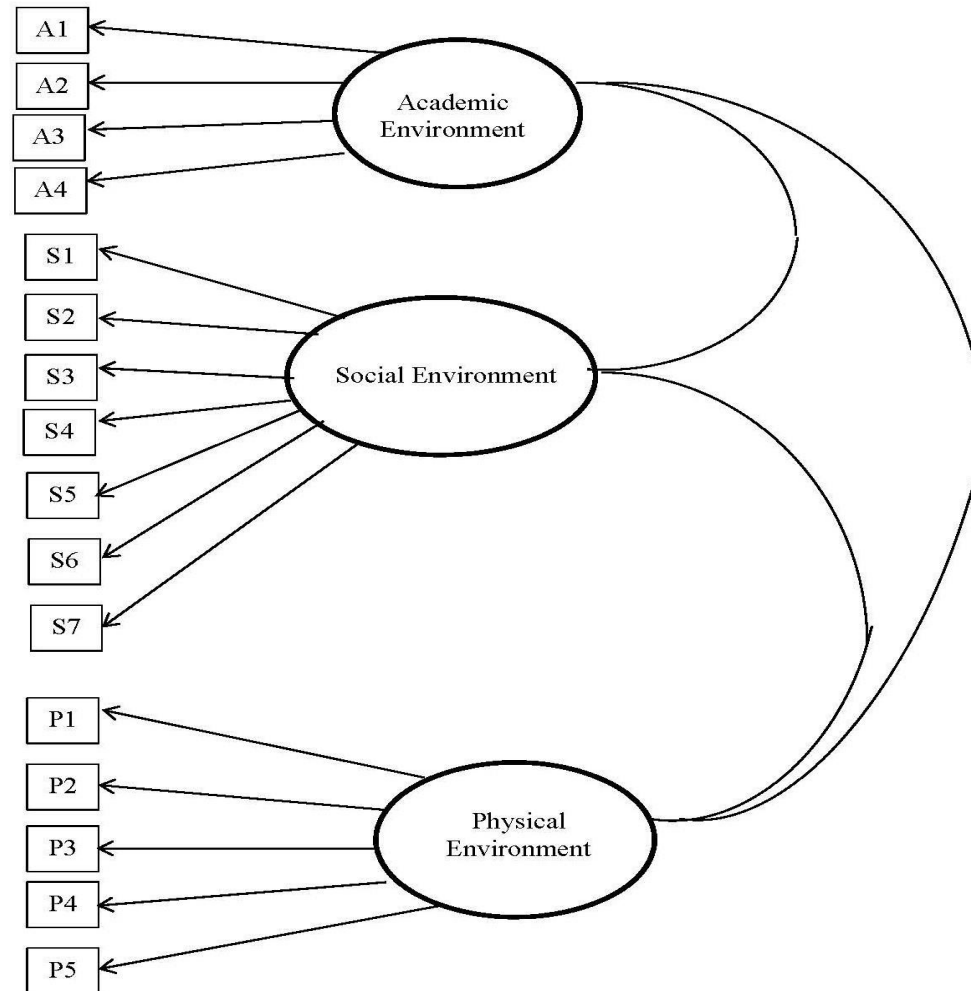
1. Gilbreath et. AI instrument
  - Needs
  - Supplies
2. Calculated overall level of fit
  - $\text{Abs}(\text{Supplies}-\text{needs})$
3. Demographics
4. Open-ended items
  - “In order to improve this survey for future administrations, we would like to know a little bit more about what you thought of the items. Please describe how you would define each of the following.”



# Testing the instrument

# Confirmatory Factor Analysis

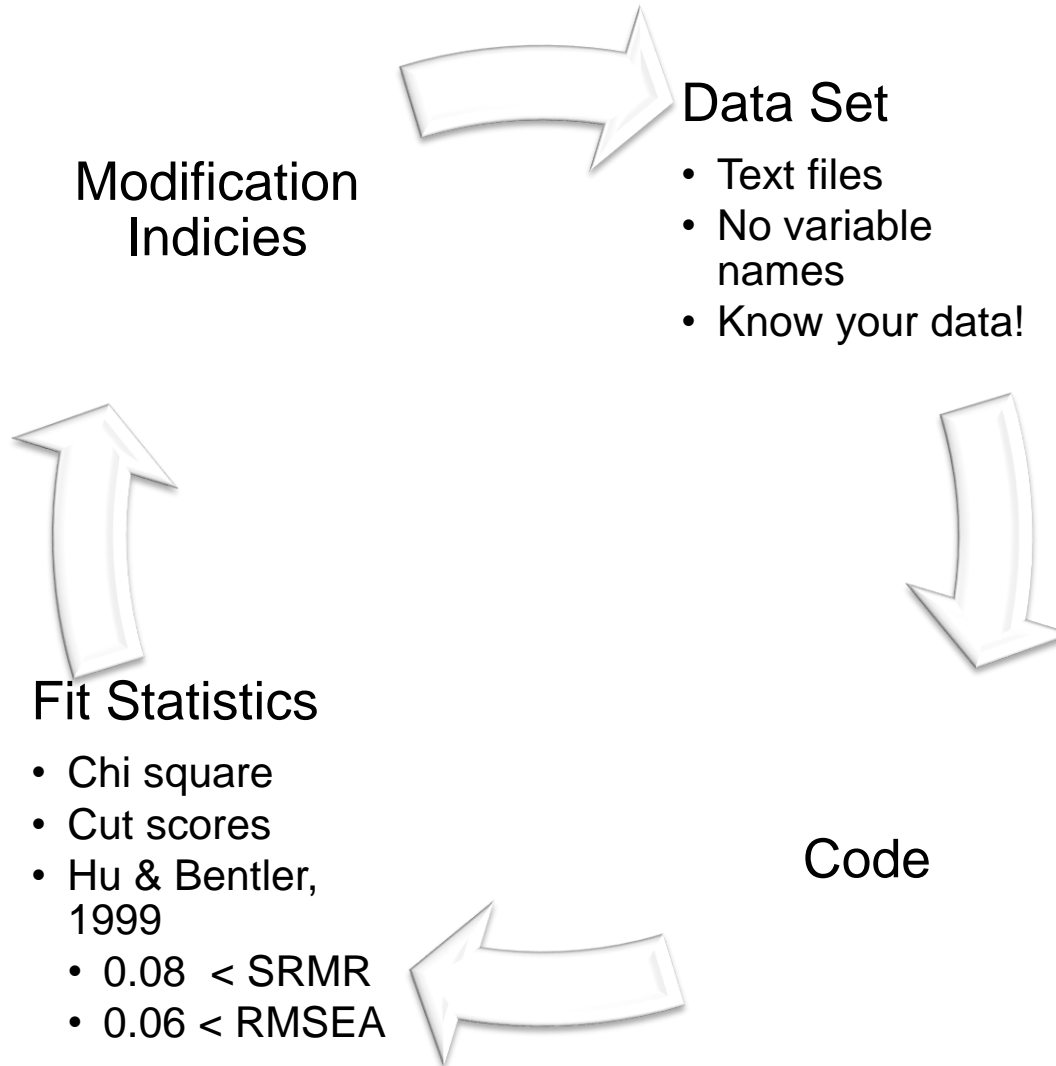
*Proposed Model of Institutional Fit for Session*



*Adapted from Gilbreath, Kim, & Nichols, 2011*



# Conducting in Mplus



# Mplus demonstration





# Fit Statistics

## Chi-Square Test of Model Fit

Value	212.700
Degrees of Freedom	101
P-Value	0.0000

## RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.079
90 Percent C.I.	0.065 0.094
Probability RMSEA $\leq$ .05	0.001

## SRMR (Standardized Root Mean Square Residual)

Value	0.070
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# Model Modification Indices

1. NS2 [**Sports and Recreation Opportunities**] ON AEFIT /

AEFIT	BY NS2	12.327	-1.728	-1.185	-0.928
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2. NS5 [**Great support services (e.g. academic counseling, health care, and placement center)**] ON AEFIT /

AEFIT	BY NS5	25.213	2.095	1.436	1.327
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# Comments – Great support services

- “Counseling, financial aid, test-taking programs”
- “Accessible tutoring, counselling, etc.”
- “academic counseling”
- “RAC, BRC”
- “helpful counseling, tutoring, health care, social services”
- “There are plenty of opportunities to get help with your studies or classes”
- “MAC, consolors, etc.”
- “caps, mac”



# Comments - Great support services

- “Knowledgeable staff, and a good Tutor-Student ratio.”
- “Easy access to help over any topic a student is struggling with that can help the student efficiently”
- “MAC, programs”
- “any type of mentors available”
- “Talking with my advisor”
- “available and well knowledge tutors”
- “advising sessions”
- “there is a good writing center to help international students or even local students with english writing”



# Modification Indices

NS2	WITH AEFIT	10.828	-0.191	-0.278	-0.253
NS5	WITH AEFIT	20.701	0.224	0.327	0.341
NS5	WITH SEFIT	23.666	-0.274	-0.375	-0.391
<i>NS7</i>	<i>WITH NS2</i>	11.370	0.381	0.381	0.282
NS9	WITH NS6	11.513	-0.273	-0.273	-0.298
NS11	WITH AEFIT	10.175	-0.180	-0.262	-0.270
<i>NS12</i>	<i>WITH NS9</i>	19.338	0.304	0.304	0.372



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<i>[Great geographic location]</i>	<i>WITH [State-of-the-art classrooms, labs, libraries]</i>	19.338	0.304	0.304	0.372



# Comments about Geographic Location/State-of-the Art...

Classroom comment	Location comment
“Clean, well-organized areas where learning is enjoyable and <b>not hindered by lack of resources</b> or other facility issues.”	“The campus is convenient for a multitude of living situations on campus and off, as well as being <b>close to excellent community resources</b> , businesses, and retailers.”
“ <b>nice</b> classrooms”	“Indy is a <b>nice</b> location”
“High-tech & <b>comfortable</b> rooms”	“Decent weather, good location in city”
“The newest technology and updated information that works and is <b>easily usable</b> by students and instructors.”	“Campus location is <b>easily accessible</b> . “
<b>Current</b> layout is great.	<b>Current</b> location works.
Good facilities, good equipment and cleanliness. A good layout as well.	A place that can interactive within the campus and provides job opportunities, internships, volunteer service, etc.



# Mplus demonstration

## (Try 2)





# Attempt 2 Fit Statistics

## Chi-Square Test of Model Fit

Value	156.563	
Degrees of Freedom		98
P-Value	0.0002	

## RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.058	
90 Percent C.I.	0.041	0.075
Probability RMSEA $\leq$ .05		0.202

**Looks like this  
will work!**

## SRMR (Standardized Root Mean Square Residual)

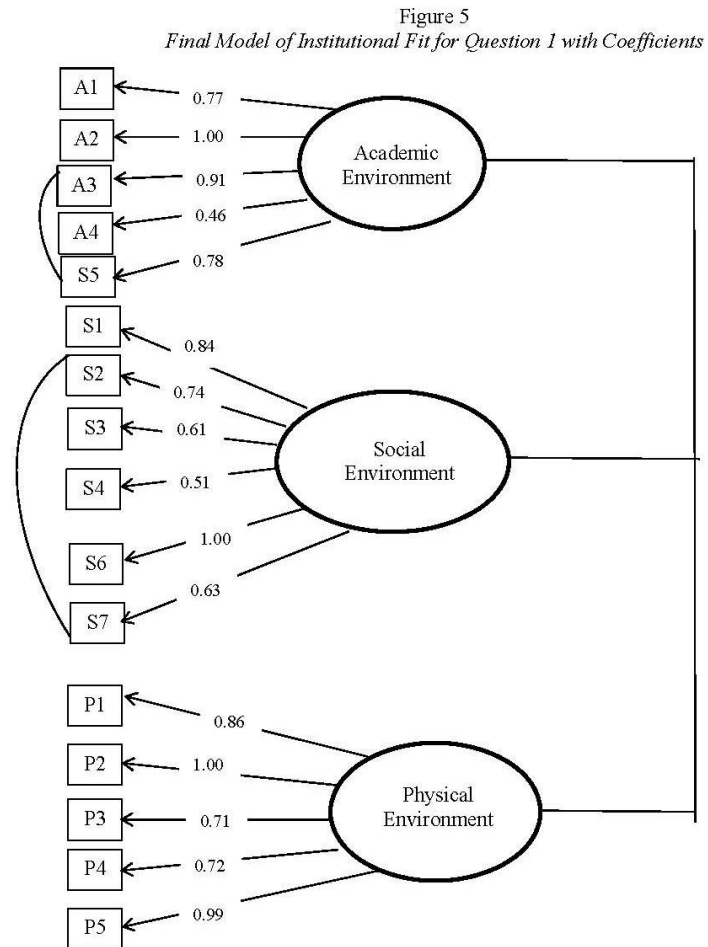
Value	0.064
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**So what did we do?**

# Final model

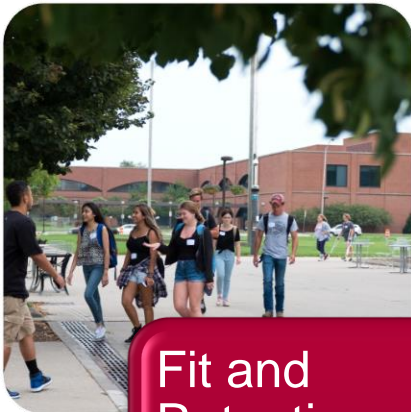
- Revised Academic Environment and Social Environment Fit
- Physical Environment Fit remains same
- Alpha levels were another story
- High interfactor correlations



*Original model adapted from Gilbreath, Kim, & Nichols, 2011*

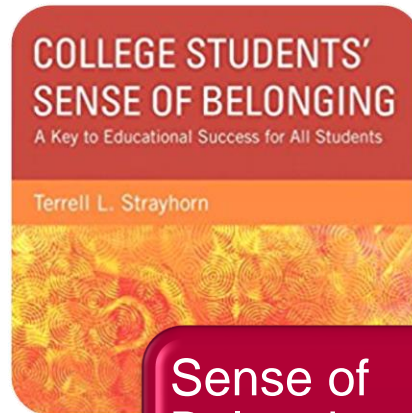


# Since Administration



## Fit and Retention

- Social Environment Fit affects retention
- Effect lower with SES



## Sense of Belonging

- Gathering more evidence
- Relationship with retention



## Better scales

- Physical Environment
- Academic Environment





**IUPUI**

FULFILLING *the* PROMISE