Longitudinal Studies: The Realities of Student Success

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Higher Learning Commission Annual Meeting

2 April 2012

Session Learning Goals

- Understand longitudinal tracking studies
- Be aware of tracking studies in community colleges
- Improve presentation of results
- Know where to get more information and training

Agenda

- What is longitudinal research?
- Data
- Examples
- Caveats
- Questions and Comments

What is longitudinal research?

- Repeatedly examines or observes the same set of students/subjects over an extended period of time
- A COHORT is a set of students who share one or more attributes
- Examine effect of time on variable being studied

More on Cohorts

Examples

- First-time, Full-time, Degree Seeking students
- Hispanic Females who took Developmental math
- Any student who earned a GED
- Students in Learning Communities

Once in a cohort, always in the cohort for that study!

Longitudinal research to look at student success

- Follow a cohort of students over time; e.g., students who entered in Fall term
- Reveal realities of success by looking at
  - How many completed developmental courses
  - How many completed college-level courses
  - How many persisted over time
  - How many eventually transferred or graduated

For every 100 new students who entered XYZ Community College (full and part-time)…

Only 72 return the next spring term (Spring 2007)

Only 54 come back the next fall (Fall 2007)

And 32 enroll two years later (Fall 2008)

Within three years,
10 earn an XYZ degree or certificate

Disaggregation

- Identify subgroups in cohort who are progressing or falling behind
- Identify gaps in performance among subgroups
- Determine when students stumble or leave

Evaluation

- Evaluate the effectiveness of interventions
  - Compare outcomes before and after the intervention was implemented
  - Compare outcomes for students who do and don't receive the intervention

To Review

Collect and analyze data over time

Focus on the cohort, not individual students

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Data

Basic Files

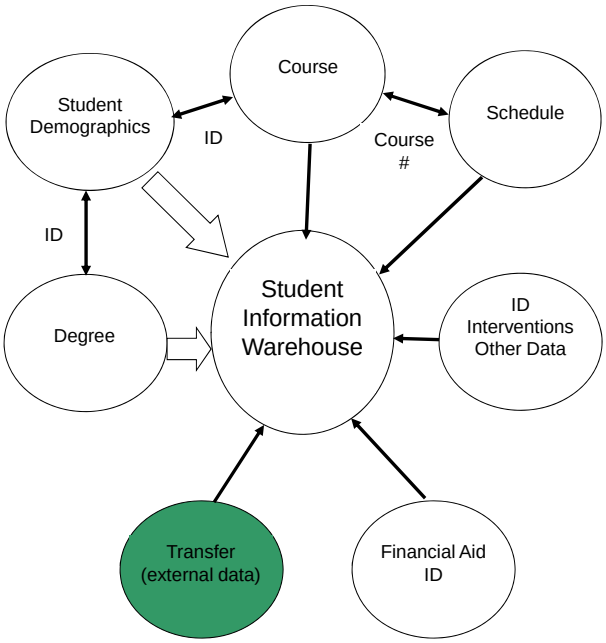
- Student Demographic File
- Semester Census Course File
- Semester Final Course File
- Schedule File
- Student completions/degree data

Frozen vs. Live Files

- Frozen – data frozen at specific point in time – return to data file to retrieve unchanged data
- Live – real time and ever-changing

External Data Files

- Transfer File
- Financial Aid File
  - Pell
- Interventions Files – like …
  - Tutor Center Contacts
  - Advisor Contacts
  - Attendance
  - Special Learning Aids (software, etc.)



Examples: Turning this

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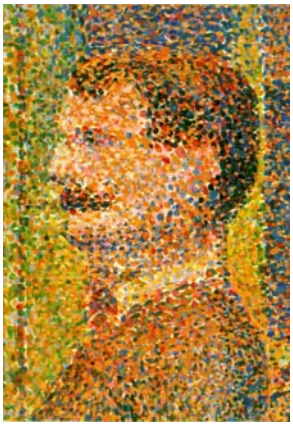
Into this



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Example #1
Patterns of Attendance

Track a cohort over time to look at patterns of attendance.

Create term variable

FA11 = 1

SU11 = 10

SP11 = 100

FA10 = 1000

SU10 = 10000

SP10 = 100000

Etc.

At Oakton we tracked Fall 06 entering students for 16 terms, ending with Fall 11. We included summer sessions.

Do the Math

Pattern = FA06 + SP07 + SU07 + FA07 … FA11

A student who attended all semesters would have a pattern value of:

1111111111111111

A student who attended just FA06 semester would have a pattern value of:

1000000000000000

Pattern Method

- An advantage of this method when completed is that it is only necessary to look at the value for the PATTERN variable to see each student's enrollment pattern.
- To find out the total number of students with each pattern it is only necessary to count the number of students with each PATTERN.

Quick Quiz

Pattern = FA06 + SP07 + SU07 + FA07 + SP08

What is the PATTERN value for a student who attended FA06, SU07, and SP08?

Answer = 10101

At Oakton, 1317 students have 411 different patterns of attendance

Pattern	Number	Percent
1000000000000000	248	19%
1100000000000000	169	13%
1101000000000000	62	5%
1101100000000000	58	4%
1111100000000000	37	3%
1101101100000000	26	2%

We can show this more clearly

Patterns of Attendance by Term

Students	FA06	SP07	SU07	FA07	SP08	SU08	FA08	SP09	SU09	FA09	SP010	SU10
248	■											
169	■	■										
62	■	■		■								
58	■			■	■							
37	■	■	■	■	■							
26	■	■		■	■		■	■				
24	■	■	■	■	■	■						
20	■			■								
19	■	■	■									
18	■	■		■	■	■						
17	■	■		■	■		■					
13	■	■	■	■								
11	■	■		■	■	■	■	■				
10	■	■	■	■	■		■					
9	■	■			■		■					
9	■	■		■	■	■	■					
9	■	■	■	■	■	■	■	■				
8	■	■		■			■					
8	■	■		■	■		■	■		■	■	
7	■			■	■							
7	■	■		■	■		■	■	■			
7	■	■	■	■	■	■			■			
6	■	■					■					
6	■	■	■	■	■	■	■					

61% of students followed these patterns

✓**Cohort 2006**

Example #2
The Developmental Climb

- Track cohort over time to look at students' progress through developmental education and a gateway, college-level course in the discipline.
- Cohorts were Fall 06 entering students who placed into developmental courses. Were tracked for three years.

Progress & Success
Developmental to College-level Gateway Course
Initial Placement in Developmental

Placement	Number Placed Dev	Took Dev Course	Succeed in Gateway Course	Gateway Success (of those taking dev)
Writing	269	179	101	56%
Math	566	379	75	20%

Progress & Success
Developmental to College-level Gateway Course
Initial Placement in Developmental

Placement	Number Placed Dev	Succeed in Gateway Course
Writing	269	101
Math	566	75

Comparing Longitudinal and Snapshot Data

Initial Placement in Developmental Math
Percent Successful

	Longitudinal	Snapshot
Timeframe	3 years	Fall 2006
Students	Fall 06 entering cohort	All students enrolled Fall 06
Math 060: Dev 2	61%	58%
Math 070: Dev 1	42%	52%
Math 110: Int. Algebra	31%	59%
Math 125: College gateway	20%	73%

How do we explain the differences?

	Longitudinal
Timeframe	3 years
Students	Fall 06 entering cohort
Math 060: Dev 2	61%
Math 070: Dev 1	42%
Math 110: Int. Algebra	31%
Math 125: College gateway	20%

- Follow the same students for 3 years.
- 61% who placed into Math 060 took & passed it.
- 42% who placed into Math 060 took & passed Math 070.

Only 20% of cohort students who placed into Math 060 succeeded in Math 125, the College gateway course

How do we explain the differences?

	Snapshot	• Look at <u>all</u> students who took each course in Fall 2006. • 58% who took Math 060 passed it. • 52% who took Math 070 passed it.
Timeframe	Fall 2006	
Students	All students enrolled Fall 06	
Math 060: Dev 2	58%	
Math 070: Dev 1	52%	
Math 110: Int. Algebra	59%	
Math 125: College gateway	73%	

We looked at pass rates in one term for all students who took the course that term, regardless of students' initial math placement or term at the College

Example #3
Persistence of GED Students

Track a cohort of students admitted with the GED to examine their persistence patterns and success.

The Slot Machine

	SP09	*FA09*	*SP10*	*FA10*	*SP11*	*FA11*
ID	PERS	PERS	UNKN	UNKN	PERS	UNKN
ID	PERS	PERS	**UNKN**	**UNKN**	PERS	UNKN
ID	PERS	PERS	**STOP**	**STOP**	PERS	UNKN

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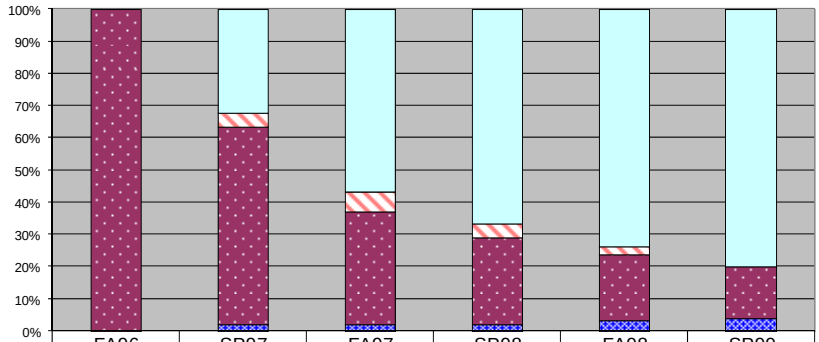
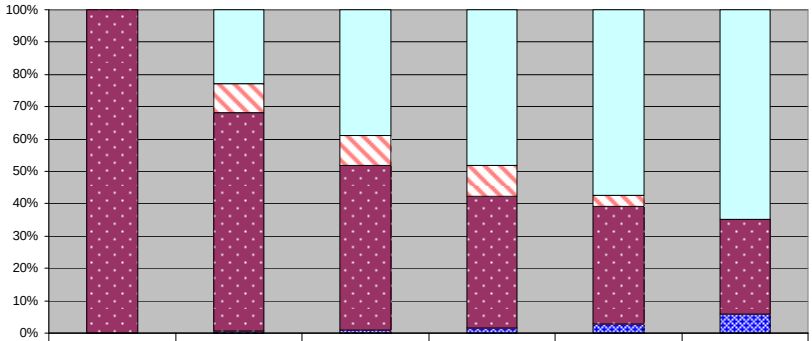
FA96 New BPCC Students with GED (n=161 20.5%)



	FA96	SP97	FA97	SP98	FA98	SP99
Unknown		32.3%	57.1%	67.1%	73.9%	80.1%
Stop Out		4.3%	6.2%	4.3%	2.5%	0.0%
Persisted	100%	61.5%	35.4%	27.3%	20.5%	16.1%
Completer		1.9%	1.9%	1.9%	3.1%	3.7%

FA96 New BPCC Students with no GED
(n= 626 79.5%)



	FA96	SP97	FA97	SP98	FA98	SP99
Unknown		22.8%	38.8%	48.2%	57.5%	64.7%
Stop Out		8.9%	9.3%	9.6%	3.4%	0.0%
Persisted	100%	67.7%	51.1%	40.7%	36.3%	29.4%
Completer		0.5%	1.0%	1.6%	2.9%	5.9%

Example #4
Persistence and Financial Aid

Track a cohort of students and compare persistence between those who received or did not receive financial aid.

- Any student that ever got a Pell grant
- May not have had a grant during the study semester

Cohort Comparison Financial Aid = NO					
	FA06	**FA07**	**FA08**	**FA09**	**FA10**
N=	299	425	332	302	225
UNKN	70%	74%	75%	77%	76%
Persistence at BPCC	1%	3%	5%	4%	7%
BPCC Degree	6%	6%	2%	3%	1%
BPCC Certificate	3%	1%	1%	2%	0%
Transferred to Other College	10%	9%	11%	8%	11%
OC Degree	3%	1%	3%	0%	0%
Still at OC	1%	2%	2%	4%	6%
Transferred to Our State 2-year	8%	6%	3%	4%	4%
Transferred to Our State 4-year	1%	3%	2%	2%	2%
Transferred to OC Branch	1%	1%	0%	0%	0%

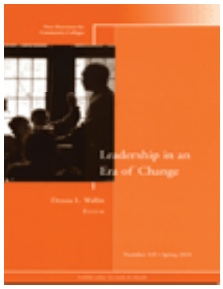
Cohort Comparison Financial Aid = YES					
	FA06	**FA07**	**FA08**	**FA09**	**FA10**
N=	382	391	399	410	454
UNKN	52%	55%	59%	58%	59%
Persistence at BPCC	5%	6%	6%	10%	12%
BPCC Degree	14%	11%	11%	11%	9%
BPCC Certificate	2%	5%	2%	1%	2%
Transferred to Other College	26%	22%	20%	18%	17%
OC Degree	12%	6%	5%	1%	1%
Still at OC	7%	8%	9%	10%	11%
Transferred to Our State 2-year	6%	4%	3%	2%	4%
Transferred to Our State 4-year	2%	1%	1%	1%	1%
Transferred to OC Branch	0%	0%	1%	1%	1%

Caveats

- Longitudinal studies tell what, not why
- Putting together the data is not easy
- It takes awhile for many to understand longitudinal studies and cohorts
- We are accustomed to looking at data by the term, not over time

For More Information & Training….

- Basics of Longitudinal Cohort Analysis, Rick Voorhees and John Lee (ATD Webpage)
- *Student Tracking*, New Directions for Community Colleges, Trudy Bers (2008)



AIR

DATA & DECISIONS® ACADEMY

Longitudinal Tracking for Institutional Research

This course provides an overview of longitudinal tracking of students, a research approach that examines or observes the same set of students over time to learn about the effects on one or more study variables.

Course developed by Trudy Bers, Fred Lillibridge, & Charles Van Middlesworth.

www.airweb.org

Your Turn
Questions or Comments