Integrating Student Tracking and Feedback to Guide Student Success

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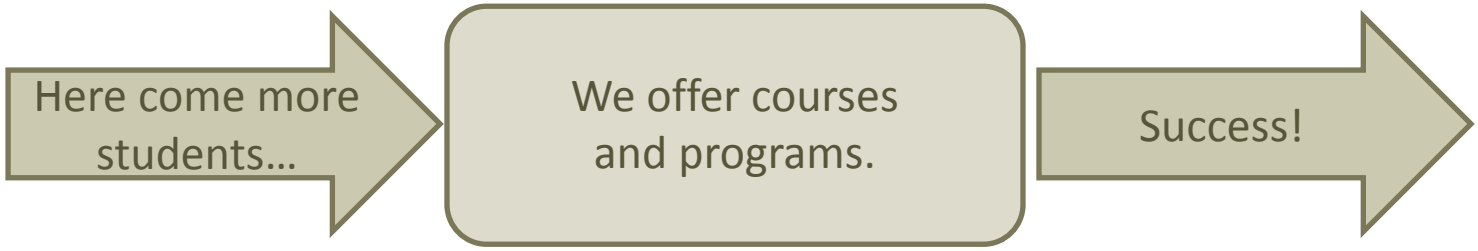
The Student Success Imperative

- New era of performance-based funding.
- National enrollment decline – new emphasis on retention.
- Accreditation expectations – criterion component 4.c.
- The basic fact is, we need to provide all of the guidance, support and assistance to ensure that our students succeed.

> "Retention affects the entire campus community. All members of the college community need to be committed to the welfare of the student and have a stake in the success of policies and practices that reduce student departure."
>
> - J.M. Braxton, A.S. Hirschy & S.A. McClendon

The Typical Guiding Framework in Much of Higher Education

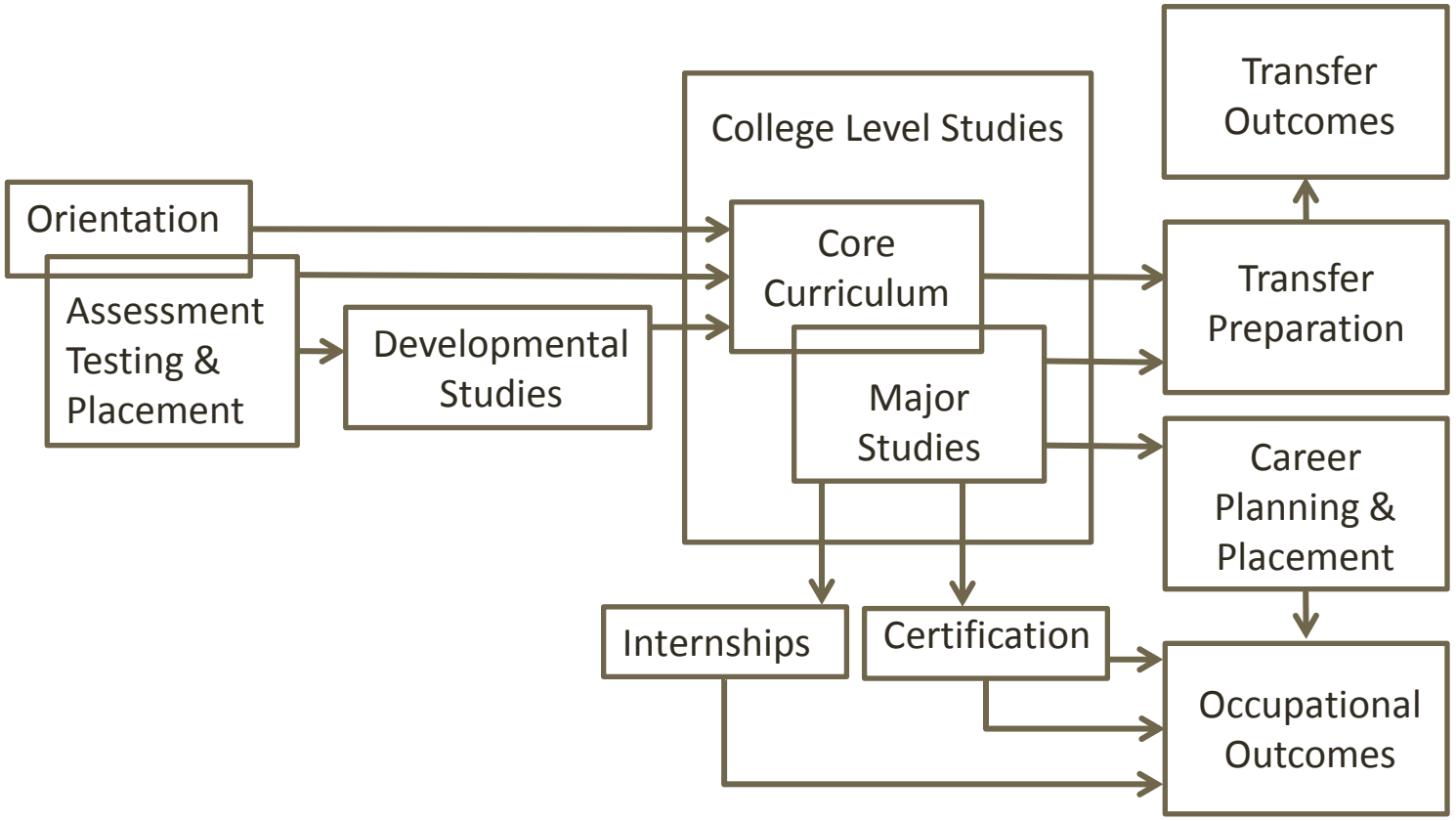


- Assumes that success is a default outcome. It isn't.
- When "Success!" doesn't occur, typical response is to pour more advising on the situation… or better yet, try the flavor of the day in retention.
- Guiding framework needs to help students navigate through a series of educational transitions, from Point A ("I'm here at college for the very first time") to Point B ("I've successfully completed what I came here for").

Objectives of SIPI Framework

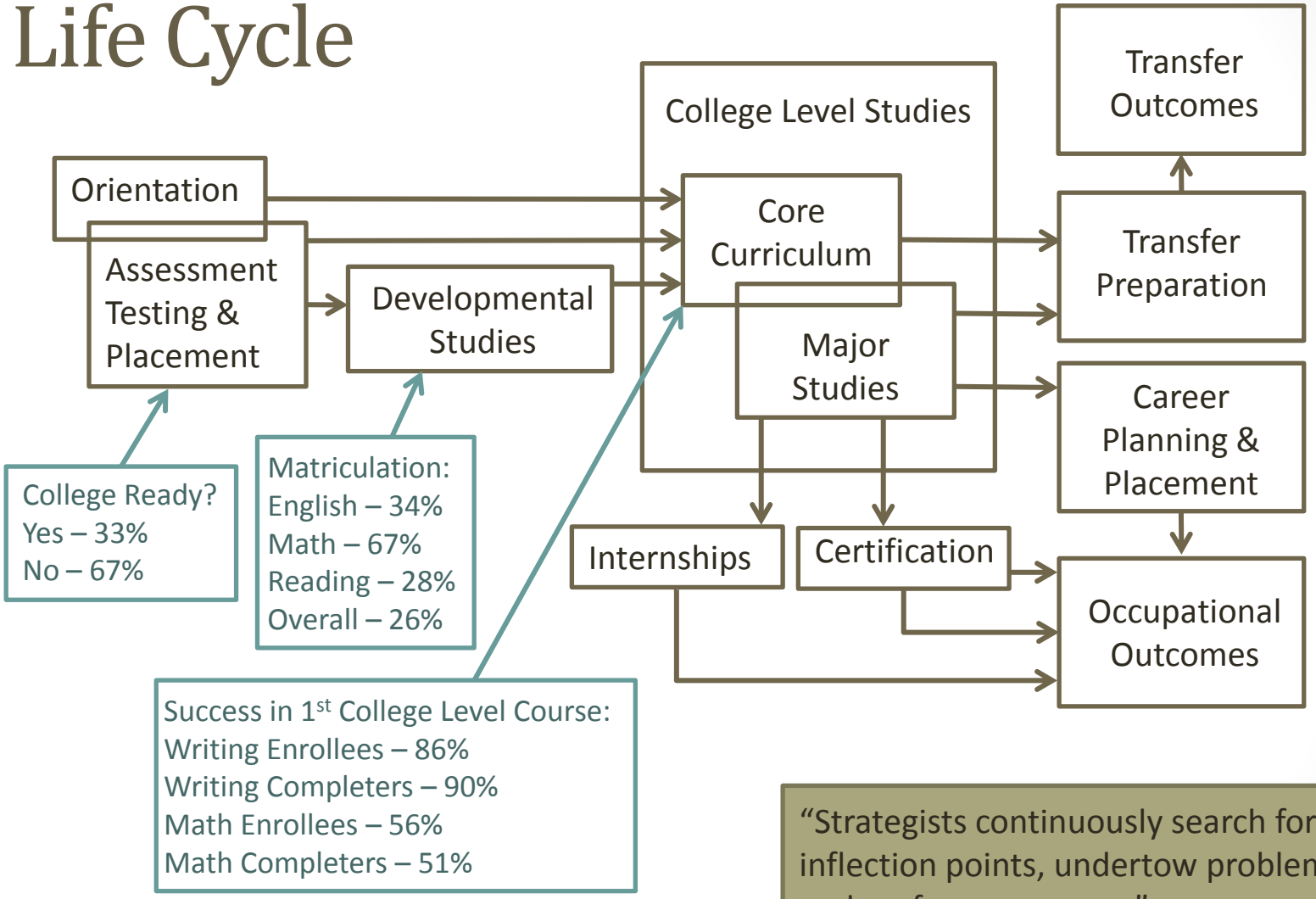
- Conduct extensive student tracking.
  - Focus on the "student life cycle" to understand how effectively students are managing educational transitions.
  - Search for transitions where we're losing large numbers of students.
  - Use comprehensive student data to inform student success interventions.
- Conduct student feedback modeling
  - Understand why student leave college.
  - Provide support to meaningful segments of students, based on the needs of each segment.
- Integrate student tracking and feedback modeling to provide phased interventions and on-going support.

Mapping the SIPI Student Life Cycle



- Helps us understand varying paths and outcomes, and key educational transitions.

Operationalizing the SIPI Student Life Cycle



"Strategists continuously search for inflection points, undertow problems, and performance gaps."

- Bert C. McCammon

Operationalizing the SIPI Student Life Cycle

- Student Success Data Book
  - Uses 40+ measures of student success.
  - Longitudinal analysis (three year moving picture).
  - Cross-sectional analysis (nationally benchmarked).
  - Example:

	2014 Reporting Year		2015 Reporting Year		2016 Reporting Year	
Course Retention and Success Rate	**SIPI**	**US Median**	**SIPI**	**US Median**	**SIPI**	**US Median**
Retention Rate	87%	91%	87%	91%	87%	92%
Enrollee Success Rate	67%	76%	71%	76%	70%	76%
Completer Success Rate	77%	84%	81%	84%	81%	84%

  - Allows tracking throughout the SIPI Student Life Cycle.
  - When applied across the SIPI Student Life Cycle, inflection points, undertow problems and performance gaps emerge.

"If you're not playing to win, why keep score?"
- Billy Martin

Using Data to Trace Inflection Points

Graduation Rate (150%):	Fall-to-Fall Persistence:	Enrollee Success:
SIPI – 8% National CC – 23%	SIPI – 37% National CC – 49%	SIPI – 66% National CC – 75%
Our students are not graduating at an acceptable rate. Why?	*In part, because they're not returning from one term to the next. Why?*	*They're not succeeding at the course level. Let's look closely at the first term…*

All First-Term Students:	College Ready Students:	Not College Ready Students:
% earning any credits – 77% First-term GPA – 1.98 Enrollee success rate – 58% Enrollee retention rate – 82%	% earning any credits – 90% First-term GPA – 2.60 Enrollee success rate – 65% Enrollee retention rate – 84%	% earning any credits – 74% First-term GPA – 1.82 Enrollee success rate – 53% Enrollee retention rate – 81%

The first term is a relatively problematic experience. Almost a quarter of first-term students earn ZERO credit hours in that term, and have a GPA in the high "D" range. The problem is most severe for not-college-ready students. Unfortunately, most of our students are not-college-ready. What interventions would improve performance in that critical first term?

**Note: All data reported is from 2015.*

Identifying Relevant Interventions

- SIPI Student Success Library
  - Electronic and hardcopy resources available to all faculty/staff.
  - Key concepts, theories and frames of reference for improving student success.
  - Issue-specific working papers for improving student success.

> "In the world of action, what matters are not our theories per se, but how they help institutions address pressing practical issues of persistence. Unfortunately, current theories of student leaving are not well-suited to that task. This is the case for several reasons not the least of which is that current theories of student leaving typically utilize abstractions and variables that are, on one hand, often difficult to operationalize and translate into forms of institutional practice and, on the other, focus on matters that are not directly under the immediate ability of institutions to influence."
>
> - Vincent Tinto

Strategic Planning of Interventions

- 2015-2020 SIPI Strategic Plan
  - Aligned with student success framework.

Strategic Goal One:
The Southwestern Indian Polytechnic Institute will improve student success, guided by an institutional culture of evidence.

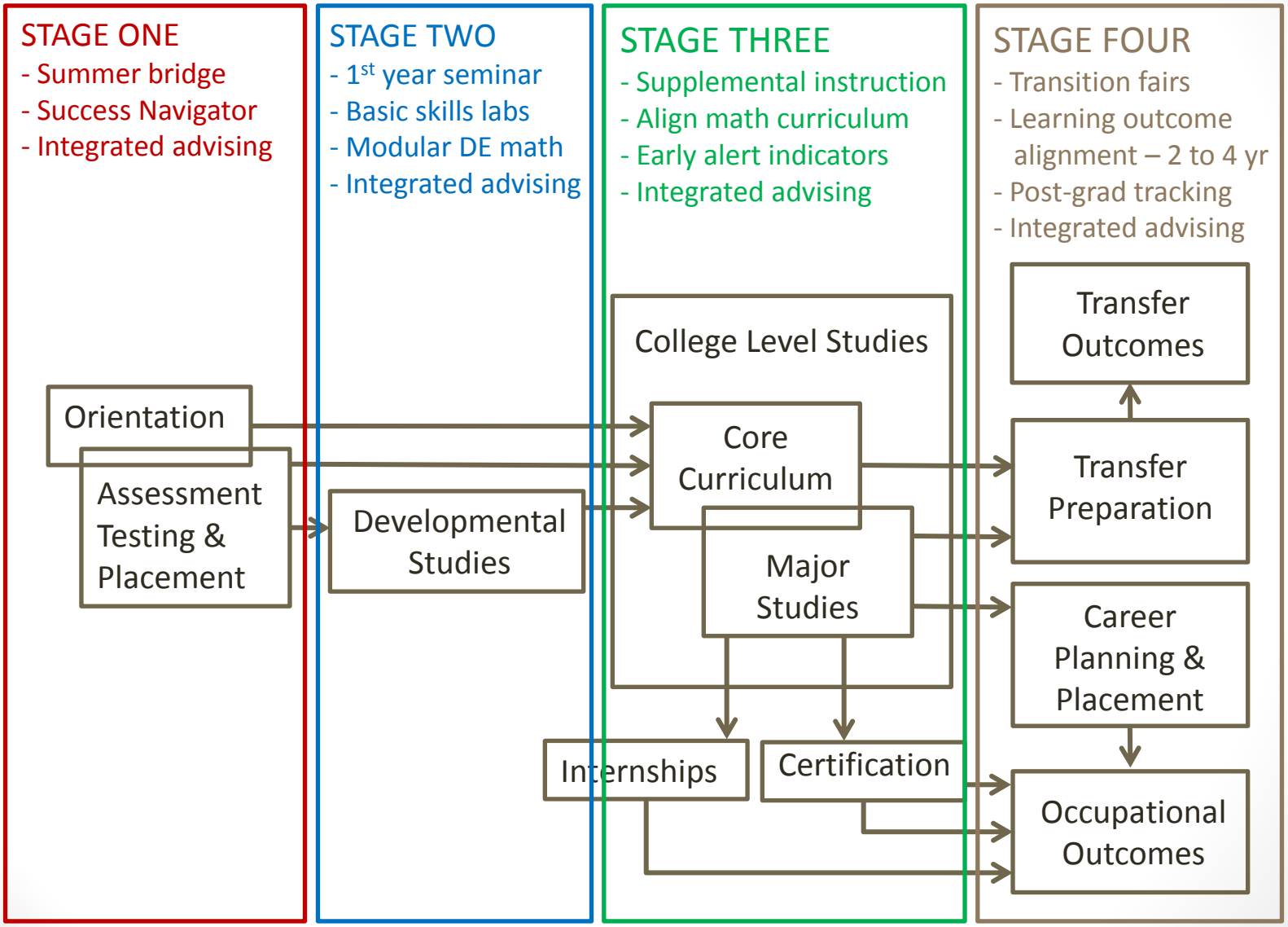
Strategic Objectives:

- Make better use of student tracking, student success, and feedback data to inform interventions that will ultimately improve retention, persistence, graduation rates, transfer rates and developmental education success.
- Develop systems to guide students through educational transitions into and out of the college, strengthening the advising function.
- Strengthen the general education program for all students, through academic programs and co-curricular offerings.

Strategic Planning of Interventions

- Expectations for acceptable strategic planning initiatives:
  - Initiatives must be innovative.
  - Initiatives must be collaborative.
  - Initiatives must directly or indirectly impact student success.
  - Initiatives should be justified by empirical evidence.
- Primary focus is on innovation.
  - Strategic plan is how we navigate from mission to vision.

Strategic Interventions



Student Feedback Modeling

- Model segments of non-returning students.
- Develop/bundle resources and narrowcast resources for each segment of students (based on attrition factors).
- Build a predictive model of non-returning behavior and score all incoming students with model.
- Ensure that all SIPI students are channeled to resources for their respective segments (with tertiary access to others).
- Model segments of course drop-outs (same methodology).
- Provide faculty with detailed data on course drop-out behavior, with resources to refine pedagogies and processes.

Mechanics of Feedback Modeling

Non-returner survey – Reasons that led students to leave the college early

	Reason A	Reason B	Reason C	Reason D	Reason E	Reason F	Reason G	Reason H	.	Reason M
Student 1	1	1	0	0	1	0	0	1	…	0
Student 2	1	1	0	0	0	1	0	0	…	0
Student 3	0	0	1	0	0	0	1	0	…	1
Student 4	0	0	0	1	1	1	0	1	…	1
Student 5	0	0	0	1	0	0	0	0	…	0
Student 6	0	0	0	1	0	0	1	0	…	0
…										
Student n	1	0	1	0	1	0	0	0	…	0

This matrix assigns a "1" if a student selected a particular reason for leaving, or a "0" if the student didn't select the particularly reason. This becomes our **X** matrix.

Correspondence Analysis

Double-center data in **X** by dividing each element by its geometric mean:

$X_{ij}^* = X_{ij} / (\bar{X}_{i.}\ \bar{X}_{.j})^{1/2}$, turning **X** into **X***

↓

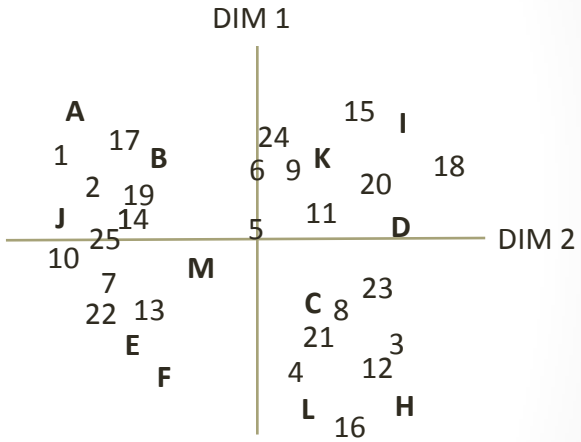
Singular Value Decomposition of **X*** yields **X*** = **UdV'** where

U = eigenvector of **X*X*'**
(summarizing rows of **X*** and may be interpreted as row coordinates)

V = eigenvector of **X*'X***
(summarizing columns of **X*** and may be interpreted as column coordinates)

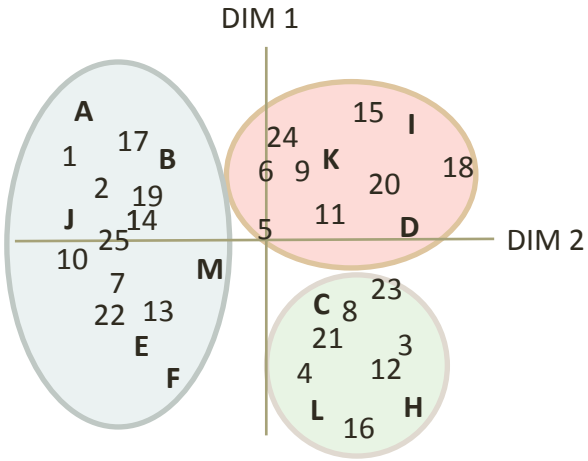
d = singular values
(related to the eigenvalues **X*X*'** and **X*'X***)

Non-returning students and reasons mapped into two-dimension space



Mechanics of Feedback Modeling

Cluster analysis identifies groupings or segments of non-returning students

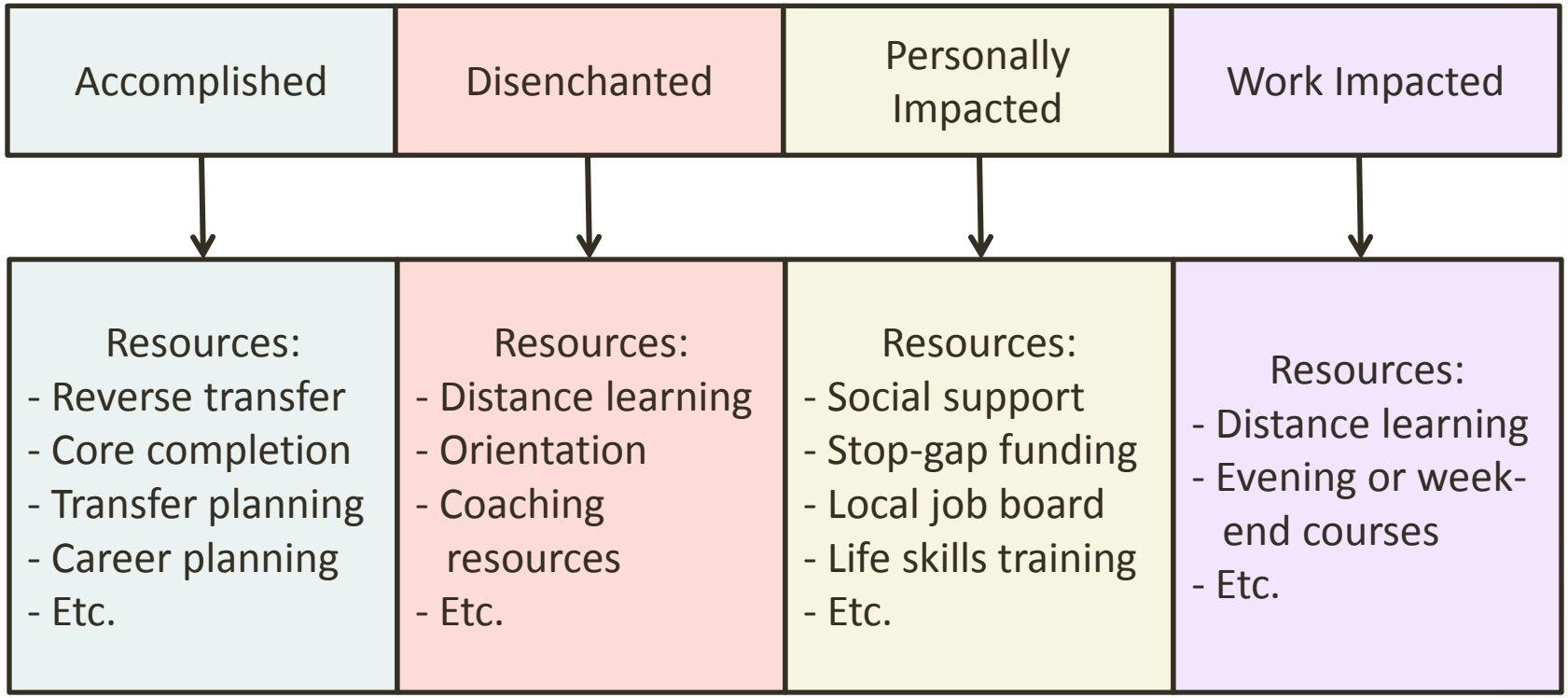


Now we have our attrition segments, and reasons or factors that led to each segment leaving college early.

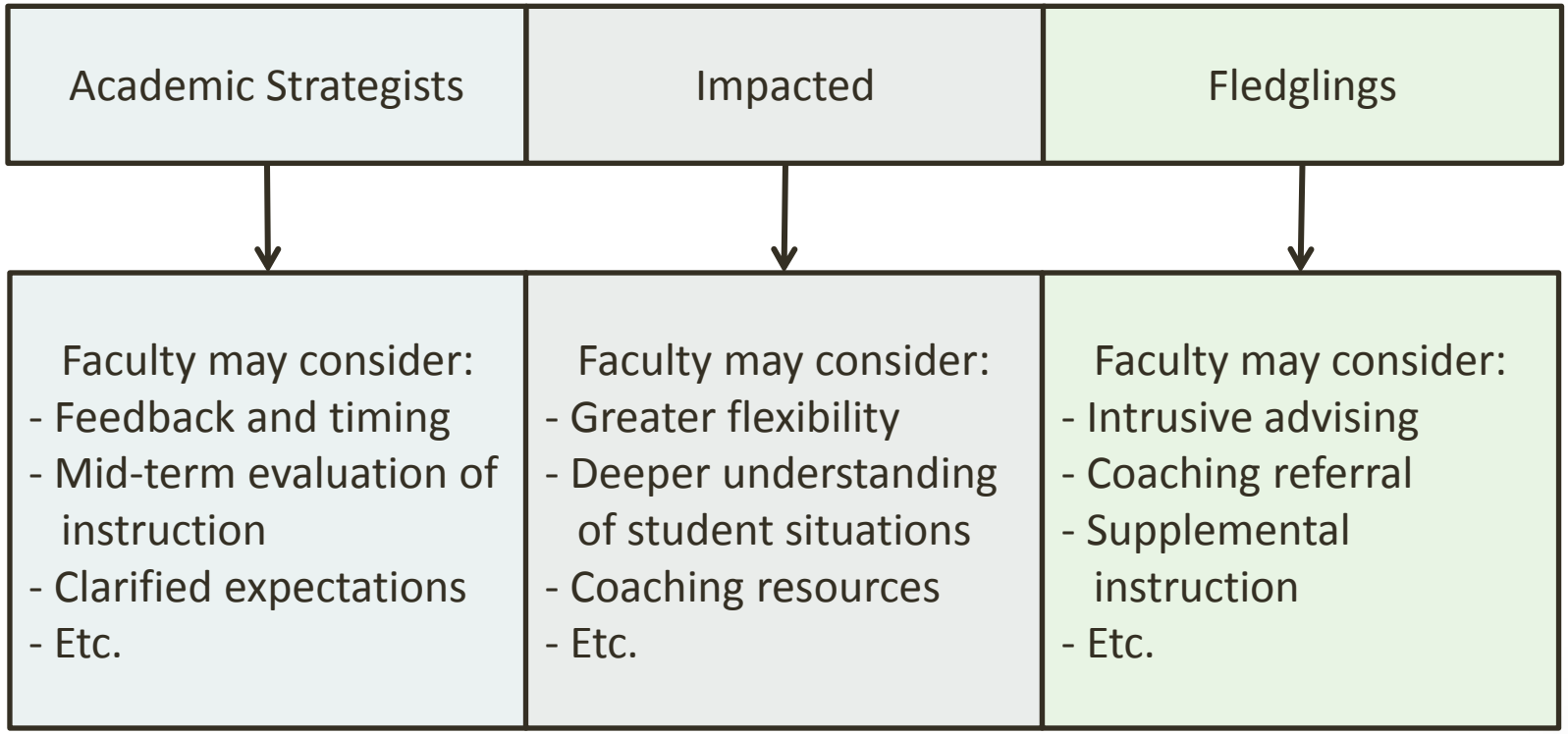
Demographic, behavioral and academic profiles of each segment are defined

Segment 1	Segment 2	Segment 3
X% of all non-returners	Y% of all non-returners	Z% of all non-returners
- Major reasons for leaving	- Major reasons for leaving	- Major reasons for leaving
- Demographics - Satisfaction - Engagement - Likelihood of returning - Academic indicators - Factors that would have allowed these students to stay at college - Etc.	- Demographics - Satisfaction - Engagement - Likelihood of returning - Academic indicators - Factors that would have allowed these students to stay at college - Etc.	- Demographics - Satisfaction - Engagement - Likelihood of returning - Academic indicators - Factors that would have allowed these students to stay at college - Etc.

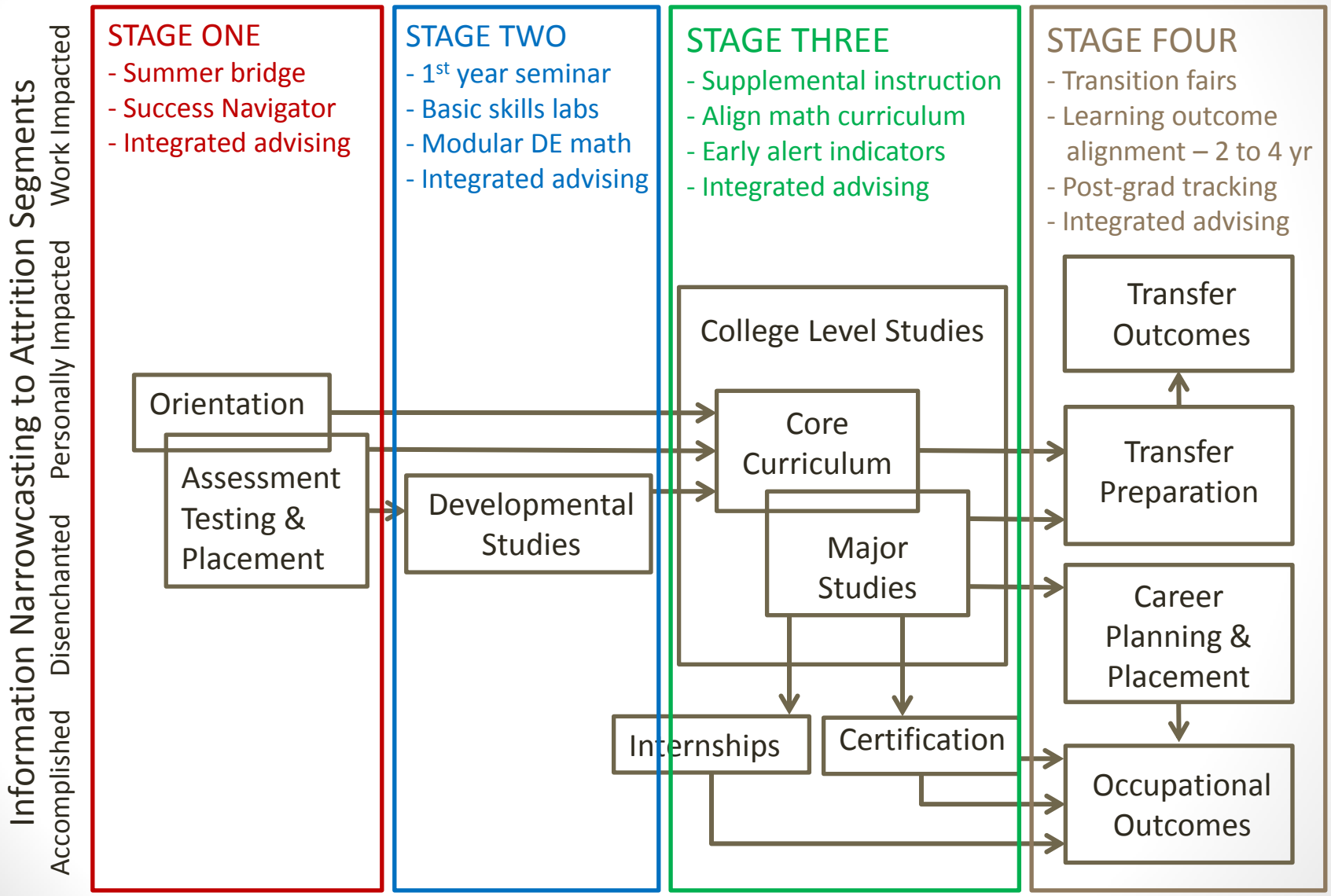
Segments of College Non-Returners & Possible Resources for Each



Segments of Course Drop-outs & Possible Resources for Each



Integrating Tracking & Feedback



So… How Is It Working So Far?

- Recall poor, stagnant results from fall 2010 thru summer 2015:

All First-Term Students:	College Ready Students:	Not College Ready Students:
% earning any credits – 77%	% earning any credits – 90%	% earning any credits – 74%
First-term GPA – 1.98	First-term GPA – 2.60	First-term GPA – 1.82
Enrollee success rate – 58%	Enrollee success rate – 65%	Enrollee success rate – 53%
Enrollee retention rate – 82%	Enrollee retention rate – 84%	Enrollee retention rate – 81%

- Consider improved results from fall 2015 thru summer 2016:

All First-Term Students:	College Ready Students:	Not College Ready Students:
% earning any credits – 87%	% earning any credits – 89%	% earning any credits – 83%
First-term GPA – 2.32	First-term GPA – 2.43	First-term GPA – 2.15
Enrollee success rate – 68%	Enrollee success rate – 70%	Enrollee success rate – 64%
Enrollee retention rate – 86%	Enrollee retention rate – 88%	Enrollee retention rate – 82%

- First-term success should cascade through the life cycle.
- Subsequent planning cycles will focus further down life cycle.

Questions or Comments?

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"A holistic, integrated, intentional approach to student success is needed; no longer are single programs enough to help students."
- John N. Gardner (paraphrased)

"We are continually faced by great opportunities brilliantly disguised as insoluable problems."
- John W. Gardner