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Analytic Appraoch to Determining Causes of Graduate Student Attrition

Cheryl Thompson
University of Nebraska Medical Center, cbthompson@unmc.edu

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Cheryl Bagley Thompson PhD, RN
University of Nebraska Medical Center

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Abstract/Purpose

Student data is collected for a variety of uses from application to graduation. Data is most often collected and stored in a fashion that supports single student data retrieval or mass processing of data, for uses such as preparation for graduation. Retrieving data for use in analytic reports is often more difficult. Student services staff may have difficulty explaining to technology staff the nuances required to meet their data needs.

One data use example is identifying circumstances leading to graduate student attrition. Data can be helpful in differentiating between course performance and personal issues as the cause of student attrition. The purpose of this poster is to provide the viewer analytic approaches to evaluate potential causes of graduate student attrition.

This poster will walk the viewer through a step by step process for obtaining data needed to answer student attrition questions. Hypotheses explored with these analyses included the following a) specific courses taken during the first semester were too challenging, b) specific courses regardless of when taken are more rigorous and c) voluntary withdrawal versus course difficulty.

All data are fabricated.

General Approach/Considerations

1) Propose Hypotheses
2) Identify data needed
3) Expect multi-step analysis
4) May need to add data later in analysis
5) Document what you do

Hypotheses

1) Courses taken first semester
2) Specific difficult courses
3) Poor grades versus voluntary withdrawal (personal circumstances)

First Steps

1) Establish permission to access data
2) Identify needed data
   a) Student name/identifiers
   b) Program actions
   c) Action dates
   d) Courses taken, semester, semester in program, grade
3) Query for all students in relevant program(s)
4) Identify unsuccessful students
   a) Know meaning of codes for successful and unsuccessful

Courses Taken First Semester

Obtain all needed data

Name	Program Action	Admit Year	Action Year	Elapsed Time
Smith, J	WADM	2016	2017	1
Melon, C	WADM	2016	2016	1
Detmer, S	WADM	2018	2018	1
Atkins, T	WADM	2018	2018	0
Jeffs, S	DISM	2014	2016	2
Gardens, M	WADM	2014	2015	1

Table above suggested table below

Name	Semester	Grade	Subject	Catalog	Admit	Drop
Smith, J	1	W	NRSG	600	August 16	May 17
Melon, C	1	W	NRSG	600	August 16	May 17
Detmer, S	1	B-	NRSG	600	August 17	May 18
Detmer, S	1	W	NRSG	601	August 17	May 18
Atkins, T	1	C+	NRSG	600	August 18	Dec 18
Atkins, T	1	A	NRSG	601	August 18	Dec 18

Tables above used to create table below

Admit Year	# Admitted	Year 0	Year 1	Year 2	Year 3	Total	% Withdrawn
10	39	3	1	2		6	15.4%
11	32	3	1	2		6	18.8%
12	56	7	3	2		12	21.4%
13	45	1				1	2.2%
14	37	1	2		1	4	10.8%
15	56	3	1	1	1	6	10.7%
16	42	2				2	4/8%
17	37	2	2			4	10.8%
	344	22 (6.4%)	10 (2.9%)	7 (2.0%)	2 (0.6%)	45	13.1%

Tables above used to create table below

Course	# Students Not First Sem	Not Passing	Not Passing %	# Students First Sem	Not Passing	Not Passing %
NRSG 600	220	100	45%	80	30	37%
NRSG 601	500					
NRSG 602	580	60	10.3%	60	40	18.2%

Specific Rigorous Courses

Name	Admit Term	Course	Grade	Withdrawal Date
Branch, M	2010	NRSG 600	A	2011
Branch, M	2010	NRSG 601	W	2011
Branch, M	2010	NRSG 602	W	2011
Copeland, J	2014	NRSG 600	A+	2015
Copeland, J	2014	NRSG 602	A-	2015
Elliot, M	2015	NRSG 605	A+	2017
Elliot, M	2015	NRSG 604	W	2017
Elliot, M	2015	NRSG 600	A	2017
Elliot, M	2015	NRSG 602	A	2017
Elliot, M	2015	NRSG 603	W	2017
Elliot, M	2015	NRSG 603	B	2017

Compare data with difficult course to left

Grade Given	Number of Students
B-	20
C+	14
C	9
W	62
Total	105

Total Course Enrollments = 2325
Non-passing grades = 4.5%

Voluntary Withdrawal vs Poor Grades

Students who withdrew from program

Semester	B-	C+	C	I	W	Total
1	4				14	18
2	3		1		7	11
3	2	1			2	5
4	1				3	4
5	1		1		1	3
6	1			1	1	3
8					2	2

Implications for Practice

1) Need to understand data
2) Use hypotheses to guide data analysis
3) It's an iterative process
4) In this fabricated analysis student course performance is not the probably cause of attrition and recommend advising and student support