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BACCALAUREATE DEGREE COMPLETION TIME FOR TWO-YEAR COLLEGE STUDENTS

AT THE UNIVERSITY OF MONTANA

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RESEARCH PROBLEM

Students choosing the two-year college system as an entry point for completing the baccalaureate degree may experience additional time for degree completion. The problem with this delay is the financial burden placed on students by incurring additional expenses and prolonging the time required to enter careers in their chosen discipline.

RESEARCH QUESTION

This non-experimental quantitative study seeks to answer the primary research question: Is there a difference in baccalaureate degree completion time for students using the embedded two-year college at The University of Montana, Missoula?

Independent Variable: Attendance at the two-year college

Dependent Variable: Baccalaureate degree time-to-completion

LEADERSHIP QUESTION

Have policy and initiatives (interventions) improved baccalaureate degree completion time for students?

MUS Transfer Policy (State)

Common Course Numbering: statewide catalog of courses

MUS General Education Core: single set of general education requirements for all students

College!Now: improve perception and offerings at 2-year colleges

High School Dual-Credit: early college for HS students

Administration/Faculty (UM)

Advising Plans & Advising Center: provide a clearly defined path for students (Tinto, 2005)

METHOD

Data Collection: Public Data Method

The study was purposefully designed to rely solely on publicly available data. The public data method uses those elements of the student record considered "Directory Information" by FERPA and the Office of the Registrar at the University of Montana.

UM has designated the following information about students as public (directory) information, which may be released to the public: Dates of attendance, School or College, Date of graduation and degree(s) received. IRB approval was obtained prior to initiating the research study.

METHOD

Coding and Measurement: Months to Completion

Four year completion = ~45 to ~47 months (yellow).

Four year plus an additional semester = ~48 to ~52 months (green)

Entry Yr	201430	201350	201370
201070	44.58	36.01	40.03
201030	51.94	42.97	46.98
201050	48.00	39.03	43.04

Code	Entry Dates		
	Month	Day	
201030	30	1	15
201050	50	5	15
201070	70	8	15

Caution: "Rounding Errors!"

Code	Graduation Dates		
	Month	Day	
201430	30	5	15
201350	50	8	15
201370	70	12	15

a priori Assumptions:

Alpha Level

$\alpha = 0.05$

Nominal level data measurement (rather than ratio)

Nominal data categories are more relevant in comparisons involving completion of academic semesters.

Eliminate transfer students

Students completion in less than 4 years is likely due to additional semesters completed at another institution.

Measure all two-year college students, not just AA degree completers
Some students choose not to complete the degree.

Sample Selection: Data Reduction Algorithm

The study examined eight years of attendance records at The University of Montana. An algorithm consisting of a series of SQL queries reduced the initial collection of attendance records from 215,386 elements to the 172 two-year college students graduating during AY2014. A sample size of 141 participants (following elimination of potential transfer students) were identified for this study.

FINDINGS

Of the 1886 baccalaureate degree student graduating during 2014, 172 (9%) used the two-year college in completing the degree at UM. Of these 172 Baccalaureate Degree completers, only 30 finished the AA degree while 8 finished the AAS degree.

Descriptive Statistics: Frequency Distribution

	45-47 months	48-56 months	57-59 months	60-68 months	69-71 months	72-80 months	more than 80 months
	4 yrs	4 yrs +sem	5 yrs	5 yrs +sem	6 yrs	6 yrs +sem	7 yrs or more
MC Sample (n=141)	23	35	69	81	97	104	141
UM Population (N=1508)	487	654	883	1012	1100	1167	1508

	45-47 months	48-56 months	57-59 months	60-68 months	69-71 months	72-80 months	more than 80 months
	4 yrs	4 yrs +sem	5 yrs	5 yrs +sem	6 yrs	6 yrs +sem	7 yrs or more
MC Sample (n=141)	16%	9%	24%	9%	11%	5%	26%
UM Population (N=1508)	32%	11%	15%	9%	6%	4%	23%

FINDINGS

Descriptive Statistics: Cumulative Frequency

	45-47 months	48-56 months	57-59 months	60-68 months	69-71 months	72-80 months	more than 80 months
	4 yrs	4 yrs +sem	5 yrs	5 yrs +sem	6 yrs	6 yrs +sem	7 yrs or more
MC Sample (n=141)	16%	25%	49%	57%	69%	74%	100%
UM Population (N=1508)	32%	43%	59%	67%	73%	77%	100%

Inferential Statistics: Non-parametric Test of Statistical Significance

	45-47 months	48-56 months	57-59 months	60-68 months	69-71 months	72-80 months	more than 80 months	n
	4 yrs	4 yrs +sem	5 yrs	5 yrs +sem	6 yrs	6 yrs +sem	7 yrs or more	adjusted
Observed Values	23	12	34	12	16	7	37	141
Expected Values	45.5	15.6	21.4	12.1	8.2	6.3	31.9	141
	11.15255	0.836787991	7.400716	0.000315	7.340947	0.086331	0.820913	
ChiSquare		27.64						
df		6						
p-value		0.0001						
effect size		0.198						

$$\chi^2 = \sum \left[\frac{(f_o - f_e)^2}{f_e} \right] \quad \text{Chi-Square} \quad \text{Effect Size} \quad r = \sqrt{\frac{\chi^2}{(N)(c-1)}}$$

ANALYSIS AND CONCLUSIONS

Using the Chi-Square as a goodness-of-fit test, it was determined there is a statistically significant difference in degree completion time between students using the two-year college and the overall UM population, $\chi^2 (6, n = 141) = 27.64, p = 0.0001$, therefore the null hypothesis is rejected, the effect size was found to be small, $r = 0.198$, ($r < 0.30$; Cohen 1988). The size of the sample is a shortcoming of the study, potentially influencing inferential statistical analysis. The recommended sample size for the population ($N = 1508$; Raosoft) is 307 (n)

Although only 16% of two-year college students complete the baccalaureate degree in four years (as compared to 32% of UM students), while 69% finish within 6 years as compared with 73% of all UM graduates.

The study fails to account for the unique characteristics, such as part-time student, of the non-traditional student population prevalent in two-year colleges. A study comparing differences in degree completion time using total credits completed could yield new information.

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