# EVENT HISTORY ANALYSIS OF ATTRITION AND DEGREE COMPLETION IN GRADUATE STUDIES

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*This study aimed to determine the factors influencing the student attrition and degree completion in Graduate Studies. Admitted graduate students from 2011 to 2016 at Pangasinan State University graduate programs were utilized. High occurrence of dropout was observed while degree completion is low. The median time-to-dropout was fifth semester and fourth semester for doctoral and master's programs, respectively. The median time to degree completion was eight semesters for doctorate students and six semesters for master's students. No significant factor influences on the degree completion and student attrition in master's studies. Age is positively associated with the odds of completion for doctorate students but no significant factors affects completion. The implication of this study is useful in developing retention and interventions program in the graduate programs.*

INTRODUCTION

Ensuring the student retention and graduating in timely manner in advanced studies are major interests of all universities. By convention, students who graduate "on time" from their respective degree programs is a central factor not only to measure success of the students but the institution as well. Retention and graduation rates have long been used as performance measures for evaluating the institutional quality of colleges and universities. Several factors are identified by some researchers such as student personality issues and motivations (Deike, 2003); demographic and institutional factors (Acton, 2015); and socioeconomic aspect (Bound, et.al 2012). Meanwhile, study of Bates (2012) reported that grants, scholarships, and student loans – do not have a direct impact on degree completion. Whereas, Wang (2009) also concluded that female students are more likely to graduate than men which being contracted by the result of Koker & Handel (2003) that there is no effect for gender on the degree completion. It has also been revealed that older students are less likely to complete their degrees (Freeman, 2006; Henry & Knight, 2003), while study of Koker & Handel (2003) as cited by Hutton, R.S. (2015) suggests there is no effect of age.

Hence, this study was formulated to assess the pattern and factors that affects attrition and degree of completion of graduate students It is interesting to analyze whether there are differences in the degree completion by programs and identifying programs with the highest dropout rate and degree completion.

METHODS

The respondents of the study were students taking up their master's and doctorate degree in PSU- School of Advanced Studies who were enrolled and started studying their course during the School Year 2010-2011 to 2011 – 2012. It can be noted that shifters and transferees during that school year were not included in the study. Predictor variables that were selected in this study are: age, sex, address, civil status and course. The study employed event history analysis to examine the sequential nature of graduation behavior and student retention in graduate studies.

RESULTS

Table 1 provides a summary on degree completion and student attrition of each master's and doctorate Degree. Smallest percentage in the degree completion were observed for Master of Arts in Education Management (MAEd). Small number of graduates were due to a high number of dropout which account at about 80% of the total enrollees of MAEd. Moreover, courses which includes MACE and MDM had all its enrollees dropped or withdrew over six – year period.

Notably, of the total 27 enrollees during SY 2010 – 2011 to SY 2011 – 2012, only 10 were able to graduate their Ph.. D.  and 16 or about 60% have dropped over the six – year coverage.

Table 1. Summary on Degree Completion by Master's Degree (N=250)

| | program | n | status of degree completion | | | | student attrition | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | graduated | | not graduated | | dropped | | not - dropped | |
| | | | f | % | f | % | f | % | f | % |
| Master's | MAED | 208 | 31 | 14.9 | 177 | 85.1 | 165 | 79.3 | 43 | 20.7 |
| | MACE | 12 | 0 | 0 | 12 | 100.0 | 0 | 0 | 12 | 100.0 |
| | MDM | 12 | 0 | 0 | 12 | 100.0 | 0 | 0 | 12 | 100.0 |
| | MME | 11 | 2 | 18.2 | 9 | 81.8 | 8 | 72.7 | 3 | 27.3 |
| | MSA | 7 | 2 | 28.6 | 5 | 71.4 | 5 | 71.4 | 2 | 28.6 |
| Doctoral | Ph. D | 27 | 10 | 37.0 | 17 | 63.0 | 16 | 59.3 | 11 | 40.7 |
| | Ed. D | 25 | 4 | 16.0 | 21 | 84.0 | 19 | 76.0 | 6 | 24.0 |

The survival function was generated to examine the chronological ordered plot of survival probabilities over time. Figure 1 illustrates the cumulative summary of the proportion of students who have not graduated. As shown in the figure, all courses have no observed degree completion at the beginning of the study period which is simply expected. A consistent drop of probability can be observed from the start of the 3rd semester until the 12th semester – period. Moreover, censored observations were observed at the start until the eight semester. It can be observed also that the cummulatibe probility of survival for Ph. D. had decrease from the 6th semester period until the 9th semester. For Doctor of Educaton, a complete fall of survival probability was observed on the eight semester. This indicates that the last student who took Ed. D. had experience the degree completion on the eight semester period.
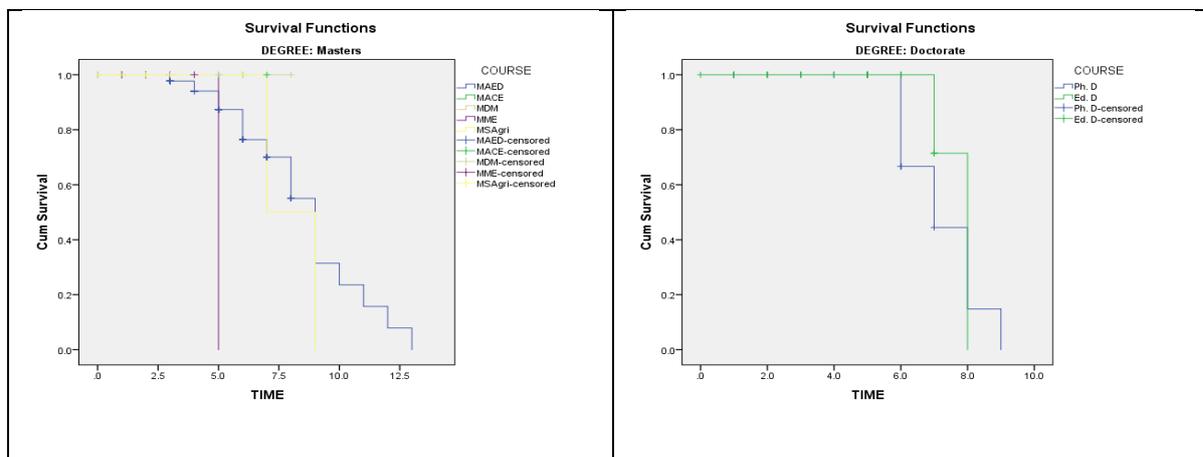


Figure 1. Cumulative Survival Function of degree completion

Consequently, Figure 2 provides the cumulative survival plot of student attrition among graduate students. As shown in the figure, all master's courses have an observed drop – out at the beginning of the study period. For MAEd, the horizontal line from the 8th to 13th semester indicates that there were still students enrolled and have not experienced the event (dropped) during the said semester. The figure also reveals that generally, Ph.D. program had a higher survival probability of student retention compared with the Ed. D. Program.
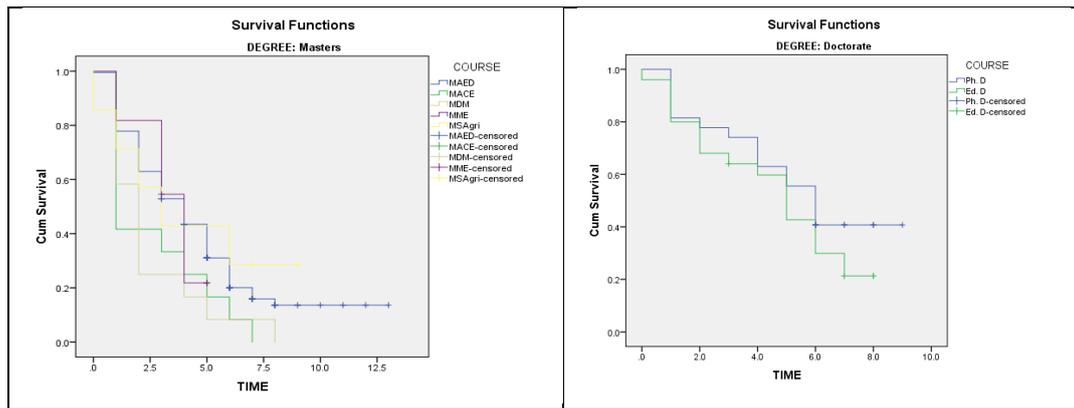
Figure 2. Cumulative survival function of student attrition

To determine the predictors to degree of completion, the parameter estimates generated from the logistic regression show that predictors included in the model were found to be not significant to the degree completion of students. These predictors are age, sex, address and civil status. This implies that degree of completion of the students. Same results also was found in the student attrition in Master's degree.

However, in Table 2 student attrition for the doctorate degree is significantly affected by age of the doctoral student. The parameter estimates reveal that for each additional year in age at enrolment, the conditional odds of departing in each semester increased by 4.0% (OR = 1.040, 95% CI[1.002, 1.008]).

Table 2. Cox's Proportional Hazard Model of Student Attrition for Doctorate Degree

| VARIABLE | B | WALD | SIG. | ODDS RATIO | 95.0% CI FOR EXP(B) | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | | | LOWER | UPPER |
| Sex | -.661 | 3.415 | .065 | .516 | .256 | 1.041 |
| Course | -.199 | .310 | .578 | .819 | .406 | 1.654 |
| Age | .039 | 4.222* | .040 | 1.040 | 1.002 | 1.080 |
| Address | -.126 | .086 | .769 | .882 | .380 | 2.044 |
| Civil Status | .542 | 2.226 | .136 | 1.719 | .844 | 3.503 |

Note: Reference category for categorical predictors: *Sex – Female, Course - MS Agriculture, Address – Outside Pangasinan, Civil Status – Married*.
Significant at 5% level

DISCUSSION

Minimal number of degree completion were observed with most of the graduates came from Master of art in Educational Management and Doctor of Education. Specifically, there were a total of 49 out of the 302 respondents graduated within the covered period. Of these number, 35 finished their master's degree while 14 respondent completed their doctorate degree. A total of 237 students who dropped out from their graduate students of which there are 202 master degree out of 250 while remaining 48 respondent have either graduated or still presently enrolled and more than two – thirds of doctorate students. This result indicated a high number of drop outs were found over the six – year coverage. Results showed that master's and doctoral students are most likely to complete their degree on their six and eight semesters, respectively. Moreover, students regularly dropped on their fourth semester for master's and fifth semester for Doctoral students.

On the survival curves presented in Figures 1, it can be observed that there is no significant difference on the survival curves of degree of completion across Master's and Doctoral degree programs. Though Master of Arts in Management Engineering had the smallest survival time among Master's degree program with five semesters. Meanwhile, Master of Arts in Agriculture had the

most number of semester to be taken to complete the degree with a median survival time of seven semesters. Since there were no observed event for both MACE and MDM, we cannot determine the median survival of these course. The figure also indicate that Ph. D. degree had a least median survival time of degree completion with 7 semesters. Furthermore, the overall median survival time for the doctorate degree is 8 semesters. Generally, a Ph. D. or Ed. D.  students are given at least 3 years complete their degree with a maximum residency of 6 years. Failure to comply with the said residency period shall be given a 9 – units' refresher course which account to 1 – semester period.

The results in Figure 2 also indicated that there is a significant difference on the survival curves of student attrition in Master's degree programs. Specifically, MAEd and MME shared the same median survival of drop out for 4 semesters while Master of Arts in Computer Education had the smallest median survival time of 1 semester. This indicates that MACE students tend dropped at the after finishing one semester. However, along Doctoral degree programs there is no significant difference on the survival curves observed.

Lastly, age, sex, address, course, and civil status were not a significant predictors of time to degree completion and student attrition in master's studies. Also, these were also not found to be significant predictor of time to degree completion in doctoral studies. On the other hand, age was found to have a significant effect in the degree completion in the Doctoral studies.

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