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Does the Role of Supervisors Determine Doctoral Students' Success?

Budi Santoso, Indra Fahrizal, Marsofiyati, Agus Wibowo
Faculty of Economics, Universitas Negeri Jakarta
Corresponding email: budi.santoso@unj.ac.id

Abstract: The purpose of this study was to analyze the effect of the role of supervisor and procrastination on the success of doctoral studies. The research sample was 149 alumni of the doctoral program in Indonesia who were taken randomly. A causal study using SEM PLS was implemented with Multi Group analysis (MGA) based on workgroups between lecturers and non-lecturer employees. The results of this study indicated that the supervisor's role has a positive effect on the success of the study both as a whole and per group. The role of the supervisor has a positive and significant effect on general procrastination but differs within the group. For lecturers, it is not significant, while for non-lecturers is significant. Procrastination as a whole sample has no significant effect on the success of the doctoral study, as well as within the group. This can be concluded that the supervisor's role plays an essential role in increasing the success of doctoral students' studies.

Keywords: Success of study, role of supervisor, Procrastination.

INTRODUCTION

Completing a doctoral program is a challenging endeavor (van Rooij et al. (2021), and approximately 70% of those who take doctoral or Ph.D. program cannot complete their studies (Hill & Jones, 2012). Similarly, Castello et al. (2017) revealed that a third of the sample of enrolled doctoral students had the potential to drop out. In the Netherlands, only 10% of students complete their doctoral study within four years, and in general, the average completion time is five years (van de Schoot et al., 2013). Andriopoulou and Prowse (2020) argued that the low success rate of doctoral completion and the length of time students take to complete a Ph.D. thesis has been a significant concern for the last 50 years. Some reports explain that estimated completion rates vary from 50% (Wollast et al., 2018) to 83% (Spronken-Smith et al., 2018; Wright & Cochrane, 2000).

The doctoral program in Indonesia takes place on private and government-owned universities administering the doctoral program, which has got permission from the government. Almost all doctoral students in Indonesia hold employee status similar to that in Scandinavia, the Netherlands, and other countries (van Rooij et al., 2021) and take their doctoral programs while working. Therefore, the candidates need extra effort to complete their studies. The variables of age, place of work, previous colleges affect the success of student studies at a significant level of 10%. At the same time, the most dominant factor is the workplace (Nugraha, 2014). Another study remarked that success in higher education is determined by students' tenacity, progress towards achievement, and timely graduation (Ganem & Manasse, 2014).

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The Indonesian government defines a doctoral or Ph.D. program as an academic education intended for graduates of a master's program or equivalent who are expected to discover, create, and contribute to the development and practice of Science and Technology through reasoning and scientific research. The success of doctoral education in Indonesia refers to standards with criteria that regulations issued by the government guides, such as graduate competency standards, learning outcomes, and graduate quality standards (Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 3 of 2020).

One measure of success in higher education is the graduation rate of students both in terms of the percentage of graduates and the time or period of study of graduates. In doctoral education, the scheme process of mentoring by supervisors becomes essential in the success of doctoral students' studies. Referring to Rooij et al. (2019), the guidance process contains the quality of the relationship and the totality in completing the dissertation between the student and the promoter. Freedom and involvement in the choice of project topics are closely linked to the supervisor's field of research expertise. The guidance process is positively related to student satisfaction and negatively related to students' intention to quit. Belavy et al. (2020) added that a conducive research environment is pivotal to supporting students to produce more publications with a high impact factor.

On the other hand, the individual aspects of students with various psychological problems and other personal problems will hinder or accelerate the process of successful study. Thus, providing supervisors with an appropriate academic task load should be the main point if the university wants to increase its doctoral candidates' graduation rate and satisfaction (Belavy et al., 2020). The pattern of effective doctoral students' guidance requires complex interactions between students and their supervisors. The role of a supervisor, in general, is threefold: providing advice or advice to students, monitoring academic progress, and acting as a mentor, often acting as a counselor. Supervisors provide guidance, instruction, and encouragement in their mentoring research activities and take part in the evaluation and inspection of performance progress. Supervisors need to direct students to comply with program requirements and ensure their students will complete their studies, both in terms of time and the results of a qualified dissertation.

The scheme of modern doctoral education has changed the old way of doctoral education. Fillery-Travis et al. (2017) summarized the literature surrounding this phenomenon and emphasizes that the doctoral education process is a transformational process, a process that instills ideas about the employability of academics. They argue that the traditional doctoral education scheme adopted by many universities is considered too narrow. It is now a debate that modern doctoral education challenges traditional doctoral education, which only focuses on knowledge transfer and knowledge creation (Muller, 2009).

Many doctoral programs with high dropout rates, delays, and dissatisfaction of Ph.D. students with their mentoring process, becoming a common problem in doctoral education. Rooij et al. (2019); Lee and McKenzie (2011) argued that to intensify the accountability of academic work internationally, pressure needs to be given to various parties, including individual supervisors, departments, and universities, to evaluate and continuously improve the quality of supervision to

doctoral candidates. The current evaluation tools are generally focused on the departmental level rather than the individual level (supervisor) and are primarily quantitative in nature, in the form of graduation rates and dropout rates.

The candidate's relationship with a supervisor is at the core of the successful implementation of the doctoral program. Ideally, a doctorate would be viewed in terms of the desired result, an achievement process that results in a dissertation that can be published internationally in addition to the award of a doctorate or Ph.D. degree. The keyword of the relationship pattern between supervisor and candidate is communication. The pattern of this relationship should be an open, honest and professional interaction between students and supervisors, based on mutual respect, trust, and goodwill (Ives & Rowley 2005). The role of the supervisor is expected to encourage the success of the students' studies, assisting with various problems in their study process, both from the aspect of academic guidance and psychological encouragement.

Lee (2008) concluded that there is a need for modern doctoral programs to offer excellent opportunities and challenges for universities in reviewing their provisions for supervisory roles. However, its implementation will be faced with a formidable challenge. The existence of cultural differences in the workplace will cause conflicts between supervisors and academic supervisors. Likewise, there will be conflicts due to cultural differences between various disciplines. Research shows that various factors are associated with doctoral success but are rarely studied. The most crucial thing in developing the supervisor role of a modern doctoral program is the support of an organization or institution when developing a supervisory role enhancement program. (Lee, 2008). The current literature concentrates much on identifying the importance of supervisor effectiveness, where supervisors need to extend themselves by referring to the enculturation, mentoring, or parenting functions in promoting student success (Pearson & Brew 2002; Wisker et al., 2007).

In addition to the pattern of relationships between lecturers and students, student procrastination as doctoral candidates are prevalent. Procrastination is irrational, but it is done voluntarily despite negative consequences. Procrastination is a common and widespread phenomenon, especially in academic contexts (Simpson & Pychyl, 2009; Klingsieck, 2013; Kim & Seo, 2015; Grunschel et al., 2016). There are three consequences of procrastination: procrastination, counter-productivity, and futility (Steel, 2007). Wirajaya et al. (2020); Bashir (2019) stated that academic procrastination is a delay that occurs in the educational environment. These assignments are often not carried out by students for various reasons (Ackerman & Gross, 2005). Procrastination behavior, when it becomes a habit and spreads, will make students enter a "procrastination friendly" academic environment (Svartdal et al., 2020), obtain comfortable with procrastination, and it becomes a habit. This procrastination habit became a problem when they encountered more intense and challenging work (Ferrari & Johnson, 2015). On complex, long-term tasks, procrastinators consistently perform worse than their procrastinator counterparts.

A preliminary study has revealed that academic procrastination is a common event among students (Wirajaya et al., 2020). Steel (2007) added that almost all students often procrastinate in completing assignments in their studies. Similarly, Ellis and Knaus (1977) found that about 95% of students procrastinate on their

educational assignments. Lay and Schouwenburg (1993) found that more than 70% of students often procrastinate of a general and fundamental nature, and about 20% of them report chronic procrastination, which has a robust negative impact on their study success. These various procrastination behaviors will impact the success of one's studies in various levels of education. The same is true for doctoral-level education. Procrastination will cause delays in graduation, or even result in dropping out or failing to complete their studies, academic delays to jeopardize learning success, as a result of decreased performance, reduced welfare, and increased intention to drop out of students (Baulke et al., 2018; Kim & Seo, 2015; Steel, 2007).

The phenomenon of procrastination has been the subject of psychological investigation. Academic procrastination is of particular concern, where research shows that 80-95% of all students procrastinate, and 50% do so consistently and problematically (Steel 2007; Onwuegbuzie & Jiao 2000). The dropout rate for doctoral program students will undoubtedly harm the organizing institution, both financially and competitively, because it will reduce the scientific publications produced as the institution's reputation (Horta et al., 2018). On the other hand, the effectiveness of the supervisor's role will determine the success of doctoral students in completing their studies. The magnitude of the influence of supervisors and the extent to which the influence of student procrastination behavior can extend the study period or even make students drop out.

Putra and Rustika (2019) showed that self-control and authoritative parenting play a role in academic procrastination in students of the Medical Education Study Program. Some scholars also noted that supervisor effectiveness requires supervisors to expand themselves by referring to the function of enculturation, mentoring, or parenting (Pearson & Brew 2010; Wisker et al., 2007). It is expected that a broader supervisor role to reduce various psychological barriers for students, such as motivation, procrastination, and others. This study explores the role of supervisors in the doctoral education process in Indonesia associated with student procreational behavior. This research is expected to make a positive contribution to improving the role of supervisors in enhancing doctoral education programs at universities. Moreover, this study emphasizes that the doctoral education process is a transformation process in instilling ideas about the importance of the employability of academics such as supervisors. This research focuses on the extent to which the role of supervisor candidates' procrastination on the success of doctoral candidates' studies in completing their studies according to the specified time.

METHODS

Research Design

This research applied a quantitative approach to analyze the effect of the role of supervisor and procrastination on the success of doctoral studies (See Figure 1). Then, we tested four hypotheses based on previous studies, which are provided as follows.

H1. The role of the supervisor has a positive effect on the success of the study.
H2. Procrastination negatively affects study success
H3. The role of supervision has a negative effect on academic procrastination behavior.
H4. The type of work moderated the relationship between the role of supervisor, procrastination on study success and the relationship between the role of supervisor and procrastination.

Sample

The sample of this study consists of 149 respondents with doctoral degrees from various universities in Indonesia. The instrument is divided into three variables, namely the role of supervision, academic procrastination, and study success. Data was obtained by distributing questionnaires containing statements with a Likert scale of 1-5. Questionnaires were distributed randomly to respondents using Google forms.

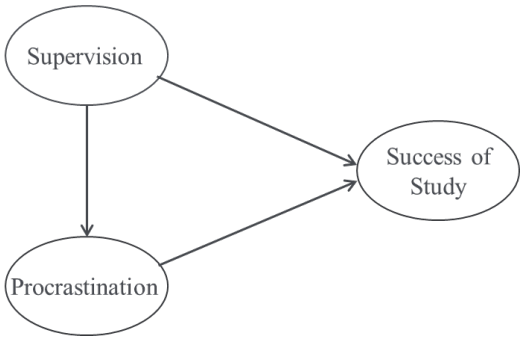

Figure 1. The research framework model

Measurement Construct

To measure procrastination, an instrument from the Procrastination Assessment Scale-Students PASS by Solomon and Rothblum (1984), consisting of 10 questions. To measure the study's success, it refers to the concept of student persistence, having achievement progress, and graduating on time. (Ganem & Manasse, 2014). using an instrument with ten items (such as mastery of the material and time of graduation) with a Likert scale of 1-5, where 1 = strongly disagree and 5 = strongly agree. While the role of supervisors is measured using 13 indicators adopting the concept of modern doctoral education from Lee (2008), where respondents are asked for their opinions about the role of supervisors in the process of mentoring during studies and completing their doctoral programs.

Data Analysis

This study adopted the PLS-SEM structural model measurement using the Smart PLS 3.0 application, with a two-step (second-order) approach: (1) validation of the outer model (measurement), and (2) examination of the inner model - analyzing the relationship between structural factors among latent factors (Chin, 2010).

RESULTS & DISCUSSIONS

The total sample data collected and complete is 149 respondents, with demographic details as shown in Table 1. From the table, it can be informed that the majority of respondents are male (70%) with a length of study of more than four years. The majority of respondents obtain their doctoral program with their personal funding.

Table 1. Sample demographics

Variable	Category	N	Percent (%)
Gender	Male	104	70%
	Female	45	30%
Length of study	<3 years	18	12%
	3-4 years	60	40%
	>4 years	71	48%
Employment	Staff Faculty	68	46%
	Employees	81	54%
Financing	Scholarship	21	14%
	Own Cost	128	86%

Outer Model

Referring to Table 2, the internal reliability for the variables of success of the study, the role of supervision and academic procrastination have Cronbach alpha value > 0.70, Outer loading indicator > 0.70, and Convergent validity with AVE value > 0.50.

Table 2. Results of the reflective construct assessments

Latent construct	Indicator	Outer Loadings	AVE	CA	CR
Success of Study	EF 10	0.831	0.662	0.903	0.921
	EF 2	0.753			
	EF 3	0.76			
	EF 4	0.809			
	EF 6	0.843			
	EF 7	0.878			
Procrastination	PRO 1	0.941	0.843	0.977	0.98
	PRO 10	0.947			
	PRO 2	0.843			
	PRO 3	0.843			
	PRO 4	0.944			
	PRO 6	0.908			
	PRO 7	0.928			
	PRO 8	0.948			
	PRO 9	0.955			
Supervisor	SUP 10	0.744	0.686	0.908	0.929
	SUP 11	0.858			
	SUP 12	0.873			
	SUP 13	0.871			
	SUP 5	0.754			
	SUP 8	0.858			

Both constructs show discriminant validity as the confidence interval refers to the heterotrait-monotrait ratio (HTMT) of the correlation between the two reflective constructs < 0.85, shown in Table 3 (Hair et al., 2017).

Table 3. HTMT

	Success of Study	**Procrastination**	**Supervision**
Success of Study			
Procrastination	0.132		
Supervision	0.649	0.147	

Inner Model Analysis

Table 4 informs that there is no collinearity problem between predictor constructs, considering all VIF values < 5 (Role of supervision on success of study = 1.000, Procrastination on success of study = 1.022, and Role of supervision on Procrastination = 1.022).

Table 4. Statistical Collinearity

	Success of Study	Procrastination	Supervision
Success of Study			
Procrastination	1.022		
Supervision	1.000	1.000	

Table 5 shows that procrastination has a positive and significant effect on the success of study. The role of supervision has a positive and significant effect on the success of study. The Stone-Geisser Q2 value obtained through the Blindfolding procedure for the success of Study (Q2 = 0.249) and Procrastination (Q2 = 0.0015) is greater than zero, thus supporting the predictive relevance of the above model (Hair et al., 2017). Finally, the adjusted R square for the structural model is < 0.5 (0.440 for the success of study and 0.015 for procrastination), which indicates a good model fit (Hair et al., 2017).

Table 5. Path estimation of the inner model

Path estimates of baseline model	**Original Sample**	**P-Value**	**Effect Size**
Procrastination -> Success of Study	0.039	0.038	0.003
Supervisor -> Success of Study	0.662	0.000	0.776
Supervisor -> Procrastination	0.147	0.032	0.022

Multi-Group Analysis

Furthermore, the structural model was cross-validated in two workgroups (faculty staff and employee) using a multi-group permutation test (Henseler et al., 2016). Apart from some significant differences in path estimates between groups, as shown in Table 6, the multi-group permutation test (final column on the right) shows that the difference in the role of supervision to procrastination for faculty staff is not significant while for employees is significant ($p < 0.05$).

Table 6. Multi-group analysis result

	Pooled		**Grp 1 (Staff Faculty)**		**Grp 2 (Employees)**		**Grp 1 vs Grp 2**
	N = 149		**N = 68**		**N = 81**		
Path	O	P Value	O	P-Value	O	P -Value	P-Value
Procrastination -> Success of Study	0.039	0.308	0.167	0.120	-0.006	0.476	0.152
Supervisor -> Success of Study	0.668	**0.000**	0.628	**0.000**	0.695	**0.000**	0.213
Supervisor -> Procrastination	0.147	0.032	0.009	0.479	0.200	**0.020**	0.165
Supervisor -> Procrastination -> Success of Study	0.006	0.342	0.002	0.482	-0.001	0.480	0.451

Discussions

This study examines the structural model of Supervisory Roles, Procrastination and Study Success, derived theoretically. Each success is operationalized with student persistence, the progress of achievement, and timely graduation. The results of data analysis show that the role of supervisors has a positive effect on the success of doctoral studies. This indicates that supervisors still play an essential role in facilitating the process of study. The multi-group analysis illustrates that the supervisor's role is needed by students, lecturers, and non-lecturers. This is in line with Fillery-Travis et al. (2017) findings that summarize the literature on this phenomenon and emphasize that the doctoral education process is transformational. This process instills ideas about the employability of academics. The role of the supervisor can assist in the process of student success in completing their studies (Ives & Rowley 2005). The supervisor's role needs to be expanded by referring to the function of enculturation, mentoring, or parenting (Pearson & Brew 2010; Wisker et al., 2007).

The supervisor's role also has a positive effect on procrastination with the supervision pattern known as the modern doctoral program (Lee, 2008; Lee & McKenzie, 2011) having a positive effect on procrastination behavior, so that the supervisor's role can reduce the procrastination behavior of the students under his guidance. The supervisor's role needs to be expanded more comprehensively about the supervisor's role, what is expected, in terms of intellectual capacity, emotional intelligence, and terms of resource or logistical support (Bui, 2014). However, in the analysis per group of lecturers, the role of the supervisor is not significant, and it is interesting to be a further study. Procrastination has no significant effect on the success of student studies, this shows that the developed hypothesis cannot be proven, both as a whole sample and per group. This is a unique finding and needs further study. This research reinforces the need for a modern doctoral program as a transformation of the implementation of traditional doctoral programs, where increasing the role and function of supervisors is the key to student success in completing their studies (Lee, 2008; Lee & McKenzie, 2011; Fillery-Travis et al., 2017).

CONCLUSIONS

This research provides a number of contributions to the academic and practical literature. The results of this study show strong results in the testing of the structural model of the dependent variable of doctoral's success of study with academic procrastination antecedents. The supervisor's role variable has a positive effect on the success of study and procrastination. At the same time, procrastination has no effect on learning success. This study shows that there are differences in results in the sample group, especially the insignificant effect of supervision on procrastination of the lecturer group, but the effect is significant in other employee groups. The findings of this study indicate the importance of the supervisor's role and the need to encourage doctoral program managers to develop a supervisory role in their duties and responsibilities. The limitation of this research is the sample of doctoral alumni from various higher education institutions which have different policies in the implementation of their programs. This research opens up opportunities for further studies on the role of supervisors in a modern doctoral program initiated by Lee (2008), which is based on an analysis of the institution's origin, location, field of study, or other demographic aspects.

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