**EDUKASIA: Jurnal Pendidikan dan Pembelajaran**
Vol. 6, 1 (June, 2025), pp. 459-474
ISSN: 2721-1150; EISSN: 2721-1169; DOI: 10.62775/edukasia.v6i1.1435

# The Role of Self-Regulated Learning in the Implementation of Project-Based Learning to Reduce Academic Procrastination in Scientific Writing Courses

**Dahlia Novarianing Asri[1], Bambang Eko Hari Cahyono[2]**

[1] Universitas PGRI Madiun, Indonesia; novarianing@unipma.ac.id
[2] Universitas PGRI Madiun, Indonesia; behc@unipma.ac.id

**ARTICLE INFO**

***Keywords:***

Self-Regulated Learning;
Project-based Learning Model;
Academic Procrastination;
Scientific Writing Courses

***Article history:***

Received 2025-05-04
Revised 2025-06-14
Accepted 2025-07-10

**ABSTRACT**

The high level of academic procrastination in the Scientific Writing course needs serious attention because, if left unchecked, it can result in failure to achieve academic achievement. The main focus of this study is to analyze the impact of Project-Based Learning Model on academic procrastination and examine the impact of Self-Regulated Learning as a mediating variable among students in Scientific Writing courses. This research uses an experimental research design. The research population was all students from the Faculty of Teacher Training and Education, Universitas PGRI Madiun, Indonesia, who were taking the Scientific Writing courses. A sample of 186 students was obtained by using the cluster random sampling technique. The instruments used were the Self-Regulated Learning scale and the academic procrastination scale. Data analysis includes descriptive data analysis, prerequisite tests, and inferential data analysis using a two-way ANOVA. The following research findings support the following findings: (1) students in the Scientific Paper course who received a project-based learning model showed significantly higher levels of academic procrastination than students who received a conventional learning model; (2) students in the Scientific Paper course who had high levels of self-regulated learning and those who had low levels of self-regulated learning showed significantly higher levels of academic procrastination; and (3) there was an interaction effect between the project-based learning model and self-regulated learning on academic procrastination of students in the Scientific Paper course. It is thought that the growth of SRL will improve academic performance and boost students' accountability for their education. To track the evolution of SRL and the calibre of students' scientific work over time, further longitudinal study can be done. Another possible line of inquiry is the creation of a hybrid learning paradigm that specifically combines SRL training and PBL.

**Corresponding Author:**
Dahlia Novarianing Asri
Universitas PGRI Madiun, Indonesia; novarianing@unipma.ac.id

## 1. INTRODUCTION

Scientific Writing is one of the required subjects that students in the study program at Universitas PGRI Madiun's Faculty of Teacher Training and Education must complete. The purpose of this curriculum is to help students develop their skills in writing scientific works, using scientific "principles, and using clear and appropriate language. Scientific Writing's curriculum includes the following: nature and type of scientific writing, ethics in scientific writing, basics of reasoning, scientific writing, scientific journal writing, proposals for research, and various languages used in scientific writing. This external lecture consists of scholarly works, journal articles, and research proposals.

Even though the Problem-Based Learning (PBL) model has been widely used in academic writing to improve students' critical thinking and learning skills, its implementation in an academic setting remains a challenge that is quite difficult to overcome. Many scholars who write scholarly articles, journal articles, or research proposals consider them to be the primary product of this course. This indicates that PBL implementation is not as effective in addressing procrastination if it is not in line with Self-Regulated Learning (SRL) principles. SRL plays a crucial role in helping students set goals, manage their time, and assess the learning process independently. With minimal SRL skills, students consistently experience difficulties in making the most of PBL. Because of this, it is important to pay closer attention to why PBL is not effective in addressing academic problems without taking into account SRL in the teaching process.

According to Seran, Utomo, & Handoyo (2020) what is meant by scientific work is a written study of a problem by a person or team in accordance with scientific rules and ethics. Scientific work can also be interpreted as written work whose contents attempt to explain a scientific discussion carried out by a writer or researcher (Heriyudanta, 2021). Scientific work is the result of scientific research in a particular field of study that is presented in a systematic, logical, correct, holistic manner and can be understood using clear and understandable language. What is meant by scientific thinking is a practice that has a scientific principle, is based on the study of a certain body of knowledge, and may be methodically applied (Septafi, 2021). There are various types of scientific work, including scientific articles, scientific papers, theses, and dissertations (Kurniadi, 2017; Nagari & Nugraha, 2020).

Scientific work must fulfill at least 2 basic principles, namely: (1) the principle of clarity, meaning that a writer must try so that everything in his mind can be easily understood by his readers, and (2) the principle of honesty (honesty principle), meaning that a writer will not write anything whose truth cannot be proven (Lyons, 2009). A scientific work has basic characteristics and principles that can generally be seen by the group of readers, namely the educated group in general; the content of the writing presents the results of in-depth thoughts and is not in the nature of ordinary communication; it uses complete sentences and is not abbreviated or abbreviated; the content and direction of the writing are clear and well planned; it is free from errors in all forms and types; and it uses a scientific vocabulary.

As of right now, the culture of writing scientific papers in the Indonesian student community is still quite low. This is based on the minimum number of master's articles published in national and international journals. The Nature Publishing Index Asia Pacific (a scientific journal publishing body throughout the Asia Pacific) released a list of scientific work publications and placed Indonesia in 12th place out of 20 countries in the Asia Pacific surveyed (Persadha, 2016).

According to Budhyani & Angendari (2021) there are several difficulties faced by students in writing scientific papers, including a lack of understanding of the problem being researched, limited references, a lack of theoretical understanding, a lack of desire to start writing, and a busy work schedule. Data shows that the quality of students' scientific work is low because they do not pay attention to guidelines in writing, coupled with a high level of plagiarism (Widodo et al., 2020). Students have difficulty developing ideas, so they have difficulty starting writing activities, defending,

or completing scientific work manuscripts (Elserag, 2012). Research Cals & Tugwell (2013) show that this lack of ability to develop ideas is not only experienced by novice researchers but also by senior researchers. To obtain and develop new ideas, this can be done through dialogue with peers (Yu & Liu, 2021).

One such area in which students falter when writing scientific papers is language. Linguistic problems that arise are usually related to suitability, attractiveness, consistency, sentence effectiveness, paragraph coherence, spelling, word choice, and inconsistent presentation (Blumner et al., 2001). Research (Alkhuzaee et al., 2019) shows that language skills are an obstacle to writing scientific papers. Writers have difficulty adopting the style of writing scientific papers, and many do not even understand the nature of scientific works. According to Huber et al. (2020) writing skills in the form of ideas in the form of cognitive abilities arranged in written symbols of a series of words. This indicates that the consideration of language is crucial while writing an scientific work.

The rate of academic procrastination is a result of the difficulties and tribulations that students face when writing their scientific papers. Procrastination is a method of determining the best way to start or finish a task based on the amount of time that has been allocated (Gupta, Hershey, & Gaur, 2012; Rozental & Carlbring, 2013). Procrastination also causes poor time management, decreased performance, delayed learning, task avoidance, and a lack of ability to control negative emotions (Ferrari & Díaz-Morales, 2014). Academic procrastination refers to the procrastination that occurs in academic settings. Academic procrastination is a type of study that involves analyzing tasks and activities related to education or academics that are carried out in a calm and non-rational manner so as to be detrimental to the study (Haghbin, Spelt, & Papini, 2015; Steel & Klingsieck, 2016).

Academic procrastination is a common problem that still affects students. Procrastination prevalence in the student community is estimated to be 80%, with 10% to 70% representing one of the most common problems in the student community (Steel & Ferrari, 2013). Ninety-five percent of American students participate in academic procrastination, according to a study on the subject (Balkis & Duru, 2009). In Indonesia, prospective teacher students experienced academic delays of 55.14% (Sartika & Nirbita, 2022). According to Purnama (2014), out of the 275 students who participated, 12% performed academic procrastination in the low category, 62% in the medium category, and 21% in the high category. Research conducted by Suhadianto & Pratitis (2019) on 500 students of A-accredited universities in Surabaya found that 73% of students postponed the task of preparing papers, 76.8% of students postponed the task of reading books or references, 61.8% of students postponed studying, 54.4% of students delayed completing academic administration, and 56.8% of students delayed or were late for class.

Academic procrastination is associated with a number of cognitive, affective, and behavioral factors Pychyl & Flett (2012) including failure in self-regulation (Steel & Ferrari, 2013), lack of motivation, lack of concentration at work, low self-efficacy, low self-esteem, perfectionism, fear of failure (Atmazaki, 2007; Kathleen & Basaria, 2021; Klingsieck, 2013), personality influences, personal problems, unrealistic expectations, and perfectionism (Abbasi & Alghamdi, 2015). Social factors that cause academic procrastination are the educational environment, such as academic culture, teacher teaching styles, task characteristics, and digital distractions during learning (Nordby et al., 2017).

The high level of academic procrastination among students must be given careful consideration since it may affect the students' ability to meet academic standards (Akpur, 2020; Balkis, 2013), decreased work productivity, and mental health problems such as psychological well-being, stress, and depression (Kiamarsi & Abolghasemi, 2014; Patrzek, Grunschel, & Fries, 2012). Academic procrastination also causes regret and problems in establishing social relationships, such as avoiding and cutting off relationships with other people (Kim, 2015; Krause & Freund, 2014).

The factors that lead to academic procrastination have been extensively studied through many quantitative studies in the last few years. One psychological factor that affects the emergence of academic procrastination is a personality (negative self-talk, attitude of avoidance, and perfectionism) (Patrzek et al., 2012; Procee, Kamphorst, Van Wissen, & Meyer, 2013; Saleem & Rafique, 2012), relating

to competence (level of knowledge, level of self-control, level of learning ability), effectiveness (anxiety, frustration, experiencing boredom, feeling stressed, embarrassed, feeling guilty) (Haghbin et al., 2015; Vahedi, Moestafafi, & Mortazanajad, 2012) cognitive (worry, low internal motivation, failure in self-regulation (Park & Sperling, 2012; SARACALOĞLU & GÖKDAŞ, 2016) mental and physical health, perception of the characteristics of academic tasks (considering the task as an enemy, considered difficult, or considered important to be carried out), academic learning (learning behavior, negative learning experiences) (Procee et al., 2013) lack of priority scale, poor time management skills, and selection of coping strategies used (Procee et al., 2013) Some external factors that can contribute to academic procrastination include teacher quality, school-related issues, and external school conditions (Patrzek et al., 2012), parenting style parents (Zakeri, Esfahani, & Razmjoee, 2013).

Based on the factors that contribute to academic performance, self-regulated learning is one of the factors that many students in the high school of education experience. Self-regulated learning is a process that is carried out independently in which students monitor, manipulate, and analyze their own cognitive, motivational, feelings, actions, and environmental factors in order to achieve success. Self-regulated learning supports both cognitive and affective aspects. In other words, when students are engaged in learning activities, they will be more efficient at learning, meaning they will achieve the best possible results, and they will also be more in control of their emotional state (enjoying what they do) (Boekaerts, Pintrich, & Moshezeidner, 2000).

Students with self-regulation in their studies will plan how to complete tasks, employ effective teaching strategies, and explain a few effective techniques they have already used. Ineffective methods will be replaced with more effective ones. Students who have self-regulation in their learning will often pay attention to the material being taught, apply themselves to the learning process in the classroom, and participate in class by raising questions or offering ideas during class discussions. When working at home or in an academic setting, students with self-regulation will clarify any issues they have encountered, remember basic ideas, review previously learned material, and work by connecting theory and experience. On the other hand, students who have strong self-control often implement effective teaching strategies.

Generally speaking, students lack the ability to engage with themselves throughout learning (Van Eerde, 2003) academic procrastination tends to avoid tasks and lack self-regulatory behavior, such as the use of strategies and the maintenance of the learning process. For the students, the education that is taught itself is very helpful when they encounter the difficulties that the lecturer gives them. When it comes to evaluating and analyzing their own learning, students who have self-designed coursework have greater capacity. Students with self-motivation in the classroom are able to set goals, communicate effectively, and use effective teaching strategies. Conversely, students with strong self-control often struggle to implement effective teaching strategies. This is a capital that must be possessed by a student in order to develop their abilities and have an impact on success.

The Scientific Writing course aims to equip students with the skills to write scientific papers according to scientific principles and good language use, with outputs in the form of scientific papers, journal articles, and research proposals. However, many students still experience academic procrastination in compiling these assignments, even though learning has used the Problem-Based Learning (PBL) model. This shows that PBL has not optimally overcome procrastination without strengthening Self-Regulated Learning (SRL), this is crucial for setting goals, tracking progress, and independently assessing learning outcomes. On the other hand, writing culture, weak mastery of scientific language, and difficulty in developing ideas also worsen the quality of students' scientific work. Although studies on PBL and SRL have been widely conducted, there have not been many experimental studies that specifically test the interaction of the two on academic procrastination in the context of Scientific Writing learning, so this study has important novelties to be studied further.

In this context, the Project-based Learning model is used in conjunction with the mediating variable, Self-Regulated Learning, to determine its effectiveness in implementing academic research at the Scientific Writing Course. The purpose of this study is (1) to understand the effectiveness of the

project-based learning model in implementing academic research on the Scientific Writing Curriculum; (2) to understand the differences in academic research on the Scientific Writing curriculum from the perspective of self-regulated learning; and (3) to understand the advantages of the self-regulated learning and project-based learning models in conducting academic research on the student curriculum writing.

## 2. METHOD

This study uses quasi-experimental research because it is not possible to control every variable that could affect the results and outcomes (Gall & Borg, 2003). The study's main variable is the teaching methodology, specifically the project-based learning model and the conventional teaching model. One dependent variable in the Scientific Writing curriculum is the academic performance of the students. This study's design consists of a 2 x 2 factorial design and a control group pretest-posttest design.

The study's population consisted of 412 students from the Faculty of Teacher Training and Education at Universitas PGRI Madiun, who were enrolled in the Scientific Paper Writing course. Cluster random sampling technique was used in this study and obtained sample members of six departments. Furthermore, students as selected sample members were divided into students in 3 study programs as experimental groups and students in 3 other study programs as control groups.

The instruments used to collect data were the SRL scale and the academic procrastination scale. The SRL scale used was adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) from (Pintrich & A, 2015), based on two aspects, namely: (1) motivation, and (2) learning strategy. The 81-item SRL scale is used to assess students' self-regulated learning (high and low SRL) skills. The classification of student groups with high self-regulated learning and low self-regulated learning is carried out using the score range or average score fluctuation (Azwar, 2009).

The academic procrastination scale is derived from the procrastination scale created by (Tuckman, 1991) the three aspects of academic procrastination are as follows: (1) self-image generally refers to a willingness to put aside one's own interests; (2) a willingness to overlook tasks and things that are not exciting because one experiences difficulties in carrying them out; and (3) a willingness to put another person's needs ahead of one's own". There are 35 items in the academic procrastination with limited answers. Cronbach's alpha reliability coefficient for self-regulated learning is 0.862, while academic reliability is roughly 0.850. This indicates the level of academic reliability and the level of SRL reliability. Data analysis includes descriptive, prerequisite tests, and inferential data analysis. ANOVA is used to perform inferential data analysis in order to test hypotheses.

## 3. FINDINGS AND DISCUSSION

This experiment was conducted over a period of six months. The activities that are offered to the experimental group are the implementation of the project-based learning model in the Scientific Writing classroom, while the conventional learning model is used by the control group as lectures and assignments. The experimental procedure is carried out using the following guidelines: (1) implementing self-regulated learning; "(2) providing a pretest of the level of academic procrastination to the experiment and control groups; (3) providing a learning model based on project work to the experiment and control groups, and (4) providing a posttest on the level of academic procrastination to the experiment and control groups.

Data analysis includes descriptive data analysis, prerequisite test analysis, and data analysis to support hypotheses. The descriptive data analysis includes description of data on self-study and description of data on academic progress in the Scientific Writing curriculum based on the project-based learning model, self-study model, and cell (interaction between the self-study model and self-study model). The results of the experiment and control groups' in-house learning are shown in Table 1 as follows.

Table 1. The level of Self-Regulated Learning

| Group | *Self-Regulated Learning* | |
|---|---|---|
| | High | Low |
| Experimental group (Using Project-Based Learning) | 49 | 47 |
| Control Group (Using Conventional Learning) | 47 | 43 |
| Total | 96 | 90 |

The difference in scores between the experimental and control groups for the pre and post academic tests is determined by analyzing the data from the academic tests in the Scientific Writing course. The results are shown in Table 2 below.

Table 2. Data on the average score differences between the experimental and control groups based on the results of the skrit and the academic procrastination of the scientific writing course.

| **Independent Variable: Academic Procrastination in Scientific Writing Courses** | | | | | |
|---|---|---|---|---|---|
| | **N** | **Mean Pretest** | **Mean Postest** | **Deviation** | **Derivation (%)** |
| Experimental Group | 96 | 109,97 | 65,61 | 44,36 | 40,34 |
| Control Group | 90 | 111,88 | 83,93 | 27,95 | 24,98 |

According to the data in Table 2 above, the average results of the pretest procrastination of the Scientific Writing Paper in the experimental and control groups show results that are almost equal, with the experimental group scoring 109.97 and the control group scoring 111.88. This indicates that prior to being offered as a project-based learning approach, the academic procrastination of both research groups was based on the following findings. The data in Table 2 above also indicates that the implementation of a project-based learning model can raise the level of academic proficiency among students in the Karya Tulis Ilmiah curriculum. This summary is based on the results of the posttest academic analysis of the two research groups. The level of student academic procrastination was found to be approximately 40.34% in the experimental group and 24.98% in the control group. The level of academic procrastination in the experimental group was more severe than the level of academic procrastination in the control group.

The results of the pre-test and post-test of academic procrastination in the Scientific Writing course based on self-regulated learning can be analyzed to determine the average scores of the pre-test and post-test of academic procrastination between the high and low self-regulated learning groups, as shown in Table 3 below.

Table 3: Summary of Data on the Average Results of the Academic Pretest and Posttest on the Basis of Self-Regulated Learning.

| **Independent Variable: Academic Procrastination in Scientific Writing Courses** | | | | | |
|---|---|---|---|---|---|
| | **N** | **Mean Pretest** | **Mean Postest** | **Deviation** | **Derivation (%)** |
| High Self-Regulated Learning Group | 96 | 111,97 | 72,26 | 39,71 | 35,46% |
| Low Self-Regulated Learning Group | 90 | 109,89 | 76,56 | 33,33 | 30,33% |

The data presented in Table 3 above indicates that the average score results of the pretest academic procrastination in the Scientific Writing course for the high self-regulated learning and low self-regulated learning groups show results that are roughly equal (111.97 and 109 respectively). This indicates that the pretest level of procrastination results for both of the mentioned research groups are

varying. Furthermore, the results of the posttest indicate that there is a difference in the level of academic proficiency in the field of Ilmiah writing between the two groups of researchers, in other words, the high for self-regulated learning is around 70.95, while the low for self-regulated learning is around 77.03. The average value for self-regulated learning groups was 37.61%, while the average value for self-regulated learning groups was 27.23%. On the basis of this, it can be concluded that the academic performance of the self-regulated learning group is higher than the academic performance of the self-regulated learning group.

Table 4 presents the difference in the average score results of the academic procrastination pretest and posttest for each member of the study group. This difference is based on the analysis of the data from the academic pretest and posttest for the Scientific Writing curriculum for the benefit of the study team.

Table 4 difference in Data Values Description Average Pre-test and post-test results Academic Subject Procrastination Scientific Writing Based on Cell Groups.

| Independent Variable: Academic Procrastination in Scientific Writing Courses | | | | | |
|---|---|---|---|---|---|
| **Cell Group** | **N** | **Mean Pretest** | **Mean Postest** | **Deviation** | **Derivation (%)** |
| Experimental Group-High SRL | 49 | 110,12 | 57,58 | 52,54 | 47,71 |
| Experimental Group-Low SRL | 47 | 110,62 | 72,13 | 38,49 | 34,79 |
| Control Group-High SRL | 47 | 114,21 | 85,68 | 28,53 | 24,98 |
| Control Group-Low SRL | 43 | 109,32 | 82,02 | 27,30 | 24,97 |

Based on the research cell groups mentioned in Table 4 above, the percentage of average scores (mean) from the pretest and posttest findings of academic procrastination in the Scientific Writing course is more clearly displayed in Figure 1 below.

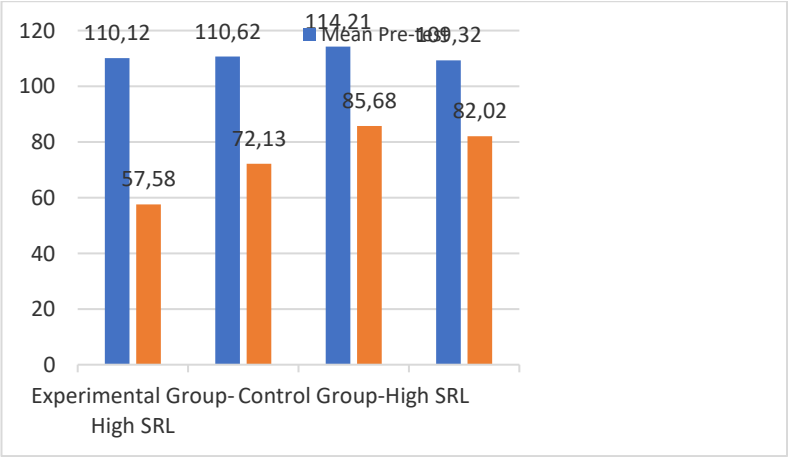


Figure 1.
Histogram of the difference in the average score of pretest and posttest academic procrastination results in scientific writing courses based on cell groups

Based on Table 4 and Figure 1 above, it can be seen that the group that participated in the self-regulated learning experiment experienced the largest average decline in academic performance from the pretest to the posttest, with each group scoring 52.54 (47.71%). The low self-regulated learning of the experimental group was 38.49 (34.79%), the high self-regulated learning of the control group was 28.53 (24.98%), and the low self-regulated learning of the control group was 27.30 (24.97%). This

indicates that, in a comprehensive sense, the academic procrastination in the Scientific Writing classroom is more extensive in the experimental group than it is in the control group.

Following descriptive data analysis, the next step is to perform prerequisite tests as a means of evaluating the hypotheses, including normality, homogeneity, and balance. Using the Kolmogorov-Smirnov formula, the results of the normalization of the data by academic pre-test and post-test at the Scientific Writing are as follows.

Table 5. Results of the pre-test data normality test

| Research Group | Kolmogorov-Smirnov | | | Result |
|---|---|---|---|---|
| | Statistik | df | Sig. | |
| Eksperimental Group | ,089 | 96 | ,061 | Significance 0,061 > 0,05, distribution of data is normal |
| Control Group | ,056 | 90 | ,200 | Significance 0,200 > 0,05, distribution of data is normal |
| High SRL | ,064 | 90 | ,200 | Significance 0,200 > 0,05, distribution of data is normal |
| Low SRL | ,080 | 96 | ,142 | Significance 0,1,42 > 0,05 distribution of data is normal |

Table 6. Results of the post-test data normality tes

| Research Group | Kolmogorov-Smirnov | | | Result |
|---|---|---|---|---|
| | Statistik | df | Sig. | |
| Eksperimental Group | ,074 | 96 | ,200 | Significance 0,200 > 0,05, distribution of data is normal |
| Control Group | ,064 | 90 | ,200 | Significance 0,200 > 0,05, distribution of data is normal |
| High SRL | ,083 | 90 | ,173 | Significance 0,173 > 0,05, distribution of data is normal |
| Low SRL | ,046 | 96 | ,200 | Significance 0,200 > 0,05, distribution of data is normal |

Utilizing Levene's test to test for homogeneity yields the following results: (1) The results of the homogeneity test for the pretest between the experiment and the control group were determined by a statistic of 1.987 with a significance of 0.160 > 0.05; (2) the results of the homogeneity test for the pretest between the high SRL and low SRL groups were determined by a statistic of 0.423 with a significance of 0.5,16 > 0.05; (3) the results of the homogeneity test for the posttest between the experiment and the low SRL group were determined by a statistic of 0.423 with a significance of 0.5,16 > 0.05 and the control group had a statistical value of 0.702 with a significance of 0.403 > 0.05; and the post-test results for the homogeneity score between the high SRL and low SRL groups had a statistical value of 1.279 with a significance of 0.158 > 0.05. Since all of the homogeneity test's significance values are more than 0.05, it can be concluded that the academic data procrastination variables are homogeneous.

Furthermore, based on the results of the balance test with the F test, the following results were obtained: The results of the balance test between the groups of experimenters and control participants were determined by F count = 0.699 with a significance of 0.404 > 0.05; the results of the balance test between the groups of high and low SRL participants were determined by F count = 0.847 with a significance of 0.358 > 0.05; and the results of the balance test between the groups of research (experimental and control) and SRL (high and low) were determined by F count = 1.680 with a significance of 0.198 > 0.05. Because the significance value of the three tests is > 0.05, it is stated that the

academic procrastination scores between the research group and the SRL group are not significantly different.

Following the conclusion of the study, a hypothesis test was conducted using the two-way ANOVA. The hypothesis's criterion is that Ho is rejected if the significance level is less than 0.05. The first hypothesis test result between the experimental and control groups is 119.249 with a significance level of zero thousand. Since the significance level of 0.0005 is less than 0.05, it can be concluded that there is a significant difference in the procrastination of academic achievement between students who follow the project-based learning model and students who follow the conventional learning model at Karya Tulis Ilmiah. The hypothesis test result between the high SRL and low SRL groups is 9.804 with a significance level of 0.002. Since the significance level of 0.002 < 0.05, it can be concluded that there is a significant difference between the academic performance of students at Karya Tulis Ilmiah between those who have high self-regulated learning and those who have low self-regulated learning. The results of the hypothesis test between the study group (experiment and control) and the study group (high and low) are obtained by F count of 27.393 with a significance level of 0. Due to the significance level of 0.0005 < 0.05, it can be concluded that there is a negative correlation between the project-based learning model and self-regulated learning and the academic performance of the Scientific Writing students.

The study's findings indicate that there are notable differences in academic performance between students who participate in project-based learning (PBL) and traditional classroom instruction, as well as between high and low self-regulated learning (SRL) students. In addition, there is a significant interaction between the educational paradigm and SRL with regard to academic performance. This supports the findings of the previous study, which showed that students with high levels of self-regulation are better able to manage their time, set goals, and monitor and assess the learning process, making them more capable of identifying procrastination. PBL is effective in helping students with good SRL skills with their procrastination. The study's findings indicate that there are notable differences in academic performance between students who participate in project-based learning (PBL) and traditional classroom instruction, as well as between high and low self-regulated learning (SRL) students. In addition, there is a significant interaction between the educational paradigm and SRL with regard to academic performance. This supports the findings of the previous study, which showed that students with high levels of self-regulation are better able to manage their time, set goals, and monitor and assess the learning process, making them more capable of identifying procrastination. PBL is effective in helping students with good SRL skills with their procrastination. On the other hand, students with low SRL consistently face difficulties in dealing with freedom and PBL complexity because they are unable to manage time effectively, adhere to learning objectives, and manage progress in a methodical manner. Because of this, it is important for students to not only use innovative teaching models like PBL, but also to work together to develop student SRL skills in order to get the best possible learning outcomes.

The first hypothesis's results indicate that there is a significant difference in the academic performance of students in Karya Tulis Ilmiah's classrooms who follow the project-based learning model and those who follow the conventional learning model. In other words, it may be said that the use of a project-based learning approach can raise academic standards in the Scientific Writing curriculum. A lack of academic progress in the Scientific Writing classroom through the use of a project-based learning approach is demonstrated by the constancy of the students in working on the project and their inability to complete the tasks that are given to them. This is because the project-based learning model gives students the opportunity to actively develop their knowledge and skills while also enabling them to solve problems and carry out project activities using their acquired skills. This was caused by opinion (Donnelly & Fitzmaurice, 2005) it states that the project-based learning model is a type of learning model that is based on the fundamental ideas and principles of education, supports students in solving problems and other challenging tasks, gives them the opportunity to organize their own learning, and ultimately produces real work.

The implementation of the project-based learning model can not only improve the academic performance of the students but also raise the quality of the knowledge that the students acquire. When students use a project-based learning methodology, their academic performance is better than that of students who are taught using traditional methods. Based on the results of the observations, the advantages of scientific work that are obtained through the implementation of the project-based learning model include coherent and easily understood constructions of the writings," clear and understandable writings, the use of high-quality theories and references, and a low level of plagiarism. Regarding the linguistic aspect, the student has a better understanding of the term scientific and uses a sentence that encompasses the following aspects: conformity, consistency, effectiveness, paragraphial coherence, spelling, and consistent presentation.

The main effect of the implementation of the project-based learning model is to raise the level of academic proficiency among students in the Scientific Writing curriculum. The quantitative results show that the average post-test procrastination score of the academic students who were taught using the project-based learning model was more accurate than the average post-test procrastination score of the academic students who were taught using the conventional learning model. This indicates that the project-based learning paradigm is effective in raising the level of academic proficiency among students in the Scientific Writing curriculum.

Research is being conducted on the effects of the project-based learning approach on academic performance (Asri & Trisnani, 2021) demonstrating that there is a significant difference in academic performance between students who follow the project-based learning model and those who follow the conventional learning model. According to it, it can be said that the project-based learning paradigm has an impact on the academic performance of students. Another study also found that the project-based learning approach with effective time management is effective in promoting academic mastery. Santyasa, Rapi, dan Sara (2020) which is carried out in the sports education of the high school also demonstrates that there is a significant impact on the implementation of the project-based learning model on the academic performance of the students.

The results of the second hypothesis test indicate that there is a significant difference in the level of academic performance between students who have high self-regulated learning and students who have low self-regulated learning in Scientific "Writing. This indicates how self-regulated learning affects the academic progress of the student's scientific writing. Academic procrastination can be caused by a number of factors, including student disinterest in learning, a lack of discipline in the classroom, environmental influences, intrinsic motivation, and the ability of self-regulated learning to manage study time (Sandya & Ramadhani, 2021). This opinion is also supported by (Haghbin et al., 2015; Mortazanajad et al., 2009; Park & Sperling, 2012) in essence, it states that students' failure to implement independent learning arrangements is one of the causes of academic procrastination.

Organized learning is very important for students to use when they are learning so they can be able to adjust, change, and develop themselves, especially when they are facing difficult tasks. Education as a whole has clear goals, which include increasing and improving skills, finding new knowledge, and resolving issues that arise in daily life. This is a necessary mode that students should possess in order to develop their abilities and have an impact on success. A student who has a high level of self-learning will typically be engaged with the material being taught, support themselves during the learning process in the classroom, and participate in class discussions by answering questions or expressing their ideas.

When doing homework or academic assignments, students who have self-regulated learning will clarify the difficulties they face, find basic ideas, summarize the material they have read, and work by linking theory and experience. On the other hand, students whose self-regulated learning is low often fail to implement effective learning strategies. Students who have self-regulated learning are able to set goals, plan, and use effective learning strategies. On the other hand, students whose self-regulated learning is low often fail to implement effective learning strategies.

The three main characteristics of students with self-designed learning programs are goals, actions, and assessment. In the article, students define a new goal, establish a new method to achieve the goal, and explain how they plan to get there. Students who possess self-motivation are encouraged to do so through three activities: (1) setting goals that are motivating to them; (2) identifying and implementing effective strategies to achieve their goals; and (3) implementing self-motivation and self-management strategies in the form of observation, self-assessment, and self-administration, which have the potential to inspire and encourage them throughout the learning process.

Several studies have demonstrated the impact of self-regulated learning on academic performance. According to a few studies, self-regulated learning is one of the strongest predictors of academic progress. Research conducted by (Behrozi, Yeilagh, & Mansourian, 2013) demonstrates that students who possess self-regulated learning do not require external motivation to complete academic tasks. Students with self-regulated learning skills are able to assess themselves and reflect on their previous work, which results in a high academic performance level. Students' inability to manage their own learning results in learning difficulties, low motivation, low learning quality, and academic procrastination (Zimmerman & Schunk, 2012). Research at Indonesian institutions by (Anastasia Suci Sekar Arum & Natalia Konradus, 2022) (Anastasia Suci Sekar Arum & Natalia Konradus, 2022) and (Robbi Fathoni & Indrawati, 2022) has demonstrated the impact of self-regulated learning on students' high levels of academic procrastination.

Subsequently, the results of the hypothesis test indicated that there was a negative correlation between the academic performance of the students in the Scientific Writing classroom and the model of learning based on projects and self-regulated learning. The results of this study are relevant to the study Zao & Zheng (2000) It states that project-based learning emphasizes the importance of learning that is developed independently. The study's findings indicate that students who possess self-developed learning strategies employ a higher level metacognitive strategy. This indicates that, although, in general, self-directed learning is viewed as an individual's ability, students who possess self-directed learning are able to foster cooperation among group members in a particular learning environment. The ability to collaborate and learn independently that students have influences learning outcomes. Research Asri & Afifah (2017) the research conducted on junior high school students in the Madiun province also demonstrated the impact of the project-based learning and self-regulated learning models on academic performance in mathematics classes. The results of this study are based on certain comparisons between cells and the Scheffe method, which states that there is a negative impact of the project-based learning and self-regulated learning models on students' academic performance.

## 4. CONCLUSION

Based on the results of the research and discussion, the following conclusions are formulated: (1) there is a significant difference in the level of academic procrastination of students in the Scientific Writing course between students who receive a project-based learning model and students who receive a conventional learning model; (2) there is a significant level of academic procrastination of students in the Scientific Writing course between students who have high self-regulated learning and students who have low self-regulated learning, and (3) there is an interaction effect between the project-based learning model and self-regulated learning on students' academic procrastination in the Scientific Writing course. Based on these findings, the lecturer who teaches the Scientific Writing course must take into consideration any academic procrastination that is experienced by students, since it may have an adverse effect on their academic performance. When using a project-based learning methodology, teachers should give students the opportunity to work independently to build their own knowledge and produce tangible products. Lecturers are also intended to provide the maximum amount of support, from the beginning to the finish of the project's development. Students must be given the necessary space to engage in discussion and provide guidance to the patients regarding the project materials that are being worked on. Based on these findings, the lecturer who teaches the Scientific

Writing course must take into consideration any academic procrastination that is experienced by students, since it may have an adverse effect on their academic performance. When using a project-based learning methodology, teachers should give students" the opportunity to work independently to build their own knowledge and produce tangible products. Lecturers are also intended to provide the maximum amount of support, from the beginning to the finish of the project's development. Students must be given the necessary space to engage in discussion and provide guidance to the patients regarding the project materials that are being worked on. Nowadays, SRL development can increase students' enthusiasm for learning and have a positive impact on academic performance. Longer-term research can be conducted longitudinally to assess the quality of students' academic performance from one day to the next. In addition, the development of a hybrid learning model that clearly integrates PBL and SRL instruction is a research avenue that might be used.

**REFERENCES**

Abbasi, I. S., & Alghamdi, N. G. (2015). The Prevalence, Predictors, Causes, Treatment, and Implications of Procrastination Behaviors in General, Academic, and Work Setting. *International Journal of Psychological Studies*, *7*(1), 59–66. https://doi.org/10.5539/ijps.v7n1p59

Akpur, U. (2020). The Effect of Procrastination on Academic Achievement: A Meta-Analysis Study. *International Journal of Educational Methodology*, *6*(4), 681–690. https://doi.org/10.12973/ijem.6.4.681

Alkhuzaee, F. S., Al-Mehmadi, A. A., Al-Sehly, A. A., Nahari, M. H., Al-Muwallad, M. A., & Ali, M. (2019). Identifying the facilitators and barriers for scientific writing among pharmacy students in College of Pharmacy, Umm Al-Qura University – A qualitative study. *Currents in Pharmacy Teaching and Learning*, *11*(12), 1265–1273. https://doi.org/10.1016/j.cptl.2019.09.004

Anastasia Suci Sekar Arum, & Natalia Konradus. (2022). Pengaruh Self Regulated Learning Terhadap Prokrastinasi Akademik Pada Mahasiswa Yang Mengikuti Kuliah Daring Di Masa Pandemi Covid-19. *Jurnal Kesehatan Dan Kedokteran*, *1*(2), 1–8. https://doi.org/10.56127/jukeke.v1i2.67

Asri, D. N., & Afifah, D. R. (2017). Intervensi psikososial untuk meningkatkan kesehatan jiwa warga desa Krebet, Ponorogo. *Prosiding Seminar Nasional Hasil Pengabdian Masyarakat*, 65–69.

Asri, D. N., & Trisnani, R. P. (2021). Model Pembelajaran Berbasis Proyek Dengan Teknik Time-Management Untuk Mereduksi Prokrastinasi Akademik Mahasiswa Pada Mata Kuliah Perkembangan Peserta Didik. *JBKI (Jurnal Bimbingan Konseling Indonesia)*, *6*(1), 20. https://doi.org/10.26737/jbki.v6i1.2224

Atmazaki. (2007). *Kiat-kiat Mengarang dan Menyunting*. Padang: UNP Press.

Azwar, S. (2009). *Metode Penelitian.* Yogyakarta: Pustaka Pelajar.

Balkis, M. (2013). the Relationship Between Academic Procrastination and Students' BurnoutAkademïk ErteleEğïlïmï VÖğrencïlerïTükenmïşlïk Duygusu Arasindaĭlïşkï. *Journal of Education]*, *28*(1), 68–78.

Balkis, M., & Duru, E. (2009). Prevalence of academic procrastination behavior among pre-service teachers, and its relationship with demographics and individual preferences. *Journal of Theory and Practice in Education*, *5*(1), 18–32.

Behrozi, N., Yeilagh, M., & Mansourian, A. (2013). The relationship between self-regulated learning strategies, motivational learning strategies, procrastination and academic performance among the first grade of high school male students in Boushehr. *Journal Life Science and Biomedicine*, *3*(4), 277–284.

Blumner, J. S., Eliason, J., & Fritz, F. (2001). Beyond the Reactive: WAC Programs and the Steps Ahead. *The WAC Journal*, *12*(1), 21–36. https://doi.org/10.37514/wac-j.2001.12.1.03

Boekaerts, M., Pintrich, P. R., & Moshezeidner. (2000). *Handbook of Self-Regulation*. California: Academic Press.

Borich, G. (2011). *Effective Teaching Methods. Research-Based Practice. Seventh Edition.* Boston: Pearson Education, Inc.

Budhyani, I. D. A. M., & Angendari, M. D. (2021). Kesulitan dalam Menulis Karya Ilmiah. *Mimbar Ilmu*,

*26*(3), 400. https://doi.org/10.23887/mi.v26i3.40678

Donnelly, R., & Fitzmaurice, M. (2005). Collaborative Project–Based Learning and Problem–Based Learning in Higher Education: a Consideration of Learner- Focused Strategies. *Emerging Issues in the Practice of University Learning and Teaching*, (1), 87–98.

Elserag, H. B. (2012). Writing and publishing scientific papers. *Gastroenterology*, *142*(2), 197–200. https://doi.org/10.1053/j.gastro.2011.12.021

Ferrari, J. R., & Díaz-Morales, J. F. (2014). Procrastination and mental health coping: A brief report related to students. *Individual Differences Research*, *12*(1), 8–11.

Gall, M. D., & Borg, W. . (2003). *Educational Research: An Intoduction*. New York: Pearson Education Inc.

Gupta, R., Hershey, D. A., & Gaur, J. (2012). Time Perspective and Procrastination in the Workplace: An Empirical Investigation. *Current Psychology*, *31*(2), 195–211. https://doi.org/10.1007/s12144-012-9136-3

Haghbin, N., Spelt, J. K., & Papini, M. (2015). Abrasive waterjet micro-machining of channels in metals: Comparison between machining in air and submerged in water. *International Journal of Machine Tools and Manufacture*, *88*, 108–117. https://doi.org/10.1016/j.ijmachtools.2014.09.012

Heriyudanta, M. (2021). ANALISIS KOMPETENSI MENULIS KARYA TULIS ILMIAH MAHASISWA DI INDONESIA ANALYSIS OF STUDENT WRITING COMPETENCY IN INDONESIA Muhammad Heriyudanta Institut Agama Islam Negeri Ponorogo Email : yudanta10@gmail.com. *Anailis Kompetensi Menulis Karya Tulis Ilmiah Mahasiswa Di Indonesia*, *1*(1).

Huber, M. M., Leach-López, M. A., Lee, E., & Mafi, S. L. (2020). Improving accounting student writing skills using writing circles. *Journal of Accounting Education*, *53*, 100694. https://doi.org/10.1016/j.jaccedu.2020.100694

Kachgal, M. M., Hansen, L. S., & Nutter, K. J. (2011). Academic Procrastination Prevention Intervention: Strategies and Recommendations. *Journal of Development Education*, *25*(1), 14–24.

Kathleen, E., & Basaria, D. (2021). The Relationship Between Perfectionism and Academic Procrastination in College Students Learning Online Due to the COVID-19 Pandemic. *Proceedings of the International Conference on Economics, Business, Social, and Humanities (ICEBSH 2021)*, *570*(Icebsh), 1197–1204. https://doi.org/10.2991/assehr.k.210805.188

Kiamarsi, A., & Abolghasemi, A. (2014). The Relationship of Procrastination and Self-efficacy with Psychological Vulnerability in Students. *Procedia - Social and Behavioral Sciences*, *114*, 858–862. https://doi.org/10.1016/j.sbspro.2013.12.797

Kim, S. (2015). The relationship between procrastination and academic procrastination tell a different story. *Personality and Individual Differences*, *108*, 154–157. https://doi.org/10.1016/j.paid.2016.12.021

Klingsieck, K. B. (2013). Procrastination when good things don't come to those who wait. *European Psychologist*, *18*(1), 24–34. https://doi.org/10.1027/1016-9040/a000138

Kotz, D., Cals, J. W. L., Tugwell, P., & Knottnerus, J. A. (2013). Introducing a new series on effective writing and publishing of scientific papers. *Journal of Clinical Epidemiology*, *66*(4), 359–360. https://doi.org/10.1016/j.jclinepi.2013.01.001

Krause, K., & Freund, A. M. (2014). Delay or procrastination - A comparison of self-report and behavioral measures of procrastination and their impact on affective well-being. *Personality and Individual Differences*, *63*, 75–80. https://doi.org/10.1016/j.paid.2014.01.050

Kurniadi, F. (2017). Penulisan Karya Tulis Ilmiah Mahasiswa Dengan Media Aplikasi Pengolah Kata. *AKSIS: Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, *1*(2), 267–277. https://doi.org/10.21009/aksis.010208

Lyons, H. (2009). *Study writing*. United Kingdom: Canbridge.

Mortazanajad, H., mostafafi, F., & Vahedi, S. (2009). Self-Regulation and Dimensions of Parenting Styles Predict Psychological Procrastination of Undergraduate Students. *Iranian Journal of Psychiatry*, *4*(4), 147–154.

Nagari, M. F., & Nugraha, V. (2020). Analisis kemampuan menulis karya ilmiah di kalangan mahasiswa. *Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, *3*(5), 747–754.

Nordby, K., Klingsieck, K. B., & Svartdal, F. (2017). Do procrastination-friendly environments make students delay unnecessarily? *Social Psychology of Education*, *20*(3), 491–512. https://doi.org/10.1007/s11218-017-9386-x

Park, S. W., & Sperling, R. A. (2012). Academic Procrastinators and Their Self-Regulation. *Psychology*, *03*(01), 12–23. https://doi.org/10.4236/psych.2012.31003

Patrzek, J., Grunschel, C., & Fries, S. (2012). Academic Procrastination: The Perspective of University Counsellors. *International Journal for the Advancement of Counselling*, *34*(3), 185–201. https://doi.org/10.1007/s10447-012-9150-z

Persadha, D. A. K. (2016). Studi Kompetensi Kemampuan Menulis Di Kalangan Mahasiswa. *Muaddib : Studi Kependidikan Dan Keislaman*, *6*(1), 1. https://doi.org/10.24269/muaddib.v6n1.2016.1-20

Pintrich, P. R. . A. O., & A. (2015). Motivated Strategies for Learning Questionnaire (MSLQ). *Mediterranean Journal of Social Sciences*, *6*(1), 156–164.

Procee, R., Kamphorst, B., Van Wissen, A., & Meyer, J. J. (2013). A formal model of procrastination. *Belgian/Netherlands Artificial Intelligence Conference*, 152–159.

Purnama, S. S. (2014). Prokrastinasi Akademik (Penundaan Akademik ) Mahasiswa Fakultas Ilmu Keolahragaan Universitas Negri Surabaya Academic. *Jurnal BK UNESA*, *4*, 628–692.

Pychyl, T. A., & Flett, G. L. (2012). Procrastination and Self-Regulatory Failure: An Introduction to the Special Issue. *Journal of Rational - Emotive and Cognitive - Behavior Therapy*, *30*(4), 203–212. https://doi.org/10.1007/s10942-012-0149-5

Robbi Fathoni, A., & Indrawati, E. (2022). Pengaruh Self-Regulated Learning dan Motivasi Berprestasi Terhadap Perilaku Prokrastinasi Akademik Siswa. *Jurnal Indonesia Sosial Sains*, *3*(7), 1018–1026. https://doi.org/10.36418/jiss.v3i7.646

Rozental, A., & Carlbring, P. (2013). Internet-Based Cognitive Behavior Therapy for Procrastination: Study Protocol for a Randomized Controlled Trial. *JMIR Research Protocols*, *2*(2), e46. https://doi.org/10.2196/resprot.2801

Saleem, M., & Rafique, R. (2012). Procrastination and self-esteem among University Students. *Pakistan Journal of Social and Clinical Psychology*, *10*(2), 50–53.

Sandya, S. N., & Ramadhani, A. (2021). Pengaruh Intensitas Bermain Game Online Terhadap Prokrastinasi Akademik Mahasiswa. *Psikoborneo: Jurnal Ilmiah Psikologi*, *9*(1), 202. https://doi.org/10.30872/psikoborneo.v9i1.5680

Santyasa, I. W., Rapi, N. K., & Sara, I. W. W. (2020). Project based learning and academic procrastination of students in learning physics. *International Journal of Instruction*, *13*(1), 489–508. https://doi.org/10.29333/iji.2020.13132a

SARACALOĞLU, A. S., & GÖKDAŞ, İ. (2016). Variables That Predict Academic ProcrastinationBehavior in Prospective Primary School Teachers. *Journal of Educational Sciences Research*, *6*(1), 43–61.

Sartika, S. H., & Nirbita, B. N. (2022). Prokrastinasi Akademik Mahasiswa Calon Guru Pada Masa Pandemi Covid-19. *Jurnal Ekonomi Dan Pendidikan*, *18*(2), 104–114. https://doi.org/10.21831/jep.v18i2.43429

Septafi, G. (2021). Analisis Kemampuan Menulis Artikel Ilmiah Mahasiswa Pendidikan Guru Sekolah Dasar Angkatan 2019. *Educational Technology Journal*, *1*(2), 1–16. https://doi.org/10.26740/etj.v1n2.p1-16

Seran, W. A., Utomo, D. H., & Handoyo, B. (2020). Pengaruh Model Pembelajaran Outdoor Study Berbantuan Video Conference terhadap Kemampuan Menulis Karya Ilmiah Mahasiswa. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, *5*(2), 142. https://doi.org/10.17977/jptpp.v5i2.13157

Steel, P., & Ferrari, J. (2013). Sex, Education and Procrastination: An Epidemiological Study of Procrastinators' Characteristics from a Global Sample. *European Journal of Personality*, *27*(1), 51–58. https://doi.org/10.1002/per.1851

Steel, P., & Klingsieck, K. B. (2016). Academic Procrastination: Psychological Antecedents Revisited. *Australian Psychologist*, *51*(1), 36–46. https://doi.org/10.1111/ap.12173

Suhadianto, & Pratitis, N. (2019). Eksplorasi faktor penyebab, dampak dan strategi untuk penanganan prokrastinasi akademik pada mahasiswa. *Jurnal RAP (Riset Aktual Psikologi)*, *10*(2), 204–223.

Tuckman, B. W. (1991). The development and concurrent validity of the procrastination scale. *Educational and Psychological Measurement*, *51*(2), 473–480. https://doi.org/10.1177/0013164491512022

Vahedi, S., Moestafafi, F., & Mortazanajad, H. (2012). Self-Regulation and Dimensions of Parenting Styles Predict Psychological Procrastination of Undergraduate Students. *Iran J Psychiatry*, *4*, 147–154.

Van Eerde, W. (2003). Procrastination at work and time management training. *Journal of Psychology: Interdisciplinary and Applied*, *137*(5), 421–434. https://doi.org/10.1080/00223980309600625

Widodo, A., Kadir Jaelani, A., Novitasari, S., Sutisna, D., & Erfan, Mu. (2020). Nalisis Kemampuan Menulis Makalah Mahasiswa Baru Pgsd Universitas Mataram. *Jurnal Didika: Wahana Ilmiah Pendidikan Dasar*, *6*(1), 77–91. https://doi.org/10.29408/didika.v6i1.1946

Yu, S., & Liu, C. (2021). Improving student feedback literacy in academic writing: An evidence-based framework. *Assessing Writing*, *48*(February), 100525. https://doi.org/10.1016/j.asw.2021.100525

Zakeri, H., Esfahani, B. N., & Razmjoee, M. (2013). Parenting Styles and Academic Procrastination. *Procedia - Social and Behavioral Sciences*, *84*, 57–60. https://doi.org/10.1016/j.sbspro.2013.06.509

Zao, W., & Zheng, Y. (2000). Optimal Dynamic Pricing for Perisable Assets with NonHomogenous Demand. *Management Science*, *46*(3), 375–388.

Zimmerman, B. J., & Schunk, D. H. (2012). *Self-Regulatian and Learning. Handbook of Psychology, Educational Psychology. John Wiley and Sons.* John Wiley and Sons.