Do Learning Approaches Matter on Setting the Time Spent for Pre-Service Teacher?

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Abstract: This study redefines the research model highlighting the learning approach to investigate the interaction of relevant construct in the relationship between the learning time spent and academic performance. The subjects of this study were final year undergraduate students of the accounting education department who had passed the final teaching training program as one of the requirements to become an accounting teacher at the high school and vocational level. In general, time spent has a positive and significant effect on the overall academic performance of the respondents, as well as student groups with the Deep Learning Approach (DLA) and Surface Learning Approach (SLA)'s peers. However, there was no moderating effect found among the two learning approaches on the effect of time spent on academic performances. On the other hand, this finding provides an interesting point of view regarding the absence of significant differences in the length of study duration in the two groups of students, which confirms the independence of student learning styles nowadays. More specifically, in today's blended and online learning applications dealt by any students globally. Hence, they get more flexible autonomy in improving their academic performance. Another finding supporting the Social Cognitive Theory and previous research results is that the DLA student group has better academic performance than their SLA counterparts.

Keywords: Deep-Learning Approach, Scientific Approach, Time-Spent, Preservice Accounting Teacher

INTRODUCTION

The study related to the learning approach should be an interesting issue, especially in evaluating learning at any level of education in the 21st century. The changing conditions of the era, with all its dynamics, require regulators to actualize learning formulas that are oriented towards optimizing learning outcomes and stimulating student competence. The embodiment of the learning approach is categorized into two dimensions: DLA and SLA (Beattie IV et al., 1997; J. Biggs et al., 2001; J. B. Biggs, 1987; Everaert et al., 2017; Gordon & Debus, 2002; Hall et al., 2004). In particular, Hall et al., (Hall et al., 2004) emphasized that students' conceptual and analytical skills will be optimally formed when DLA is practiced effectively into their learning style.

Everaert et al. (Everaert et al., 2017) highlighted the urgency of the DLA application in optimizing the understanding of Accounting lecture material to create students' conceptual and analytical competencies in relevant subjects. One of the important findings from the results of their study showed that the allocation of longer study time made a positive contribution to the implementation of DLA, which impacted learning outcomes. Exploration of learning duration is one of the important points in this study, reflecting effective modeling of DLA applications in accounting learning at the college level. Thus, it can provide valuable input to regulators and lecturers specifically in formulating an effective DLA by controlling the learning duration factor, as Everaert et al. (Everaert et al., 2017) emphasized. On the other hand, the application of SLA founded negatively affects student learning outcomes which, in turn, limiting their expertise in memorizing and rewriting learning materials (J. Biggs et al., 2001; Everaert et al., 2017).

In accounting education, which aims to prepare prospective accounting teachers, such a learning approach will provide a rich learning experience. With the experience of doing

projects or mini-research, students can develop their critical thinking derived from the power of thinking and based on scientific foundations and debates that occur during project and mini-research work (Bensley & Murtagh, 2012; Blumenfeld et al., 1991; Reif, 1981; Sagala & Effiyanti, 2019). This gives them a solid footing in decision-making and in developing problem-solving ideas (Dolmans et al., 2016; Korthagen, 2004; Reif, 1981). Thus, prospective teachers will have the power to think critically and logically to solve pedagogical problems and innovate their instructional designs when they become teachers. In a more dynamic and evolving teaching practice today, these skills will be more demanded. Therefore, the teacher education process is becoming increasingly needed to provide such a quality learning experience.

Such learning practices are based on a constructivist approach (Bruner, 1996; Vygotsky, 1978). The constructivist approach seeks to design the learning environment in such a way as to be able to lead students to achieve their learning goals (Bada & Olusegun, 2015; Bensley & Murtagh, 2012; Pande & Bharathi, 2020; Schunk, 2012). The learning environment in question is lighter literature, projects, group work, cooperative learning, cases, exercises, brainstorming, mini-research, and various other instruments whose outcome is the mastery of knowledge following predetermined standard qualifications (Bensley & Murtagh, 2012; Christensen et al., 2019; Dolmans et al., 2016; Opdecam & Everaert, 2018; Pande & Bharathi, 2020; Sagala & Effiyanti, 2019). In addition, the learning environment requires students to play an active role as both learners and practitioners. Such conditions provide opportunities for students to confirm their initial knowledge with the new knowledge they gain from fundamental theory, research results, and actual practice (Dejene et al., 2018; Dolmans et al., 2016; Sagala & Effiyanti, 2019). This information then constructs a comprehensive understanding (Dunne & Martin, 2006; Pande & Bharathi, 2020; Scheer et al., 2012). Thus, students are projected to have new knowledge and learn experiences that teach them how to master new knowledge (Dolmans et al., 2016; Von Glasersfeld, 1998).

Interestingly, in responding to any instructional design implemented by the university, students have the autonomy to choose their own learning approach. It is because the learning approach has different drivers from the instructional approach. If the lecturer controls the instructional approach, the learning approach is controlled by the students themselves. Marton & Säljö (Marton & Säljö, 1976) classify this approach to learning into two types: DLA and SLA. Biggs (J. B. Biggs, 1987) describes the SLA as an intention only to acquire sufficient knowledge, and it is used only to complete assignments or pass the exam. Meanwhile, the DLA is described as the intention that students instill from within themselves to commit to gain knowledge and understanding of the material in-depth so that students will be able to think analytically and try to connect the knowledge gained with the knowledge previously acquired (J. Biggs et al., 2001; J. B. Biggs, 1987; Everaert et al., 2017; Hall et al., 2004). DLA is seen as making pre-service teachers experience a higher quality learning process than students with a surface learning approach (Gordon & Debus, 2002). In addition, of course, it will have implications for his capability as a teacher while on duty at school. However, the impact of DLA and SLA on the achievement of student academic performance still gives varied and inconsistent results (Dinsmore & Alexander, 2012; Dolmans et al., 2016).

Scientific-based learning such as Problem-Based Learning, Project-Based Learning, and Research-Based Learning has not adequately explained the differences between deep and surface learning variations in influencing student academic performance (Chotitham et al., 2014; Dolmans et al., 2016; Gordon & Debus, 2002; Hall et al., 2004; Salamonson et al., 2013). Although Dolmans et al. (Dolmans et al., 2016) have suggested that it can lead students to use a deep learning approach, in fact, there are still some students who practice surface learning. This is because students become drivers in choosing these two approaches in responding to a learning strategy. Therefore, it is debatable that other variables can increase the contrast

between deep and surface learning. In addressing this limitation, Everaert et al. (Everaert et al., 2017) have examined motivation as a precedent of learning approaches and learning duration as a mediator of learning approaches on academic performance.

Everaert et al. (Everaert et al., 2017) argue that motivation is an important variable that determines students' commitment to the approach they choose to learn. However, the actual results of studies and framework of Everaert et al. (Everaert et al., 2017) and several studies such as Lucas (Lucas, 2001) and Lange and Movondo (Lange & Mavondo, 2004) have indicated that motivation is inherent in the learning approach that student chosen is. Students with high intrinsic motivation tend to use learning as an instrument to provide personal satisfaction that enriches their quality so that they tend to drive themselves in deep learning. In addition, students with intrinsic motivation tend to be passionate about learning and orient themselves to the learning process (Lange & Mavondo, 2004). This concept is closely related to the DLA. Vice versa, students who place learning as a means of achieving value place extrinsic motivation as a trigger for learning (Everaert et al., 2017; Lange & Mavondo, 2004). This view is also very closely related to SLA. Thus, the learning approach demonstrated by the students has immediately shown what learning motivation they have.

As described in the initial segment, this study places learning time spent as a moderator in the relationship between students' learning approach and learning outcomes. In essence, the amount of learning duration is the domain of students, and they are free to determine how many hours they will use to study (Doumen et al., 2014). Therefore, the time consumed by each student will certainly vary even though they have the same learning approach orientation. However, Everaert et al.'s (Everaert et al., 2017) research indicate that students with a DLA consume more study time than students with an SLA. Therefore, it is reasonable to suspect that learning approaches and learning duration actually interact in producing academic performance rather than mediating. So this study aims to 1) examine the effect of the DLA on learning time-spent and student academic performance and 2) examine the moderation effect of the student learning approach on learning time-spent and academic performance relationship.

To achieve those research objectives, this study seeks to answer the following four research questions:

RQ1: Is there a difference in learning time-spent between students with the DLA and the SLA?;

RQ2: Is there a difference in academic performance between students with the DLA and the SLA?;

RQ3: Is there an effect of learning time-spent on students' academic performance?; and

RQ4: Does the learning approach moderate the effect of learning time-spent on students' academic performance?

In contrast to the study of Everaert et al. (Everaert et al., 2017), which tested time-spent as a mediating variable between the learning approach and academic performance. This study analyzed the student's learning approach as an interaction variable that increased the contrast of time spent effect on student academic performance. Students' time-spent in learning and doing assignments contributed to academic achievement (Hattie, 2009, 2015; Opdecam & Everaert, 2018). As explained above, this autonomy also brings freedom to students to determine when and how much time to learning or doing assignments (Everaert et al., 2017). Thus, the time-spent will show a different range in the learning process, either if someone uses a DLA or SLA (Doumen et al., 2014; Everaert et al., 2017). Therefore, the influence of the student's learning approach will be analyzed further, more than just on the quantity of time that student spent but on its influence on academic performance. The framework of this study is observable in Figure 1 below.

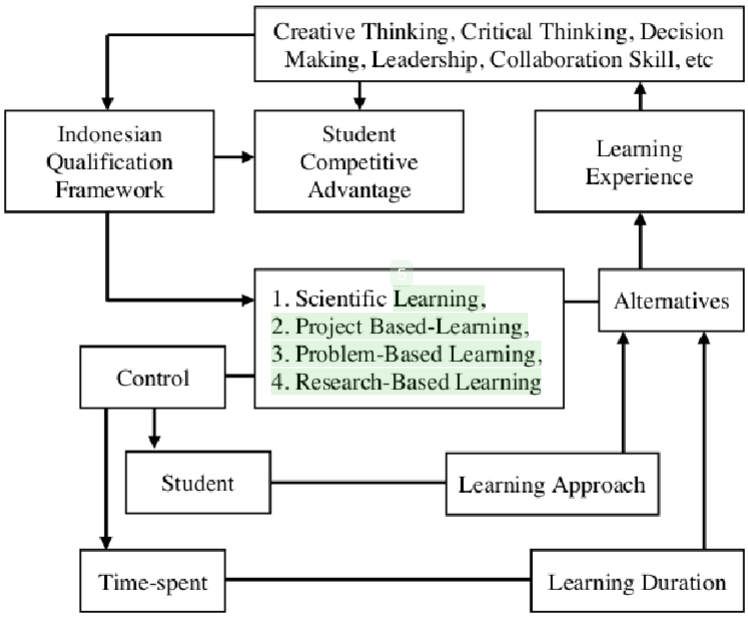

Figure 1. Theoretical Framework

METHOD

Subject

This research is conducted at the Faculty of Economics, State University of Medan. Indonesia. The subjects of this research are students of the 2016 Accounting Education Study Program. These students have been taught using an IQF-oriented curriculum with inquiry, scientific, problem, and project-based learning methods. At the time of data collection, the research subjects were in the last year of their study. Therefore, the subject is expected to represent the respondent's learning style during lectures in response to implementing the IQF-oriented curriculum during the undergraduate education process.

Instruments

This study using instruments to identify the tendency of students' learning approaches. The trend of learning styles to be observed is DLA and SLA in responding to learning that uses an IQF-oriented curriculum. The instrument was adapted from the R-SPQ-2F instrument (J. Biggs et al., 2001). R-SPQ-2F is a revised instrument of the Study Process Questionnaire (SPQ) developed by Biggs, Kember, & Leung (J. Biggs et al., 2001), which identifies the type of learning approach used by an individual or group, whether deep learning or surface learning. The R-SPQ-2F consists of 20 statement items, each of which consists of 10 items to measure the deep learning approach and another 10 to measure the surface learning approach. In addition, statements from each of these approaches are divided into statements of motivation and strategies in learning which indicate the respondent's tendency to one learning approach. The instrument is designed with 5 Likert scales to get a figure of learning style tendencies.

Before using the instrument to collect data, the researcher first carried out face validity and pilot tests on students of the Faculty of Economics in different majors. Face validity involves two experts to correct the layout, readability, and suitability of the content with what you want to measure. Then, after making improvements based on face validity, a pilot test was carried out with 40 respondents. Both stages were carried out to ensure the validity of the

overall instrument items in collecting research data (Cooper et al., 2006; Sekaran & Bougie, 2016). Variables, definitions, and indicators can be seen in Table 1 below.

Tabel 1. Variables and Instruments

No	Variable	Definition	Indicators	Source
1	Deep Learning Approach	DLA is a student's learning approach that emphasizes in-depth understanding of the material in a learning subject and intrinsically motivated.	• Satisfaction in learning • Maximum effort in learning • Independence in learning • More study time spent • High curiosity • Perseverance in learning • Able to understand the material comprehensively • Interest in the subject matter • Read a lot of recommended literature	Biggs, Kember, & Leung (J. Biggs et al., 2001)
2	Surface Learning Approach	SLA is a student's learning approach that only focuses on memorizing and doing assignments because of fears of not graduating in a course so that motivation is formed extrinsically.	• Less of learning efforts. • Have no enthusiasm for learning • Learning just for a few things. • Learning just to specific material that probably tested. • Learn by memorizing without understanding the material. • Presuming that lecturers do not expect maximum learning effort.	Biggs, Kember, & Leung (J. Biggs et al., 2001)
3	Time Spent	The length of time spent on students' learning activities, including reading, writing, and doing lecture assignments	Length of time that is used to: • Learning time inside the class hour • Reading literature outside class hours. • Writing about lecture material outside class hours. • Listening to explanations about the material in the course outside of lecture hours. • Doing exercises assigned by lecturers or those in learning resources outside of lecture hours.	Everaert et al. (Everaert et al., 2017)
4	Academic Performance	Academic performance is the cumulative results of the learning process given by the lecturer.	GPA of students of the year of entry 2016 in the even semester of the 2019/2020 academic year.	Walidaini, Mukid, Prahutama, & Rusgiyono (Walidaini et al., 2017)

Data Collection

Each respondent was asked to fill out the entire questionnaire to measure the DLA and SLA. Identification of learning approach tendencies is made by giving a positive score (+) for the sum score of the DLA variable items and giving a negative score (-) the sum score of the

SLA variable items. Thus, if the total sum of the scores of the two approach groups is positive, the respondent belongs to the DLA group. Still, if the result is negative, then the respondent belongs to the SLA group.

Furthermore, the time-spent is self-reported by responding to the average study hours that students spent a day during their undergraduate education. The learning duration response was asked to respondents with open-ended questions so that there was no time frame on the questionnaire that limited responses related to learning duration. A similar technique was used to get responses related to student's GPA. The difference is that GPA is not reported in the form of an estimate because it refers to the transcript documents owned by students. In this study, GPA data is used to represent students' academic performance at the undergraduate level.

The subject population consists of four classes with a total of 109 students. Researchers used total sampling in data collection. However, this study used an anonymous questionnaire to avoid response bias, and respondents were asked to fill out the questionnaire voluntarily (Cooper et al., 2006; Sekaran & Bougie, 2016). So that of the 109 questionnaires distributed, only 86 questionnaires were returned and filled in completely. The demographics of the sample can be seen in Table 2 below.

Table 2. Demography Profile

Variable		n	%
Gender			
	Male	27	31%
	Female	59	69%
		86	100%
Educational Background			
	Senior High School	7	8%
	Vocational High School	79	92%
		86	100%
Learning Approach			
	Deep Learning	51	59%
	Surface Learning	35	41%
		86	100%
Learning Time-Spent			
	High	22	26%
	Moderate	33	38%
	Low	31	36%
		86	100%

Data Analysis

Data analysis for the first and second research questions used analysis of variance (ANOVA). ANOVA is used to test the difference in time spent and academic performance between groups (Field, 2013). Meanwhile, the third and fourth questions were analyzed using moderated regression with multi-group analysis (MGA). MGA is used because the learning approach as a moderating variable is a categorical variable. So that the right moderating analysis tool is to use MGA (Field, 2013; Hair et al., 2009). ANOVA testing and regression analysis in this study used the help of SPSS 25 software, while MGA used the help of smartPLS 3.0.

RESULTS

Descriptive Statistics

Descriptive statistics show that from the 86 respondents involved. 35 students tend to SLA, and 51 students tend to the DLA. Furthermore, the respondent group with the DLA has

a higher average GPA than the respondent group with the SLA. It appears consistent in the reported minimum and maximum GPA figures. Interestingly, in the time-spent figure, the DLA respondent group reported a unique figure. In general, this group had a longer average study time of approximately 10 hours per day, while the respondent group with the surface learning approach reported an average of approximately 7 hours per day. However, the respondent group with the deep learning approach has a relatively high standard deviation of 3,158, indicating a fairly high variation in the data with 4 to 17 hours in its time-spent. Thus, this figure does show a fairly high gap. Likewise, the figures in this descriptive statistic will be explored further in hypothesis testing as the basis for concluding. Descriptive statistics, in general, can be observed in Table 2 below.

Table 3. Descriptive of Statistics

Variable		N	Mean	Std. Dev.	Min	Max
Duration	Surface Learning	35	7.114	1.827	5.00	13.00
	Deep Learning	51	10.529	3.158	4.00	17.00
	Total	86	9.139	3.170	4.00	17.00
GPA	Surface Learning	35	3.242	.117	3.00	3.68
	Deep Learning	51	3.465	.187	3.15	3.89
	Total	86	3.374	.195	3.00	3.89

ANOVA

The result of the ANOVA in this study is presented in table 4 below. The result indicates a significant difference in time-spent between groups of respondents with a DLA and an SLA with a p-value < 0.05. This finding shows that, in general, students with the DLA tend to have a longer time-spent and are significantly different from students with the SLA. This finding confirms the assumptions used by Everaert et al. (Everaert et al., 2017) in their research that students with DLA tend to consume more time learning and doing assignments. Although respondents have a wide range of variations in time consumption in DLA, in fact, the average time consumption shows a longer duration and has a significant difference. Naturally, students who practice the DLA need a lot of time to explore information, discussion, test their arguments with the other colleagues' arguments, build a frame of mind, create work reports, and make presentation documents. DLA-approached students could not pass those various activities without worth of knowledge confirmation (Dolmans et al., 2016; Gordon & Debus, 2002). Therefore, the learning process tends to be more time-consuming than learning with an SLA.

Table 4. Result of ANOVA

Research Question			Sum of Squares	df	Mean Square	F	Sig.	Decision
RQ1	Time Spent		242.077	1	242.077	33.213	.000	Supported
			612.249	84	7.289			
			854.326	85				
RQ2	GPA		1.029	1	1.029	38.818	.000	Supported
			2.226	84	.027			
			3.255	85				

Furthermore, the DLA group's GPA was also significantly different compared to the GPA of the SLA group, with a p-value < 0.05. This finding shows that students with DLA tend to achieve higher GPAs than students with an SLA. This finding is consistent with the findings of Beattie IV et al. (Beattie IV et al., 1997), Gordon and Debus (Gordon & Debus, 2002),

Dolmans et al. (Dolmans et al., 2016), and Everaert et al. (Everaert et al., 2017), which revealed that prospective teachers who practice the DLA have better self-efficacy and academic performance, especially in learning and assessment programs that demand holistic knowledge within students (Beattie IV et al., 1997; Gordon & Debus, 2002; Korthagen, 2004). In this study, respondents were faced with an inquiry-based learning program and a scientific approach (Bensley & Murtagh, 2012; Hall et al., 2004; Reif, 1981). So that, students are required to explore and construct their own knowledge. In such situations, students have autonomy in determining their learning strategies with minimal intervention from the lecturer (Bruner, 1996; Vygotsky, 1978). Therefore, the practice of a DLA is increasingly needed by learners themselves.

Regression Analysis

Regression analysis in this study was carried out in two stages: 1) testing the effect of time spent on academic performance and 2) testing the moderation of the learning approach on the relationship of time spent on academic performance. The test was carried out in two stages because the moderation analysis in this study used Multi-Group Analysis (MGA). Thus, in the first test, all sample data was used, while in the second test, the sample data is separated into the DLA group and the SLA group. The results of that two tests can be observed in table 5 below. The first test results showed that the time spent had a positive and significant effect on the student academic performance with a regression coefficient of 0.453 and a p-value of 0.000 (<0.05). This finding is in line with previous research done by Opdecam & Everaert (Opdecam & Everaert, 2018), Hattie (Hattie, 2015), Doumen et al. (Doumen et al., 2014), and Evereart et al. (Everaert et al., 2017), which suggests that students who spend more time studying and doing assignments tend to show better academic performance and achievement. In addition, students who consume more learning time have the possibility to absorb more information, especially in constructivism learning which requires students to explore a wide range of learning resources and construct knowledge collaboratively with their peers (Pande & Bharathi, 2020). These processes, in addition to consuming a lot of learning time, also provide a solid learning experience and, in turn, result in good academic performance.

Table 5. Result of Regression Analysis

Research Question		Coef.	Std. Error	T	Sig.	Decision
RQ3	Time Spent → GPA	.883	.004	17.217	.000	Supported
RQ4	Time Spent → GPA (*Deep Learning Group*)	.879	.005	12.881	.000	Not Supported
	Time Spent à GPA (*Surface Learning Group*)	.670	.011	5.186	.000	
	Time Spent*Learning Approach → GPA	.174		1.429	.157	

To deepen the three previous findings, this study examines the moderating effect of the students' learning approach on the value of time spent on students' academic performance. When tested separately between groups, the regression coefficient of the effect of time spent on academic performance of the DLA group showed a greater number of coefficients than the SLA group with regression coefficients of 0.879 and 0.670, respectively. Both regression coefficients were found to have a significant level with a p-value <0.05. However, when further tested using MGA to examine the significance of the difference in influence between the two groups, it was found that there was no significant moderating effect of the learning approach with a p-value of 0.157 (> 0.05). These results indicate no interaction between the students'

learning approach and the time they consume in influencing their academic performance. This study is slightly different from Evereart et al. (Everaert et al., 2017), who reviewed time spent as a mediator of the influence of the DLA on academic performance. However, this study still enriches the learning-related research to the effect of the learning approach and time spent on academic performance. On the one hand, both the learning approach and the time spent has a positive effect on academic performance separately, although various studies have indicated that the deep learning approach tends to result in higher time consumption (Dolmans et al., 2016; Everaert et al., 2017; Gordon & Debus, 2002). Likewise, for the case in this research, the instructional design and evaluation provided actually require students to practice a DLA (Beattie IV et al., 1997; Dolmans et al., 2016; Gordon & Debus, 2002). However, as explained earlier, that students have autonomy over their own learning activities so that it is still possible for them to practice surface learning even though the lecturers teach with inquiry, scientific, problem-based, and project-based approaches (Dolmans et al., 2016; Lange & Mavondo, 2004; Lucas, 2001). As a result, both students who practice deep learning and surface learning have a fairly wide learning time span, and in fact, the time spent has a high significance influence in both groups. So that the treatment that lecturers can give to optimize learning activities through these two aspects must be done separately or using a different stimulus.

DISCUSSION

The results of data analysis revealed that: 1) students who use the DLA consume higher learning time than students who use the SLA; 2) students who use the DLA have better academic performance than students who use the SLA; 3) time spent has a positive and significant effect on student academic performance; and 4) learning approaches do not moderate the effect of learning duration on student academic performance. The final finding shows that undergraduate students probably have a long learning time spent, and it affects their academic performance even though basically these students have different learning orientations. While the learning orientation represented by DLA and SLA affects the time spent on the learning and academic performance, it does not interact with the time spent achieving student academic performance. This is presumably because, in nature, whether using DLA or SLA, the consumption of student learning time, in general, is quite high because the learning methods practiced are inquiry, scientific, problem, and project approaches.

The Government of the Republic of Indonesia, through Government Regulation No. 32 of 2013, states that The National Education Standards aim to ensure the achievement of Competencies and Competency Standards that must be possessed, internalized, and mastered by every graduate which includes attitudes, knowledge, and skills (Government Regulation No. 32 of 2013 Concerning National Educational Standard, 2013). Furthermore, the Regulation of the Minister of Education and Culture no. 3 of 2020 concerning National Standards for Higher Education requires universities to educate students to have mastery of attitudes, knowledge, and expertise following the academic qualifications they pursue (Regulation of the Minister of Education and Culture No. 3 of 2020 Concerning National Standards for Higher Education, 2020). At the undergraduate level, students are required to solve problems in their field of work, connect various knowledge that supports problem-solving, and collaborate with multidisciplinary and multicultural teams. Therefore, the universities transform the learning process to be oriented towards the independent exploration of information, using a scientific approach, solving problems, and developing projects to solve actual problems. Thus, students basically cannot avoid a long, varied, and demanding learning process that demands problem-solving ideas. Theoretically, this approach will lead students to practice deep learning in their learning activities (Dinsmore & Alexander, 2012; Dolmans et al., 2016; Salamonson et al., 2013). However, in fact, there are still students who practice surface learning because learning activities are completely in the power of students, and each student has a different driver in

him by placing motivation either intrinsically or extrinsically (Dolmans et al., 2016; Everaert et al., 2017). This study also proves that some students are still practicing surface learning. Therefore, the time spent by students still shows variations that are affected by the heavy and rigorous learning process. However, the learning approach is formed from the state of motivation in students, whether intrinsic or extrinsic (Everaert et al., 2017). Although the learning approach affected learning time spent and academic performance, the main background for forming the time spent and the learning approach was not the same, so they did not interact to improve students' academic performance.

Furthermore, the fact that needs to be a concern for universities is that there are still students who practice SLA. Whereas it has been empirically tested that DLA consistently affects academic performance. Moreover, the cultivation of learning characters in DLA will carry over to their daily work activity. Therefore, universities must determine a more rigorous and measurable strategy to control student learning practices so that they tend to have a DLA. Indeed, the challenge is complex because preparing students who have competence in problem-solving and critical thinking adaptive to the times is not an easy and simple matter (Dolmans et al., 2016).

According to Vygotsky's (Vygotsky, 1978) social cognitive theory, learning design cannot be simply task-based, but task assignments must consider various learning joints to produce a social framework that can influence student learning practices. As revealed by Reif (Reif, 1981), Blumenfield et al. (Blumenfeld et al., 1991), Schunk (Schunk, 2012) that the learning process is a process that continues to develop according to the dynamics of students and must be generated from deep reflection not just based on simple technical rationality. It means that universities must further explore holistic learning designs in practicing inquiry, scientific, problem, and project-based approaches. At the same time, lecturers must take an important role in developing learning that instills a scientific mindset in students. Assignments given to students to demand problem solving and project development must be followed by the availability of guidance, readiness to provide feedback, availability of literature, availability of access to information, the sensitivity of lecturers in capturing learning problems, the readiness of lecturers to provide alternative solutions to learning problems, and readiness of lecturers to interact. Continuously with students even outside of study hours. Preparing a learning environment that can help and stimulate students to learn to achieve learning goals is indeed a complex and complicated matter (Blumenfeld et al., 1991; Christensen et al., 2019; Dejene et al., 2018; Schunk, 2012). This challenge certainly has big implications in evaluating learning practices and human resource development for academic staff in higher education.

CONCLUSION

This study aims to 1) examine the effect of the deep learning approach on student learning time spent and academic performance and 2) examine the moderation of the student learning approach to learning time spent on student academic performance. This study found that the DLA affected student learning duration and academic performance but did not moderate the effect of time spent on student academic performance. Theoretically, this study adds an insight related to the basic background of the student's learning orientation, which produces learning actions with a certain approach. Meanwhile, the length of time spent for learning is indeed formed from the demands of the learning process and heavy assignments. Based on these findings, optimizing student learning is the DLA stimulus through the implemented learning program.

Practically, the findings of this study recommend universities evaluate learning programs and assignments that have been held to prepare students according to the Indonesian Qualification Framework (IQF) qualifications. The learning programs that have been held have not necessarily stimulated students to use a deep learning approach in completing tasks and

their learning process. Furthermore, developing a more careful and holistic learning program targeting various aspects of student learning is necessary. Lecturers must stimulate students to learn and apply a deep learning approach in their learning activities both inside and outside the classroom. Thus, the learning experience and learning orientation will be embedded in students and become their provisions for a career in the future.

This study has several limitations, including the limited variety of respondents to the Faculty of Economics students. The limitations on the observed learning design are the existing learning practices after the implementation of the IQF. The next researcher can review the phenomenon of respondents with more diverse backgrounds and further review what kind of learning designs can really stimulate deep learning for students. In addition, future studies can use pure experimentation to determine what determinant variables are the key to the deep learning approach.

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REFERENCES

Bada, S. O., & Olusegun, S. (2015). Constructivism learning theory: A paradigm for teaching and learning. *Journal of Research \& Method in Education*, *5*(6), 66–70.

Beattie IV, V., Collins, B., & McInnes, B. (1997). Deep and surface learning: a simple or simplistic dichotomy? *Accounting Education*, *6*(1), 1–12.

Bensley, D. A., & Murtagh, M. P. (2012). Guidelines for a scientific approach to critical thinking assessment. *Teaching of Psychology*, *39*(1), 5–16.

Biggs, J. B. (1987). *Student Approaches to Learning and Studying*. *Research Monograph*. ERIC.

Biggs, J., Kember, D., & Leung, D. Y. P. (2001). The revised two-factor study process questionnaire: R-SPQ-2F. *British Journal of Educational Psychology*, *71*(1), 133–149.

Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational Psychologist*, *26*(3–4), 369–398.

Bruner, J. S. (1996). *The culture of education*. Harvard University Press.

Chotitham, S., Wongwanich, S., & Wiratchai, N. (2014). Deep learning and its effects on achievement. *Procedia-Social and Behavioral Sciences*, *116*, 3313–3316.

Christensen, J., Harrison, J. L., Hollindale, J., & Wood, K. (2019). Implementing team-based learning (TBL) in accounting courses. *Accounting Education*, *28*(2), 195–219.

Cooper, D. R., Schindler, P. S., & Sun, J. (2006). *Business Research Method*. McGraw-Hill.

Dejene, W., Bishaw, A., & Dagnew, A. (2018). Preservice teachers' approaches to learning and their teaching approach preferences: Secondary teacher education program in focus. *Cogent Education*, *5*(1), 1502396.

Dinsmore, D. L., & Alexander, P. A. (2012). A critical discussion of deep and surface processing: What it means, how it is measured, the role of context, and model specification. *Educational Psychology Review*, *24*(4), 499–567.

Dolmans, D. H. J. M., Loyens, S. M. M., Marcq, H., & Gijbels, D. (2016). Deep and surface learning in problem-based learning: a review of the literature. *Advances in Health Sciences Education*, *21*(5), 1087–1112.

Doumen, S., Broeckmans, J., & Masui, C. (2014). The role of self-study time in freshmen's achievement. *Educational Psychology*, *34*(3), 385–402.

Dunne, D., & Martin, R. (2006). Design thinking and how it will change management education: An interview and discussion. *Academy of Management Learning \&*

Education, *5*(4), 512–523.
Everaert, P., Opdecam, E., & Maussen, S. (2017). The relationship between motivation, learning approaches, academic performance and time spent. *Accounting Education*, *26*(1), 78–107.
Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. sage.
Gordon, C., & Debus, R. (2002). Developing deep learning approaches and personal teaching efficacy within a preservice teacher education context. *British Journal of Educational Psychology*, *72*(4), 483–511.
Government Regulation No. 32 of 2013 concerning National Educational Standard, (2013).
Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis 7th Edition Pearson Prentice Hall*. JOUR.
Hall, M., Ramsay, A., & Raven, J. (2004). Changing the learning environment to promote deep learning approaches in first-year accounting students. *Accounting Education*, *13*(4), 489–505.
Hattie, J. (2009). The black box of tertiary assessment: An impending revolution. *Tertiary Assessment \& Higher Education Student Outcomes: Policy, Practice \& Research*, *259*, 275.
Hattie, J. (2015). The applicability of visible learning to higher education. *Scholarship of Teaching and Learning in Psychology*, *1*(1), 79.
Korthagen, F. A. J. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. *Teaching and Teacher Education*, *20*(1), 77–97.
Lange, P. de, & Mavondo, F. (2004). Gender and motivational differences in approaches to learning by a cohort of open learning students. *Accounting Education*, *13*(4), 431–448.
Lucas, S. R. (2001). Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American Journal of Sociology*, *106*(6), 1642–1690.
Marton, F., & Säljö, R. (1976). On qualitative differences in learning: I—Outcome and process. *British Journal of Educational Psychology*, *46*(1), 4–11.
Regulation of the Minister of Education and Culture no. 3 of 2020 concerning National Standards for Higher Education, (2020).
Opdecam, E., & Everaert, P. (2018). Seven disagreements about cooperative learning. *Accounting Education*, *27*(3), 223–233.
Pande, M., & Bharathi, S. V. (2020). Theoretical foundations of design thinking--A constructivism learning approach to design thinking. *Thinking Skills and Creativity*, *36*, 100637.
Reif, F. (1981). Teaching problem solving-A scientific approach. *The Physics Teacher*, *19*(5), 310–316.
Sagala, G. H., & Effiyanti, T. (2019). SMEs project: a method to encourage interpersonal skills among pre-service accountant. *Journal of Applied Research in Higher Education*.
Salamonson, Y., Weaver, R., Chang, S., Koch, J., Bhathal, R., Khoo, C., & Wilson, I. (2013). Learning approaches as predictors of academic performance in first year health and science students. *Nurse Education Today*, *33*(7), 729–733.
Scheer, A., Noweski, C., & Meinel, C. (2012). Transforming constructivist learning into action: Design thinking in education. *Design and Technology Education: An International Journal*, *17*(3).
Schunk, D. H. (2012). *Learning theories an educational perspective sixth edition*. Pearson.
Sekaran, U. S., & Bougie, R. J. (2016). *Research Methods For Business : A Skill Building Approach* (7th Editio). John Wiley & Sons Inc.
Von Glasersfeld, E. (1998). Cognition, construction of knowledge, and teaching. In *Constructivism in science education* (pp. 11–30). Springer.
Vygotsky, L. S. (1978). Socio-cultural theory. *Mind in Society*, *6*, 52–58.

Walidaini, N., Mukid, M. A., Prahutama, A., & Rusgiyono, A. (2017). Analisis Diskriminan Berganda Dengan Peubah Bebas Campuran Kategorik dan Kontinu Pada Klasifikasi Indeks Prestasi Kumulatif Mahasiswa. *Media Statistika*, *10*(2), 71–83.

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