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ORIGINAL RESEARCH

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TEACHER-CENTERED LEARNING AND STUDENT-CENTERED LEARNING APPROACHES IN NURSING SCHOOL: WHICH ONE IS BETTER?

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ABSTRACT

Background: Student academic achievement is influenced by learning instruments such as: teaching staff, facility and infrastructure as well as the curricular component. Teacher-Centered Learning (TCL) or Student-Centered Learning (SCL) will also contribute to student's outcomes as an approach to apply a curricular component.

Objective: To compare students' academic achievement levels between undergraduate students who follow TCL and SCL approaches in nursing school.

Methods: This was a quantitative research with a descriptive analytic method comparative study. The entire undergraduate student population in one of nursing school in Indonesia from 1999 to 2011 was included in this research. The relevant data in this study was GPA score and length of study. A total sampling method was performed to select 918 subjects involved in the study. The data were analyzed using Mann-Whitney test.

Results: Academic achievement was assessed from GPA score and length of study. The average GPA of students who followed a TCL approach was 3.28, while the score for those who followed a SCL approach was 3.54 with p-value of 0.00. The average length of study of students who followed a TCL approach was 4 years 3 months; while those with a SCL approach was 4 years 1 month with p-value of 0.279.

Conclusions: There was a significant difference on GPA score and no significant differences on the length of study between the undergraduate students who followed a TCL versus a SCL approaches.

Keywords: academic achievement, teacher-centered learning, student-centered learning

INTRODUCTION

The continuing evolution of science and technology cannot be separated from the role of higher education institutions as a source scientific study, research and innovation. Enhanced educational

opportunities are spreading throughout the world, especially during the current era of globalization in which economics; information and technology are more easily obtained and disseminated. These conditions create additional work for

higher education institutions to be more precise in response to globalization to produce professionals who are ready to compete in a globalized world.¹

It is² stated that Student-Centered Learning (SCL) approach may support learners to achieve their skills in problem solving, independent thinking and autonomous learning. Learner's experience is the focus of this approach as well as their perspective, backgrounds, talent, interests, capacities, and needs.² This approach however, needs to be explored and be compared with other traditional teaching approach, which is called Teacher-Centered learning (TCL). Teacher-Centered learning is considered as an approach using instruction to transfer knowledge to students.³ Based on study⁴ it is suggested that Student-Centered Learning lead to improvement in the grade value. This article however, does not solely use evidence in nursing education.

METHODS

This study utilizes quantitative research with a descriptive analytic method comparative study. This research design was selected to provide a general overview of the level of academic achievement amongst students who followed the TCL approach when compared to students who followed a SCL in one of nursing school in Indonesia.

This nursing school in Faculty of Medicine Universitas Gadjah Mada, Indonesia was established in 1999 using a TCL approach and changed its method to a SCL approach in 2008. Changes in the learning approach was characterized by a switch in subjects from the original semester credit system (SKS) into a block system, additionally, a variety of teaching methods emerged following the change. The TCL approach is dominated by lectures. This method emphasizes the development of basic skills that are

designed from the top (teachers) to bottom (students), teachers are considered as information providers and students as passive recipients of information.⁵

The SCL approach applied at this nursing school combines lectures with discussion, role-play, case-based learning, and opened ended questions. Learning is not limited to the classroom. Students are divided into small groups for activities both in the classroom and outside the classroom. Learning activities in small group discussions include tutorials, laboratory practicum, skills labs, field trips, and seminar assignments. A SCL learning approach has a greater impact on learners. Learners become vibrant, self-sufficient, and increase their ability to problem solve.^{6,7}

The research was conducted in August 2015. The focus group for this research was the students of School of Nursing Faculty of Medicine Universitas Gadjah Mada, Indonesia Program A, class of 1999/2000 until 2011/2012. Sampling was conducted using the total sampling method. This study was approved by Ethic Committee Faculty of Medicine Universitas Gadjah Mada.

Research was conducted by processing academic achievement data using computer software instruments. Data collection was done by studying student records, documenting cumulative Grade Point Average (GPA) scores and the length of study period, obtained from the academic database of the School of Nursing Faculty of Medicine Universitas Gadjah Mada, Indonesia. The acquired data was entered into a tabulation list using Microsoft Excel. A comparison of the average GPA and the study period in both groups (TCL and SCL) was conducted using an unpaired t-test. Data distribution was reviewed using Kolmogorov Smirnov. Distribution data was not normal, so an unpaired t-test was

done using a non-parametric test- the Mann-Whitney test.

RESULTS

This research was conducted using data from 918 graduates from School of

Nursing Faculty of Medicine Universitas Gadjah Mada, Indonesia who studied during the years of 1999/2000 to 2011/2012. The characteristics of the subjects in this study are shown in Table 1 below.

Table 1 Subject Characteristics

Year of graduation	Gender				Total		Learning approach	
	Male		Female		N	%	TCL	SCL
	N	%	N	%				
1999	9	16.36%	46	83.64%	55	5.99%	55	0
2000	7	11.11%	56	88.89%	63	6.86%	63	0
2001	11	15.28%	61	84.72%	72	7.84%	71	0
2002	12	15.19%	67	84.81%	79	8.61%	79	0
2003	6	9.84%	55	90.16%	61	6.64%	61	0
2004	6	10.00%	54	90.00%	60	6.54%	60	0
2005	6	8.96%	61	91.04%	67	7.30%	67	0
2006	5	7.94%	58	92.06%	63	6.86%	63	0
2007	4	5.88%	64	94.12%	68	7.41%	68	0
2008	10	14.29%	60	85.71%	70	7.63%	0	70
2009	9	9.38%	87	90.63%	96	10.46%	0	96
2010	11	12.64%	76	87.36%	87	9.48%	0	87
2011	1	1.30%	76	98.70%	77	8.39%	0	77
Total	97	10.57%	821	89.43%	918	100.00%	588	330

Table 1 shows the frequency distribution of students by gender and learning approach TCL and SCL based on members of the graduating classes from 1999/2000 to 2011/2012. Out of 918 participants, there were 588 students who

followed a TCL approach and 330 students who followed a SCL approach. As can be seen in Table 1, there were more female than male subjects in this study based on the composition of the students at this school.

Student academic performance based on learning approach

Table 2 Student Academic Performance Based on Approach to Learning

Learning Approach	GPA		Study Period (Years)	
	Range	Average	Range	Average
TCL	2.11 – 3.93	3.28	3.57 – 10.46	4.24
SCL	2.50 – 3.96	3.54	3.86 – 5.46	4.08

Table 2 explains the distribution of GPA score and study period for each learning approach. The lowest GPA score belonged to a student who followed a

TCL approach and a student who followed a SCL approach earned the highest GPA.

Student academic performance based on gender

Table 3 Student Academic Performance Based on Gender

Gender	GPA		Study Period (Years)	
	Range	Average	Range	Average
Male	2.30 – 3.84	3.22	3.57 – 7.97	4.33
Female	2.11 – 3.96	3.39	3.57 – 10.46	4.16

Categorization of GPA

This study divides the GPA into the three following categories:

- 1) Cum laude (with honors) with a GPA of 3.56 to 4.00 and degree completion within a maximum period of 5 years
- 2) Very satisfactory with a GPA of 2.76 – 3.5
- 3) Satisfactory with a GPA of 2.00 – 2.75

Distribution of GPA by academic achievement categorization

Table 4 Categorization of GPA

Categorization	Academic Achievement				p-value
	TCL		SCL		
	N	%	N	%	
Cum laude	134	22.79	111	33.64	0.000
Very Satisfactory	417	70.92	219	66.36	
Satisfactory	37	6.29	0	0.00	
Total	588	100	330	100	

Period of study

The study period was divided into two groups: on schedule and delayed. The time frame defined by the study period should be 4 years plus two semesters,

which amounts to 5 years. Delayed means the study period exceeded 5 years without a University granted leave of absence.

Table 5 Characteristic of Study Period

Characteristics	Period of study				p-value
	TCL		SCL		
	N	%	N	%	
On schedule	537	91,33	327	99,1	0.000
Delayed	51	8,67	3	0,9	
Total	588	100	330	100	

Hypothesis testing

Research was analyzed by the Mann-Whitney test to determine any differences in the level of academic achievement of students in the School of Nursing Faculty

of Medicine Universitas Gadjah Mada, Indonesia between students who followed the TCL and the SCL approaches.

Difference in GPA scores

Table 6 GPA Analysis Using the Mann-Whitney Test

GPA	Mean Rank	p-value
TCL	373.80	0.000
SCL	612.20	

Difference in study period

Table 7 Analysis of Study Period Using the Mann-Whitney Test

Study Period	Mean Rank	p-value
TCL	452.41	0.279
SCL	472.14	

Table 8 Standard Material Achievement

Material achievement	Absolute score	Letter grade	Number grade
75 – 100 %	75 – 100	A	4
70 – 74.9 %	70 – 74.9	A/B	3.5
65 – 69.6 %	65 – 69.6	B	3
60 – 64.5 %	60 – 64.5	B/C	2.5
55 – 64.9 %	55 – 64.9	C	2
45 – 54.9 %	45 – 54.9	D	1
< 44.5 %	< 44.5	E	0

DISCUSSION

Result of this study shows that in this nursing school, female still dominates over male. This study show that even the number of male nursing student considered as increase but male is still considered as minority group in this nursing profession.⁸

This study also shows that gender is one factor that affects academic performance as the result show that average GPA scores are higher for females when compared to males. Men may have a lack of interest in the field and this phenomenon has led to an increase in gender bias within the discipline. Other researchers also found that there was a significant relationship found between genders within the nursing profession with a p-value=0.009.^{9,10}

In this study, students who followed the TCL approach received a

GPA score based on their grade for each subject of study, while the students who followed the SCL approach received a GPA score based on their block assessment and longitudinal assessment. However, the result regarding the length of study between students followed TCL and SCL was different. In this study, one TCL student with a GPA of 3.55 who did not fall into the category of cum laude because their study period exceeded 5 years, i.e. 6 years. So not all values of more than 3.5 are considered as cum laude. Similarly, not all who graduate on time can be categorized cum laude.

Students who followed a SCL approach were more likely to graduate cum laude (33.64%), whereas students who followed a TCL approach were more likely to graduate with a very satisfactory academic achievement (70.92%). It was found that only students who followed a

TCL approach obtained a satisfactory level of academic achievement at 6.29%. Overall the GPA of students from the nursing school was quite good.

Ninety one percent of the students from the TCL group finished their studies within the specified time frame, while 99.1% of students from the SCL group finished on schedule. Judging from the large percentage of students who finished on schedule, most students from the graduating classes of 1999/2000 - 2011/2012 have been able to complete their studies in a timely manner.

GPA testing using the Mann-Whitney test resulted in a significance value of (p) 0.000. Because the value of $p < 0.05$, the GPA of students from the TCL group was statistically significantly different from the GPA of students from the SCL group. Based on the average GPA, it can be concluded that the SCL approach produced students who had a higher GPA than those who followed the TCL approach.

Analysis of study period length (in one-year units) using the Mann-Whitney test obtained a p-value of 0.279. A P value > 0.05 showed no statistically significant difference in regards to length of study period between students who followed a TCL approach and those who followed a SCL approach. This could have happened because two students had study periods that extended well beyond the average. One student in the class of 1999 took over 10 years 2 months to finish their degree, and a student in the class of 2004 took over 10 years 5 months. However, according to the mean age of the study it can be concluded that learning with the SCL approach produced students who had a shorter study period (4 years 1 month) compared to students with the TCL approach (4 years 3 months).

Broadly speaking, the approach of learning by SCL has a higher level of academic achievement than the TCL

approach. The SCL approach used blocks of learning that students were required to follow. Different from the TCL with its traditional lecture-based approach, SCL applied a number of learning methods within one block. The blocks that the students followed consisted of a subject that was integrated with a variety of delivery methods, such as classical lectures, discussions, tutorials, skills labs, group assignments, laboratory experiments, and field trips to health and community service providers. Presenting subjects with a block system allows students to improve their frame of mind and better understanding of the knowledge presented to them.

The grades of students who followed SCL were compiled from a variety of assessments. The scores were calculated by comparing the proportion of each method in a block with the total score.¹¹

On average, the students' block scores tended to be higher with a mean GPA of 3.54. This is because one of the SCL students scored less than B, which had a more negative impact compared to a TCL student. SCL students tend to be more independent, active and serious with their studies; efforts are taken to maintain good scores. The SCL approach with the block system makes it difficult for students to repeat the block because of a poor grade.^{6,7,12}

SCL has at least 11 different teaching methods. The main purpose of learning by the SCL approach is how students can learn well and sustainably with the SCL method of inquiry and discovery. The SCL approach opens up a wider perspective for students to discover and solve problems. In addition, the SCL approach encourages students to think critically so that they can see problems in their entirety.¹³

The SCL approach is better applied to learning because students can

absorb and retain more information. Student's participation in the development of their studies becomes a medium of self-directed learning, so that students have more study time. Studying with a SCL approach encourages students not only to obtain more information, but also be a medium of leadership, more adept at problem solving, improve cohesiveness among students, and eliminate borders between students and teachers—who until now have been thought to be all-knowing and always right.⁷

SCL adopts a strategic approach, which emphasizes learning the proper methods of delivery resulting in higher academic achievement, with required assessments conducted to test comprehension. A strategic approach can be used as a predictor of academic achievement. Academic achievement is positively related to strategic approach.^{13,14}

Strategic approach consists of a deep approach and a surface approach. Deep approach is a learning strategy that is characterized by the desire to understand the material being studied, by integrating information obtained previously with new information, as well as information from a variety of sources. When applied, a deep approach will produce quality learning and the development of analytic capabilities. Meanwhile, surface approach learning strategy tends to emphasize memorization of the learning materials. The application of the surface approach is characterized by a desire to achieve minimal results with minimal effort. Results are poor because students focus on memorization without trying to integrate and analyze what they study. This is very different from teaching that actively involves the students resulting in a positive effect on academic achievement. The higher the level of activity in the class and more self-

directed studying are associated with a deep approach.

CONCLUSION

Although Student-Centered Learning approach significantly increases grade achievement than Teaching-Centered Learning, however this approach did not have any influence in the length of study.

Declaration of Conflict of Interest

None declared.

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Authorship Contribution

The authors contributed equally in this study.

References

1. Altbach P, G, Reisberg L, Rumbley L, E. *Trends in global higher education: tracking an academic revolution*. London: UNESCO;2009.
2. Agrahari R. The nature of educational reform and change: From teacher-centered to student-centered learning. *Educational Quest: An International Journal of Education and Applied Social Sciences*. 2016;7(2):133-139.
3. Barr R, B, Tagg J. From teaching to learning - A new paradigm for undergraduate education *Change*. 1995; 27(6):12-25.
4. Mostrom A, M, Blumberg P. Does learning-centered teaching promote grade improvement? *Innovative Higher Education*. 2012;37(5):397-405.
5. Elliot S, N. *Education psychology: Effective teaching, effective learning*. New York: The McGraw-Hill Co; 2000.
6. Ahmed A, K. Teacher-centered versus learner-centered teaching style. *The Journal of Global Business Management*. 2013;9(1):22-34.
7. Al-Zu'be A F, M The difference between the learner-centred approach and the teacher-centred approach in teaching english as a foreign language. *Educatio-*

- nal Research International*. 2013;2(2): 23-41.
8. Gunawan J. Nursing and men: A gender bias. *Belitung Nursing Journal*. 2017; 3(1):52-53.
 9. Rola. *Reflection of educational world*. Yogyakarta: Gava Media; 2006.
 10. McLaughlin K, Muldoon O, T, Moutray M. Gender, gender roles and completion of nursing education: A longitudinal study. *Nurse Education Today*. 2010; 30(4):303-307.
 11. School of Nursing. *Academic guideline for undergraduate 2014/2015, School of Nursing*. Yogyakarta: Universitas Gadjah Mada; 2014.
 12. Aminuddin. *Evaluating learning methode: student centered learning (SCL) approach at gizi FKM UNHAS*. Yogyakarta: Universitas Gadjah Mada; 2013.
 13. Entwistle N, McCune V, Hounsell J. *Approaches to studying and perceptions of university teaching-learning environ- mental: Concepts, measures and preliminary finding. Occasional Report 1. Enhancing teaching and learning environment in undergraduate courses project*. Edinburgh: Higher and Community Education, School of Education, University of Edinburgh; 2002.
 14. Cassidy S, Eachus P. Learning style, academic belief system, self-report student proficiency and academic achievement in higher education. *Educational Psychology*. 2000;20(3): 308-319.

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