

Effectiveness Naval Collaboration Flexible Learning (NCFL) Model in Increasing Learning Outcomes The Indonesian Naval Technology College

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Abstract – Learning is the core of education, so solving problems in the low quality of education must be focused on the quality of learning itself. The application of the NCFL learning model is expected to improve the learning achievement outcomes of students of the Naval College of Technology. This study aims to determine the effectiveness of the application of the NCFL learning model in the Citizenship course on the activities and learning outcomes of D3 students of the Indonesian Naval Technology College. This research is a non-equivalent experimental quantitative research (pretest-posttest) with data analysis using SPSS software. The results showed that the NCFL learning model was quite effective in being applied to D3 students of the Naval College of Technology in the Citizenship course. The independent significance value is $0.000 < 0.05$ so that there is a significant difference in effectiveness between the use of the NCFL learning model and the conventional learning model. The results of the research group experiment n gain an average of 0.634 with the category quite effective and the control group 0.102 included in the ineffective category. Based on the results of the analysis, it can be concluded that the application of the NCFL learning model is quite effective in the activities and learning outcomes of the D3 students of the Naval College of Technology.

Keywords – Effectiveness, Naval Collaboration Flexible Learning (NCFL) Model, The Citizenship Courses.

I. INTRODUCTION

Education is a conscious effort made by humans to maintain the values of life and culture, to pass on knowledge from one generation to another, thus human life will be more cultured and civilized (Paolini, 2015). Today, as we know, science and technology are passed on through educational institutions. In educational institutions, students are given in-depth knowledge about various things. In this case, the development of students must be prioritized, because the purpose of establishing educational institutions is to create quality human resources (Brown, 2005), both in terms of knowledge, as well as in terms of morals or personality.

If we focus our minds on some other more developed countries, then immediately we will realize that it is very

dangerous if we are left behind from these countries, especially in terms of technological mastery. We should reflect on our past experiences where without having knowledge and technology, we simply became a colony. Therefore, in this paper, I as a writer tries to contribute my ideas and thoughts for the advancement of our education. All things that are disclosed in this research are to improve student achievement (Harrington & Walker, 2009). Both in terms of science and aspects of educational management (Haverila, 2010). Education at the Naval College of Technology requires some improvements in terms of its management, as well as in terms of methodology or scientific approach.

Learning is at the core of education (Burns, 2013). Solving the problem of low-quality education should focus on the

quality of learning. Educators are one of the key roles in determining the success of learning. Good educators are creative educators, always looking for new approaches or strategies in learning. The search for new approaches or strategies leads to various kinds of learning innovations. The form, form, and efforts of this innovation vary. However, all of them have the same general goals and objectives, namely the realization of a quality learning process so that it can improve the competence, abilities, skills, and competitiveness of graduates of an educational program at the level, type, or path being taken. One form of learning innovation is the application of the Naval Collaboration Flexible Learning (NCFL) learning approach.

In implementing the diffusion of NCFL learning innovations, of course, it will be seen how effective and efficient the results are. Therefore, this study was conducted to describe the implementation of the NCFL learning model for D3 students of the Naval College of Technology in the Citizenship Education course.

Based on the results of observations from D3 students of the Indonesian Naval Technology College, it shows that the Citizenship education learning material uses a textbook that presents theory with a presentation that does not attract students' interest, some of which consist of several activities that involve students actively, but seem monotonous, lecturing tends to be top-down from educators to students. Students need to be encouraged with an interesting learning model, namely by applying the NCFL model.

The learning system has an important role in learning. One component of the learning system that plays an important role in helping students achieve standard competencies is learning resources, especially learning materials. Then, not only focus on the area of attaining cognitive knowledge but also involve other aspects such as thinking, scientific literacy, training students about Life Skills and directing students to associate the subjects studied and problems of daily life, so that they can get some benefit from subject studied. Based on the previous discussion, this study aims to determine the effectiveness of the application of the NCFL learning model on student learning activities and outcomes in the Citizenship course.

This paper has many literatures to support the research, such as literature with title The use of value clarification technique-based- picture story media as an alternative media to value education in primary school (Fariyatul & Bando, 2017), STTAL Development Strategy To Produce Human Resources That Acknowledge Technology Facing The Industrial Revolution Era 4.0 (Mashudi, Rahman, Bando, &

Hasan, 2019), Three different design approachhes (Alammary, Sheard, & Carbone, 2014), The effectiveness of wikis for project-based learning in different disciplines in higher education (Chu & Zhang, 2017), (Afzaal, Siau, & Suhali, 2019), Learning style preferences of medical students: A single institute experience from Saudi Arabia (Ayesha, Salem, Quadri, & Al-Hamdan, 2011), The Learning styles and personalities traits of undergraduate: A case at a state university in Istanbul (Erdal, Kiziltepe, Seggie, & Sekerler, 2014), Effect of personality traits and learning styles towards students' academic achievement in Johor Bahru (Sabil, Shin, & S., 2018), The learning styles and the preferred teaching— learning strategies of first year medical students (Kharb, Jindal, & Singh, 2013), 'Effectiveness of web-based learning opportunities in a competency-based program (Jiang, Parent, & Eastmond, 2006), A meta-analysis of effectiveness studies on computer technologysupported language learning' (Grgurovic, 2013), Transforming a teacher education method course through technology: Effects on preservice teachers' technology competency (Angell, 2005).

The research was organized as follows, part 1 was the introduction, part 2 presented the literature review and methodology, section 3 presented the results and data analysis, and part 4 presented the conclusions.

II. MATERIAL AND METHODS

2.1. Approach to Learning Model Development NCFL.

Amory argues that developing a software design should be based on learning theories (Amory, 2007). Ardhana adds that to improve the quality of educational practice (Ardhana, 2008), more and more quality research on learning theory is needed. This needs to be done because as stated by Pogrow (in Ardhana, 2008) if you look at the history of education reform, it almost always ends in a worse situation. Why is that? The answer is because these studies are not based or supported by a strong and quality theoretical foundation. In this sense, each activity in the product element of the learning design must be designed and built using a theoretical basis as an approach to improve learning outcomes and better learning processes (Lobato, 2006), including generating intrinsic motivation, learner involvement in learning, providing real experiences and social space for supported learners with learning resources that can be used flexibly (Benton & Pallett, 2013).

2.2. Elaboration Theory.

Reigeluth and Stein refer to the theory of elaboration in four S's, including: "Selection, Sequencing, Synthesizing and Summarizing" the content of the field of study (Reigeluth &

Stein, 1983). This elaboration theory describes how to organize learning content from general to detailed, general to detailed sequences starting from the epitome (important content framework) then elaborating the contents of the epitome into more detail. The principles of application of elaboration theory are called cognitive zoom, which is analogous to a zoom event on a lens that can see things in general and fundamentals which are then described in more detail.

In learning activities, some elements characterize collaborative learning, including positive interdependence, individual accountability, advancing face-to-face interaction, the use of appropriate collaboration skills, and the existence of group processes (Lam, 2009). Gokhale suggests that collaborative learning refers to a learning method in which learners of various abilities work together in small groups to achieve a goal (Gokhale, 1995). Each learner has personal and social responsibilities. The success of a learner is considered as the success of other learners. Students help each other learners to achieve success.

2.3. Flexible Learning.

Cubitt, Joyce argues that flexible learning is organizing a flexible online learning environment which is a combination of computer-based learning and distance learning (Cubitt & Joyce, 1994). A flexible learning environment is an area provided and focuses on the choices of learners in carrying out learning activities and how learners carry out learning activities. According to Collin and Moonen flexible learning is a process of giving the flexibility to move from one learning situation to another so that an effective learning process occurs (Collin & Moonen, 2006). The situation of a flexible learning environment, can be viewed from several dimensions of flexibility adopted from the thinking of Collin and Moonen, consists of (a) Flexible relating to time and space, (b) Flexible relating to material content, (c) Flexible related to the use of learning approaches and resources, and (d) Flexible related to the technical delivery of messages (Collin & Moonen, 2006).

2.4. Methodology

Research carried out at the Indonesian Naval Technology College. The population in this study were all students of D3 batch 15 consisting of 4 classes. While the sample taken consisted of two classes consisting of 20 students as an experimental group and 10 students as a control group taken by purposive sampling technique. This study used a quasi-experimental design with a non-equivalent type (pretest-posttest).

Sources of data in this study were students and lecturers at the Indonesian Naval Technology College. The quantitative data taken were students in the form of a recap of learning outcomes and activities during the NCFL learning process. The learning outcomes or scores obtained from students are then used to analyze the effectiveness of the NCFL learning model at the Naval College of Technology. The level of effectiveness of the NCFL learning model is seen from student learning outcomes and t-test of student activities.

Students' attitudes towards the Citizenship course were analyzed using a questionnaire. The type of questionnaire used is a closed questionnaire that provides complete answer choices so that students must mark the selected answer.

Target: The purpose of this research is to see the effectiveness of the application of the NCFL learning model at the Indonesian Naval Technology College.

Steps: The steps of this research are: step 1 makes two class groups, experiment, and control, step 2 compile a questionnaire and give it to students, step 3 analysis the questionnaire results using SPSS software, step 4 provides suggestions for improvement and conclusions.

III. RESULTS AND DISCUSSION

From the results of the questionnaire data collection, it can be seen that the average score of student achievement in the experimental group and the control group is as shown in Figure 1.

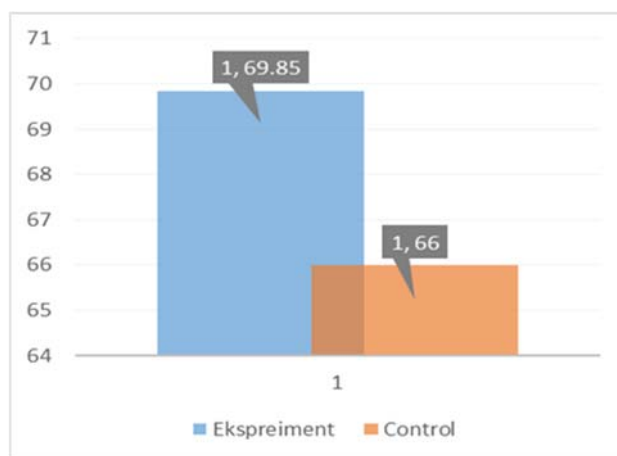


Figure 1. The mean score of students at the end of the pre-test

Based on Figure 1, it can be seen that the average activity score of the experimental group is higher than the control group. With the application of the NCFL learning model in the Citizenship course, all students can actively carry out presentation activities, mingle with the community, group discussions, and practice personality according to the Indonesian culture. The assessment technique in the experimental group was carried out by looking at all activities to then be given a score according to the predefined assessment sheet, the lecturer divided into five observations and each observation had a value. And based on the results of data analysis on student activities, it is known that during the learning process the activities of students of the Naval College of Technology show good and significant results compared to the control group using conventional learning models.

The learning process of the Citizenship subject using the NFCL model consists of five sub learning variables. These variables are (1) the relationship between Citizenship education and the Pancasila philosophy, (2) direct student practice in the community, (3) student communication styles in presenting material, (4) student self-regulation as part of a leader who has a managerial style and (5) group cooperation process.

Citizenship education is education that studies and discusses governance, the constitution, democratic institutions, the rule of law, human rights, rights and obligations as citizens, and the democratic process. Democratic education consists of

Socialization, Dissemination, and actualization of democratic concepts, systems, values, culture, and practices through education.

The spirit of the nation's struggle has ebbed and flowed according to the dynamics of the journey of life which is caused, among other things, the influence of globalization which is marked by the rapid development of global science and technology, especially in the fields of information, communication, and transportation, so that the world becomes transparent as if it is a worldwide village without knowing national borders. Such conditions create the structure of life in the community, as a nation and as a state in Indonesia and influence the mindset, attitudes, and actions of the Indonesian people.

The spirit of the Indonesian nation's struggle in filling independence and facing globalization. Indonesian citizens need to have insight and awareness of the state, attitudes, and behavior, love the country, and prioritize national unity and integrity in the framework of defending the country for the integrity and upholding of the Unitary State of the Republic of Indonesia.

The average gain index for the experimental group was 0.634 while the control group was 0.102 which was in the average criteria. The average index gain for the experimental and control groups is presented in Figure 2.

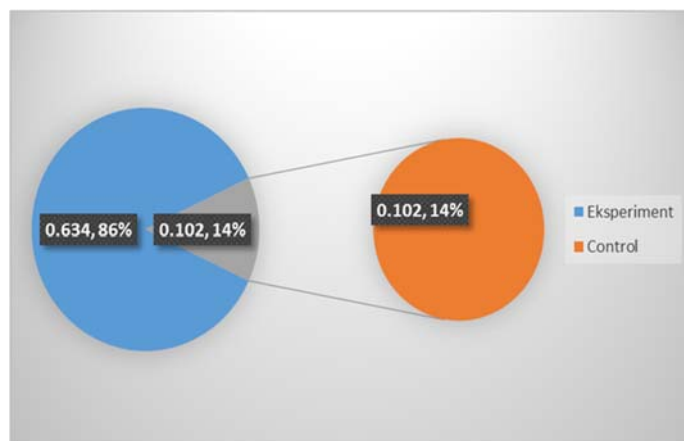


Figure 2. Graph of Average gain index for the experimental and control groups

The difference in the average n-gain in the experimental and control groups shows that the NCFL learning model is proven to be effective and can access students' abilities in the Citizenship course. The learning outcomes or post-test of the experimental and control groups were taken through an assessment of the implementation in the field. The NCFL

learning model was applied to the experimental group while the control group used the conventional learning model, which can be seen in Figure 3 that student learning outcomes in the Citizenship subject in the experimental class were higher than the control group.

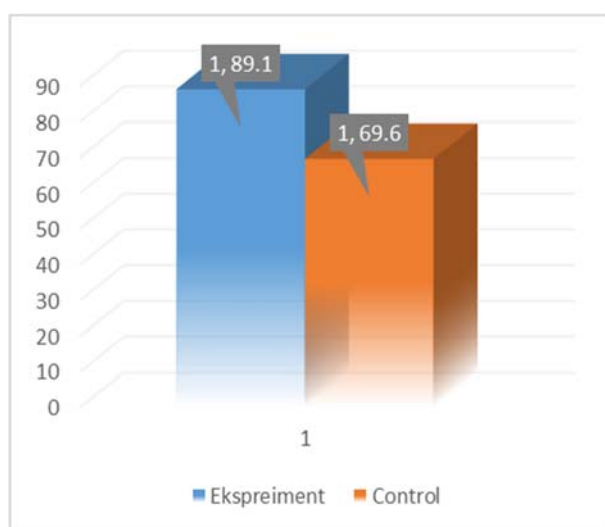


Figure 3. Graph of Average Value of Students' Cognitive Learning Outcomes in the Experiment and Control Groups

Figure 3 shows that the average learning outcomes of the experimental group are higher than the control group. The success of the NCFL learning model has been able to improve learning outcomes, activities, motivation, and critical attitude as well as student curiosity about Citizenship lessons.

Improving the quality of the process and learning outcomes can be achieved through increased collaboration between

qualified lecturers and students. Collaborative activities in the learning process can also be carried out between students who work together to improve the quality of the process and learning outcomes. Collaboration among learners is an instrument of strength and a characteristic of professional learning communities that can improve school performance.

NCFL learning can provide opportunities for successful learning practices. As the technology for learning (technology for instruction), NCFL learning involves the active participation of students and also minimizes differences between individual students. NCFL learning at the Naval College of Technology has added to the momentum of formal and informal education from two united forces, namely: Practice realization, that life outside the classroom requires collaborative activities in real life and also fosters awareness of social interaction to realize learning that is precise and meaningful.

The following are the steps for studying NCFL at the Naval College of Technology, namely: (1) The students in the group set learning goals and divide their assignments, (2) All

students in the group read, discuss, and also write, (3) Student groups work in synergy to identify, demonstrate, research, analyze, and formulate answers to assignments or problems in textbooks or problems they find themselves, (4) After the student groups agree on the results of problem-solving, each student writes his report -self completely, (5) the lecturer randomly assigns one group (then efforts are made so that all groups can turn to the front) to present the results of the group discussion in front of the class, while students in other groups observe, observe, compare the results of the presentation, and respond. This activity is carried out for approximately 30 minutes, (6) Each student in the group performs elaboration, inference, and revision (if necessary) on the report to be collected, (7) Student reports are corrected, commented on, assessed, returned at the next meeting, and discussed.

Table 1. Average N-gain

Descriptives				Statistic	Std. Error
KELAS					
	Mean			63.2554	1.28347
	95% Confidence Interval for	Lower Bound		60.5691	
	Mean	Upper Bound		65.9418	
	5% Trimmed Mean			63.5378	
	Median			64.5161	
	Variance			32.946	
EKSPERIMEN	Std. Deviation			5.73986	
	Minimum			50.00	
	Maximum			71.43	
	Range			21.43	
	Interquartile Range			6.28	
	Skewness			-.928	.512
	Kurtosis			.509	.992
	Mean			10.1955	1.36592
	95% Confidence Interval for	Lower Bound		7.1056	
KONTROL	Mean	Upper Bound		13.2855	

From Table 1 above, it can be stated that the n-gain average of the experimental group is 63.2554 and is in the quite effective category, meaning that the effectiveness of the NCFL learning model in the Citizenship course is quite effective. Whereas in the control group using the conventional learning

model has an average n-gain value of 10.1955 and is in the ineffective category, which means that the conventional learning model is not effective to be applied to students of the Naval College of Technology.

Table 2. Test of Normality

	KELAS	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
NGAIN_PERSEN	EKSPERIMEN	.205	20	.027	.911	20	.067
	KONTROL	.286	10	.020	.889	10	.167

In the normality test using SPSS 25 software, it was found that the significance value for the experimental group was 0.067 and was above 0.05 and the control group o, 167 so that

it could be stated that the two data groups were normally distributed so that further t-test can be carried out.

Table 3. Average N-gain value

Group Statistics					
	KELAS	N	Mean	Std. Deviation	Std. Error Mean
NGAIN_PERSEN	EKSPERIMEN	20	63.2554	5.73986	1.28347
	KONTROL	10	10.1955	4.31943	1.36592

Based on the statistical group output in Table 3 above, it is known that the Mean N-gain value for the experimental class is 63.2554 or 63.3%. So based on the category table it can be concluded that the use of the NCFL learning model for students of the Naval College of Technology is effective enough to improve the learning outcomes of D3 students of the Naval College of Technology.

Meanwhile, the mean N-gain value for the control class is 10.1955 or 10.2%. So based on the category table it can be

concluded that the use of conventional learning models for students of the Naval College of Technology is ineffective in improving the learning outcomes of D3 students of the Naval College of Technology.

So that statistically descriptive it can be said that there is a difference in the effectiveness of the application of the NCFL learning model with the conventional model in improving the learning outcomes of D3 students of the Naval College of Technology.

Table 4. Independent Significance

Independent Samples Test					
		Levene's Test for Equality of Variances			
		F	Sig.	t	df
NGAIN_PERSEN	Equal variances assumed	1.277	.268	25.729	28
	Equal variances not assumed			28.309	23.303

Based on Table 4, it is known that the significance value is 0.268 and is greater than 0.05, it can be concluded that the N-

gain data variant for the experimental class and control class data is the same or homogeneous.

Table 5. Independent Samples Test

Independent Samples Test					
or Equality of ces		t-test for Equality of			
Sig.	t	df	Sig. (2-tailed)	Mean Difference	
.268	25.729	28	.000	53.05989	
	28.309	23.303	.000	53.05989	

Based on the Independent Sample Test output Table 5, it is known that the significance value is 0.000 < 0.05, so it can be concluded that there is a significant difference in effectiveness between the use of the NCFL learning model and the conventional learning model in the Citizenship course at D3 students of the Naval College of Technology.

The Pancasila philosophical approach in the NCFL model is the main foundation that underlies all approaches, both the

cultural approach of the Indonesian Navy and other theoretical approaches. These approaches are based on the same basic assumptions, namely, that: (1) the individual learner is an active agent who is always meaningfully looking for and building his knowledge in a meaningful social context. The meaningful meaning here is that the knowledge that is built has enormous benefits and is following the needs of the learners themselves and the needs of their social environment. (2) Individual learners still need learning actions from learners that

are carried out with great compassion, nurture, and care, and responsibility. (3) The learning process requires an environment that has been designed to be multi-perspective, multi-variation, and flexible to make it easier for learners to carry out their learning activities.

Education is a cultural behavior. Education is a cultural endeavor. Ki Hajar Dewantara argues that cultural endeavors are all human actions that arise from maturity, namely the fruit of refinement of feelings (morale) (Dewantara, 1977), the fruit of intelligence of the mind, and the fruit of the power of their will, namely all their energies. So culture is the fruit of the human.

Culture always develops from time to time. The development of a more advanced culture can be achieved through education. One of the correct approaches in education and which is the original culture of the Indonesian nation is the among system, which is a system that has been following the civilization of the Indonesian people from ancient times until now. In the context of learning, the NCFL learning model is expected to be able to accommodate the achievement of leadership competencies that are following the culture or culture in the organizational environment. The application of the NCFL learning model is quite effective in improving student learning outcomes in the Citizenship course at the Naval College of Technology.

IV. CONCLUSION

Based on the results of the analysis, it can be concluded that the application of the Naval Collaboration Flexible Learning (NCFL) learning model which consists of learning places, teaching materials, learning methods, learning resources, and evaluation tests is effective enough to increase the activeness and learning outcomes of D3 students of the Indonesian Naval Technology College.

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