

# 2020\_2\_JURNAL PENDIDIKAN DAN MANAJEMEN - Fransisca Desiana

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**Submission date:** 18-Mar-2022 10:10AM (UTC+0700)

**Submission ID:** 1786825929

**File name:** 2020\_2\_JURNAL\_PENDIDIKAN\_DAN\_MANAJEMEN\_-\_Fransisca\_Desiana.docx (103.56K)

**Word count:** 5194

**Character count:** 29676

## Flipped Learning Model as the Implementation of Inquiry Revised Community to Enhance Students' Learning Achievement

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**Abstract:** Progress in technology impacts the educational sector, which allows teachers to build interactive learning programs. The goal of this study is to investigate the use of the flipped learning model to improve student learning outcomes as the implementation of the revised community of inquiry (RCOI). The research was carried out on students who took the course in Organizational Management, Management Study Program, Economics Faculty, Sanata Dharma University. A purposeful sampling method was used for the sampling technique, data mining used questionnaires for 163 respondents and classroom surveys. Three factors are included in the aspects examined, specifically the characteristics of the learning program, implementation and the outcomes obtained. The data analysis was using factor analysis. The findings showed that learners thought the stimuli using the flipped learning model made learning simpler and more autonomous for them and this RCOI measure provided its advantages in influencing the progress of their learning outcomes.

**Keywords:** *Model Flipped Learning, Revised Community of Inquiry (RCOI), Students' Learning Outcomes*

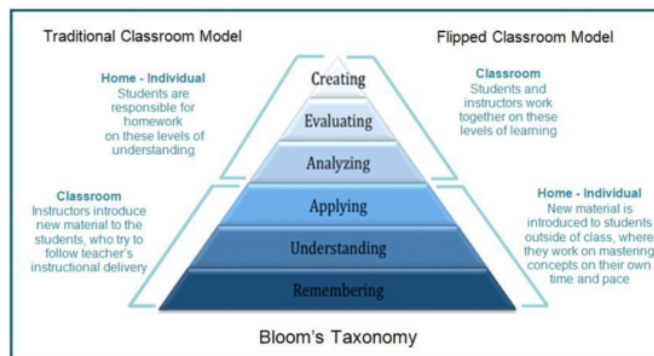
### INTRODUCTION

Digitalization as a sign of technological progress in these various aspects requires higher education to respond positively to the adoption of technology in learning activities that can improve student-centered learning (Kim et al., 2014; Yot-Domínguez & Marcelo, 2017). Digital media is considered a versatile platform for education because it can be accessed anytime and anywhere (Henderson, Selwyn, & Aston, 2017; Lin, Chen, & Liu, 2017). Despite that, the presence of technology in higher education turns out to be an indisputable challenge for both instructors and learners. Numerous learning methods and strategies have been developed to improve students' learning interest. One method that is able to be used is flipped learning. Flipped learning is one of the learning strategies that takes a great extent of attention and is presumably suitable for millennial learners (Kim et al., 2014). Meanwhile, the development of new learning strategies should take into account the quality of learning process to meet the desired objectives (Garrison, Anderson, & Archer, 1999). When attending classes in higher education, learners are expected to be able to learn numerous concepts, thus, it requires particular learning method to support meaningful learning. On that account, flipped learning is considered appropriate to accomplish the desired goal.

A learning process requires to take into account a number of elements as an important prerequisite to accomplish successful learning experience, particularly in higher education (Zerihun, Beishuizen, & Van Os, 2012). To construct some

important elements in establishing a meaningful learning process needs to take into account varied aspects, such as pedagogical aspect and bloom's taxonomy. These related components are required to be comprehensively identified within each individual to ensure that the learning objectives are positively accomplished. Special attention to important components of the learning experience at the higher education level can be maintained when applied in a learning environment (Devlin & Samarawickrema, 2010; Roberts, 2006).

A strong perspective informs that a technology-mediated instructional explanation model requires a learner's commitment to building active group knowledge (Shea & Bidjerano, 2010). The awareness of the participatory students is important to maintain the continuity of online learning process. Teachers perceive that students have prepared themselves before the class starts thus, the interaction between the teacher and students can be more meaningful and the class works effectively without the need to meet outside the classroom with the teacher (Sari, 2013).



**Figure 1.** Comparison of Bloom's Taxonomy in Learning Models  
Source: Krathwohl (2002)

Flipped learning model designs are often limited to the concept of replacing in-class instruction with videos and using class session for doing homework (Arnold-Garza & Towson University, Albert S. Cook Library, 2014; Lee & Martin, 2020). It is more than just a concept, that this approach facilitates interaction between students and teachers, and different learning by reversing conventional events both inside and outside the classroom (Shea & Bidjerano, 2010; Swan, Matthews, Bogle, Boles, & Day, 2012). and supporting learners with digital technology (Koehler, Mishra, & Cain, 2013). This study uses a theoretical framework - revised community of inquiry (RCOI) (Garrison et al., 1999; Shea & Bidjerano, 2010), by generating a model capable of guiding the elaboration of the design principles of the flipped learning model. This framework argues that knowledge building results from collaborative interactions between active students in a learning environment (Shea & Bidjerano, 2010). The RCOI framework theorizes four elements that contribute to a successful learning environment (Garrison et al., 1999), specifically cognitive presence, social presence, teaching presence, and learner presence enhanced by use of technology. Cognitive Presence is knowledge that involves the ability to think critically and creatively. Social Presence aims at

encouraging peer relationships. Teaching Presence is an instructional role in the learning environment. Learner Presence is self-regulation and learning. The use of technology should also be adjusted to the extent to which students find it easy and comfortable when using technology. This study aims at evaluating the flipped learning model as the application of a revised community of inquiry in order to improve learning outcomes

## METHODS

This research employed descriptive qualitative approach. The object of this research was students who take Organizational Management courses, Management Study Program, Faculty of Economics, Sanata Dharma University. The sampling technique used was purposive sampling, specifically, the criteria for respondents were even Semester 2019/2020 and following a minimum attendance of 75 percent for one semester. The number of respondents was 163 students. To collect the data, this research used questionnaires and field observations. Data analysis was performed using descriptive statistics followed by factor analysis which became the main instrument in analyzing the phenomena that occurred in this case. To ensure that the flipped learning model implementation program could be evaluated, it used the dimensions proposed by Widoyoko (2009), in specific: learning program design, program implementation and the results achieved. In evaluating the design of the learning program, it was carried out qualitatively by discussing the design of the learning program that focuses on the aspects of evaluation, specifically the developed competencies, learning strategies, and the content of the learning program. In evaluating the implementation of this learning program, it was carried out quantitatively using the RCOI aspect as a measurement indicator, specifically cognitive presence, social presence, teaching presence, and learner presence.

## RESULTS & DISCUSSION

The organizational management course is deemed suitable for applying the flipped learning method because it is the basic course in the management study program. Active learning strategies were used as basic provisions and this is introductory concept of management as a form of achievement of mastery of the aspects of planning, organizing, leading and controlling (competence). Thus, it is expected that there would be an increase in the assessment of student learning outcomes.

The topic developed with the flipped learning model was designed with the aim of achieving mastery of basic management concepts and principles, especially related to the main tasks of managers who work in a dynamic environment, implementing planning, organizing, staffing, leading, and monitoring functions effectively and efficiently to be able to develop the organization. Students are invited to be able to apply expertise in the field of organizational management and accompanying technology in a changing business environment (regional, national and global). In general, the lecturer team optimizes the use of LMS as a platform for communicating with students by utilizing some of the features provided such as

assignment collection, announcements, weekly delivery of materials, quizzes, and forums.

**Table 1.** Learning Evaluation by Using Flipped Learning Model

Indicator	Items	Mean	Std. Dev
<b>Teaching Presence</b>  (mean: 4.5285; Std Dev: 0.47913)	TP1 The lecturer clearly communicates the learning objectives.	4.63	0.578
	TP2 The lecturer provides clear instructions on how to participate in learning activities.	4.64	0.575
	TP3 The lecturer clearly communicates due dates/time frames that are important for learning activities.	4.73	0.534
	TP4 The lecturer helps me stay engaged and participate in productive dialogue.	4.33	0.703
	TP5 The lecturer strengthens the development of a sense of community in the classroom	4.39	0.74
	TP6 The lecturer provides illustrations to help me make lessons easier to understand for me.	4.48	0.661
	TP7 The lecturer provides clarifying explanations or feedback to clarify the material.	4.5	0.632
<b>Social Presence</b>  (mean: 4; Std Dev: 0.63353)	SP1 This learning system makes it easy for me to get to know each other with my classmates.	4	0.923
	SP2 Unconsciously, this learning system increases the sense of belonging in the classroom.	3.96	0.891
	SP3 Online media in the learning system makes me feel comfortable learning.	3.54	0.995
	SP4 I feel comfortable participating in discussions.	4,19	0.782
	SP5 I feel comfortable interacting with other students in the class.	4.08	0.831
	SP6 I feel that my opinion is recognized by other students in the class.	3.93	0.798
	SP7 Discussions help me develop a sense of collaboration.	4.31	0.731
<b>Cognitive Presence</b>  (mean: 4.2060; Std Dev: 0.57802)	CP1 The case examples discussed increased my interest in classroom problems.	4.1	0.806
	CP2 I feel motivated to explore the material discussed in class. Brainstorming and finding relevant	4.2	0.771
	CP3 information helps me solve questions related to the material.	4.12	0.776
	CP4 Combining the information obtained from each student turned out to help me answer the questions posed in class activities.	4.26	0.776
	CP5 This learning activity helps me build explanations / solutions for a particular case.	4.18	0.756
	CP6 Reflection and discussion help me understand the basic concepts in this class.	4.27	0.694
	CP7 I can apply the knowledge to my daily life as well as my future work	4.29	0.761



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<b>Learner Presence</b>	LP1	I try to change the way I study to suit the requirements of the lecturers' activities and teaching style.	4.2	0.808	
	LP2	I worked hard to get good grades even when I wasn't interested in some topics.	4.46	0.731	
	(mean: 4.2147; Std Dev: 0.57802)	LP3	I try to think of a topic and decide what I could study	4.15	0.780
	LP4	Before I started studying, I thought about the things I needed to do to study.	4.07	0.872	
	LP5	When studying for activities I try to determine which concepts I don't understand very well.	4.2	0.761	
<b>Technology Used</b>	TU1	I feel confident and easy to use technology, especially to support learning outside the classroom	4.09	0.864	
	TU2	It is easy for me to find and access material outside of the classroom	3.98	0.899	
	(mean: 4.0782; Std Dev: 0.64760)	TU3	In general, the technology associated with outdoor activities is easy to use.	4.2	0.769
	TU4	The technology used for activities outside the classroom allows me to collaborate with other students	4.05	0.815	

The results of the descriptive analysis in table 1 show that all indicators obtained a good average value because the entire items obtained a value above 3.4. Hence, all items are categorized as good. This means that students have the perception that organizational management learning using the flipped learning model is useful for improving their understanding and learning outcomes because of the aspects of Teaching Presence, Social Presence, Cognitive Presence, Learner Presence, and Technology Use as also conveyed by Garrison et al. (2010); McKerlich, Riis, Anderson, and Eastman (2011) in their research results.

The average Teaching Presence indicator was 4.5285 with a standard deviation value of 0.47913, meaning that students who undergo lectures for one semester strongly agree that they perceived the instructional role in their learning environment through flipped learning method. Furthermore, the instructional role would increase the students' understanding about lesson contents which then improves their learning outcomes.

The average Social Presence indicator was 4.2060 with a standard deviation value of 0.57802, meaning that students who undergo lectures for one semester strongly agree that all kinds of stimuli during one semester in flipped learning encourage collegial relationships and collaboration. This can encourage their ability to socialize and adapt to their future and further, it enhances their awareness of empathy for others (compassion).

The average Cognitive Presence measure was 4.2060 with a standard deviation value of 0.57802 which indicates that students who are attending lectures for one semester strongly accept that flipped learning promotes an improvement in their intelligence and also the ability to think critically and creatively. They are expected to be independent in learning. They would become an individual who like to read or carry out a research because this has become a routine in daily life.

The average Learner Presence predictor was 4.2147 with a standard deviation value of 0.57802, which means that students who were lectured for one semester strongly accept that co-regulation and autonomous learning occur (conscience). With a standard deviation value of 0.64760, the average Technology Usage predictor was 4.0782, which indicates that learners feel relaxed and easy to use technology when ending flipped learning lectures for one semester. The researchers tested the validity and reliability of the research instrument before carrying out the next step of study. The results of the validity and reliability are shown in Table 2.

**Table 2.** The Results of Validity Testing

Indicator	Sig. Value	R-count	R-table	Remark
TP 1	0.000	0.804	0.1538	Valid
TP 2	0.000	0.807	0.1538	Valid
TP 3	0.000	0.693	0.1538	Valid
TP 4	0.000	0.744	0.1538	Valid
TP 5	0.000	0.756	0.1538	Valid
TP 6	0.000	0.729	0.1538	Valid
13 7	0.000	0.776	0.1538	Valid
SP 1	0.000	0.765	0.1538	Valid
SP 2	0.000	0.814	0.1538	Valid
SP 3	0.000	0.631	0.1538	Valid
SP 4	0.000	0.776	0.1538	Valid
SP 5	0.000	0.753	0.1538	Valid
SP 6	0.000	0.740	0.1538	Valid
SP 7	0.000	0.756	0.1538	Valid
CP 1	0.000	0.692	0.1538	Valid
CP 2	0.000	0.735	0.1538	Valid
CP 3	0.000	0.800	0.1538	Valid
CP 4	0.000	0.746	0.1538	Valid
CP 5	0.000	0.809	0.1538	Valid
CP 6	0.000	0.768	0.1538	Valid
CP 7	0.000	0.775	0.1538	Valid
LP 1	0.000	0.766	0.1538	Valid
LP 2	0.000	0.659	0.1538	Valid
LP 3	0.000	0.724	0.1538	Valid
LP 4	0.000	0.755	0.1538	Valid
LP 5	0.000	0.746	0.1538	Valid
TU 1	0.000	0.799	0.1538	Valid
TU 2	0.000	0.803	0.1538	Valid
TU 3	0.000	0.815	0.1538	Valid
TU 4	0.000	0.677	0.1538	Valid

All questionnaire statements may be declared valid based on the meaning of importance. Both questionnaire statements can also be declared valid based on the value of the r count and the r-table, since the r-count was greater than the r-table. In addition, the researchers performed a test for reliability.

**Table 3.** The Results of Reliability Testing

22	Variable	Cronbach's Alpha Values	Remark
	Teaching Presence	0.873	Reliable
	Social Presence	0.863	Reliable
	Cognitive Presence	0.878	Reliable
	Learner Presence	0.781	Reliable
	Technology Use	0.775	Reliable

20 Cronbach's Alpha value must be 28 greater than 0.6 to state that a variable is declared reliable. For this reason, the results of the evaluation of the reliability test in Table 3 indicates that the Cronbach Alpha value of all variables is above 0.6, respectively 0.873 for Teaching Presence, 0.863 for Social Presence, 0.878 for Cognitive Presence, 0.781 for learner presence, and 0.775 for technology use, hence all variables can be stated to be reliable.

Furtherm3re, the analysis was carried out by factor analysis to identify the indicators of teaching presence, social presence, cognitive presence, learner presence, and technology use which plays as factors in the process of improving student learning outcomes through the flipped learning model.

10 **Table 4.** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.849
Bartlett's Test of Approx. Chi-Square		419.675
Sphericity	Df	10
	Sig.	0.000

The KMO result was 0.849, which means that it meets the requirements above 0.50. The results of Bartlett's test of sphericity also obtained a significance result of 0.00 below the 0.05 requirement. Thus, it can be concluded that the factor analysis test could be continued.

**Table 5.** Anti-Image Correlation

3	Variable	MSA
	Teaching Presence	0.868
	Social Presence	0.851
	Cognitive Presence	0.803
	Learner Presence	0.842
	Technology Use	0.920

The MSA value shows that it obtained a value of  $\geq 0.05$  thus 32 it can be concluded that all variables meet the MSA requirements. Next, the communalities test to show how much a variable can explain the factor was performed. A factor can be stated to be good if the extract value must be greater than 0.50 or 50 percent of the factors are able to explain. (Terms  $\geq 0.5$ ).

Table 6 shows the results that the overall value was a 27 ve 0.5 therefore all of the indicators meet the requirements. The next step was the total variance explained which is useful for determining how many possible factors could be formed.



**Table 6.** Communalities

	Initial	Extraction
Teaching Presence	.575	.654
Social Presence	.514	.535
Cognitive Presence	.692	.819
Learner Presence	.557	.585
Technology Use	.366	.399

Note: Extraction method uses principal axis factoring

**Table 7.** Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.369	67.379	67.379	2.993	59.865	59.865
2	.593	11.856	79.234			
3	.483	9.651	88.885			
4	.328	6.559	95.444			
5	.228	4.556	100.000			

Note: Extraction method uses principal axis factoring

The results of total variance explained in Table 7 which indicate that the whole indicator can explain one factor that matches the explaining ability up to 59.865 percent. This means that the indicators of Teaching Presence, Social Presence, Cognitive Presence, Learner Presence, and Technology Use are factors that affect the improvement of students' learning outcomes by using the flipped learning method.

According to Widoyoko (2009) evaluation of the implementation of learning can be done by paying attention to aspects of learning program design, program implementation, and the results achieved. Furthermore, he explained that in evaluating the design of the learning program it focused on the aspects of evaluation of the developed competencies, learning strategies, and the content of the learning program. The competencies developed by this course are mastery of basic management concepts and principles, especially those related to planning, organizing, leadership, and supervisory functions that must be carried out by managers who work in a dynamic environment. This was carried out for 14 meetings with topics designed to achieve key learning competencies.

The learning strategy was carried out with a flipped learning model to support the achievement of the expected competencies in the course. The entire teaching material was delivered to students every week using the LMS as support for the implementation of interactive teaching and learning activities. In general, the flipped learning model program was carried out in several phases of material delivery, specifically before class, in class, and after class. The general framework for the flipped learning model can be explained through Table 8.

In the pre-class phase, the teacher provided material that have prepared for the students to read and understand first. The learning material can be designed in several digital media in the form of presentations using Screencast-o-Matic, Powtoon Animation, E-Module by Canva and Movie Maker. This phase is to target Bloom's Taxonomy, specifically remembering and understanding.

**Table 8.** The General Framework of Flipped Learning

Basic Management Objectives and Functions				
Phase	Management Objectives and Functions	Lecturer Activities	Student Activities	Digital Media
Before Class	Purpose: Remember Understanding  Management Function: Planning	<ul style="list-style-type: none"> <li>Determine the materials, and learning outcomes</li> <li>Create videos related to the material and upload them up to one day before the class starts</li> <li>Create quizzes to measure the level of understanding of students</li> <li>Design activities to be carried out in the classroom</li> </ul>	<ul style="list-style-type: none"> <li>Determine learning targets and achievements that want to be students' personal targets</li> <li>Watch videos that have been uploaded by lecturers</li> <li>Doing quizzes in preparation for class meetings</li> <li>Preparing problem that do not understand to ask in class</li> </ul>	<ul style="list-style-type: none"> <li>LMS</li> <li>PPT</li> <li>Screencast-o-matic</li> <li>Animation Powtoon</li> <li>E-module/ PDF Canva</li> <li>Google Form</li> <li>Quizziz</li> </ul>
In class	Purpose: Applying Analyzing  Management Function: Organizing Leading	<ul style="list-style-type: none"> <li>Carry out the design of activities in class</li> <li>Direct students to carry out activities in the classroom according to instructions</li> <li>Plays a role as a student facilitator in applying and analyzing material</li> </ul>	<ul style="list-style-type: none"> <li>Carry out instructions from the lecturer for activities in the classroom</li> <li>Groups are formed, each group appoints one member to influence the division of tasks</li> </ul>	<ul style="list-style-type: none"> <li>LMS Forum</li> <li>Padlet</li> <li>Google Drive</li> </ul>
After Class	Purpose: Evaluating Creating  Function: Controlling	<ul style="list-style-type: none"> <li>Create an evaluation of learning outcomes using the tools provided</li> <li>Construct students to carry out project-based activities</li> <li>Provide feedback to students</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate learning outcomes (can be done after process analysis, which means still in the classroom, or as an after-class assignment)</li> <li>Carry out instructions from lecturers related to project-based activities</li> <li>Receive feedback as a process controller in learning courses in / after class.</li> </ul>	<ul style="list-style-type: none"> <li>Google Form</li> <li>LMS</li> <li>Google Classroom</li> </ul>

When in class, the lecturer provides several key activities to see how students understand independently before class. At this stage, the lecturer team used several methods such as question and answer to observe students' active involvement. To see the accomplishment of this phase, the lecturer team used several media, both

direct media and digital media. Direct media was carried out with class presentations as well as making mind maps in groups thus they can collaborate with each other in conveying their ideas. Other digital media used were Padlet and Mentimeter. Padlet was used to provide feedback to each other. Then, it ended with a project or case as a form of learning application. This phase was to target Bloom's Taxonomy, specifically applying and analyzing. After class, the lecturer team supervised how students evaluate the projects or cases they complete based on the topic. This phase was to target Bloom's Taxonomy, specifically evaluating and creating

### **Evaluation of Learning Program Implementation**

When the RCOI aspects are well implemented in the learning program, dynamic interactions will be created in the teaching and learning process. For this reason, the RCOI aspect is considered appropriate for the evaluation of the implementation of this flipped learning model learning programme. When the aspects of RCOI, specifically Cognitive Presence, Social Presence, Teaching Presence and Learner Presence, can be well interpreted among students, dynamic interaction is well achieved.

The implementation of the Learning Program with a flipped learning model was employed by the delivery of teaching materials to students every week through the use of LMS facilities as support for the implementation of interactive teaching and learning activities, in order to foster a passion for learning for students themselves (Lee & Martin, 2020; Zainuddin & Halili, 2016). This signifies a form of understanding their knowledge and learning independence (conscience). Through learning activities and simulations, students are able to use analytical, conceptual and leadership skills recognize situations and to solve business and organizational problems. This is in line with the results of the research carried out by Cimatti (2016)

The ability to communicate and collaborate within the organization and with parties outside the organization has an important role to play in the survival of organizational competition. Finally, the basic principles of management related to the planning, organization, leadership and supervision functions that must be carried out by managers working in a dynamic environment will be achieved by students (competence). This hands-on experience will increase students' awareness of compassion for others (compassion). By experiencing practical experience, students will be open to working with others, honest and responsible for the results of their work, and able to advance those around them (Bennett & Gadlin, 2012). The final outcome of this lesson is the ability to take organizational decisions in a professional manner by considering and using conscience and a spirit of compassion. The final exam design uses a reflective approach to contribute to the development of a holistic learning process for each student through the development of competence, awareness and compassion (Kristanti, 2017).

The evaluation of the implementation of the learning program, when viewed from the Teaching Presence aspect, recognizes that the role of the teacher is indeed very essential. Teachers must be able to communicate learning objectives along with instructions to make it easier for students to take part in learning activities. Reciprocal productive dialog would then take place when this is achieved. The

<sup>18</sup> development of a sense of community in the learning process is also important for the mutual development of understanding and implementation of concepts in everyday life.

Assessing the implementation of the learning program when regarded from the Social Presence aspect realizes that it is very critical to design a supportive learning environment, this should motivate teachers to develop learning stimuli and activities. Dynamic interactions would then develop a sense of collaboration that will be useful for their future. Evaluating from the Cognitive Presence aspect, cases and materials developed in the learning process should strengthen the interest of students to further explore themselves. Learning activities provide explanations and solutions for certain cases that students may experience directly. Reflection and good discussion are also being developed at this stage.

The Learner Presence component is considered to have been effective when students are able to adapt to the learning program pattern developed by the teacher. This is the stage of their performance where they begin to learn independently. It is also possible for students to think about the subject and decide what they can learn. They would be able to select their learning goals for those topics that they consider <sup>33</sup> be weak or otherwise beneficial to themselves. This aspect of Technology Use plays a role in ensuring the learning comfort of students particularly outside the classroom. Simple access to information outside the classroom is crucial to get their attention to the learning process they are doing.

### **Students' Results Evaluation**

In assessing the outcomes achieved by the students, the researchers looked at the results of the learning program on the basis of the students' perceptions on the interactions they felt during the learning programs. Teaching Presence has contributed to the perception that students have been able to attend lectures for one semester well where the educational role in their learning environment has been experienced through this flipped learning process (competence). Social Presence indicates that students agree on all sorts of stimuli during one semester in this flipped learning that can promote collegial and collaborative relationships (compassion). Cognitive Presence is the opinion that flipped learning promotes an improvement in their intelligence and also the ability to think critically and creatively to become individuals who enjoy learning/study (conscience). Cognitive Presence is the opinion that flipped learning promotes an improvement in their intelligence and also the ability to think objectively and creatively about individuals who are into learning/study. Learner Presence found that students attending lectures for one semester strongly agree that they experience there is co-regulation and independent learning. Technology Usage creates an opinion that students feel relaxed and easy to use technology when attending lectures for one semester in a flipped learning process.

### **CONCLUSION**

The flipped classroom model is an option that can be implemented in today's learning process. By using technical innovations, this approach would be very useful



1 for Generation Z, which is the current age of students. This flipped learning model also makes it easier for teachers to achieve almost every level of Bloom's taxonomy. The flipped learning 2 model of learning design is carried out in several phases of content delivery, 1 e. before class, during class and after class. The success of the application of the 3 flipped learning model can be seen from facets of the RCOI thought system, namely Cognitive Presence, Social Presence, Teaching 6 Presence and Learner Presence, which are strengthened by the use of technology. The findings showed that students felt that the stimulation using the flipped learning model made learning simpler and more autonomous for them and the RCOI measure reported that it had an effect on improving student learning outcomes.

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