

Development Of Learning Media Through The Flipped Classroom Model Based On Local Wisdom Integrated With MBKM To Improve Students' Social Intelligence

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Abstract:

Background: Local wisdom-based learning is one interesting implementation of MBKM that can enrich students' learning experiences. Integrating local wisdom into MBKM allows students to not only gain academic knowledge but also understand the values, culture, and wisdom of the local community. This study aims to determine the stages of developing a flipped classroom learning model integrated with MBKM to improve students' social intelligence and to determine a valid, practical, and effective flipped classroom learning model and tools integrated with MBKM

Materials and Methods: This is a Research and Development (R & D) adopted from the Thiagarajan, Semmel, and Semmel model. This research involves four stages: definition, design, development, and dissemination

Results: The results show that the MBKM-integrated FC Learning Model and Devices are valid, practical, and effective. It is considered valid because the seven components of the FC Model design have a very high average validity value. The theoretical rational component is 4.38 categorized as very high. The supporting theory component is 4.25 categorized as very high. The learning strategy component = 4.38 is in the very high category; the social system component is 4.2, categorized as very high. The reaction principal component = 4.25 is very high. The supporting system component = 4.25 is very high, and the strategy implementation guide component = 4.2 is very high. Furthermore, the FC Learning Model and Devices are considered practical because they are perceived positively by students (97%) and lecturers (100%).

Conclusion: The data indicates that based on user perceptions, the FC Model Design is believed to be practical to implement in Government Ethics lectures to improve students' social intelligence. Furthermore, the media is considered effective because the Normality Test, the results of the homogeneity test, and the Wilcoxon Test Results show that the FC Learning Model and Media affect students' social intelligence.

Keywords: Development, Flipped Classroom Model; Local wisdom; Social intelligence.

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I. Introduction

Adaptability is the key to human success. Darwinian evolutionary theorists believe that organisms can exist and survive only if they can adapt. Therefore, everyone must have adaptive abilities to succeed in their lives. Adaptive abilities are not innate but are learned and trained systematically and organizedly. The Flipped Classroom learning model can offer knowledge and skills on how someone can develop the potential for social intelligence to adapt to different social environments. Adaptability and social intelligence support and reinforce each other. Individuals with good adaptability tend to find it easier to develop their social intelligence. They are more open to new experiences, easily understand other people's perspectives, and are flexible in interacting with others. Conversely, individuals with high social intelligence will find it easier to adapt to new social environments. They find it easier to build good relationships with others, gain social support, and overcome various social challenges.

Meanwhile, in the academic world, social intelligence plays an important role in helping students adapt to the social environment to support them in community life. Students must be socially intelligent to balance their intellectual and social abilities. Social intelligence allows students to build relationships with the community more easily (Akbar et al., 2021). Annisa Andriani & Ratih Arruum (Annisa Andriani, 2017) argued that to adapt to the environment quickly and easily, students need good social intelligence. Thus, social intelligence supports individuals to be resilient in facing all challenges.

Social intelligence can be more easily trained through the flipped classroom learning model by implementing a local wisdom-based approach. Local wisdom, in this case, is the culture of South Sulawesi, such as *sipakatau*, *sipakalebbi*, and *sipakainga*. They can strengthen students' adaptive abilities to improve their social

intelligence. So, we must be concerned about local wisdom which is currently starting to be ignored, even though it contains many values that support and strengthen social solidarity, solidarity, togetherness, and mutual cooperation (Salimi, 2018).

Local wisdom-based learning is one of the interesting implementations of MBKM that can enrich students' learning experiences. Integrating local wisdom into MBKM allows students to not only gain academic knowledge, but also understand the values, culture, and wisdom of the local community. Strategies to improve social intelligence using local wisdom-based flipped classrooms need to be developed because they support MBKM in developing intellectual and emotional intelligence, as well as social intelligence. MBKM has the same goal as the flipped classroom learning model. The concept of Merdeka Belajar Kampus Merdeka initiated by the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) is a solution to this challenge. This concept encourages flexible, independent, and collaborative learning. The flipped classroom is one of the learning models that can support the Merdeka Belajar program, namely the flipped classroom. This model reverses the traditional learning process that presents material in class and assigns exercises at home. While in the flipped classroom, students study material at home independently through videos, readings, or other learning resources, so that learning in class will be focused on discussing, working on projects, or solving problems.

The flipped classroom model replaces conventional classroom teaching activities so that learning activities start at home. This distinguishes it from traditional learning that starts basic activities at school. (Patandean & Eko, 2021) (Bergman, J. & Sams, 2012). Nederveld, A & Berge (Nederveld & Berge, 2019) We emphasize that activities that were previously carried out in class are now moved to the home, while those that were previously carried out at home are moved to the classroom.

The flipped classroom learning model ensures the success of theoretical knowledge acquisition because it provides students with experience by engaging them in the learning process in a shorter time. Moreover, the model facilitates students' transfer of prior knowledge to strengthen their conceptual understanding, such as information, ideas, and reflections on their independent learning experiences. (Al-Samarraie, H., Shamsuddin, A. & Alzahrani, 2020). In addition, Flipped Classroom has more benefits compared to traditional learning that is more familiarly applied in higher education. The implementation of flipped learning supports students to develop high-level skills under teacher guidance and peer support because face-to-face classes facilitate cooperative learning and practical tasks (Dominguez, 2021).

Based on the abovementioned problem, we carried out research and development by adopting the Thiagarajan model, which underwent four stages. The first one is to define or need analysis. The second is the designing stage. Here, we prepared a conceptual framework of learning models and tools. The third stage is development, which involves validation tests. The last step was dissemination or structuring the product to target (research subject) (Judijanto et al., 2024).

II. Material And Methods

Research Stage

This research applied the development approach (R & D) adapted from the model developed by Thiagarajan, Semmel, and Semmel. The model has four stages: defining, designing, developing, and disseminating. (Judijanto et al., 2024).

Defining Stage

Front-End Analysis

At the defining stage, we first did a front-end analysis. The researcher discussed with the Lecturer of Government Ethics regarding the learning of Government Ethics in the Government Science Program. In this study, we focused the discussion on the conditions of the learning process in the Study Program to obtain in-depth information about the fundamental problems that need to be resolved.

Students Analysis

We analyzed students to assess their characteristics, including background knowledge and basic skills about Government Ethics, the language they speak, and their cognitive development. The data were then considered in developing learning tools with the flipped classroom model.

Concept Analysis

This stage includes identifying, detailing, and systematically arranging the main materials that will be taught to students. The materials are arranged hierarchically. The material here is the Flipped Classroom Learning Model.

Task Analysis

Assignments are analyzed after the material is reviewed. Assignments are determined based on the needs

of teaching materials consisting of individual and group assignments. This analysis helps lecturers formulate specific learning objectives.

Formulation of Learning Objectives

Based on the material analysis and task analysis, we compile specific learning objectives which then become the basis for compiling Modules or teaching materials, Flipped classroom model design, and RPS. Next, we design learning tools for the material on Government Ethics. In this step, we formulate specific learning objectives (achievement indicators) based on material analysis and task analysis. The details of specific learning objectives are the basis for compiling the design of learning tools for the subject of Government Ethics.

Designing Stage

After the learning needs and objectives had been defined, we: 1) developed the concept of RPS, Module (teaching materials), and flipped classroom model design; 2) selected relevant references and media, and 3) selected the format by reviewing existing and developed device formats. This stage prepared a prototype of learning media consisting of 3 steps: a) Developing the concept of the Lesson Plan, Module (teaching materials), and the book "Flipped Classroom Model". This is the initial step to connect the define stage and the design stage. The outlines of learning materials, and learning steps are developed based on specific learning objectives. b) Select references and media based on learning objectives to deliver the material effectively. c) Selecting the format by reviewing previous device formats developed by the University.

Development Stage

The output of this stage is a draft module (teaching materials), flipped classroom model, devices, and flipped classroom learning models that are revised based on input from experts and data from readability tests and trials. Limited trials involve the Government Science Study Program students at Muhammadiyah University of Makassar. Furthermore, in Year 2, the product of the flipped classroom model and devices was finalized after the field trial showed consistent results and the product received positive responses from the validator. Field trials were conducted at Muhammadiyah University of Makassar and several universities in Makassar City. Dissemination was carried out in year II.

Dissemination Stage (Implemented in the 2nd Year)

Implementing learning media was used for dissemination. This stage tested the use of device models (lesson plans, modules, and model books) on larger groups to evaluate their practicality and effectiveness.

Subjects and Location of Research

The subjects of the study are all students registered in the Government Ethics course and the lecturers teaching the course in the Government Science Study Program, Faculty of Social and Political Sciences, Muhammadiyah University of Makassar. The expert assessor subjects are the parties who provide assessments of the prototype model and learning tools (Material experts and experts in models and learning tools).

Data Sources and Data Collection Techniques

Focus Group Discussion (FGD) involving the Vice Dean for Academic Affairs, Head of Study Program, and lecturers of the Government Ethics course. This activity produces data on: a) Respondents' understanding, responses, and experiences related to the problems they encounter in the Government Ethics course, b) responses, readiness, needs, and ideas for developing traps and models of FC (Flipped Classroom). Interviews were conducted to collect information and validate the contents of the flipped classroom and its learning tools (by expert subjects). We also interviewed several lecturers as key informants (trial subjects). Documentation of University policies on the implementation of learning, reports on lecturer activities, or previous formats and instruments. Questionnaires, Checklists, and Scales aim to collect information about the research subjects' understanding of the concept of developing flipped classroom learning models to improve students' social intelligence. In addition, the instrument accesses lecturers' and students' assessments of the acceptability, feasibility, and effectiveness of learning devices with the flipped classroom model

III. Result

This study aims to determine the stages of development of the Flipped Classroom (FC) learning model based on local wisdom integrated with MBKM to improve students' social intelligence and to determine whether the FC learning model and tools integrated with MBKM are valid, practical, and effective. Our findings are as follows:

Valid FC Learning Models and Tools.

There are seven main components that determine a valid FC Model and learning device. They are presented in Table 1:

Table 1. FC Model Validity Testing

No	Aspects	Validators		Average	Information
		V1	V2		
A Rational					
1	Information about the current learning conditions is clear	5	4	4,5	very high
2	Information about the limitations of the FC Model has been widely used is clearly presented	5	4	4,5	very high
3	The flow of the emergence of the Flipped Classroom model is clear	4	4	4	High
4	The issues raised are interrelated	4	5	4,5	very high
Average Score				4,38	very high
B Supporting theory					
5	The FC model is in accordance with existing learning theories	4	4	4	High
6	The FC model follows the development trends of the times	4	5	4,5	very high
Average Score				4,25	very high
C Learning Strategy Syntax					
7	Learning steps are arranged sequentially and clearly	5	4	4,5	very high
8	Learning steps clearly contain the activities of Lecturers and students	5	5	5	very high
9	Description of learning activities at each stage in the FC Model reflects the flow of activities that can be carried out by Lecturers and Students	4	4	4	High
10	Description of learning activities at each stage of the FC Model is oriented towards optimizing HOTS skills	4	4	4	High
Average Score				4,38	very high
D Social System					
11	In general, the pattern of lecturer-student relationships is clear	4	5	4,5	very high
12	The pattern of lecturer-student relationships shows the role of lecturers as facilitators and motivators	4	4	4	High
13	The relationship between lecturers and students in student group activities is clear	4	4	4,0	High
Average Score				4,2	Very high
E Reaction Principle					
14	Lecturer behavior in learning strategies is clearly stated	4	5	4,5	Very high
15	Lecturer behavior in group learning activities is clearly stated	4	4	5	High
Average Score				4,25	Very high
F Support system					
16	Lecture Program Units (SAP) and Student Worksheets (LKM) that support the achievement of learning objectives are stated clearly	4	5	4,25	Very high
17	The relationship between the supporting components of the strategy is clear	5	5	5	Very high
Average Score				4,75	Very high
G Strategy implementation guidelines					
18	Information about the implementation of the FC Model is clear	4	5	4,25	Very high
19	Instructions on lecturer preparation before using the developed strategy are clear	5	4	4,25	Very high
20	The student ability assessment system in the FC Model is clear	4	5	4,25	Very high
Average Score				4,2	Very high

Source : Processed data, 2024

Based on the data presented in Table 1, the seven components of the FC Model design showed an average validity score of very high. The seven main components characterize a good FC Model. The theoretical rational component scored 4.38 (very high). The supporting theory component scored 4.25 (very high). The learning strategy component = 4.38 (very high), The social system component = 4.2 (very high). The reaction principle component is 4.25 very high. The supporting system component = 4.25 (very high), and the strategy implementation guide component is 4.2 (very high).

Practical FC Learning Models and Tools

To measure the practicality of the FC Model and learning tools, we collected data using a questionnaire with 10 questions distributed to students and lecturers, asking their perceptions of them. The data can be seen in Table 2:

Table 2. Percentage of Student Perceptions of the FC Model

No	Statements	Response (%)				
		SA	A	N	D	SD
1	The FC model applied in this course helps me to understand the material	8	84	8		
2	The FC model applied in this course makes it easy for me to follow the lecturer's explanation		96	4		
3	The FC model applied in this course makes it quite difficult for me to understand the material				92	8
4	The FC model applied in this course is boring for me				44	56
5	The FC model helps me develop my thinking skills	16	84			
6	The SIPS learning strategy provides sufficient opportunities to participate in the learning process actively	20	80			
7	The FC model in this course is less relevant and ineffective			4	52	44
8	The FC model in this course does not encourage me to develop communication skills				48	52
9	The FC model does not motivate me to actively follow and complete learning assignments			16	40	44
10	I feel that the FC model has succeeded in presenting variation and diversity in learning methods	8	84	8		

Source : Processed data, 2024

Based on Table 2, the percentage of students' perceptions of the FC model shows that they tend to positively perceive the flipped classroom model. It can be seen that out of 10 items, 5 items are positive and 5 items are negative. In total, the positive response is 97%, while 3% are neutral. This indicates that students perceive the FC model and learning tools very well. Thus, the implementation of the FC model and learning tools is practical based on students' perceptions.

Table 3. Lecturers' Perceptions of the FC Model and Learning Tools

No	Statements	Response (%)				
		SA	A	N	D	SD
1	The FC model applied in this course effectively helps students understand the material	25	75			
2	The FC model applied in this course activates student involvement in the learning process		100			
3	The FC model is able to hone students' problem-solving skills		100			
4	The FC model successfully stimulates students to discuss and collaborate	25	75			
5	The FC model is less effective and less relevant to the course				75	25
6	The FC model is less able to hone students' communication skills		100			
7	The FC model is less appropriate to the characteristics and needs of students				100	
8	The FC model application is in accordance with each stage and objective		100			
9	The FC model does not motivate students to actively participate in and complete learning tasks				100	
10	The FC model is less successful in presenting varied and diverse learning methods				75	25

Source: Processed data, 2024

Table 3 informs that 100% of lecturers responded positively to the implementation of the FC Model and learning tools in the Governance Ethics lecture. This shows that from the user's perspective, the FC Model Design is practically implemented in the Governance Ethics lecture to improve students' social intelligence.

Effective FC Learning Models and Tools

The effectiveness of the FC learning model and tools in improving students' social intelligence in the government ethics course was tested using a quasi-experimental design. Two classes assumed to be homogeneous were randomly selected as research samples. Class A implemented the FC model while class B implemented the conventional model. The prerequisite analysis showed that the data were not normally distributed, so the test used non-parametric statistics using the Wilcoxon test. The results of the prerequisite test can be seen in Table 1.4 (normality test) and Table 1.5 (Homogeneity test). The results of the normality test showed that both groups (control and experiment) were not normally distributed with significance (respectively 0.04 and 0.02). However,

the homogeneity test using the Levene statistical test showed that both sample groups were homogeneous with a significance of 0.465. The following table presents the data:

Table 4. Normality Test

One-Sample Kolmogorov-Smirnov Test			
		Intelligence Control	KS Experimental
N		30	30
Normal Parameters ^{a,b}	Mean	72.7667	76.3000
	Std. Deviation	5.26330	4.70620
Most Extreme Differences	Absolute	.197	.208
	Positive	.136	.159
	Negative	-.197	-.208
Test Statistic		.197	.208
Asymp. Sig. (2-tailed) ^c		.004	.002
Monte Carlo Sig. (2-tailed) ^d	Sig.		.005
	99% Confidence Interval	Lower Bound	.003
		Upper Bound	.007

Table 5. Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Emotional intelligence: 1 =control. 2 = experimental	Based on the Mean	.422	1	58	.518
	Based on the Median	.541	1	58	.465
	Based on the Median and with adjusted df	.541	1	57.903	.465
	Based on trimmed mean	.420	1	58	.519

Inferential statistical testing uses non-parametric tests because the samples are not normally distributed. The test is Wilcoxon. The results show that implementing the FC Model increases students' social intelligence with a significance of 0.02. Table 6 presents more complete data.

Table 6. Wilcoxon Test Results

Related-Samples Wilcoxon Signed Rank Test Summary	
Total N	30
Test Statistic	283.000
Standard Error	41.192
Standardized Test Statistic	2.282
Asymptotic Sig.(2-sided test)	.022

Table 6 concluded that the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the implementation of the FC Model influences social intelligence.

IV. Discussion

This research has produced a valid, practical, and effective FC Learning Model and Media. Based on the Normality Test and the homogeneity test, we also found that the FC Learning Model and Tools affect students' social intelligence. This learning model and tools are supported by local wisdom that strengthens adaptive abilities to improve students' social intelligence. Therefore, local wisdom, including in South Sulawesi, "pappaseng" (advice), "cerita tau" (folklore), siri' na pacce' (shame and solidarity), tabe' culture (excuse me) and sipakatau which are applied as ethical values in interacting in society need attention, because nowadays they seem to be neglected, even though they contain values that support and strengthen the improvement of social intelligence.

Other research agreeing on this finding stated that the application of local wisdom-based learning media at different levels of education has been proven to greatly influence the character of students because local wisdom has noble values, morals, and customs that grow in society and are implemented in children's character education in accordance with the goals of National Education. In addition, integrating local wisdom into the educational environment can provide elements of Pancasila's character in the classroom (Yusuf, 2022) (Saphira, 2022).

The application of problem-based learning that integrates local wisdom oriented towards socio-scientific issues has a positive impact on students' conceptual knowledge and environmental literacy (Lubis et al., 2022). Furthermore, the ELSII learning model based on local wisdom positively influences students' problem-solving skills and communication skills (Adi & Irwanto, 2020). Based on several studies above, strategies to improve social intelligence through local wisdom-based Flipped Classroom (FC) learning media also need to be developed because they are very appropriate for MBKM which in addition to developing intellectual and emotional

intelligence, also develops social intelligence. MBKM also supports one of the objectives of the Flipped Classroom (FC) learning model.

This model is called flipped classroom learning because the activity begins from home which is different from traditional learning whose activity base starts at school. The flipped classroom learning model rearranges learning inside and outside the classroom, students get initial learning materials at home, and in class, cooperative learning is applied. Flipped classroom encourages the development of 21st-century skills such as critical thinking skills, creativity, metacognition, problem-solving, collaboration, motivation, self-efficacy, conscientiousness, persistence, and perseverance (Mitsiou, 2020) (Fouzia & Muhammad, 2021).

The flipped classroom is a new learning model that emerged in the midst of the communication and information revolution civilization called the 4.0 era. The title is given because the instrument of this learning model is in contact with network technology, including through video, one of the artificial intelligences that characterizes post-modern society. The time allocated for learning in class is utilized optimally by students to collaborate with peers, practice, and receive feedback or reports on their learning progress. Students will find it much easier to build their knowledge when participating in learning in class, while at home they have the opportunity to search for and study the material that will be studied in class first. (Putry et al., 2021). A flipped classroom supports more efficient classroom learning, able to accommodate students with various backgrounds, characters, and abilities. Specifically, the flipped classroom learning model can improve active learning and improve speaking skills. (Yasin et al., 2024) (Pratiwi et al., 2022).

The FC model based on local wisdom, in addition to increasing social intelligence, may also bring other effects such as fostering the values of mutual cooperation, solidarity, and loyalty. This is also important to prevent graduates from living a materialistic and individualistic life that does not understand their environment (Syamsidah, 2022). Understanding the environment is one of the keys to success in life, so the FC Model based on local wisdom needs to be implemented. Thus, learning outcomes can be relevant to the desire to create academically and socially intelligent outcomes that will ultimately increase students' shields from external negative factors.

Social intelligence is the ability to relate to others, such as communicating verbally and nonverbally, understanding others for certain constructive reasons, and creating mutually beneficial relationships. Social intelligence helps us solve social life problems, handle various social tasks, and develop coexistence with others (Hasanah et al., 2024) (K.S & Amalraj, 2019).

Social intelligence explains how humans can manage their emotions in order to act or interact positively with other individuals or groups of people. In the 21st century, the concept of social intelligence is given more attention by psychology experts because they view it as a science that is not only reviewed from a cognitive perspective but also from an affective or attitude perspective (Faliyandra, n.d.). Social intelligence plays a vital role in an individual's life. It helps an individual to understand other people and their characteristics, rationalize their motives, and interpret their emotions and expressions. Social intelligence helps us in solving problems in social life, handling various social tasks, and developing healthy cooperation with others (Raj & S.Komalavalli, 2022). In the context of education, developing social intelligence has the same level of urgency as academic achievement. Classrooms should not only produce students who are intelligent in math or science, but also individuals who are able to work in teams, communicate clearly, and resolve conflicts in constructive ways. This is why learning strategies that encourage collaboration, such as the flipped classroom model, play an important role in developing students' social intelligence.

Through group discussions, collaborative projects, or role-play simulations, students get the chance to practice interacting with others in a structured, supportive environment. They learn how to value others' perspectives, reach consensus, and work toward common goals. By building this foundation early on, students are prepared not only to conquer academic challenges but also to succeed in their future personal and professional lives. Thus, social intelligence is not just a natural ability, but also a skill that can be improved through the right learning experience. Appreciating the importance of social intelligence in forming individuals who are highly competitive and connected to their surroundings, means opening the door to creating a more inclusive, friendly, and competitive society in the future.

Here are some studies related to social intelligence that can be explained in a narrative: (1) The Influence of Social Intelligence on Academic and Career Success: A study conducted by Daniel Goleman and his colleagues found that social intelligence, such as the ability to empathize, collaborate, and lead, can have a significant impact on academic and career success. They showed that these skills are often more important than intellectual intelligence in the long run. (2) The Relationship between Social Intelligence and Psychological Well-Being. Research by Mayer, Salovey, and Caruso highlighted a positive correlation between a person's level of social intelligence and their level of psychological well-being. Individuals who are better at managing their own emotions and interacting with others tend to be more satisfied in life. (3) The Influence of Social Intelligence on the Ability to Solve Problems Together. Research by John Helliwell and his colleagues showed that individuals with high social intelligence tend to be better at working together to solve complex problems. They can coordinate

their actions with others effectively and produce more creative and innovative solutions. (4) Learning Social Intelligence through an Emotion-Focused Educational Approach. Research by Peter Salovey and Marc Brackett explored the effectiveness of educational approaches that emphasize the development of students' emotional and social intelligence. The results showed that these programs can improve not only students' academic abilities but also their social well-being. (5) Social Intelligence in a Professional Context: A study by Travis Bradberry and Jean Greaves highlighted the importance of social intelligence in a professional context. They found that leaders who have high social intelligence tend to be more effective in motivating their teams, managing conflict, and achieving organizational goals. Based on research into the development of the Flipped Classroom (FC) learning model based on local wisdom, social intelligence is not just an abstract concept, but also has a significant impact on various aspects of an individual's life, from education, and psychological well-being, to professional careers.

V. Conclusion

We have found valid, practical, and effective FC Learning Models and Tools integrated with MBKM. It is considered valid because the seven components of the FC Model design received a very high average validity score. Theoretical rationale component = 4.38 is categorized as very high. The supporting theory component = 4.25 is categorized as very high. The learning strategy component = 4.38 is categorized as very high, and the social system component = 4.2 is categorized as very high. The reaction element of principle = 4.25 is categorized as very high. The supporting system component = 4.25 is categorized as very high, and the strategy implementation guide component = 4.2 is categorized as very high. The FC learning model and media are considered practical because they are perceived positively by students (97%) and lecturers (100%). This shows that in terms of user perception, the FC Model Design is practically implemented in the Government Ethics lecture to improve students' social intelligence. Furthermore, it is called effective because based on the results of the Normality Test, the results of the homogeneity test, and the Wilcoxon Test Results, it was also found that the FC Learning Model and Tools affect students' social intelligence.

VI. Acknowledgment

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