

Development of Teaching Intellectual Social-Emotional Learning Model in Strengthening Pre-Service Teacher

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Received: 25-April-2023

Revised: 21-May-2023

Accepted: 19-June-2023

Abstract

Introduction: Social-emotional skills effectively contributed to teachers' academic intelligence to strengthen 21st-century skills

Objectives: The research aims to develop a teaching intellectual, social-emotional learning model on the design thinking course's first semester courses of the teacher profession program and determine the feasibility of the developed learning model.

Method: The research method used is the ADDIE development model developed by Lee and Owens (2004) consists of analysis, design, development and implementation, and evaluation. The model trial is used to determine the feasibility of the model. At the same time, the effectiveness of it strengthening the teaching profession is measured by performance tests and tested by the statistical gain score formula. The model trial subjects were 123 students of the teacher profession program state of Jakarta University.

Result: The results showed that the TISEL model effectively strengthens teachers to become humanists with a strong desire; creative to find new information learning; wise in making decisions, and friendly to the students. So, the designed model is effective in developing teachers' profession.

Conclusion: it can be concluded that teaching intellectual, social-emotional learning model effectively strengthens pre-service teachers' to build empathy, emotion, and teamwork.

Keywords: Intellectual, social-emotional learning, educator character, prospective teachers

1. Introduction

Education has a significant role in facing the demands of life in the future (Karakose, Yirci, and Papadakis 2021). The 21st-century learning approach emphasizes the importance of citizens' initiative and intellectual capital (Dall-Orsoletta et al., 2022; Abbas et al., 2022). Learning is closely tied to ideas about digital technology and its role in teaching and learning (Laurie, Manches, and Fletcher-Watson, 2022; Zhang et al., 2022). It is done to rapidly change student-centered, personalized, inquiry-based, collaborative, and essential learning (Luo, Arcaute, and Muljana, 2022). Therefore, future-oriented education supports a paradigm shift in education and a transformation of knowledge are more responsive to millennial students (Mejía-Manzano et al. 2022; Tavares, Azevedo, and Marques 2022)

Learning emphasizes not only cognitive changes but on affection and psychomotor aspects. Education is only focused on one domain is considered too simple (Bordag, Gor, and Opitz 2022). In Vygotsky's perspective, emotions are inseparable from thinking (Du et al., 2022; Schmidt, 2017). Social-emotional learning (SEL) is essential in building children's education (Khazanchi et al. 2021). However, SEL is still considered trivial, even though SEL is part of education that contributes to student success (Casino-García, Llopis-Bueno, and Llinares-Insa 2021). However, SEL has not received good attention (Casino-García et al., 2021).

Balancing cognitive, affective, and psychomotor domains in learning (Lan, 2022; Mikheeva et al., 2021). Then there needs to be a learning model that integrates the three domains. The learning experience during the Covid-19 pandemic, face-to-face learning is limited, and it turns out to have a destructive impact on social-emotional learning. SEL is untouchable in online education (Yeung & Yau, 2022; Lan et al., 2021). Similarly, in situations of uncertainty, a teacher is expected to provide calm and behavioral support to convince students. Whereas non-cognitive qualities such as empathy and communication; organization and planning; and resilience and adaptability are essential for effective teaching (Bryan 2022; Sheridan, Coleman, and Durksen 2022).

SEL is proven to build empathy, emotion, and teamwork (Váradi, 2022). It is essential to prepare students through the model to face global developments and not only master academics but also have creativity, collaboration, communication, compassion, critical thinking, and computational logic (6C) (Sellars et al., 2018; Winaryati & Munsarif, 2022). Mastering 6C skills will support students working at the global level (Franklin et al., 2022; Rusmann and Ejsing-Duun, 2022). As a result, teachers must have skills in communication, listening, collaboration, adaptability, empathy, and patience (Metruk 2020).

Several previous studies have been conducted related to social-emotional learning. Bavarian et al. (2022) evaluate the impact of one of the social-emotional and character development (SECD) programs, Positive Action (PA), on educational outcomes among low-income urban youth. School-based SECD development programs can affect both SECDs and academically related results. MacDonnell found that SECD significantly improved academic achievement, which could mediate partially through observable indirect effects between the influence of SECD on student-teacher relationships and student-teacher relationships and academic achievement. (MacDonnell et al. 2021).

The development of the teacher profession strengthening model refers to the Jaynes model; teachers must be able to combine academic and character naming to students, especially in improving SEL (Jeynes 2019), using SEL in learning to produce a reliable workforce (Tan et al. 2022). In addition, social-emotional learning promotes basic academic abilities, especially for students with academic barriers (Shelton-Strong, 2022; Shelton-Strong, 2022). This evidence suggests that social-emotional skills predict educational and career success, moreover social-emotional skills control differences in academic achievement and cognitive abilities (Fernandez-Perez & Martin-Rojas, 2022; Frogner et al., 2022; Hachem et al., 2022). Social-emotional proven to improve educational outcomes (Tubbs Dolan et al., 2022; García-Martínez et al., 2021), improve academic performance, improve classroom behavior, reduce the incidence of depression, and improve students' ability to manage stress (Tan et al., 2022) increase social mobility (Hayashi et al., 2022). Other studies have found improvements in areas such as reading, writing, and mathematics (Diazgranados Ferráns et al., 2022; Lau & Shea, 2022)

Deming also reinforces this finding that social-emotional skills can contribute well even if controlled with cognitive abilities (Deming, 2017). Social-emotional skills can be integrated into art, language, social sciences, mathematics, and physical education (Bond et al., 2021). Intellectual competence is the most important thing because the growth of intelligent character is a feasible and realistic educational goal (Hull et al., 2021; Lubinski & Benbow 2021)

Therefore, it is necessary to have a learning model to train prospective teachers to implement academic intelligence and character in SEL. Center for Curriculum Redesign (CCR) states that strengthening 21st-century skills is a character that must be grown in prospective teachers. CCR said these characters are formed through activities that foster self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Because self-awareness, self-management, social awareness, relationship skills, and responsible decision-making are deliberately raised in learning as SEL (Hayashi et al., 2022). On this basis, teachers must be able to integrate students' academic intelligence and social-emotional strengthening, which researchers pour into the learning model of teaching intellectual social-emotional learning (TISEL).

2. Objectives

The objectives of this research is to produce model of teaching intellectual social-emotional learning model for pre-service teacher. The results of this study are expected to contribute solutions toward students the problems in learning and make it more interactive, interesting, and easier for students

3. Methods

This research is development research. This learning model uses the ADDIE development model adapted from Lee & Owens (2004). The following are the stages of the ADDIE model development research namely Analysis, design, implementation, and evaluation

Analysis; At this stage, the researchers explore social emotions, map character learning problems, and implement the free learning program (as a program to improve the quality of education in Indonesia). The goal is determining the need for student character learning that integrates intellectual and social-emotional (TISEL). Teacher Professional Education (TPP) is an educational program for prospective teachers. This stage of the method used is field surveys on several TPP organizers.

Design. The searchers designed the TISEL Model for prospective teachers currently pursuing teacher profession program education with the intention that future teachers need to get professional strengthening educators so that later if they become teachers, they can implement the values in TISEL to students.

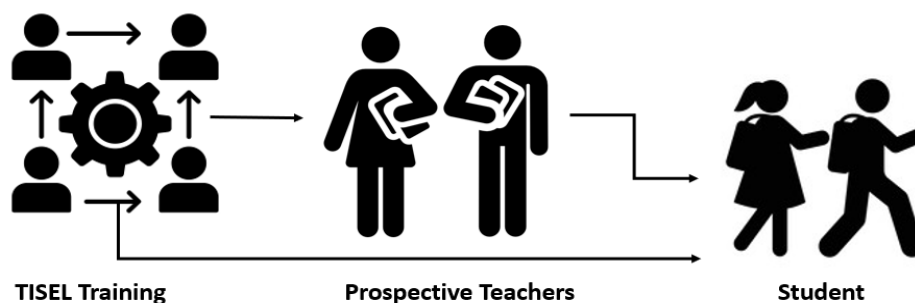


Figure 4. TISEL development

The TISEL Model was developed by referring to Table 1 below.

Table 1. The element of TISEL

Element	Purpose	Description
Empathy	Forming teachers who are humanists and have strong empathy	Fostering humanist empathy is carried out in learning, namely teachers' efforts to implement self-awareness, <i>self-management</i> , <i>social awareness</i> , <i>relationship skills</i> , and <i>responsible decision-making</i> .
Analyze & problem-solving	Forming intelligent and meticulous teachers	Strengthen the ability to analyze problems and solve problems using creativity, collaboration, communication, compassion, critical thinking, and computational logic skills.
Decision-making	Forming-wise and brilliant teachers	Strengthening decision-making skills using creativity, collaboration, communication, compassion, critical thinking, and computational logic skills by utilizing the abilities of self-awareness, self-management, social awareness, relationship skills
Reflections	Forming friendly teachers	Strengthening the ability to give appreciation based on the results of evaluations in <i>self-management</i> , <i>social awareness</i> , and <i>relationship skills</i> to solve problems and make decisions.

Development. The TISEL model was developed based on the syllabus, lesson plan, and textbooks developed with material related to character strengthening through integrating TISEL based on freedom of learning. Model validation is carried out through expert judgment and declared feasible.

Implementation. TISEL is implemented as a design thinking subject in the first semester of teacher professional programs (TPP). The implementation of TISEL is carried out for the first semester in TPP students. In this

course, students also practice teaching during the study so that when they receive TISEL training, they can immediately practice at school. Similarly, non-TISEL classes also practice teaching in schools. A review of the implementation results is carried out by a team of experts using questionnaires given before training and after training.

Evaluation. In the last stage, researchers revised the deficiencies after validation and field trials on some TPP organizers. Evaluation is used to determine if there is an increase in the emergence of empathy, analytical ability, problem-solving, decision-making, and reflection that is reflected through SEL and strengthening 6C skills.

This study uses a quasi-experimental design. Informants were grouped into two classes, namely the experimental. The experimental class, where the learning process uses TISEL, and the control class uses the conventional approach in the course design thinking. The population is 136, with a total population pre services teachers at the State University of Jakarta. As for the number of research samples, 61 students took the design thinking course. The sample is taken randomly and systematically from the course. The data of this research were collected through teacher self-inventory. It is used to measure the aspects of teachers' confidence and self-perception. The data from experimental and control classes were taken from the data obtained from empathy, analysis, problem-solving ability scores, decision-making, and reflection with 60 questions using a scaled assessment of 1 to 7. The data were analyzed using expert validation techniques to analyze the design results for each stage and to explore the influence of TISEL using gain score test analysis.

4. Results

The TISEL model was developed based on needs analysis and has been declared suitable for use in pre-service teacher profession program lectures. To determine the effectiveness of the TISEL model in strengthening the character of educators for prospective teachers through the ability to empathize, analyze, problem-solving, decision making and reflection on learning. It is carried out by measuring the increase in the average score of TISEL and non-TISEL classes and is tested statistically with the gain score test formula.

Based on the Gain Score Test calculation, 0.77, according to Richard R. Hake (1999), can be said to have a high added value or effectiveness of 76.52%. This study presents TISEL in students' behavior on the ability to empathize, analyze, problem-solve, make decisions, and reflect. Then, the research findings are offered based on TISEL indicators.

Based on the analysis of student response scores on the empathy aspect of the 20 items contained in the teacher self-inventory in the humanist and empathy aspects, 15 items showed positive differences. The other five items did not show significant differences, as shown in the table below.

Table 2. The Teachers' Humane and Empathy

No.	Indicators	Average score Non TISEL class	Average score TISEL class
1	Able to emulate empathy	4,35	6,60
2	Able to understand students' difficulties	4,44	5,87
3	Able to appreciate student success	4,76	6,50
4	Able to accept the attendance of students who have problems	4,44	6,80
5	Able to motivate students in a better way	4,84	6,65
6	Able to understand people who have made time	4,91	6,75
7	Able to appreciate people who are always punctual	4,95	6,90
8	Able to care more about students	4,76	6,35
9	I feel like helping students who have difficulties/limitations	4,87	6,60
10	Strong desire to be able to replace the position of people who experience problems/limitations	4,33	6,90
11	Able to express concern for students who have difficulties/limitations	4,00	5,90
12	Able to express concern for students who have	4,80	6,70

	problems/limitations		
13	Able to convey a sense of community towards students who have different beliefs/tribes/opinions	4,58	6,60
14	In making decisions can consider the impact on students	4,91	6,60
15	Able to evaluate if it is in the person's position	4,76	6,50

From the data above, the empathy ability grown in TISEL shows a strong desire to replace the position of people who experience difficulties/limitations with a score difference of up to 2.57 compared to classes that do not use TISEL. The ability to enthusiastically accept the presence of students who have problems in learning problems is shown by a score difference of 2.36. The ability to understand students' difficulty in both classes slightly differs from 1.42. The data above has demonstrated that TISEL contributes to the growth of empathy in learners, especially from teacher profession program students' ability to understand others (customers).

Based on the analysis of student response scores on the empathy aspect from the 20 items in the teacher self-inventory in the intelligent and meticulous aspect, 14 items showed positive differences. The other 6 items did not show significant differences, as shown in the table below.

Table 3. The teachers' intelligent and careful

No	Indicator	The average score of non-TISEL class	The average score of TISEL class
1	The teacher is able to analyze problems related to making decisions with information from various sources	4,76	6,2
2	The teacher is able to analyze student needs before compiling a lesson plan by observing students	4,73	6,66
3	The teacher is able to analyze students' needs before preparing a lesson plan	4,62	6,43
4	The teacher is able to formulate several solutions to one problem after getting information from the students	4,65	6,68
5	The teacher able to able to formulate one solution to various alternative solutions using assorted references	4,65	5,64
6	Able to consider the input given by others in structuring the solution	4,76	6,3
7	The teacher able to think critically in analyzing existing learning problems	4,47	6,48
8	fenomena dapat memberikan petunjuk untuk menyusun solusi	4,44	5,84
9	The teacher is able to choose to provide a variety of alternative solutions compared to a single solution	4,69	6,32
10	Learn first before implementing new findings in learning	4,04	6,41
11	The teacher is able to find new information in learning before teaching students	4,44	6,84
12	Prioritizing logic in analyzing problems	4,36	6,74
13	Thinking logicity to determine a solution	4,36	6,56
14	Collaborating on problem analysis will be more effective	4,32	6,36

The 20 items of statements are contained in the instrument inventory. Strengthening intellectual abilities in TISEL impacts finding information about new findings in learning before teaching was started and had a difference of score of 2.4. Then the ability to prioritize logic in analyzing problems has a score difference of 2.38; the ability to learn before implementing new findings in understanding with a score difference of 2.37. Similarly, in finding a solution, it turns out that students who take courses that implement TISEL think more about the logicity of determining the solution to the problem, as evidenced by a score difference of 2.2. However, the ability to formulate a solution from various alternative solutions using assorted references has a minimal difference, namely a 0.99 score. Thus, it can be concluded that intellectual abilities can be strengthened through TISEL by integrating 6C and SEL skills.

In the analysis of student responses on the empathy aspect, there are 20 items related to the teacher self-inventory in the wise and brilliant aspects; ten items were obtained, which showed positive differences. The table below was the same for the other ten items.

Table 4. The teachers are wise and smart

No	Indicators	The average score of non-TISEL class	The average score of TISEL class
1	collaborate more effectively in making decisions	4,91	6,36
2	practical communicative ability can help in making decisions	4,62	6,06
3	considering the impact on others in decision making	4,40	6,02
4	considering responses in decision making	4,73	6,25
5	considering logic rather than crowd acceptance of the chosen decision	4,32	6,63
6	able to decide something according to a predetermined schedule	5,13	6,73
7	deciding something is done together rather than mutual consent	4,80	6,40
8	choosing to communicate first before deciding rather than composing improvements from the decision	4,76	6,35
9	make decisions by considering students' self-reliance	4,43	6,84
10	take risks for one's own decisions through prior analysis	4,36	6,74

The impact of TISEL in decision making is different, namely in making decisions by considering the independence ability of students with a score difference of 2.41 who then bear the risk of their own choices through analysis first with a score of 2.38—similarly, considering the logic rather than the crowd's acceptance of the chosen decision with 2.31.

Based on the analysis of students' responses from 20 items on the empathy of social aspect, ten statements showed positive differences. There was no difference for the other 10 items. The results are shown in table 5.

Table 5. The teachers' friendly

No	Indicators	The average score of non-TISEL class	The average score of TISEL class
1	transforming experience into knowledge	4,18	6,61
2	develops the ability of affection in terms of self-acceptance of its achievements	4,05	6,16
3	develop an understanding of the use of experience as a subject matter for oneself	4,45	6,36
4	identify one's shortcomings and weaknesses in managing tasks	4,47	6,11
5	students dare to evaluate themselves	4,40	6,60
6	students accept the deficiencies/mistakes they made	4,69	6,16
7	mapping and understanding one's character and fighting power based on experience	4,04	6,44
8	thinking about what changes are needed for the improvement of the task ahead	4,46	6,58
9	integrating new and previous knowledge through thought processes	4,24	6,35
10	ask yourself critical questions by being aware of what is happening and responding with follow-up actions.	4,18	6,61

Implementing TISEL in the aspect of friendly reflection turned out to have differences with those who did not use TISEL. The teachers' ability to transform experience into knowledge with a difference score of 2.43 with integraed ; the strengthening of SEL and Skill 6c. It turned out that students could map and understand their character and fighting power based on the experience shown with a score difference of 2.40. However, the ability to be heartened by the shortcomings/mistakes made as an act of reflection is only a score of 1.47

5. Discussion

This study demonstrated that the teacher who was given the TISEL model and those who were not given the TISEL model had different results in strengthening professional educators. This study is in line with social emotional learning (SEL) can develop self-awareness, self-control, relationships, and decision-making skills essential for success in the schools (Kim et al., 2019; Cristóvão et al., 2020; Oliveira et al., 2021). If the SEL contributes to student success, it needs to strengthen teachers to implement it in schools (Michalec and Wilson 2022). Furthermore, SEL can improve the emotional and social abilities of new teachers, making them more resistant to change, such as changes caused by the COVID-19 pandemic (Styfanyshyn and Yurko 2020). Similarly, Fragkiadaki & Ravanis' opinion about TISEL states that intellectuals are very closely related to the emotional (Fragkiadaki and Ravanis 2021). Kaspar also said that the successful implementation of intellectual and social-emotional integration is in the hands of teachers (Kaspar and Massey 2022). It is proven that TISEL aims to shape prospective teachers' professionalism in implementing intellectual and social-emotional learning. This research has shown that aspiring teachers with solid social-emotional skills can better navigate everyday challenges, manage their feelings, and develop academically and socially.

The results of this study reveal the implications of intellectual and socio-emotional learning of prospective teacher education, showing how important it is to support students in developing a sense of community and motivation and encourage academic success through intelligence, social and emotional. A positive attitude, a proactive approach to life, a tendency to set goals, perseverance, an adequate support system. Empathy is an influential factor that can help students to be confident. As in previous educational environments, assisting students in developing skills that improve social and emotional well-being is a long-term investment in higher education.

The findings of this study that implementation of TISEL in prospective teachers reinforce the research findings that reveal that SEL education can teach students to hone key skills such as emotional regulation, social skills, self-discipline, and perspective-taking (Allbright et al. 2019). Emotional skills in student competence are self-efficacy, self-management, and a growth mindset related to academic outcomes (Allbright et al. 2019; Lee and Soland 2022); Kanopka et al., 2020). Elements of the SEL program include content in social awareness, self-awareness, problem-solving (Lawson et al. 2019), and assisting students in behaving well (Thierry, Vincent, and Norris 2022). Other evidence also says that social-emotional learning affects students' ability to achieve self-esteem and self-acceptance, improves students' abilities such as communication and empathy skills, avoids drug abuse, and avoids violence or bullying (Ray et al. 2022). The nature of TISEL is reflected in the teaching profession in the formation of teachers (a) humanist in empathy, (b) intelligent and meticulous, (c) wise and smart, and (d) friendly in carrying out the duties of educators.

In addition, the study's findings TISEL can help students determine their way of learning and analyze their impact on acquiring their social work skills (Estrada et al., 2021; Oliveira, Roberto, Veiga-Simão et al., 2021; Yang, 2021). Also reinforced by Frisancho & Delgado says that moral education is intercultural. This is reinforced by Easterbrook et al., who state that character education in schools is one way to anticipate and minimize the nation's moral decline, which is a problem in the world of education (Easterbrook, Harris, and Sherman 2021). These findings are also strengthened by Gerasimova et al. (2021) that moral education is intercultural and that moral education is broader than civic education. Intercultural can assist students in dealing with global world situations (Mu and Yu 2021).

6. Conclusion

The development of TISEL model showed that the resulting model made a positive contribution toward formation of teacher professionalism. Provide understanding to teachers in applying the basics of education that are psychological, philosophical and sociological; apply learning theory that is appropriate to the level of student development; develop learning materials; using a variety of learning methods; utilize various tools, media, and learning resources; preparing and implementing learning programs; evaluation of student learning outcomes; as well as shape the personality of students. In addition, the TISEL element strengthens teacher professionalism that involved a mature and developed personality, strong knowledge; science and technology

awareness; and continuous professional development. TISEL model can be recommended as a new learning model in the reinforcement teachers' profession program. The limitations of this research are that it only focuses on prospective teachers who are participating in a university teaching professional program. Additionally, the results of this study indicate future research recommendations to implement TISEL in undergraduate teacher study program students.

Acknowledgement

Awards and thanks to the Research Institute of The State University of Jakarta and the National Innovation Research Agency (BRIN) of the Republic of Indonesia for sponsoring the cost of this research.

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