

Development of a Character-Based Learning Model *Problem Based Learning* and Microlearning-Assisted Media In Generation Z

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Abstract

There are still few character-based learning models *Problem Based Learning* which includes components of knowledge, attitudes and moral actions with appropriate composition, with the help of the media *microlearning*. The aim of this research is to produce a character-based learning model *Problem Based Learning* and Assisted media *Microlearning* for generation Z that is feasible and effective. This research uses the method *Research and Development* with *Step of System Approach Model of Education Research and Development Dick and Carrey's* with 10 stages. Character-based learning model *Problem Based Learning* declared eligible by material experts, media experts, language experts, design experts with an average score of 4.75 (very good). Test One to one the results are good, test it *small group* with an average score of 4.74. Data *pre test* and *post test* declared normal. Next are the t-test results, the $t_{\text{value}_{\text{count}}}(40,209) > t_{\text{table}}(2.015)$ with a significance level of $\alpha = 0.05$, and is declared effective, can improve character learning outcomes by 27.18%. Character-based learning model *Problem Based Learning* and Assisted media *Microlearning* can improve the ability to solve problems scientifically, think creatively and can apply them in everyday life. In conclusion, Character Based Learning Model *Problem Based Learning* Media assisted *Microlearning* declared feasible and effective. Furthermore, this model book was printed by the Indonesian Khalifah Education Foundation, with ISBN, IPR and articles published in the Scopus journal.

Keywords: *Character Learning Model, Problem Based Learning, Microlearning Media, Generation Z*

INTRODUCTION

Good character education learning should be supported by a learning model that is suitable for each learning material. According to Lickona (2022), there are several components of good character that must include three components, namely moral knowledge, moral messages and moral actions. In the character learning process, one cannot only emphasize moral knowledge through lectures, so that goals can be achieved. It must be accompanied by various IT-based media, monitoring and example from educators and families as the closest environment in implementing character. Thus, character learning is not only theoretical, but the practical aspect really needs to be implemented. Supported by main and accompanying teaching materials. Apart from that, evaluation tools, both tests and non-tests, are used to assess cognitive, affective and psychomotor aspects. Evaluation must be carried out continuously, completely, comprehensively (So seenin et. al., 2020);

Of course, students cannot be sterile from their environment. Students are faced with character problems in everyday life. For this reason, students must be skilled in finding solutions related to the character problems they face. Based learning *Problem Based Learning* should be closely attached to character learning. If students are introduced, trained and accustomed to how to find the correct solution, through *Problem Based Learning*. So, in facing problems, students are already adept at finding solutions. Students will be skilled at solving problems through *Problem Based Learning* (Song et al., 2022).

Problem Based Learning is learning that is often used to increase interaction, higher thinking, use problems and is student-centered (Choden & Kijkuakul, 2020).

Students are Generation Z who are relatively impatient, and easily need instant fun, are introverted, easily distracted because they are busy surfing the internet, and are detached from society (Salleh et al., 2017). For this reason, learning media assisted by Microlearning should be provided to Generation Z who are easily distracted, but the reality is that educators are sometimes burdened by the learning material that must be conveyed to students, so that the learning process is limited to the greatest cognitive weight (Song et al., 2022). Sometimes we get trapped and misinterpret "Freedom of Learning", using only lecture learning methods.

For this reason, it is very urgent to carry out research related to the Character Based Learning model *Problem Based Learning* Assisted by Microlearning Media in Generation Z.

Table 1. Study of research results that have been published in journals as support *state of the art*.

No	Year	Research from Journal Articles	Results
1	2019	Integrating Augmented Reality into Problem Based, Learning: The Effects on learning achievement and attitude in physics education. Journal computer & education, 142. 103635. (Fidan & Tuncel, 2019).	Integrating AR in the Implementation of PBL, Increases student learning achievement and positive attitudes compared to only classroom teacher-based PBL.
2	2020	Improving Graduate Outcomes: Implementation of <i>Problem Based Learning</i> in TV ET System of Nigerian Higher Education, Skill and Work Based Learning, 11(1), 92-110 (Okolieetal.,2021).	PBL has positive implications for vocational graduates because it allows the integration of theory and practice, increases student independence and increases graduate competence.
3	2017	Development of a <i>Problem Based Learning</i> Model via a virtual learning environment. Kasetsart Journal of Social Sciences, 2017, pages 297-306 (Phungsuk et.al, 2017).	The results showed that problem-based learning through a virtual learning environment, improved learning abilities, and problem-solving skills among students in a photography for communication arts course.
4	2021	Pharmacy students Perceptions and performance from a microlearning based virtual practical on the elucidation of absolute configuration of drugs Asian Journal of University Education (AJUE), 17(4) (Choo&Rahim,2021)	Microlearning learning is designed in such a way that it allows students to learn independently and also practice spatial abilities

Based on some research results that have been published in the journal, then the novelty (*novelty*) research, this is the Development of a Character Based Learning Model *Problem Based Learning*, so that students are skilled in solving character-related problems. This Character Learning Model integrates theory and practice with a theory weight of 30% and practice and attitudes 70%. With media assisted by Microlearning, the characteristics of Generation Z can be accommodated. Generation Z is easily distracted and busy surfing the internet. Therefore, the media created is short in duration (maximum 5 minutes). The character learning model will be designed by integrating students and their environment (parents), to control the implementation of character in daily life.

Problem Formulation

- a. How to Develop a Character-Based Learning Model *Problem Based Learning* and Microlearning Assisted Media in Generation Z?

- b. What is the feasibility of the Character Based Learning Model *Problem Based Learning* and Microlearning Assisted Media in Generation Z?
- c. How effective is the Character Based Learning Model *Problem Based Learning* and Microlearning Assisted Media in Generation Z?

Literature review

Character Education is a learning process about good and moral personality. This is very fundamental for building a developed and civilized nation.

In the digital era, technology will continue to develop rapidly, which is in line with the ease of human social interaction. Ease of accessing information makes people more easily and quickly receive information. In learning, students use technology to support education at school. The information displayed can be in the form of writing, as well as in video form. This will benefit students and educators, but there are obstacles that they must face, namely the cultivation of character which is starting to erode.

The amount of information received, sometimes negative information is not filtered and is consumed. Apart from negative information, bad character can also be caused by frequently using gadgets, so that students will become addicted and neglect their responsibilities. If students' "gadget addiction" is "disturbed", they will rebel and oppose it. Being too close to gadgets will also cause indifference to the surrounding environment. Today's students prefer to record moments or events with their cellphones, rather than providing assistance. If this continues, it will have an impact on the future of the students themselves. Therefore, character education is very important to instill in the digital era, and what kind of character learning can be done to overcome or reduce this problem?

The function of character education in the digital era:

- 1) Forming good character
The main goal of character education is for students to have good personalities, morals, and noble character.
- 2) Creating tolerance towards foreign cultures. Character education is needed so that students appreciate "existing differences" whether differences in language, race, religion, ethnicity. In this way, students will be able to respect other people who are different
- 3) Filtering out Negatives
By instilling character education, students will know what to imitate and what not to imitate. This character will be automatically applied if students do it consistently in their daily lives. Education and parents must work together well, to teach and train them regularly, and must supervise them in their daily lives.

The values that must be applied in character education include:

- 1) Honesty
Conformity between speech and action
- 2) Responsibility
Perform all duties and obligations seriously
- 3) Independence
Ability to stand alone
- 4) Discipline
Conditions where a person obeys and implements the provisions, rules, regulations, values and rules that apply with self-awareness without any coercion.

1. *Problem Based Learning*

Problem Based Learning is learner-centered learning, learning about a subject by trying to find solutions to open problems (Phungsuk et al., 2017). *Problem Based Learning* is a learner-centered instructional approach, which aims to increase learners' content-related knowledge and problem-solving skills through engagement with authentic problems (Doo et al., 2021; Kim et al., 2019).

Problem Based Learning is a learning approach that uses real world problems, as a context for students' learning, critical thinking to prevent problems, and to obtain important knowledge and concepts from the material. As for the characteristics *Problem Based Learning* is (a) student-centered, with students learning in

small groups, and guided by a tutor who is a facilitator, (b) learning begins and is framed. with problems, which must be resolved accompanied by argumentation, (c) learning in collaborative teams, (d) information is learned by combining *Problem Based Learning*, accompanied by scientific arguments, both the results of investigations or research, so that students become more independent while studying.

Problem Based Learning increasing opportunities to develop the necessary critical thinking, to analyze, investigate problems systematically, negotiation skills, persuasion, involved in collaborative problem solving (Song et al., 2022).

Based on the opinions of the experts above, researchers can analyze that in any learning, and in the lives of students, problems are always found, including character problems. That's what the model is for *Problem Based Learning* Very appropriate to use in character learning. *Problem Based Learning* Students are trained to identify problems, find solutions to the problems they face, work together to overcome problems, the chosen solution must be strong. Model *Problem Based Learning* directs students to independent learning, lifelong learning, critical and practical thinking, innovation, collaboration and communication.

2. Character

Learning strategies macro. meaning the entire context of planning and implementation of character development involving all national education stakeholders. Macro character development strategies can be carried out in three stages: (1) Planning, (2) Implementation, (3) Evaluation (Pradana, 2021).

Planning Stage, at this stage it can be explored, actualized and formulated using various sources: (1) Philosophical, religious, Pancasila, UUD 1945, Law no. 20 of 2003, Presidential Decree Number 87 of 2017 concerning Strengthening Character Education (PPK).

The Implementation Stage is developed through experience and a learning process that originates from the process of character formation in students. This process can be carried out at home, at school, in the environment.

The evaluation stage is carried out using a measurement process, aimed at continuous improvement, both designed and implemented to determine the actualization of character formation in students.

Assessment is the process of obtaining information, for the purpose of making decisions about educational policies, about curriculum, educational programs or about student learning activities. Evaluation is carried out continuously, completely, comprehensively. Evaluation tools consist of tests and non-tests (Sovisikin, 2021:209).

Character development strategy Micro. in the holistic school context and character development can be divided into four, namely: (1) learning activities in the classroom, (2) Activities in the form of creating culture in schools (School Culture). (3) Curricular / extra-curricular activities, and (4) daily activities at home and in the community (So seenin et al., 2021).

Character education aims to instill values in students that value freedom. Apart from that, it aims to improve the quality of implementation of educational outcomes in schools, which leads to achieving the formation of students' character or noble morals in a complete, integrated and balanced manner according to graduate competency standards (Samani & Hariyanto, 2011). In the implementation process, character education can be instilled in two ways, intracurricular and extracurricular. The process of implementing character education has three components, *yaitu moral knowing, moral feeling and moral action* (Lickona, 2022). Aspect planting *moral knowing* can be instilled through classroom learning, while moral feeling and *moral action* Can be done both in class and outside class. *Moral action* must be done continuously through habituation.

Character according to a Greek philosopher named *Aristotle* defines good character as living by carrying out correct actions in relation to oneself and others (Lickona, 2022). According to Izzati et al. (2019) character comes from Greek which means "to mark" and focuses on how to apply good values in real actions or daily behavior. Therefore, someone who behaves dishonestly, fraudulently, cruelly, greedily can be said to be a person who has bad character. People who behave well, are honest, like to help are said to be people who have good character. A character will appear in habits.

Components of good character according to Lickona (2022)

By using various learning media, various material sources / teaching materials / books. Based on research results, QR Code-based teaching materials can improve student learning outcomes, because they suit the characteristics of Generation Z (So seenin et al., 2021). Meanwhile, at the elementary school level, character education, apart from learning and habituation, needs to be supported by comic-based teaching materials, so that elementary school students learn in a fun atmosphere. This is in accordance with research results that learning with character education comics can improve learning outcomes in conditions of fun/learning while playing (So seenin et al., 2020).

3. Generation Z

The term Generation Z is currently viral, especially on social media, Generation Z is present as a form of differentiation between the Millennial Generation, because the Millennial Generation is a generation born from 1981-1994 with ages 26 to 42 in 2023, while Generation Z was born in 1995-2012 who generally were studying elementary to tertiary education (Michael, 2019).

Table 2: Dominant Characteristics of Generations in the Middle Position

Generation	Year of Birth	Dominant characteristics
Tradisionalist	1900-1945	Loyal and disciplined
Baby Boomers	1946-1964	Responsible and has a strong work ethic
Generation X	1965-1980	Independent thinker, efficient in acting
Generation Y (Millennials)	1981-1994	Has a more dominant social side, confident, less independent
Generation Z	1995-2012	Having lower negative physical communication abilities, the use of technology in almost all fields is higher

Source : (Glass, 2007; MacKenzie et al., 2014; Pishchik, 2020)

Generation Z is a generation that plays an important role in achieving a Golden Indonesia, because this generation will be of productive working age in 2045 with an age range of between 36-47 years.

In order to achieve a Golden Indonesia in 2045, all Indonesian people must change their mindset. This means that development programs related to natural resources, human resources and sustainable production in all fields must be considered to support domestic and foreign needs and consumption.

In 2045, Indonesia will experience an increase in the quantity and potential of human resources. However, it must be managed wisely, so that it can support Golden Indonesia 2045. This must be addressed and supported wisely in the world of education, one of which is developing a learning model that suits the characteristics of Generation Z. If the learning model is good, it will support human resources generated for Indonesia Gold.

By strengthening the nation's character, Generation Z will be resilient in facing the extraordinary waves of information technology, so that Generation Z can choose precisely what to see, what to deepen, what to master and so on, so that Generation Z is skilled at carrying themselves for glory. Indonesian nation. Lestari (2019) stated that Generation Z's high dependence on the internet means they can obtain *sesu* in a short time without significant obstacles. Even though Generation Z lacks physical and social interaction, they have reliable multi-tasking abilities on social media (Cowan, 2014). Generation Z's multi-tasking ability is obtained from daily routines, such as reading a book, listening to music on an Ipod, and at the same time updating status on social media.

The internet makes Generation Z impatient, and easily need instant gratification (*Instant Gratification*), introverted and detached from society (Salleh et.al., 2017). They are a generation that rarely gets attention, due to the busy lives of older people who are the Baby Boomer Generation and Millennial Generation. According to Singh (2014), the problems faced in educating Generation Z are that they are spoiled, have low social sensitivity, and tend to avoid the risks of a problem. Educating Generation Z requires character by considering technology-based learning models. Character is an important thing to form through

the educational process. A strong country is not only seen from its military strength, nor only seen from its natural resources, but a strong country is seen from various aspects, especially seen from the character of the country, this is in accordance with the statement that the character of the country reflects the strength of the country (Rokhman et al. al., 2014).

4. Assisted Media *Microlearning*

Microlearning is an alternative to respond to changes in the field of education in the digital era. Digital literacy over the past fifty years has been researched, based on data in WoS and Scopus totaling 52,903 titles (Martinez-Bravo et.al., 2020). In the period 2006-2019, 476 publications related to microlearning were identified (Song et al., 2022). The meeting point of microlearning with the digital era is the use of information and communication technology in preparing learning tools, in particular media, to learning activities. The preparation of media in microlearning leads to various modes including (a) short chunks of texts (b) short interactive/non-interactive videos (c) e-books (d) QR Code. The media in Microlearning is not morphologically different, but there are big differences in the principles of its development, namely containing micro content and knowledge, separate but interrelated learning processes and a short duration, namely two to five minutes. . This provides an opportunity for students to organize their learning process. This has the potential to develop independent learning skills.

METHODOLOGY

This research uses the method *Research and Development* (R & D), with the Dick and Carey's model with *Step of System Approach Model of Education Research and Development*.

Gambar 3.1 Model Dick and Carey's, 2015

The following are the stages of developing a Character-based Learning Model *Problem Based Learning* and Microlearning assisted media in Generation Z.

The first stage is a needs analysis to determine learning objectives. Needs analysis is carried out by observing lecturers on campus and interviews to determine what students can do after taking part in character learning. It is hoped that this needs analysis can help researchers formulate the most appropriate and useful ones in the process of developing a Based Learning Model *Problem Based Learning* by Era Digital.

The second stage is conducting learning analysis. This stage functions to identify student skills that will be reached in learning and determine the steps that students will take when they want to achieve goals and determine the skills, knowledge, attitudes needed.

The third stage is to analyze students who are part of Generation Z and the environment, namely to identify the individual qualities of students, so that they can be used as a guide to describe learning management strategies.

The fourth stage, determine specific learning objectives to determine the abilities that students will learn and provide a means in relation to learning to achieve learning objectives. Based on the results of the instructional analysis, specific competencies or objectives are developed (*instructional objectives*) that must be mastered by students to achieve specific learning goals.

The fifth stage is to develop an assessment instrument as a guide to determine the appropriateness of student performance towards the objectives. This means that student success in tests and non-tests determines whether the student has achieved the specific goals that have been determined or not.

The sixth stage is developing a Character-based Learning Model *Problem Based Learning* which includes pre-instructional activities (motivation, goals and behavior), presentation of information (instructional content, information, examples, processes), student participation (practice and feedback), testing (*pretest* and *post test*), as well as control/monitoring regarding the implementation of character in daily life.

The seventh stage is implementing the Based learning model *Problem Based Learning*. In this learning strategy, explaining the general components of a set of learning materials and developing the material procedurally to make learning easier.

Stage eight designs and conducts formative evaluations to identify whether learning is effective. The results of the formative evaluation can be used as input to improve the program draft. In other words, because through formative evaluation, deficiencies in learning activities will be found, so that these deficiencies can be corrected.

Stage nine carries out revisions to the learning program with the aim of perfecting the Character Learning Model *Berbasis Problem Based Learning* and Microlearning Assisted Media for Generation Z, so that it is more interesting and effective when used. This makes it easier to achieve the learning objectives that have been set. Stage ten designs and develops a summative evaluation. Summative evaluation is an assessment carried out at the peak of Dick and Carey's model activities. Where assessment decisions are based on effectiveness and efficiency in learning activities. Therefore, summative evaluation is directed at the successful achievement of predetermined goals.

RESULT AND DISCUSSION

The 45 students consisted of 28 men (62%) and 17 women (38%). First, a pretest is given to see an initial overview, before being given a Character Based learning model *Problem Based Learning*, and media assisted by Microlearning. Then the Pretest results are processed and analyzed so that learning outcomes can be known before research is carried out.

Character-based Learning Model *Problem Based Learning* and Microlearning Assisted Media in Generation Z were reviewed by several experts, namely material experts, design experts, language experts, and media experts. The results of the review are used to revise the Character Learning model, then continue with Testing *One to One* consisting of 3 (three) intelligent students, one student who is moderate in ability, and one student who has less ability. This was done through interviews related to the research product, namely the Character Based Learning model *Problem Based Learning* and Microlearning assisted media. Input from three students was used to revise the resulting character learning model.

Then the character learning model after being revised was tested through *Small Group*. Test *Small Group* given to 9 students. With a composition of three (3) students who are of moderate ability, three (3) students who are clever, three (3) students who are less capable.

Test *Small Group* using instruments. This instrument was previously tested for validity and reliability. Once it is valid and reliable, this instrument is used on *small group*.

Based on the review results by experts or experts to see the qualifications by experts, and test results *one to one*, *small group*, then the learning model is based *Problem Based Learning* and Microlearning Assisted Media used in this research.

Before learning, students are assigned to scan the QR Code of character material, by viewing the media with the help of microlearning. This is intended to prepare mentally, so that students are better prepared to learn. Scanning a QR Code with a cellphone can be done anytime and anywhere. This is in line with Shih-Yuan Huang's research (Shih-Yuan Huang, et.al, 2020); So seenin, et.al, 2020) material *were saved in a quick response code format, wwhich the students could scan with their tablets*. The character material is stored in a QR Code, but due to many requests, and not from generation Z, the character material is also printed by the publisher of the Indonesian Khalifah Education Foundation. The research results will be discussed next in stages:

1. Test Research Instrument Requirements

Instruments to be used on *small group* consists of 15 statement items. This instrument will be tested for validity and reliability. This instrument was tested on 10 students. From these data, r is obtained_{count} (0.770) while r_{table} (0.632) for $n = 10$ and $\alpha = 0.05$. Which means r_{count} (0,770 > r_{table} (0.632) which indicates valid data.

Then proceed with calculating the reliability r value₁₁ = 0.940, after consulting the table, it is included in the 0.800 – 1.00 category, so the instrument has very high reliability. The items are grouped number 4 and

9. Thus the instrument is declared reliable. Thus, the instrument that will be used is valid and reliable with 13 items,

2. Feasibility Test of the Character Based Learning Model *Problem Based Learning* and Microlearning Assisted Media in Generation Z

Results of research on character-based learning models *Problem Based Learning* and Microlearning Assisted Media are tested for their suitability (*expert review*) by the four experts. The results of the assessment by material experts got a score of 4.83, language experts got a score of 4.50, media experts got a score of 4.85 and design/learning model experts got a score of 4.80. It can be concluded that the character-based learning model *Problem Based Learning* and Microlearning Assisted Media was declared feasible by experts, with an average score = 4.75.

3. Test *One to One*

Test *One to One* given to three students through interviews regarding character-based learning model products *Problem Based Learning* and Microlearning Assisted Media in Generation Z. Test results *one to one* got good response, and is considered practical in its stages for solving a character problem, with media that lasts between 1-5 minutes, this is in accordance with microlearning. With *Problem Based Learning* Students are trained to solve problems scientifically, can collaborate well in groups, and are trained to think critically. Another benefit is that you can learn anywhere because there are links related to microlearning materials and media, so it is in line with the 4.0 era.

4. Small Sample Test (*Small Group Evaluation*)

Test *small group evaluation* given to 9 students. With a composition of 3 students who are intelligent, 3 students who are moderate in ability, and 3 students who are less able. Based on test results *small group* obtained an average value = 4.74.

5. Large Sample Test (*Field Trial*)

To see the effectiveness of the character-based learning model *Problem Based Learning* and Microlearning Assisted Media. This learning model was used during the character learning process for 45 students. Before learning, students carry out a pretest, to see their initial abilities. After learning using a character-based learning model *Problem Based Learning* and Microlearning Assisted Media, then students carry out a post test.

Before further processing, data from 45 students, both pre-test scores and post-test scores, were tested for normality using Kolmogorov Smirnov.

Table 3. Kolmogorov Smirnov Normality Test

		Kolmogorov Smirnov			Shapiro-Wilk		
	Class	Statistic	df	Say	Statistic	df	Say
Results	Protest	.089	45	.200*	.965	45	.95
	Posttest	.104	45	.200*	.959	45	.111

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the results of the normality analysis, it was found that the significant pre-test and post-test values were greater than 0.05, so that all data was in the normal category.

Pretest data can be depicted via the histogram below:

Meanwhile, the post test data can be depicted using the histogram below:

Based on normally distributed data, both pre test and post test data, for details, see the table below:

Table 4. Pre test and post test data

All data is normally distributed, so a parametric t-test can be carried out using a paired sample test because the research subjects are in the same class.

The average pre-test score = 63.44, with a standard deviation of 4.19. while the post test average = 90.62, with a standard deviation of 5.03.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_test	63.4444	45	4.19174	.62487
	Post_test	90.6222	45	5.03302	.75028

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Post_test & Pre_test	45	.530	.000

Based on the results of the paired sample test, a significant correlation (significant <0.05) was found between the pre-test and post-test.

There is an increase in learning outcomes after using the character-based learning model *Problem Based Learning* and media assisted by microlearning in generation Z was 27.18, or 27.18%. This result is in line with the results of Mustafa Fidan's research that the Character Model is Based *Problem Based Learning* can improve student learning outcomes and encourage their positive attitudes towards Physics subjects (Fidan, et.al. 2020).

To see the effectiveness of the character-based learning model *Problem Based Learning* and microlearning assisted media in generation Z, carried out through t-test.

Table 5. Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Post_test - Pre_test	27.17778	4.53416	.67591	25.81557	28.53999	40.209	44	.000

Based on the t-test results, the t value_{count} (40,209) > t_{table} (2.015) at the significance level a = 0.05. in other words t_{count} greater than t_{table} significantly.

Based on the results of the paired t-test of the test samples, it was found that the 2-tailed significance value was <0.05, so it can be concluded that the character learning model is based on *Problem Based Learning* effective in improving character learning outcomes.

Table 6. Distribution Percentage Points t (df = 41 – 80)

Pr	0.25	0.10	0.05	0.025	0.01	0.005	0.001
df	0.50	0.20	0.10	0.050	0.02	0.010	0.002
41	0.68052	1.30254	1.68288	2.01954	2.42080	2.70118	3.30127
42	0.68038	1.30204	1.68195	2.01808	2.41847	2.68907	3.29595
43	0.68024	1.30155	1.68107	2.01669	2.41625	2.69510	3.29089
44	0.68011	1.30109	1.68023	2.01537	2.41413	2.69228	3.28607

Thus, the character-based learning model *Problem Based Learning* and Microlearning Assisted Media in Generation Z effective, and can increase character learning outcomes by = 27.187. This is in line with the research results, namely *During the Problem Based Learning Process, instructor have a guiding*

role in facilitating the information configuration of students rather than transferring the information to them over the last half-century, educators have shown that Problem Based Learning can be useful and effective to enhance cognitive and effective skill in learning (Dolmans, Loyens, Marqu'h., & Gijbels, 2016; Hmelo-silver, 2012; Lu, Bridges, Hmelo-Silver, 2014); Savery, 2006).

CONCLUSION

Based on the research results, it can be concluded that the Character Based Learning Model Problem Based Learning and Microlearning Assisted Media for Generation Z has been completed. With a learning syntax of 5 steps, it is practical and problem solving abilities can be improved.

Character Based Learning Model Problem Based Learning and Microlearning Assisted Media in Generation Z, was declared feasible by experts with an average score of 4.75.

Character Based Learning Model Problem Based Learning and Microlearning Assisted Media for Generation Z was declared effective after carrying out a t-test at a significance level of $\alpha = 0.05$.

The increase in learning outcomes was with an average pre test = 63.44, and an average post test = 90.62, so the contribution was 27.18%.

Character Based Learning Model Problem Based Learning, printed as a book and published by the publisher of the Indonesian Khalifah Education Foundation, as well as having an ISBN and IPR.

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