

Measuring students' generic skills through national assessment

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ABSTRACT

This study aims to measure the generic skills (GS) of *Madrasah Aliyah* (MA) students in Indonesia. Respondents who participated in this study were *madrasah* students scattered in East Java and Central Java as representatives of MAs in Indonesia. The method used in this research is a survey distributed via Google Form. Three dimensions are mentioned in the research instrument for measuring GS: religious moderation, critical and creative thinking skills, and interpersonal skills. Using SPSS version 16 software, a descriptive analysis was employed as the data analysis technique. The results of this study showed that the GS of students with religious moderation indicators obtained the highest average of 54.03% on the Likert scale 4. Critical and creative thinking skills indicators obtained the highest average results, 67.99%, on the Likert scale 4. The indicator of interpersonal skill obtained the highest average of 55.88% on the Likert 4 scale. Hence, it is expected of educational institutions to implement policies to enhance the GS of MA students, particularly in creating a more student-oriented learning model, also known as student-centered learning.

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INTRODUCTION

One of the talents students need to have to deal with the fast evolving global concerns is generic skills (GS) (Lai et al., 2017). The GS required in the workplace has been developed by a number of institutes (Barrie, 2006). To address the challenges of the working world, the GS owned by students might be a useful source of information (Spronken-Smith et al., 2015). The development of GS has become an important indicator of the success of graduates from educational institutions (W. S. C. Chan, 2010; Hager, 2007; Su, 2014). This ability refers to several personal qualities that graduates must possess in order to become capable and ready-to-use individuals (Virtanen & Tynjälä, 2019). Personal qualities in question such as; flexibility, adaptability, willingness to learn, self-motivation, and effective communication in university graduates (C. K. Y. Chan & Fong, 2018; Kusaeri et al., 2019). This ability is believed to allow them to adapt and contribute to the era of disruption (Hilliker & Loranc, 2022). Educational institutions that are responsive to the above phenomena need to provide good tools to produce graduates with certain generic skills.

GS can be created utilizing the appropriate educational paradigm, that is, education that provides student with the chance to engage in critical thought and delegation of responsibility (Usman et al., 2022). There are many models that can be used by teachers in order to develop student GS, including the Jigsaw and discovery learning models (Usman et al., 2022). After looking at the Jigsaw, it looks at how students complete their assignments in addition to the students'

proficiency (Basak & Yildiz, 2014). This paradigm provides motivation for each student to revisit the fundamental concepts in their course materials to become an expert. It is intended that by employing the Jigsaw Technique (JT) model, pupils will be able to practice more extensively. Likewise, students benefit from discovery learning because it encourages exploration, learning, and engagement as well as the addition, maintenance, and use of technology and the involvement of students in the workforce (Plagens, 2011).

Jääskelä et al. (2018) provide four models to analyze the development of GS, namely, (1) Specialist Model, (2) Science -based Renewal Model, (3) Project-based Integrative Model, and (4) Model of Networked Culture. The Specialist Model is a separation of the relationship between employment and GS development. Nonetheless, this model considers GS and the need to develop it is very important (Jääskelä et al. 2018). The Science-Based Renewal Model, develops GS in various forms of academic activity, because, the relationship between employment and GS is based on academic networks (Kara & Kingir, 2022). The Project-Based Integrative Model seeks to establish a close relationship between education and work and GS development (Jalinus et al., 2020). This model is usually applied in individual courses combining theoretical knowledge, practical competencies, and self-regulating skills. The Cultural Network Model, the relationship between education in the workplace and the development of GS are seen as involving internal and external networks across educational institutions, where the workplace aspect is an integral part of the educational structure, management system and curriculum (Long & van Hanh, 2020).

Of the four models, it seems that the Project-based Integrative Model (PBIM) is suitable for analyzing the GS of students in Indonesia. This is because in PBIM requires students to take responsibility and conclude realistic tasks by collecting information independently by changing and building knowledge (Svinicki, 2010), PBIM can produce graduates who can integrate knowledge from various disciplines to overcome complex problems with problem solving. creative and innovative thinking (Cameron, 2014; Hogue et al., 2015). In addition, many *Madrasah Aliyah* (MA) in Indonesia have implemented PBIM (Husin, 2018; Khabibah et al., 2017; Mulyani et al., 2016).

PBIM seeks to integrate theory and practice in education closely. This integration usually appears in interactive and project-based learning. This model is based on the idea that general skills can best be learned through project intermediaries in real life (Heikkinen et al., 2011). In this way, theory and practice will be integrated. This model is based on interaction, conceptualization of practical situations and reflection on what has been learned. Teaching, learning, and guidance blend with each other. Guidance in PBIM is a natural part of a teacher's job, including tutoring (Jääskelä et al., 2018).

Several researchers have highlighted the importance of developing GS in educational institutions (Okolie et al., 2020; Jääskelä et al., 2018; C. K. Y. Chan & Fong, 2018; Balderas et al. 2018; Nghia 2017; Pitan 2017; McLean et al. 2013). Balderas et al. (2018) revealed that teachers must have tools to assess GS via online. The trick is that the teacher provides notes on assignments and activities that students have collected on the LMS (learning management system) to measure GS. C. K. Y. Chan and Fong (2018) looked at students' perceptions and how they felt about the importance of developing GS based on subject matter. As a result, students are still not motivated to develop GS and are not aware of the urgency of GS in the future. Nghia (2017) mentions that extra-curricular activities are an integral component of the strategy of educational institutions to train students to develop GS.

In this study, the GS indicators to be used refer to the three social literacy indicators in Indonesian *madrasahs* based on the GS level (Alwi, 2021). The GS levels are basic, advanced, and require creative space. These three levels refer to the GS Indicators to be measured, namely religious moderation (Alwi, 2021), critical and creative thinking (W. S. C. Chan, 2010), and also interpersonal skills (C. K. Y. Chan, Zhao, et al., 2017).

We will start with the guidance flow for students in PBIM. This guidance offers a wider collaboration between teachers and students. Referring to Baneres and Conesa, there are five important indicators called capstone elements in the process of integrating theory and practice, namely teamwork, problem solving, decision making, critical thinking, communication. Teamwork is one of the soft skills that is currently developing and becoming a concern in the world of work and is increasingly global (Baneres & Conesa, 2017).

One of the tools for assessing PBIM is the e-Portfolio. Research that has been conducted by (Bezanilla et al., 2019; Karami et al., 2019; Lai et al., 2017) on the tools used by teachers to measure GS (problem solving, critical thinking, creative thinking, oral and written communication, social interactions, ethical decisions, and global perspectives) is e-portfolios and self-surveys. The introduction should perform the relationship among the research background, rationale, justification of the research urgency, the emergence of research problems, alternative solutions, the solutions which are chosen, and the research aims. The background and rationale should be stated according to the theories, evidence, pre-survey and/or relevant research. It may also contain the narrative operational definition of the main constructs, variables, or terminologies used.

Constructivism is the underlying principle of GS in Indonesian *madrasah*, encourages social and communication skills by fostering a climate in the classroom. This places a focus on team-work and the sharing of ideas (Derry, 1996). By participating in group assignments, students must develop their ability to communicate their ideas clearly as well as work well in teams. In this study, three social literacy indicators in Indonesian *madrasah* based on GS level are referred to as the GS indicator that will be used. The intended GS level is basic, advanced, and needs creative space. These three levels refer to the GS Indicators that will be measured, namely critical and creative thinking (C. K. Y. Chan, Fong, et al., 2017), as well as creative (C. K. Y. Chan & Fong 2018; C. K. Y. Chan, Zhao, et al. 2017), social skills (C. K. Y. Chan, Fong, et al. 2017), interpersonal skills (C. K. Y. Chan, Zhao, et al. 2017).

These three indicators look for accurate instruments, one of which is a self-survey. Currently, the most common method for evaluating the impact of undergraduate education on generic skills development is the self-survey. Survey items focused on students' perceptions of their progress in decision making, problem solving, analytical skills, collaboration, communication, ethical development, and also vocational preparation (Ginns et al., 2007; Zhao & Kuh, 2004; Webster et al., 2009). Therefore, the researchers prepared this self-survey packed as a non-test instrument in the form of multiple choice with a Likert scale that would be answered by students.

This study aims to measure the GS level of MA students. In addition, this research can also be used to evaluate learning outcomes in *madrasah aliyah*. The GS measurement instrument can be used as a reference for measuring two other indicators of the five socio-cultural literacy indicators. This is important, because several things, including *madrasahs* that are managed under the Ministry of Religious Affairs and more than 90% managed by the private sector often have many shortcomings in terms of funds, quality of teachers and adequate facilities and infrastructure (Umar et al., 2022).

RESEARCH METHOD

This study used a self-survey method referring to Creswell and Clark (2018) with the focus of this study on measuring the GS achievement of *Madrasah Aliyah* students in Indonesia. The subjects of this study were students of *Madrasah Aliyah* throughout East Java and Central Java who represented Indonesia. This is based on EMIS data from the Ministry of Religion which recorded as many as 91 State *Madrasah Aliyahs* and 1,752 Private *Madrasah Aliyahs* for the East Java region as well as 65 State *Madrasah Aliyahs* and 622 Private *Madrasah Aliyahs* for the Central Java region. Data were collected using a questionnaire that was distributed through a Google

Form, by which the link was sent to teachers in each *madrasah*, subject teacher groups in East Java and Central Java to obtain data which were then analyzed using a quantitative approach using SPSS version 26.

The questionnaire refers to indicators from GS indicators and socio-cultural indicators, which include (1) religious moderation (Alwi, 2021) as many as nine questions, (2) CTPS (C. K. Y. Chan & Fong, 2018) as many as ten questions, (3) Interpersonal Intelligence (C. K. Y. Chan, Zhao, et al., 2017) 11 questions, as presented in Table 1.

Table 1. Dimension of GS

No.	Dimension of Generic Skills (GS)
1.	Religious Moderation
2.	Critical and creative thinking skills (CTPS)
3.	Interpersonal Skills

Instruments developed are validated by credible experts (Turrado-Sevilla & Cantón-Mayo, 2022) consisting of experts in the field of study, teachers, and evaluation experts. Suggestions from experts are considered to complete the contents of the instrument related to relevance, scope and sequence of the instrument. Measurement of instrument validity using Aiken analysis involving six raters. Each item of each dimension is assigned a range value of 1-5 indicating the degree of non-conformity until it is very appropriate. The results of the expert assessment show that the Aiken's V is above 0.79 which means that the instrument is valid (Aiken, 1985).

The data collected include (1) gender, *madrasah* name, *madrasah* status (2) students' GS, which includes religious moderation, CTPS, and interpersonal skills. The questions are open-ended, single, with a rating scale of 1 to 4). The statistical analysis used is descriptive qualitative. Qualitative variable numbers are presented with numbers (*n*) and percentages (%), and quantitative variables with (*m*) and standard deviation (*SD*) answers with a Likert scale are analyzed separately according to the content analysis guide (Sugiyono, 2018). The data obtained through a questionnaire in the form of a google form will be analyzed starting from descriptive, validity, and reliability test with the help of SPSS version 16.

FINDINGS AND DISCUSSION

Instrument Test

The questionnaire that will be used as a data collection tool is first tested for validity and reliability. This test is intended to measure the feasibility level of the questionnaire as a data collection tool. The results of the validity and reliability of the research questionnaire can be explained as follows.

Instrument Validity Test

The calculation is done by correlating each item score with the total score using correlation analysis. The test criterion is if the correlation coefficient value is greater than r table = 0.2759, then it shows that the indicator is valid for measuring the construct in question and is declared valid as a data collection tool. The results of the validity test as the results can be seen in Table 2.

Based on the results of testing the validity of the instrument, it was found that all indicators in Table 2 produced a correlation coefficient value greater than r table = 0.2759. Thus, it can be concluded that all indicators in Table 2 are valid and can be used as a data collection tool in this study.

Table 2. Validity Test Results with SPSS

Variable	Item Code	Correlation coefficient	r table	Information
Religious moderation	X1.1	0.528	0.2759	Valid
	X1.2	0.495	0.2759	Valid
	X1.3	0.467	0.2759	Valid
	X1.4	0.529	0.2759	Valid
	X1.5	0.386	0.2759	Valid
	X1.6	0.549	0.2759	Valid
	X1.7	0.594	0.2759	Valid
	X1.8	0.369	0.2759	Valid
	X1.9	0.370	0.2759	Valid
CTPS	X2.1	0.707	0.2759	Valid
	X2.2	0.711	0.2759	Valid
	X2.3	0.612	0.2759	Valid
	X2.4	0.519	0.2759	Valid
	X2.5	0.693	0.2759	Valid
	X2.6	0.568	0.2759	Valid
	X2.7	0.319	0.2759	Valid
	X2.8	0.705	0.2759	Valid
	X2.9	0.649	0.2759	Valid
	X2.10	0.530	0.2759	Valid
	X2.11	0.698	0.2759	Valid
Interpersonal Skills	X3.1	0.352	0.2759	Valid
	X3.2	0.521	0.2759	Valid
	X3.3	0.691	0.2759	Valid
	X3.4	0.682	0.2759	Valid
	X3.5	0.451	0.2759	Valid
	X3.6	0.590	0.2759	Valid
	X3.7	0.449	0.2759	Valid
	X3.8	0.642	0.2759	Valid
	X3.9	0.520	0.2759	Valid
	X3.10	0.741	0.2759	Valid

The results of calculating the validity of the contents of the GS instrument using the Aiken formula from the assessment of six experts in the field of Islamic religious education in each aspect can be seen from Table 3. The calculation results show an overall average above 0.79, which means that all instrument items can be said to be valid (Yulianto, 2021).

Table 3. Results of Aiken Index Analysis of GS Instruments

Religious Moderation		CTPS		Interpersonal Skill	
Item	Result	Item	Result	Item	Result
1	0.83	1	0.87	1	0.83
2	0.87	2	0.87	2	0.83
3	0.95	3	0.95	3	0.91
4	0.87	4	0.91	4	0.87
5	0.95	5	0.83	5	0.91
6	0.95	6	0.83	6	0.95
7	0.87	7	0.95	7	0.95
8	0.91	8	0.83	8	0.83
9	0.91	9	0.91	9	0.91
		10	0.91	10	0.87
		11	0.87		
Average	0.90		0.88		0.88
Total Average					0.88

Instrument Reliability Test

Instrument reliability test was used with the aim of knowing the consistency of the instrument as a measuring instrument, so that a measurement can be trusted, to test used Cronbach Alpha, in which an instrument will be more reliable if the Alpha coefficient is more than 0.6 (Purnomo, 2016). The summary of the results of the questionnaire reliability test on all valid items according to the SPSS output can be seen in Table 4.

Table 4. Reliability Test Results

Variable	Cronbach Alpha	Cut Off	Information
Religious moderation	0.748	0.600	Reliable
CTPS	0.884	0.600	Reliable
Interpersonal Intelligence	0.828	0.600	Reliable

Based on Table 4, it is known that the Cronbach Alpha value for all variables in this study resulted in a Cronbach Alpha value of more than 0.600, so that all questions in this research variable were stated to be consistent, reliable, and suitable to be used as a data collection tool.

Descriptive Analysis

The descriptive analysis explains the description of each research variable which includes the minimum, maximum, median, average, and standard deviation values, as well as the frequency distribution of the categorization results. The results of the descriptive analysis can be explained as in Table 5.

Table 5. Descriptive Analysis of Research Variables

Variable	Minimum	Maximum	median	mean	Std. Dev.
Religious moderation	1.80	4.00	3.20	3.27	0.59
CTPS	2.27	4.00	3.00	3.22	0.52
Interpersonal Intelligence	1.00	4.00	3.00	3.18	0.71

Based on the data presented in Table 5, out of a total of 51 respondents it is known that the lowest religious moderation is 1.8 and the highest is 4.00. The average value of the respondents' religious moderation was 3.27 and the median was 3.2 with a standard deviation of 0.59. The standard deviation value, which is smaller than the average indicates that the diversity of religious moderation values between respondents tends to be small.

Then from Table 5, from a total of 51 respondents it is known that the lowest CTPS is 2.27 and the highest is 4.00. The average CTPS value of the respondents was 3.22, and the median was 3.00 with a standard deviation of 0.520. The standard deviation value which is smaller than the average indicates that the variance of CTPS scores between respondents tends to be small.

Furthermore, from a total of 51 respondents, it is known that the lowest interpersonal intelligence is 1.00 and the highest is 4.00. The average value of the respondents' interpersonal intelligence was 3.18 and the median was 3.00 with a standard deviation of 0.71. The standard deviation value which is smaller than the average indicates that the diversity of Interpersonal Intelligence scores between respondents tends to be small.

Respondent's Perception

Categorization of assessment based on the score of respondents' responses, where the assessment category is determined based on the number of measurement scales used, which are four classifications. Based on the results of the calculation of the class length for each interval, Table 6 presents the classification of the assessment categories for the arithmetic mean value.

Table 6. Classification of Assessment Categories for Descriptive Statistics

Average Value	Count	Rating Category
1 – 1.75		Strongly Disagree
1.76 – 2.51		Disagree
2.52 – 3.26		Agree
3.27 – 4.00		Strongly agree

Source: Data Processing Results

Based on Table 6, the scale can be used as a reference to provide an assessment of the results of the existing questions, which are related to the existing variables and discussed in this study. The following is a description of respondents' perceptions of each variable, in full as presented in Table 7.

Table 7. Religious Moderation Indicator

No.	Indicator	4	3	2	1	Average
1.	For me, serving the country is a form of practicing my religious teachings	27	21	3	0	3.49
2.	I accept the different ways of worshipping the people around me	19	31	1	0	3.35
3.	I listen carefully to other people who are talking to me	24	27	0	0	3.47
4.	When I have a problem, I solve the problem with the family	26	24	1	0	3.49
5.	I avoid clashes that lead to conflict	23	26	1	1	3.39
6.	I try to mediate a conflict that occurs in my circle of friends	13	35	3	0	3.22
7.	I get new knowledge in every implementation of traditional ceremonies that are trusted by the surrounding community	14	34	3	0	3.25
8.	I like to see houses of worship with certain cultural themes (such as: temple-style mosques, domed churches, and others)	9	23	17	2	2.80
9.	For me, seeing the bride and groom combine certain religious clothes and traditional clothes at the wedding is very fashionable	12	27	12	0	3.00
Total		167	248	41	3	29.46
Average Score		36.38	54.03	8.93	0.65	3.27

Religious moderation is the first indicator of GS, the highest average result is 54.03% on a Likert scale 4. This means that respondents have a good attitude of religious moderation, 36.38% are in the very good category, 8.93 are in the sufficient category and the remaining 0.65 are in the less category. These results show that, in terms of religious moderation, there is an increase in attitudes of religious moderation when compared to 2017 where there was a lot of violent behavior due to lack of understanding of religious teachings (Makhshun et al., 2022).

Religious moderation is an important part of Indonesian country, Pancasila (five pillars of the nation) and the 1945 law which is the basis of national education shows that the government instills good education. moderate by making Pancasila the basis of education. The government has also taken strategic steps in an effort to realize an attitude of religious moderation, as in attachment 1 of Presidential Regulation No. 18 of 2020 concerning the National Medium-Term Development Plan for 2020-2024 is one of the human resources development strategies, especially in character building.

This effort must continue in a more holistic and integrative manner, especially in the education system by emphasizing the values of integrity, work ethic, mutual aid, and ethics. These ethics include ethics in learning and social systems. Religious education must be instilled with the cultivation of the noble values of the nation's culture in family institutions and interactions

between citizens. This needs to be done to strengthen harmony, improve the culture of literacy, and innovation. Furthermore, it will give rise to creativity for the realization of a knowledgeable, innovative, creative, and characterful society. This is also corroborated by the results of Muzaqi's research, which states that students increasingly have a good attitude of religious moderation after being integrated in learning (Muzaqi et al., 2022).

Table 8. CTPS Indicator

No.	Indicator	4	3	2	1	Average
1.	I focus the questions according to the material presented	14	36	1	0	3.27
2.	I usually complete the challenges given by the teacher	7	40	4	0	3.07
3.	I convey the question clearly according to the essence of the question	16	33	2	0	3.29
4.	I can re-explain the material that has been delivered by the teacher	8	37	9	0	2.94
5.	I choose questions according to the material presented	13	38	0	0	3.27
6.	I can determine the cause of the problem I'm facing	14	34	3	0	3.23
7.	I associate one thing with a thing to solve a difficulty .	8	34	9	0	3.00
8.	I can provide evidence if I have an opinion	15	32	4	0	3.23
9.	I respect other people's opinions even if they differ from one another.	20	31	0	0	3.41
10.	In my opinion, every answer should have a basis.	21	30	0	0	3.43
11.	I'll check if it's correct, when in doubt with someone else's answer	17	33	1	0	3.33
	Total	153	378	33	0	35,50
	Average Score	27.52	67.99	5.94	0.00	3.22

From Table 8, the respondent's response to the CTPS variable obtained a value of 67.99% on a Likert scale of 4, which indicates that the respondent's critical thinking skills and creativity are in the good category, according to the results of the data shown, 5.94% of their students fell into the sufficient category, while 27.52% of respondents fell into the very good category. The indicator that was rated the highest by the respondents was the question "In my opinion, every answer must have a basis" with an average of 3.43. And the lowest indicator assessed by respondents was the question "I associate one thing with something to solve a difficulty" with an average of 3.00.

To be master of CTPS, Rustam mentioned that it will form critical reasoning, be able to make decisions, be creative, be able to draw logical conclusions, which are needed by students in mastering knowledge related to students' real world life (Rustam & Priyanto, 2022). This was confirmed by Greiff who stated that CPTS is a soft skill needed (Greiff et al., 2013). It is also corroborated by other studies that Yunfeng conducted that stated similar results (He et al., 2018), and in some publications CPTS is the most needed soft skill (Klegeris, 2021). According to Klegeris, the ability of CTPS is influenced by interactional techniques used by teachers in learning (Klegeris et al., 2017). In consensus, it says that lecture-based teaching is not effective in the development of CTPS (Newton et al., 2015). Thus, in the context of strengthening students' abilities in CTPS, the selection of models in learning must be considered by teachers in order to improve students' critical thinking skills, such as the use of the Jigsaw model and discovery learning (Usman et al., 2022).

Based on the results of the data in Table 9, it is known that the respondent's response to the interpersonal intelligence variable obtained a result of 55.88% on a Likert scale of 4, that is, the respondent had interpersonal intelligence in the good category. 31.96% of respondents were in the very good category, and 10.99% of their students were in the sufficient category, and 1.18% were in the less category. The indicator that was rated the highest by the respondents was the question "I always cooperate with friends in organizational activities and other activities

at school" with an average of 3.35. And the lowest indicator assessed by respondents was the question "I can easily remember other people's faces even though I only met once" with an average of 3.00.

Table 9. Interpersonal Intelligence Indicator

No.	Indicator	4	3	2	1	Average
1.	I always visit my friends when they are sick	20	24	5	2	3.21
2.	I always tell if a friend asks about homework	16	25	9	1	3.11
3.	I always help when my friends ask about unclear subject matter	17	32	2	0	3.31
4.	I always donate manpower or funds for disaster victims when the school is holding a fundraiser	23	25	3	0	3.33
5.	I can always be tolerant if there is criticism from friends who don't agree with you	12	31	7	1	3.05
6.	I always listen to my friends who are talking both presentations in front of the class and when chatting normally	13	36	1	1	3.19
7.	I'm always easy to adapt to a new environment	12	27	12	0	3.01
8.	I always smile and greet my friends when I meet or pass by on the street	18	30	3	0	3.25
9.	It's easy for me to remember other people's faces even if I only met one time	13	25	12	1	3.00
10.	I always cooperate with friends in organizational activities and other activities at school	19	30	2	0	3.35
Total		163	285	56	6	31.86
Average Score		31.96	55.88	10.98	1.18	3.18

Interpersonal Intelligence is one of the intelligences that determines student success, as in Eva's research it was stated that, interpersonal intelligence has a significant influence on learning (Istapra et al., 2021). In another study, it was stated that students who have high interpersonal intelligence will be able to establish effective communication with other students, have high empathy, and be able to work in groups (Abas et al., 2019). The results of this study further strengthen the results of this study where indicators of collaborating with friends in organizational activities and other activities are in the good category at the interval of the Likert scale 1-4.

CONCLUSION

GS measurements in *Madrasah Aliyah* students in Indonesia showed low results, especially in the aspects of religious moderation and social interpersonal. The two aspects are in the range of 50-56% of the Likert scale 4. For this reason, policymakers should immediately create a program to improve GS in MA. Based on the results of this study, it can be concluded that the GS of students in *Madrasah Aliyah* still needs to be improved by providing some training that can support the improvement of students' GS. The Ministry of Religion needs to hold short courses for teachers in MA who have a role in guiding and equipping students with some skills in the 4.0 era. Moreover, the student center needs to be emphasized.

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