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Integration of Islamic Religious Education in the Development of Reading and Numerical Literacy Tests: An Analysis of the Rasch Model

Muhammad Reza^{1*}, Fakhruddin², Wiwi Isnaeni³

¹Universitas Negeri Semarang, Indonesia, mreza061996@students.unnes.ac.id

²Universitas Negeri Semarang, Indonesia

³Universitas Negeri Semarang, Indonesia, wiiisna@mail.unnes.ac.id

Corresponding Author: mreza061996@students.unnes.ac.id

Abstract: This article is in the form of the development of reading and numerical literacy tests that are integrated with Islamic religious education based on the lack of literacy skills test instruments that contain the context of Islamic religious education. The purpose of developing the test is to be able to measure literacy, numerical skills, and religious understanding as well as holistic values in the contextual realm. The object of the study was 109 students in 2 schools in Langsa Baro District. The research method is in the form of development (R&D) of the ADDIE model which includes Analysis, Design, Development, Implementation and Evaluation. Content validation showed material suitability (0.80), construction 0.0 and language clarity (0.82) with a point estimate rater of 0.799 (good) funds of 72% readability level good. Construct validation shows a minimum unidimensional of 28.3% variance and ideal instrument (p15%) and content validation for fit problems with the rasch model. The feasibility of the cronbach alpha reliability instrument is 0.96. obtained 80 items that are categorized as valid with the criteria of MNSQ, ZSTD and Pt Mean Corr and meet high reliability requirements, so that they can be used for formative or summative tests. This instrument is only limited to zakat, aqiqah and qurbani materials as well as buying and selling. Therefore, it is necessary to continue to develop PAI materials and expand the number of respondents so that they can become a complete reference basis.

Keyword: Islamic Religious Education, Reading Literacy, Numerical Literacy, Value Integration.

INTRODUCTION

Literacy skills are a fundamental prerequisite for individuals to develop and adapt in the 21st century (Nugraha, 2023; Patriana et al., 2021). This is driven by the complexity and wider distribution of information, the demand to be able to communicate effectively and build relationships, as well as being able to solve complex problems and be able to actively participate in society. Various previous problems require an ability to understand, evaluate, and apply various data obtained to solve a problem (Nudiati & Sudiapermana, 2020). Patriana in

R.Nugraha (2023) stated that literacy skills can be developed through integrated education both in the family, school, and community environment. Literacy skills are applied from an early age at every level of education (Safitri & Dafit, 2021).

The two main pillars of literacy skills that are very important in education and daily life are reading and numerical literacy. The United Nations Educational, Scientific and Cultural Organization (UNESCO) in (Ayuningrum et al., 2023) states that literacy is a set of real skills in reading and writing,. These skills are independent of the context of the teaching environment or the individual learning. Reading literacy includes the ability to find, understand, and analyze information contained in information sources in the form of informational texts, fictional or literary texts, tables or pictures, and the ability to use written texts in various situations (Andikayana, 2021). In addition, reading literacy has an impact on the way a person thinks and acts, fosters a professional spirit and confidence, and is wiser in solving a problem (Rintaningrum, 2019; Sari & Setiawan, 2023).

Numerical literacy is the ability to use, understand, and interpret information involving the concept of numbers and calculation operations in everyday life (Haloho & Napitu, 2023). Numerical literacy includes understanding and using mathematical concepts to solve practical problems. Kuswidi (2015) stated that numerical literacy skills are not just mathematical calculations, but can formulate, interpret and reason mathematically using concepts, procedures, and facts to describe, explain, and estimate phenomena (Kuswidi, 2015). Mathematical knowledge alone does not make a person have numerical ability, because mathematical concepts are in the realm of technical concepts while the concept of numerical literacy leads to application and practicality (Umbara & Suryadi, 2019). Application and practicality in real situations that are often unstructured, have a variety of solutions or no complete solutions, and there are non-mathematical factors that cannot be solved with mathematical ability alone (Han et al., 2017). Lange in (Abdoeloh & Suryana, 2023) defines numerical literacy as the ability to (1) use a wide variety of numbers and symbols related to solving practical problems, and (2) interpret quantitative information that exists in the student's environment and apply the concept of numbers and numeracy operation skills in daily life.

In order to create an advanced and competent generation, it is not surprising that reading and numerical literacy is very important to be developed in an increasingly complex society. Improving literacy is one of the main focuses in national education policy in Indonesia. The national literacy movement (GLN) program, curriculum revitalization, improvement of teacher competence, use of technology in learning, minimum competency assessment (AKM) and development of evaluation techniques are an overview of the programs that have been carried out with the hope of improving students' literacy skills at all levels of education (Ningrum, 2022; Rafida et al., 2022; Rahmatullah et al., 2021; Saragih, 2021). However, the results of the 2022 International Student Assessment Program (PISA) show that Indonesia is ranked 62nd out of 81 countries in terms of reading ability, and 71st out of 81 countries in terms of mathematics ability (OECD, 2023). Indonesia's reading and numerical literacy data is still very low, this can be seen from the results of obtaining an average score of 371 points with the level 1a category and numerical literacy with an average score of 376 points with the level 1a category (OECD, 2023). The results of PISA 2022 also show a downward trend compared to the previous PISA 2018 results (Nurinayah & Nur, 2023). Literacy skills are a fundamental prerequisite for individuals to develop and adapt in the 21st century (Nugraha, 2023; Patriana

et al., 2021). This is driven by the complexity and wider distribution of information, the demand to be able to communicate effectively and build relationships, as well as being able to solve complex problems and be able to actively participate in society. Various previous problems require an ability to understand, evaluate, and apply various data obtained to solve a problem (Nudiati & Sudiapermana, 2020). Patriana in R.Nugraha (2023) stated that literacy skills can be developed through integrated education both in the family, school, and community environment. Literacy skills are applied from an early age at every level of education (Safitri & Dafit, 2021).

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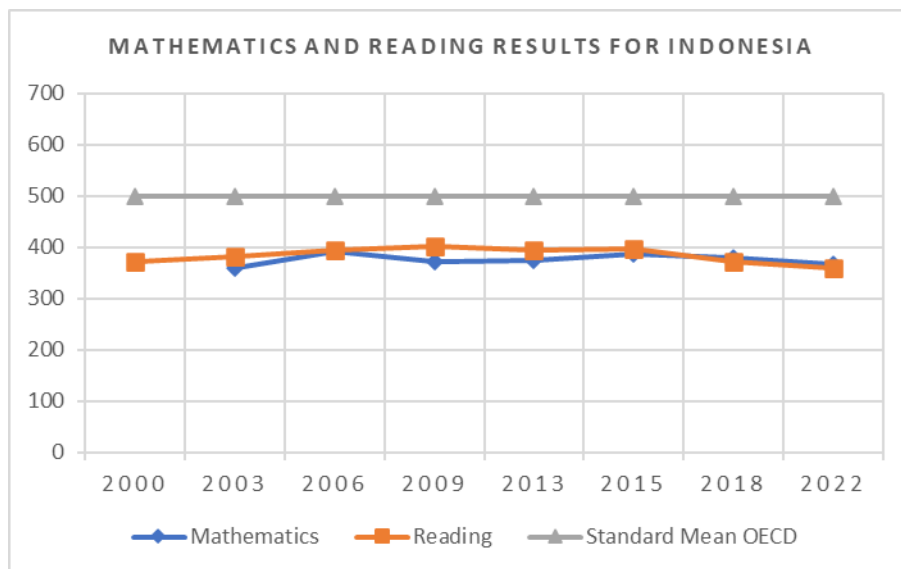


Figure 1. Average Reading Literacy and Numerical Scores of Indonesia Students (Processed from source: OECD, 2023).

One of the efforts to improve students' reading and numerical literacy is the development and implementation of literacy and numerical tests that are integrated into each subject (State of Victoria, 2017). This is done to ensure that students can apply literacy and numerical skills in relevant and diverse contexts (Binkley, 2012; Combs, 2011; Goos et al., 2010). The context that is felt to be appropriate for the majority of Muslim populations such as Indonesia is to integrate the values of Islamic religious education. Integrating Islamic religious education (PAI) values in the curriculum is an innovative step that can provide benefits, academic skills, and strengthen identity and character as Muslims (Harahap, 2021). Students can find out the relationship between the concept of Islamic religious education and literacy skills (Susilowati, 2022). The implementation of worship practices such as zakat, muamalah, wamaris, and qurbani are some examples of activities that run in the community whose implementation involves mathematical skills in calculation and understanding of reading literacy related to Islamic religious knowledge that reflects strong contextual relevance (Dewi & Mariana, 2020; Normuslim et al., 2021). Integration is also in line with the view of Islam that all sciences are interrelated and have the same interests (Iswati, 2017). Halstead (2024) states that linking religious values and academic skills can increase student motivation. Education that combines religious values with cognitive skills can produce students who are not only academically intelligent but also have good character (Sulaiman et al., 2014). PAI values such as honesty, responsibility, and hard work that can be applied in various learning contexts, such as reading and numerical literacy (Lovat, 2022).

Education today faces great challenges in improving reading and numeracy literacy skills, especially among students who participate in religious education. The integration of

Islamic values in the development of literacy tests is still not optimized, even though religious values can strengthen moral and ethical aspects in the learning process. The use of the Rasch Model as an analytical tool in the development of this test is very important because it is able to ensure the validity and reliability of the test according to the student's ability. In the context of Islamic religious education, the development of literacy tests that are integrated with religious values not only assesses cognitive competence but also ensures alignment with moral principles. Therefore, this research is very important to fill the gap between religious education and literacy development, and has the potential to increase the effectiveness of teaching by combining spiritual and intellectual dimensions in a balanced manner.

Some of the research that has been carried out includes research by Purnami, D. E., Hartinah, S., & Susongko, P. (2024) This study identifies that the Rasch method provides more objective and accurate results than conventional methods, so that it can be relied on to improve the quality of reading literacy measurement among students. In addition, this model allows for more detailed identification of students' ability levels, which supports the development of a curriculum that is more tailored to students' learning needs (Purnami et al., 2024).

Furthermore, Wahyuni & Zawawi (2023), stated that the Rasch model is able to identify items that are in accordance with the student's ability, allowing the adjustment of the questions to be more proportional to the test-taker's ability. This helps to increase the validity of the test and supports the development of a more accurate numeracy test in measuring students' abilities individually (Wahyuni & Zawawi, 2023).

However, Raihani (2018) stated that the integration of Islamic religious education values in literacy measurement instruments is a challenge in itself. Creativity and a deep understanding of PAI and the concept of reading and numerical literacy are needed to make the right questions (Raihani, 2018). Training for teachers needs to be carried out specifically to be able to develop and implement this kind of test effectively (Lubis et al., 2011). Seeing the demands of the implementation of reading and numerical literacy in students and the need for teacher training, the ultimate goal of this article is to develop, analyze and find out the impact of the integration of PAI values in reading and numerical literacy assessments on the development of students of integrated reading and numerical literacy test instruments in Islamic religious education. It is also an efficient solution with limited training time and frequency for teachers (Lubis et al., 2011). The development of PAI's integrated reading and numerical literacy instruments is also a response to the need for holistic education as contained in Sulaiman et al., (2014). The integration of Islamic religious education in reading and numerical literacy tests is also in line with UNESCO's statement (Global Education Monitoring (GEM), 2016) on how important education is that adapts to local culture and religion. This research is expected to be a bridge between the gap and the need for the integration of PAI values in reading and numerical literacy assessments with the reality that teachers' abilities are still limited, so that teachers can easily identify student needs and take the right steps in conducting evaluations.

METHOD

The method used in this study is Research and development (R&D) with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. The selection of this method is because it has a systematic and comprehensive framework in development to produce products in the form of test instruments that are valid and reliable and effective in measuring student literacy and numerical skills (Branch, 2009). The product development procedure with the ADDIE model can be seen in figure 2.

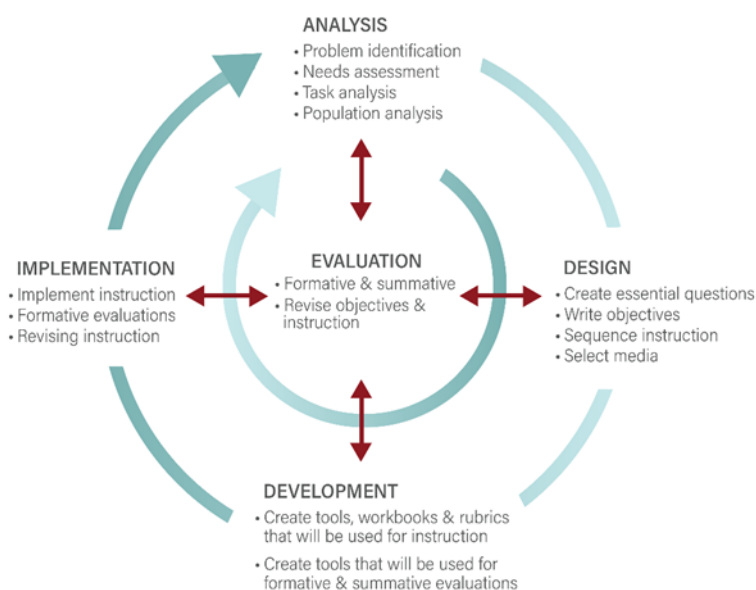


Figure 2. ADDIE Model Development Stage (Branch, 2009)

1. Analysis Stage

The first stage carried out is the need assessment stage. The need assessment aims to identify the underlying needs of development (Branch, 2009). At this stage, the researcher made observations to several schools in Langsa Baro district, observed the teaching and learning procession, observed activities inside and outside the classroom and conducted interviews so as to be able to confirm the need for the test to be conducted.

2. Design Stage

Activities in the design stage are used to design prototypes of reading literacy and numerical test products integrated with Islamic religious education based on data in the previous stage. This study determines the basic competencies referring to curriculum 13 because the object being studied is still applying curriculum 13 (transitional). The design stage includes material selection, test design according to the syllabus, determination of test format, question type, creation of question instructions, determination of assessment schemes and how to integrate PAI values in reading and numerical literacy.

3. Development Stage

In the development of the process of realizing a prototype of reading and numerical literacy test instruments by integrating Islamic religious education. The development is carried out by collecting data that will be concocted into instructions on how to use, assessment guidelines and stimulus as well as questions that have contained religious values and literacy values. basis for assessment At this stage, content validation is also carried out by experts or lecturers of Islamic religious education, language, methodology and one of the Islamic religious education teachers as practitioners.

4. Implementation Stage

The implementation stage was divided into 2 (two), namely a limited trial by randomly taking 28 students in one of the junior high schools and a wide trial represented by 2 (two) local students in XI in 2 junior high schools, namely State Junior High School and Private Junior High School in Langsa Baro District. The implementation in this article still uses basic paper with a time allocation of 90 minutes.

5. Evaluation Stage

The evaluation stage is carried out at each stage. The content evaluation is carried out by improving the instrument based on input from the validators. The results of the validators will be analyzed using Aiken V for content validation and ICC (Interclass Correlation) for reliability between raters or reliability of the assessors (Putra et al., 2017). Furthermore, in the results of the limited trial, an assessment was carried out to determine readability, validity and reliability. This is done for the initial validation of the instrument. In the wide-scale test, construct validation will be carried out. The results of the wide-scale test will be analyzed using the Winsteps application (Sumintono & Widhiarso, 2015). From the results of the analysis, the researcher will revise it again to further improve the viability of the instrument.

The subjects of the study were 109 junior high school students who were in class XI (nine). The sample was taken from 2 schools, namely a private junior high school and a public junior high school in Langsa Baro district. This research was conducted in the 2023-2024 school year. Data collection techniques from observation instruments, interviews, readability questionnaires, expert validity questionnaires, and student test sheets. Analysis on a limited scale test using moment product correlation and reliability using Kuder Richardson 20. The validity and reliability of the instrument for wide-scale tests were performed with the Rasch model. Mulyanti & Rahmania (2022) stated that the interpretation of the feasibility of the test developed with the Rasch model includes 1) the level of difficulty of the question, 2) the validity of the item, namely the even distribution of the degree of literacy, 3) the validity of the construct, by testing the unidimensionality and function of the information of the item, 4) the validation of the content, by looking at the 3 criteria in Rasch, namely the MNSQ Outfit (< 1.5), the ZSTD Outfit (between -1.9 and $+1.9$), and PT Mean Corr (positive value) and 5) test reliability test by referring to criteria $< 0,67$, in the Weak category, $0.67-0.80$ in the Moderate category, $0.8-0.90$ in the good category, $0.91-0,94$ in the very good category, and >0.94 in the special category (Mulyanti & Rahmania, 2022).

RESULTS AND DISCUSSION

Findings

The results and discussions in this article will be discussed in 2 parts, namely 1) the development of instruments and the study of the integration of PAI values in the development of literacy and numerical tests.

1. Instrument Development

a. Need Assessment Result

The analysis of needs and content in this article refers to observations and interviews in two schools, namely SMP ITQ Huda Wan Nur and SMP Negeri 3 Langsa. The results show that there is a significant difference in how the two schools implement literacy programs. SMP Negeri 3 Langsa has implemented the Literacy Development Movement (GPL). These programs include reading activities 15 minutes before lessons, reading corners in class, and collaboration with local libraries. However, literacy is still not integrated into subjects, especially PAI. PAI teachers acknowledge that there is no specific training or clear instructions on how to integrate literacy into PAI learning. On the other hand, ITQ Huda Wan Nur Junior High School does not have a systematic literacy program. Reading activities in the library and project-based learning are just a few examples of efforts to improve literacy. Due to the lack of specific guidelines and effective evaluation tools, PAI teachers at this school also have difficulty integrating literacy into learning.

Researchers also found that students had difficulty understanding texts and applying basic mathematical concepts. This is based on the learning process and simple tests of PAI lessons related to information and the application of mathematics. The test results showed that only 20% of students had high reading literacy, 45% had moderate literacy, and 35% had low numerical literacy. This is also supported by the 2023 Education Report Card from the Minimum Competency Assessment Test (AKM) conducted by the Education Office which shows that the average student has reading literacy below the AKM standard of 35%, and numerical literacy of 42.86%.

Based on these findings, the development of reading and numerical literacy test instruments that are integrated with PAI is considered appropriate to be carried out. These instruments are expected to help teachers better identify students' literacy skills and can help improve the quality of learning.

b. Instrument Prototype Design

Prototype design is in the form of taking critical steps to ensure that reading and numerical literacy test instruments can be developed in accordance with the objectives and answer the needs of the teaching and learning process.

1) Material selection

At this stage, the researcher focuses on topics that are easy to develop into contextual and applicable questions. The complexity of the material and its relevance are also the main points. The main topics are, zakat, akikah and qurban, as well as selling neli.

2) Test Design According to the Syllabus

The test design refers to the Basic Competencies (KD) and achievement indicators in the 2013 curriculum PAI syllabus. A test system was developed to measure understanding of PAI concepts, reading literacy and numerical skills. For example, the development of questions on zakat material.

3) Determination of Test Format

The test format used is test dichotomy questions following the minimum competency assessment standard (AKM) which includes multiple-choice questions, complex multiple-choice questions, and short fill (Wijaya et al., 2021). The total number of test items developed is 85 items consisting of 45 items of multiple-choice questions, 26 complex multiple-choice questions, and 14 short fills.

4) Integration of PAI scores in reading and numerical literacy tests

The integration of PAI scores in the test is carried out by ensuring that each question can reflect Islamic values. For example, in a numerical literacy test that is integrated in the context of zakat. Therefore, the context of the test will be presented in a narrative that contains counts, values of generosity and social responsibility. Integration in reading and numerical literacy sees the test development guidelines from the Ministry of Research and Technology. For example, in zakat material, basic competencies (KD) 3.11. understand the provisions of qurbani and aqiqah and 4.11. Carrying out the implementation of qurbani and aqiqah in the environment around the house. Indicator: 3.11.1. Understand the provisions for the implementation of qurbani and akikah, and 3.11.7 Formulate solutions to problems that are obstacles to the implementation of qurbani and akikah slaughter. Sub-indicators Observing and commenting on texts or images related to akikah and qurban, and making analysis and formulating problem solving related to the flow of sacrificial and aqqah slaughter. Therefore, the researcher makes texts as a stimulus for questions that are in accordance with KD, Indicators and sub-indicators based on the concept of reading and numerical literacy development. Example of integrating questions in Figure 3.

Ladder	Level 8 (Class IX)
Accounts	Informational Text
Context	Qurbani (Socio-Cultural)
Competence	Reading and Understanding Information Texts Related to Qurbani
Cognitive Level	Understanding, Analysis
Question Form	Complex Multiple Choice (True-False)

Teks 1

The Sacrifice Worship is carried out as a form of obedience to Allah SWT. The Qurbani Worship also teaches gratitude and sharing with humans. The animals used as sacrifices are camels, cows and goats. The Qurbani service is carried out after the Eid al-Adha prayer or precisely on the day of tasyrik, namely 10-13 Dzulhijah. The sacrificial animals that have been slaughtered are distributed 1/3 to the sacrificial animals. 1/3 to neighbors. 1/3 is distributed to the poor.

1. Read the statement below and specify the following statement by marking (v) in the TRUE or FALSE column based on text 1.

No	Statement	True	Fal
1	Qurbani can be carried out on Eid al-Fitr		
2	The distribution of sacrificial animals is determined by the sacrificial		
3	The purpose of the Qurbani body is to seek the Pleasure of Allah SWT		
4	Cows are a type of animal that can be sacrificed		

2. Fill in the dots below

If a sacrificial person wants to sacrifice a goat weighing 14kg, the amount of sacrificial meat that will be distributed to the poor is grams.

Figure 3. Example of Aitem Test.

c. Expert Validity Results

The validity test of the experts aims to assess the relevance, clarity, and suitability of the item to the measured constituent. The results of expert validation used the Aiken V method to calculate the content-validity coefficient. The following is a summary of the results of the content validation analysis using Aiken V in each aspect.

Table 1. Analysis of the Results of Rater Trials with Aiken V

Aspects	r1	r2	r3	r4	μ Aiken V	Interpretation
Material Suitability	4	4	4	4	0,80	Good
Construction	4	4	4	4	0,80	Good
Language Clarity	4	4	4	4	0,82	Good

The results of the average score of Aiken V show that the instrument has good content validity. This was obtained from the aspects of material suitability (0.80), construction 0.0 and language clarity (0.82). The four experts also gave consistent answers to the instrument items with a point estimate of 0.799 (good).

Table 2. Test Results of Inter-Retailer Agreement with JASP Application

Interclass Correlation			
Type	Point Estimate	Lower 95% CI	Upper 95% Ci
ICC3,k	0.799	0.718	0.860

Note* 85 Subjects and 4 raters/measurements. ICC type as referenced by Shrout & Fleiss (1979).

However, there are minor revisions, namely related to improving the format or layout of texts, questions and answer choices to improve readability. Questions should not be repeated so that there is no repetition of sentences and language adjustments to some items, for example item 15 "What do you think about the implementation of qurban?" was changed to "How important do you think the implementation of qurbani is in religious life?" This revision was made to make the question more specific and easy to answer.

d. Limited Trial Results

The results of the limited scale trial were carried out on 28 junior high school students who were randomly taken. This aims to evaluate readability and test the validity and reliability of the beginning. The results of the readability test showed that 72% of students stated that the test instrument had good readability, 25% of students stated that the test instrument had sufficient readability, and 10% percent of students stated that the test instrument was difficult to read. From these results, it shows that the majority of students assessed that the test instrument can be read well.

From the results of the limited trial, the researcher also conducted an item validation. The results of the analysis are presented in table 3. The calculated R value compared to the R of the N-28 table of 0.3610 with a significance level of 0.05 shows that out of 85 items, there are 81 items with valid status and 4 items with invalid status. The reliability test with Kuder Richadrdson (KR) -20 also obtained a result of 0.97 which stated that the bada and numerical literacy test instruments had high reliability. valid. Items with invalid status will be dropped to increase the overall value of the instrument. The researcher also considered 10% of students' poor readability

assessment by making minor improvements related to images and text in the hope of increasing the readability score.

Table 3. Test Validity Test Results on a Limited Scale

Question Items	R Count	Validity	Question Items	R Count	Validity
1	0,53	Valid	44	0,56	Valid
2	0,44	Valid	45	0,57	Valid
3	0,54	Valid	46	0,49	Valid
4	0,75	Valid	47	0,81	Valid
5	0,56	Valid	48	0,55	Valid
6	0,48	Valid	49	0,54	Valid
7	0,34	Invalid	50	0,62	Valid
8	0,65	Valid	51	0,75	Valid
9	0,80	Valid	52	0,48	Valid
10	0,61	Valid	53	0,52	Valid
11	0,41	Valid	54	0,32	Invalid
12	0,53	Valid	55	0,41	Valid
13	0,50	Valid	56	0,40	Valid
14	0,62	Valid	57	0,42	Valid
15	0,63	Valid	58	0,38	Valid
16	0,50	Valid	59	0,42	Valid
17	0,68	Valid	60	0,65	Valid
18	0,38	Valid	61	0,58	Valid
19	0,49	Valid	62	0,46	Valid
20	0,59	Valid	63	0,50	Valid
21	0,32	Invalid	64	0,61	Valid
22	0,44	Valid	65	0,43	Valid
23	0,56	Valid	66	0,43	Valid
24	0,45	Valid	67	0,57	Valid
25	0,43	Valid	68	0,38	Valid
26	0,58	Valid	69	0,59	Valid
27	0,64	Valid	70	0,60	Valid
28	0,71	Valid	71	0,46	Valid
29	0,63	Valid	72	0,47	Valid
30	0,57	Valid	73	0,45	Valid
31	0,57	Valid	74	0,59	Valid
32	0,48	Valid	75	0,56	Valid
33	0,48	Valid	76	0,42	Valid
34	0,37	Valid	77	0,46	Valid
35	0,45	Valid	78	0,55	Valid
36	0,56	Valid	79	0,56	Valid
37	0,56	Valid	80	0,37	Valid
38	0,47	Valid	81	0,58	Valid
39	0,44	Valid	82	0,55	Valid
40	0,45	Valid	83	0,63	Valid
41	0,74	Valid	84	0,41	Valid
42	0,36	Invalid	85	0,47	Valid
43	0,72	Valid			

e. Results of Wide-Scale Trials

The wide-scale trial was tested on 109 students with 81 tests. The quality of the test will be analyzed using the analysis of the Rasch model. Rasch's model was chosen because of its ability to produce linear and independent measurements, and can overcome the limitations of classical test theory (Boone & Staver, 2020). The eligibility criteria for the development of this test include the distribution of question difficulty, unidimensionality, and content validation with three statistical criteria from the rasch model, namely Outfit Men Square (MNSQ), Z-standard outfit (ZSTD), and Point Measure Correlation (PT Mean Corr) (Mulyanti & Rahmania, 2022). Furthermore, the reliability test of the test also uses the rasch model. The analysis will be carried out using the Winsteps application version 3.73.

1) Item Analysis

Item validation is seen from the suitability of the question item with the Rasch model or is labeled as a fit item. The results of the output of the fit item will describe the question item whether it functions as a norm in making measurements or not. the criteria used to check the conformity are determined from the MNSQ value, which is $0.5 < \text{MNSQ} < 1.5$. ZSTD is, $-2.0 < \text{ZSTD} < +20$, and PT Mean Corr $0.4 < \text{PT Mean Corr} < 0.85$. The results of item conformity can be seen in table 4.

The analysis in table 5 shows that there are 3 items that do not meet the criteria for MNSQ outfits, ZSTD outfits, and PT Mean Corr, namely items 66, 77, and 68, so that these 3 items need to be revised or replaced. Furthermore, 2 items that do not meet the MNSQ and PT Mean Corr will be maintained considering that the ZSTD value is still within the agreed limits. 4 items that do not meet ZSTD and PT Measure Corr, then this item needs to be revised. Furthermore, 15 items that do not meet PT Mean Corr will be retained, and 11 items that do not meet the ZSTD can be maintained or revised with due regard to conformity with measurement objectives.

Table 4. Item Fit Order Output Analysis Results

Grain	Criterion						
	Outfit		PT Mean Corr	Grain	Outfit		PT Mean Corr
	MNSQ	ZSTD			MNSQ	ZSTD	
66	2.69	7.3	-.30	29	.86	-1.1	.55
77	1.72	2.6	.23	35	.88	-.8	.54
67	1.67	1.6	.18	58	.80	-1.2	.55
68	1.60	3.8	.12	8	.90	-.4	.57
65	1.53	1.8	.26	18	.84	-1.1	.56
69	1.50	2.3	.33	75	.86	-1.0	.56
12	1.45	2.9	.22	25	.68	-1.6	.55
73	1.43	2.3	.23	24	.75	-1.8	.60
78	1.33	2.3	.28	50	.78	-1.5	.59
76	1.30	2.0	.35	70	.79	-1.5	.59
17	1.29	1.8	.34	40	.78	-1.8	.61
53	1.26	1.6	.37	2	.59	-1.5	.54

13	1.26	1.6	.43	39	.71	-2.0	.62
3	1.25	1.7	.35	26	.70	-1.9	.61
54	1.24	1.5	.32	22	.60	-2.0	.60
42	1.19	1.4	.34	20	.73	-2.2	.65
60	1.21	1.5	.38	45	.70	-2.2	.64
72	1.20	1.5	.37	41	.72	-2.3	.66
79	1.20	1.0	.34	47	.66	-2.8	.67
80	1.19	1.4	.40	11	.69	-2.6	.67
51	1.15	1.1	.36	1	.73	-2.2	.68
64	1.18	1.3	.37	14	.65	-3.0	.69
6	1.17	1.0	.38	48	.56	-3.9	.74
28	1.17	1.2	.40	4	.55	-3.8	.75
61	1.16	.9	.38	16	.59	-3.6	.75
7	1.15	1.1	.38	44	.58	-3.6	.76
32	.36	-.6	.25				

A valid measurement is that the question items in the test used do not contain bias (Sumintono & Widhiarso, 2014). A test item is said to be biased if the question favors one particular characteristic. Therefore, the detection of bias question items is carried out through differential item functional analysis (DIF) to find out if the problem does not benefit one of the variables, namely men or women. The results of DIF analysis are in the form of curve graphs in figure 4.

Figure 3 shows the items that are allegedly biased, namely 5,9,15, 18,29, 48,68,72, and 73. However, for items 5,9,15,18,68,72 do not show opposite graphs and are close to each other. It is inversely proportional to item 29 where men -0.03 increased to 0.14, while women -0.16 decreased to -1.19. The same thing also happened in item 48 where men moved up from 0.14 to 0.32 but the female curve moved down from -0.07 to -0.52 and item 73 depicted the male curve moving up from -1.14 to 1.02 but the female gender curve moved down from 0.32. So that these three items are identified as easier for men to answer than women (bias).

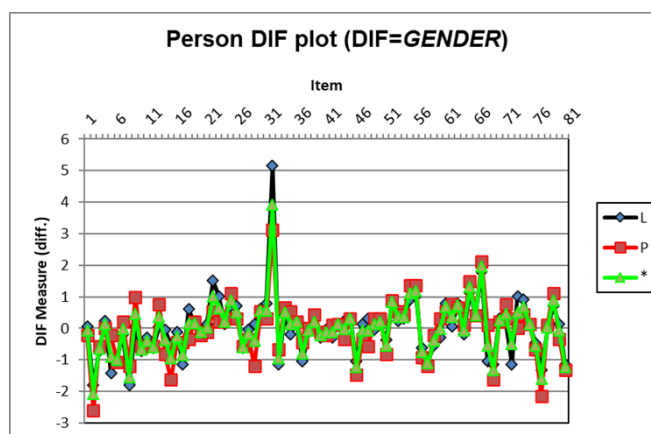


Figure 4. DIF Person Curve

After conducting an item suitability test, then an analysis of the difficulty level of the questions was carried out to find out the logical information on each item.

The difficulty level test can be obtained on the measure item value table. From the logical value on the output of the item measure, it shows that 2 questions are categorized as very difficult, 7 questions are categorized as difficult, 31 questions are categorized as moderate, 29 questions are categorized as easy and 12 questions are categorized as very easy.

Students' abilities can also be known from the pearson measure data. The output of the Pearson measure of the PAI integrated reading and numerical literacy test was divided into 5 groups based on the average student logit of -0.25 and the standard deviation of 1.19. The grouping criteria are > 2.13 (very high), 0.95 to 2.13 (high), -0.25 to 0.94 (moderate), -2.13 to -0.25 (low) and < -2.13 very low. From this criterion, 15 students have high ability, 38 students have medium ability, 45 students have low ability and 7 students have low ability. The distribution of students' difficulty and ability levels is shown in figure 4,5.

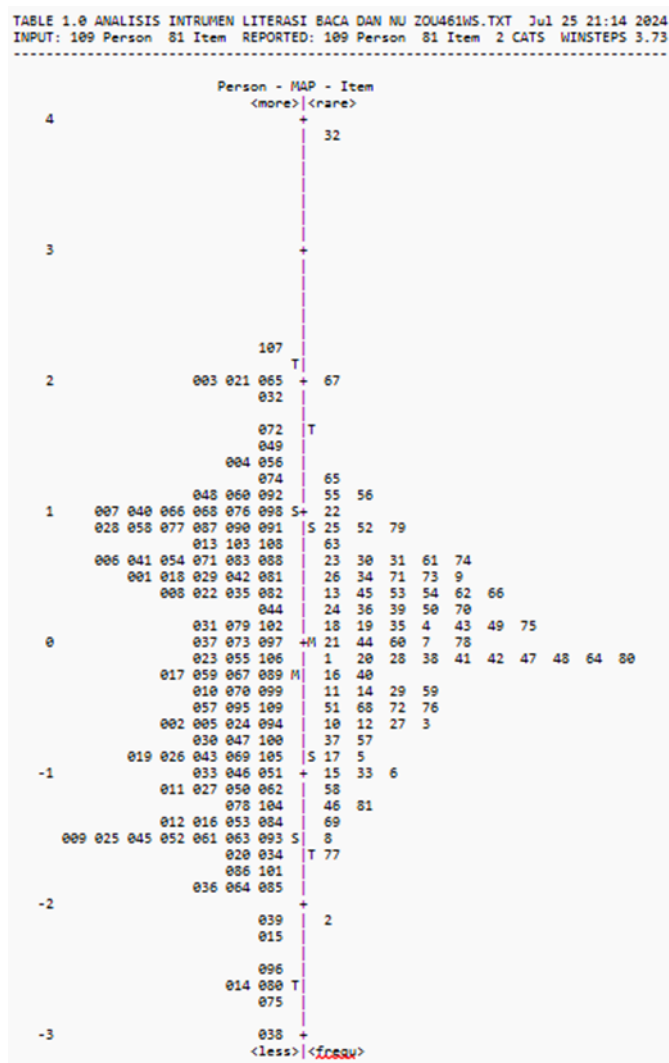


Figure 5. Wright Map (Pearson – Item Map)

2) Validity of the Construct

The validity of the construct in Rasch modeling can be done by a uni-dimensionality test which can be the basis of a statement like a test instrument used

to measure the variables to be measured (Sumintono & Widhiarso, 2014). The purpose of this uni-dimensionality is to ensure that the item provides unique information because basically a good test is a test that has a high idependency. The requirement for the unidimensional assumption test is 20% for the test dichotomy (Retnawati, 2014).

TABLE 23.0 ANALISIS INSTRUMEN LITERASI BACA DAN N ZOU090WS.TXT Jul 16 11:11 2024
 INPUT: 109 Person 81 Item REPORTED: 109 Person 81 Item 2 CATS WINSTEPS 3.73

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

	-- Empirical --		Modeled
Total raw variance in observations =	113.6	100.0%	100.0%
Raw variance explained by measures =	32.6	28.7%	28.3%
Raw variance explained by persons =	15.3	13.4%	13.3%
Raw Variance explained by items =	17.3	15.3%	15.0%
Raw unexplained variance (total) =	81.0	71.3%	100.0%
Unexplned variance in 1st contrast =	6.3	5.6%	7.8%
Unexplned variance in 2nd contrast =	4.0	3.5%	4.9%
Unexplned variance in 3rd contrast =	2.9	2.6%	3.6%
Unexplned variance in 4th contrast =	2.8	2.5%	3.5%

Figure 6. Unidimendi Test

The data shows that the empirical raw variance is 28.7%, so it is stated that the minimum unidimensional is met. The percentage of unexplained variance also does not exceed 15%, namely the variance of one is 5.6%, the second is 3.5%, the third is 2.6% and the fourth is 2.5%. This percentage shows that the test can measure students' reading and numerical literacy integrated with Islamic religious education very well (Fisher, 2007).

3) Instrument Eligibility

The feasibility of the universally developed test instrument is to assess the suitability between data statistics and the criteria of the reasch model. The analysis was carried out from the output results of a statictis summary that contained the quality of the instrument and the interaction between individuals and items. Table 6. Displays a summary of the summary statistics.

Table 6. Summary Statistical Summary Results

	Total Score	Measure	INFIT		OUTFIR	
			MNSQ	ZSTD	MNSQ	ZSTD
Summary of 109 Measure Person						
Mean	37.3	-0.25	1.00	0.0	1.02	0.1
S.D	18.1	1.19	0.07	0.7	0.17	0.7
SEPARATION			4.15			
Person Reliability			0.95			
KR-20 Person Raw						
Score "Test" Reliability			0.96			
Summary of 81 Measured Aitem						
Mean	50.1	0.00	1.00	-0.2	1.02	-0.1
S.D	14.8	0.83	0.20	2.0	0.33	1.9
SEPARATION			3.28			

Item Reliability	0.91
S.E. of Item Mean	0.09

Pearson measure is worth $-0.25 \text{ logit} < \text{logit } 0.0$. This shows that students tend to answer the wrong choice more. Cronbach's Alpha score is $0.96 > 0.8$. Sari & Mahmudi (2024: 7) divided 5 categories of Cronbach's alpha value < 0.5 in the bad category, $0.5 - 0.6$ in the bad category, $0.6 - 0.7$ in the fair category, $0.7 - 0.8$ in the good category and > 0.8 in the very good category. So the reliability of the instrument of 0.96 is in the very good category. The value of person reliability is 0.95 and item reliability is 0.91 which shows that the consistency of students' answers in the category is very good and the quality of the items in the category instruments is very good (Sumintono & Widhiarso, 2015).

The INFIT MNSQ pearson value of 1.07 and OUTFIT MNSQ 1.00 which indicates that the test has a good ideal value (the closer to 1.00 the better). The average value of INFIT ZSTD and OUTFIT ZSTD is 0.0 and 0.1 where the ideal value is 0.0 (the closer to 0.0, the better the quality). Furthermore, the values of INFIT MNSQ and OUTFIT MNSQ iatem have values of 1.00 and 1.01 from the ideal value of 1.00 (the closer to 1.00 the better) and the INFIT ZSTD and OUTFIT ZSTD aitem are 0.2 and 0.2 where the ideal value is 0.0 (the closer to 0.0, the better the quality).

Furthermore, the grouping of persons and items through the value of separation. The separation person value in table 6 shows a nulai of 4.15 and a separation of 3.28. from the equation used for data grouping, namely: $H = ((4 \times \text{SEPARATION}) + 1) / 3$ obtained a value of 5.86 which is rounded to 6 for person and 4.7 which is rounded to 5 for aitem. This means that students' abilities are distributed in 6 groups, namely group 1 is very low, group 2 is low, group 3 is middle to lower, group 4 is medium, group 5 is medium to high, and group 6 is very high. Meanwhile, the difficulty level of the item is divided into 5 groups, namely very easy, easy, moderate, difficult, very difficult. So referring to Fisher (2007) the rating scale for person separated with excellent criteria and separated items with very good criteria. From the series of tests carried out, there is also information on the function of the test to see the effectiveness of the implementation of the test at the level of student ability. The Test Informations Function diagram shows that the test instrument has a good function if applied to students who have moderate ability or logit person 0.89 to -0.21.

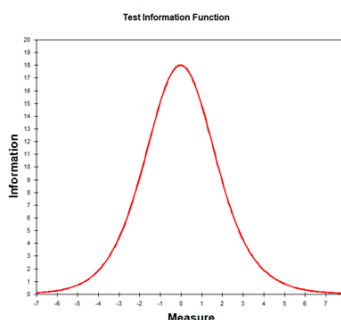


Figure 7. Test Informations Function

Discussion

Integration is defined as the unification of aspects which are then made into a single unit (Firdhaus et al., 2021). The integration of knowledge is interpreted as an effort to unite the sciences that are coded into an integrative pattern of science (Zainuddin, 2011). Firdaus (2020) the integration of knowledge is a necessity for the creation of meaningful learning. Students not only develop their knowledge but also get to know more about their religion. One of the integrations of religious education that is considered important is the application of contextual materials. One of the goals of contextual learning is to improve students' literacy skills. The level of student literacy can be known from the results of tests that apply literacy skill concepts. The two main pillars of literacy are reading and numerical literacy (Poernomo et al., 2021). Therefore, the researcher integrated Islamic religious education in reading and numerical literacy tests with the aim of finding out students' reading and numerical skills, knowing their understanding of Islamic religious education materials, as well as learning in a nurturing effect on character values, and reading interest in students (Zainal & Saad, 2022).

The integration of Islamic religious education in reading and numerical literacy tests is reviewed from the syllabus and the suitability of the material as explained in the design stage. The results of the analysis of the test show that including Islamic religious education (PAI) in the reading and numerical literacy test has significant implications for the picture of students' literacy skills, especially literacy regarding zakat material, akikah and qurban, and buying and selling. Rasch's analysis shows that the developed instrument has good validity and excellent reliability. Linacre (2006) stated that the test criteria developed for education measurement are acceptable at 0.8. Internal consistency can be seen from the individual reliability score of 0.95 and the item reliability score of 0.91 which indicates a high level of internal consistency (Linacre, 2006). Dimensions The structure of the reading and numerical literacy tests reaches a minimum unidimensional of 28.3% variance. This is in accordance with Sumintono & Widhiarso (2014) which states that the minimum unidimensional requirement of the instrument is 20%. This shows how effective the instrument is for assessing a single concept when combining PAI values with accurate literacy and numerical values. This supports the opinion of Niyozov and Memon (2020) about the relationship between knowledge and Islam.

The distribution of the difficulty level of the item shows a wide range of from -3.2 to +3.5 logit so that the difficulty level of the item in the instrument is able to divide the various skill levels of students. Rahim Dalam (Mubarokah & Baits, 2023), states that the concept of inclusive education in Islam underlines that everyone has the potential to develop according to their abilities. The DIF Analysis Test showed gender bias in items 29.48 and 73 ($p < 0.05$). So for these 3 items, they will be reviewed and revised. This is considered reasonable considering that the number of respondents is not too large and the number of male students is more than female.

Judging from the pedagogical relevance, the presence of PAI integrated reading and numerical literacy tests as a student measurement tool demands a change in teaching methods. Teaching needs to apply reading and numerical literacy as well as contextual learning in the context of Islamic religious education. This is in accordance with Rahman & Nuryana (2019) who stated the importance of contextualization in Islamic education in the modern era (Rahman & Nuryana, 2019). The problem in the implementation of the test is the lack of training for PAI

teachers in developing literacy-based teaching concepts and teaching modules that discuss how to integrate materials, especially PAI, are still difficult to find. The results of the interviews showed that 3 out of 4 teachers had not participated in literacy training. Therefore, further research is needed to study the long-term and broader effects for improving students' literacy skills and religious understanding.

CONCLUSION

The integration of Islamic religious education in reading and numerical literacy tests has been developed. After going through a series of feasibility tests, 80 items were produced in the category of valid and reliable, so that the reading literacy test and integrated numerical education of Islamic religion can be used as a test instrument. However, this instrument is only limited to zakat, aqiqah and qurbani materials as well as buying and selling. The need for additional materials and expanding trials with a larger number of respondents can be the basis for further research. This is in accordance with the goal of the Ministry of Education and Culture (2019) to support literacy movements and culture in schools and the Ministry of Religion which wants to make Islamic education towards transformative education.

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