

# Designing a Reading Interest Measurement Instrument Using 4 Dimensions (Awareness, Willingness, Attention, and Feelings) in Indonesia

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**Abstract**—The low reading interest of students in Indonesia is a problem that needs more proper resolution. UNESCO data from January 2020 categorized the country as second from the bottom regarding world literacy, signifying an extremely low reading interest among the citizens. This study aimed to develop a reading interest measurement instrument, specifically in Central Java, Indonesia. The instrument was developed using the 4D development model, which consists of four stages: definition, design, development, and dissemination. The data obtained were qualitative and quantitative data from the research sample of 300 students, 100 teachers, and 5 reading experts from Sebelas Maret University. The validity test of the instrument used Correlation Product Moment and the reliability test for the instrument used the Alpha Cronbach's formula. The validity test of the instrument resulted in 33 statement items being eligible and the reliability test for the instrument obtained that the instrument is acceptable or reliable. At the instrument development test stage, respondents who assessed the reading interest measurement instrument indicated that the achievement percentage was 84%, which means it is very good or valid. Hence, no revision was needed. The results showed that the instrument was considered very good and could be used by academics in schools and universities to measure reading interest.

**Index Terms**—reading interest, instrument design, 4D development model

## I. INTRODUCTION

Reading is a literacy skill considered highly essential for every educational environment (Al-Mekhlafi, 2018). Through this activity, students are expected to obtain various information, including content, and understand the meaning (Ardhian et al., 2020). Reading is a deliberate process in human communication to reduce ambiguity about the connotations expressed by a particular text, which includes the conciliation of open and hidden meanings between the text and the readers (Aghajani & Gholamrezapour, 2019).

The activity of reading should be carried out consciously and without coercion, hence this awareness cannot be separated from interest. Slameto explained that interest is a constant tendency to consider and remember a particular activity (Slameto, 2003). The activity of interest among students is conducted continuously and accompanied by a sense of pleasure. Additionally, Slameto described interest as a feeling of liking and being attracted to an item or activity without any instruction, signifying that individuals who value reading will do it happily.

Students possessing high reading interest show more comprehensive skills than those with low levels (Somadayo et al., 2013). However, the low reading interest of students in Indonesia is a problem lacking proper resolution. UNESCO data from January 2020 categorized the country as second from the bottom in terms of world literacy, which signified an extremely low reading interest among the citizens. According to UNESCO, the reading interest of Indonesians measured at 0.001% is highly concerning, showing that only 1 out of 1,000 individuals is diligent in the activity. Low reading skill is observed generally because many students are still extremely lazy to read or have little interest (Condy, 2023). Therefore, this study aimed to develop a reading interest measurement instrument, specifically in Central Java, Indonesia.

## II. LITERATURE REVIEW

### A. Interest

Interest can generally be interpreted as a sense of enthusiasm or desire shown by individuals to living organisms or non-living objects. Slameto stated that interest is a feeling of preference and attachment to an object or activity, without telling anyone (Slameto, 2003). Interest is the acceptance of a relationship between oneself and external objects, and the interest becomes greater when the relationship is closer or stronger. Dai described interest as awareness, attention, and curiosity about a particular subject, activity, pursuit, person, idea, or place (Dai, 2013).

According to Hurlock, interest is a source of motivation to continue doing a desired activity selected based on preference (Hurlock, 2010). Children are not born complete with interest, hence interest is the result of learning experiences. Beaty stated that interest is the most frequent and widespread emotion that humans have (Beaty, 2013). Children show interest by directing the eyes to objects or individuals attracting attention, and then exploring with the eyes.

Crow and Crow stated that interest is related to the style of movement driving engagement with other individuals, objects, an activity, and experiences as a result of simulation (Crow & Crow, 1992; Muliawati, 2017). This can be interpreted as positive feelings consisting of attention, concentration, happiness, and willingness to spend more time carrying out an activity. Additionally, interest is described as an important thought in learning due to being a gateway to improving learning skills (Guthrie et al., 2007; Hidi & Renninger, 2006).

Learning outcomes and skills are significantly determined by interest (Akmal et al., 2020; Huancayo, 2024). Students uninterested in the learning process and activity tend not to learn optimally, thereby influencing the quality of learning and vice versa. When interested in learning activity, students show more attentive behavior, activeness, and engagement. In other words, interest can be expressed with pleasure or displeasure during the execution of an activity (McWhaw & Abrami, 2001).

Interest can be interpreted as a process of willingness to happily interact with a particular object or participate in an activity. This is marked by increased attention, concentration, and positive influence on the object or activity (Hidi & Renninger, 2006; Renninger et al., 2002), which can be observed from the level of participation. Based on the understanding of several definitions, interest can be deduced as a permanent or long-lasting urge that arises from within the soul, prompting an individual to act with higher intensity towards an object.

### *B. Reading*

Reading is the path to success in school and life (Khairuddin, 2013; Nasongkhla & Sujiva, 2023; Tiba, 2023). This is the most effective learning activity helping students to improve critical thinking (Phillips, 2023), develop new and different perspectives, understand individual life and the world, as well as interpret events and situations encountered (Nasongkhla & Sujiva, 2023; Zubaidah et al., 2018). Reading is the process of receiving and interpreting information encoded in the form of language through print media (Grabe, 2008; Udu, 2021). The comprehension process occurs when readers extract various information from the text and combine with a known idea (Nasongkhla & Sujiva, 2023). Furthermore, reading is a strategic process in which several skill processes (Morse et al., 2024) require readers to anticipate text information, select key points, organize and summarize information mentally, monitor comprehension, repair comprehension breakdowns, and match comprehension output with individual goals (Grabe, 2008; Nasongkhla & Sujiva, 2023; Pongsatornpiat, 2022).

A Study Group defined reading as the process of extracting and constructing meaning through interaction and engagement with written language (RAND Reading Study Group, 2002). More simply defined by Tutiasri as the activity of translating and interpreting what is on paper or media (Tutiasri et al., 2018). This activity is an important bridge for students intending to integrate interactive skills and succeed in school (Hammerschmidt-Snidarich et al., 2019). Several text-processing skills are applied to understand content, therefore reading can be called an activity performed to obtain information or messages conveyed in written language (Sari Dewi et al., 2020).

Individuals desiring to read will gain new insights and develop intelligence to easily handle future challenges (Putro & Lee, 2017). This tends to improve reading skills, as well as facilitate the addition of new vocabulary, knowledge absorption, and intelligence enhancement (Walgermo et al., 2018). Reading has important benefits because it can broaden the horizons and knowledge of individuals. Children entering formal educational institutions need to be rapidly introduced to reading (Wigfield et al., 2016). The development of reading skills and habits is not limited to childhood or early adolescence but is a lifelong process (Locher & Pfof, 2020). These opinions show that reading is an activity or process of understanding and extracting meaning from words, ideas, concepts, and information presented in a written form.

### *C. Reading Interest*

Reading is generally assumed to be meaningful when preceded by an interest (Noortyani, 2018). Reading interest is a high tendency towards related activity or a high willingness to read, which can be identified with a passion (Herlina, 2016; Sari Dewi et al., 2020). Dai described this interest as awareness, attention, and curiosity about a particular subject, activity, pursuit, person, idea, or place achieved through reading (Dai, 2013). In a reading skill, students must have the willingness to become readers and obtain the associated benefits (Cambria & Guthrie, 2010).

Cambria defined reading interest as the extent to which an individual feels excited to engage in reading written materials and enjoys searching for new information (Cambria & Guthrie, 2010). The pleasant feelings felt by students can help to provide more time, energy, and concentration. This activity will be more meaningful and beneficial when the interest preceding reading is rooted in intrinsic motivation, not in coercion from others or extrinsic rewards. Meanwhile, Somadayo defined reading interest as the power driving individuals to observe, feel interested, and be enthusiastic about

related activity (Somadayo et al., 2013). Based on several definitions, this term can be deducted as the desire to read that comes from an internal source without coercion from outside (Chinappi, 2015).

Reading interest has been widely studied and proven to be beneficial for success. Hidi conducted an empirical review related to interest and reading and found that all types of interest provide a positive contribution and increase reader understanding (Hidi, 2006). Miranda further explained that high reading interest is often reflected in a positive attitude, such as possessing a willingness to understand words and ideas, as well as considering this skill to be a fun activity (Miranda et al., 2011). Students with a high reading interest tend to succeed in studies (Lustyantie & Aprilia, 2020) and have a preference for sharing acquired ideas with other individuals. Therefore, a positive attitude from reading interest can help students to improve the reading comprehension more effectively (Noortyani, 2018). The role of study generally distinguishes between individual and situational interest. According to Urdan and Turner, individual interest is a more stable disposition toward some topics or domains (Urdan & Turner, 2005), while situational interest describes temporary attention to topics depending on specific situations (Schunk et al., 2012).

### III. METHODOLOGY

#### A. Research Design

This study applied the 4D model designed by Sivasailam Thiagarajan, Dorothy S. Semmel, and Melvyn I. Semmel consisting of 4 stages, including definition, design, development, and dissemination (Arvianto et al., 2023). The definition was related to the analysis of product needs, namely measuring reading interest. At this stage, an initial analysis of the availability of measurement instruments was conducted. The design stage was related to the formulation of the measurement instrument including 4 dimensions, namely (a) awareness, (b) willingness, (c) attention, and (d) feelings of pleasure in reading. The development stage was related to testing the reading interest measurement instrument, while the dissemination stage included publication efforts from the results and testing.

Qualitative and quantitative data were obtained (Creswell & Creswell, 2018), with the qualitative data being observation and interview results. Meanwhile, the quantitative data were testing results for the reading interest measurement instrument. The collected data were analyzed and described, then expert validation guidelines were used to determine the instrument content validity and obtain feedback related to the reading interest competency measurement instrument. Qualitative descriptions were based on expert reading validity scores in the form of criticism and suggestions for improving the instrument. The analysis results were used to revise the instrument product, while quantitative descriptions were used to process data in the form of reading interest questionnaire percentages. The percentage method formula applied in this study is as follows:

$$P = \frac{\sum p}{n}$$

Description:

$P$  = percentage value

$\sum p$  = frequency of answers

$n$  = total number of respondents

The results of the total percentage calculation were adjusted in Table 1.

TABLE 1  
INSTRUMENT VALIDITY SUITABILITY

Achievement	Qualification	Description
100%-80%	Very good	Without revision
79%-60%	Good	Without revision
59%-40%	Moderate	Revision
39%-20%	Less good	Revision
19%-0%	Bad	Revision

(Moleong, 2018)

#### B. Participants and Setting

Population could include very large and small communities (Bryman & Cramer, 2005), hence this study used students, teachers, and reading skill experts from a University in Central Java. Leavy defines sampling as the process of selecting individuals from a population (Leavy, 2017). This study applied a cluster random sampling method including selecting random clusters from the population, with all members of each selected cluster invited to participate (Sedgwick, 2014). Furthermore, the sample was 300 students in Central Java, 100 teachers, and 5 reading experts from Sebelas Maret University, Surakarta.

#### C. Instrumentation

The preparation of the instrument in this study was carried out through various stages. These included reviewing theories or concepts related to variables, compiling synthesis and constructing theories, compiling conceptual definitions

and operational definitions, identifying dimensions and indicators of variables, preparing an instrument grid in the form of a specification table, compiling complete instrument items with measurement scales, and conducting instrument trials.

Reading interest of students was measured using questionnaires with a Likert scale by providing an answer scale to statements. The answer scale consisted of 5 statements arranged in sequence from the most positive to the most negative, and vice versa, where choices provided for the statements reflected respective reading interest. The most positive answers were scored 5 and 4, 3, 2, 1, while the most negative answers were scored 1 to 5. The measurement was carried out by adding up the scores of the provided statements, which were very appropriate, appropriate, less appropriate, inappropriate, and very inappropriate. The indicators measured in this instrument included (a) awareness, (b) willingness, (c) attention, and (d) feeling of pleasure in reading activity.

#### D. Data Collection

The data collection method used in this study included questionnaires, interviews, and observations (Zohrabi, 2013). Questionnaires are a medium of data collection carried out by providing a set of questions for respondents to answer. The statements in the questionnaires were measured using a Likert scale to state the agreement or disagreement of the respondents with the provided statement. The 5-point Likert scale applied consisted of the statements, including very appropriate, appropriate, less appropriate, inappropriate, and very inappropriate (Jamieson, 2004; Vagias, 2005). These were subsequently processed into positive (favorable) and negative (unfavorable) statements as in Table 2.

TABLE 2  
ASSESSMENT SCALE FOR POSITIVE AND NEGATIVE STATEMENTS

Description	Code	Positive Score	Negative Score
Very Appropriate	VA	5	1
Appropriate	A	4	2
Less Appropriate	LA	3	3
Inappropriate	I	2	4
Very Inappropriate	VI	1	5

An interview is a method of data collection that includes asking questions directly to individuals. The study team in this case was positioned as interviewers, asking questions, assessing answers, requesting explanations, compiling notes, and exploring questions deeper. Furthermore, the sources of information (informants or respondents) answered questions, provided explanations, and occasionally replied to questions. The purpose of the interview was to obtain knowledge expressed in the form of answers, which were accessed and interpreted (Flick, 2009). An advantage of this method is that the information collected can be subsequently compared and contrasted (Fraenkel et al., 2012). Observation is an activity used to assess events naturally (Flick, 2009) by directly monitoring specified objects to obtain data. This method allows for the combination of questionnaires and interviews to collect objective first-hand information where observers can study subjective factors objectively (Fraenkel et al., 2012).

## IV. RESULTS AND DISCUSSION

#### A. Definition Stage

The definition stage in this study was centered on the analysis needed to develop a reading interest measurement instrument in Indonesia. This activity was carried out using a semi-structured interview and observation method with 5 experts, 10 teachers, and 100 students. Several results obtained from the initial analysis were related to the need for developing a measurement instrument. These showed that 1) All respondents (100%) appreciated the benefits and were active in reading activity, 2) Nearly the entire respondents (93%) had reading interest without knowing the interest level, and 3) All lecturers (100%) admitted not measuring the reading interest previously. The remaining results showed that 4) All lecturers (100%) did not measure reading interest with adequate and tested instrument, but conducted assessment in a limited and in-depth manner, and 5) The entire respondents (100%) confirmed that information regarding reading interest level was seriously needed as input to improve the quality of reading competence. Based on the results at the definition stage, a reading interest measurement instrument needs to be developed in Indonesia immediately.

#### B. Design Stage

A reading interest measurement instrument was developed at the design stage by using the results obtained from the definition stage as a reference. Several aspects measured referred to the theories proposed by various experts. A reading interest is not frequently determined directly but can be completed indirectly through the study or measurement of related behavior showing or expressing aspects contained in the reading activity. For example, reading will be successful when an individual is aware of the needs for this activity. Awareness is the first aspect of interest which leads to searching for related material and acting consciously without coercion to achieve the goal of reading optimally (Chinappi, 2015; Dai, 2013). Therefore, an individual is satisfied in fulfilling the needs that will be repeated frequently. An individual with high awareness attempts to read when feeling that something is lacking and some needs must be completed. This condition gradually becomes a steady habit and a reading interest forms unconsciously, which will spur the improvement of the skill.

The second aspect is willingness as a conscious activity fostering a strong stimulus to strive to carry out an activity, which is not an accidental action but deliberate and directed towards achieving a goal. This drive causes the determination of the heart, soul, and energy to move to achieve a goal. Individuals with a reading willingness will deliberately read to understand the related material and gain benefits (Cambria & Guthrie, 2010; Miranda et al., 2011; Sari Dewi et al., 2020), and the willingness helps build a reading interest simultaneously. The third aspect is attention, which is the concentration on all activity aimed at an object or group of objects. Individuals who read must have decided over time to be attentive to material due to curiosity or interest (Cambria & Guthrie, 2010; Dai, 2013; Somadayo et al., 2013), which is described as a mental attitude focused on an object. The element of thought has the strongest influence on attention, while interest and attention are often related in practice. In the intonation aspect, interest can cause attention, and attention to an object or activity is specifically accompanied by interest.

The fourth aspect is the feeling of being closely related to the personality of an individual and other mental symptoms. This is a subjective psychic symptom in the quality of being happy or unhappy at various levels. An individual carrying out reading activity consciously and enthusiastically has a high interest. In this context, the reading activity becomes fun and prompts readers to share the obtained results with other individuals (Cambria & Guthrie, 2010; Lustyantje & Aprilia, 2020; Miranda et al., 2011; Somadayo et al., 2013). The preparation of the measurement instrument in the design stage used a scale that referred to 4 dimensions, including awareness, willingness, attention, and feelings of pleasure in reading activity. The questionnaire comprised 40 items consisting of 20 favorable and 20 unfavorable statements.

TABLE 3  
READING INTEREST QUESTIONNAIRE GRID

Reading Interest Dimension	Indicator	Item Number		Total
		Favorable	Unfavorable	
Awareness	Awareness of reading activity	1, 9, 17, 25, 33	5, 13, 21, 29, 37	10
Willingness	Willingness in reading activity	2, 10, 18, 26, 34	6, 14, 22, 30, 38	10
Attention	Attention to reading activity	3, 11, 19, 27, 35	7, 15, 23, 31, 39	10
Feelings	A feeling of pleasure in reading activity	4, 12, 20, 28, 36	8, 16, 24, 32, 40	10
<b>Total</b>				<b>40</b>

Reading interest measurement using the Likert scale was accomplished by providing an answer scale to a particular question. The answer scale consisted of 5 statements arranged in sequence from the most positive to the most negative, and vice versa. The choice of the statement reflected the reading interest of respondents. The most positive answer was provided with a score of 5 to 1, while the most negative answer was scored 1 to 5. The measurement instrument was in the form of statements that should be answered according to circumstances related to interest. The measurement was carried out by adding up the scores of the provided statements, which included very appropriate, appropriate, less appropriate, inappropriate, and very inappropriate.

### C. Development Stage

The measurement instrument was developed through 2 stages, namely expert appraisal and development testing. During the expert appraisal, the instrument was assessed by experts at the same time to obtain suggestions and input for improvement. This included experts in the fields of reading and assessment from Sebelas Maret University. Some inputs from language experts on the instrument include (1) the use of numbering should be offered more attention to promote easier reading, (2) there are still errors in the use of punctuation, (3) language needs to be packaged more effectively, and (4) selected diction should be appropriately adjusted to the target. Inputs from evaluation experts include (1) the usage intensity of instruments no. 5 and 9 is still not in accordance with the title of the study, (2) the urgency of reading interest in activity has not been explicitly stated, (3) the number and variety of materials for no. 1 to 3 are not focused on reading interest, and (4) the amount of information presented regarding the importance of reading interest in daily life is not mentioned in the statements. The inputs and suggestions were used as a reference to improve the reading interest measurement instrument.

Item validity for the reading interest instrument was calculated with the Product Moment Correlation formula using the IBM SPSS Statistics 26 program. The analysis results for the 40 items of the tested instrument showed a total correlation coefficient value ranging from -0.056 to 0.491. A total of 7 statement items including numbers 8, 13, 24, 30, 36, 37, and 39 were disqualified due to possessing correlation coefficients less than the critical r-table value of 0.195. This led to only 33 statement items fulfilling the requirements to be used in the actual study. Meanwhile, the reliability of the reading interest measurement instrument was calculated with the Cronbach Alpha formula using the IBM SPSS Statistics 26 program. Table 4 shows the alpha coefficient values range from 0 which denotes "no reliability" to 1 representing "perfect reliability" (Pallant, 2010), correlating with the classification by Manning (Manning & Munro, 2006).

TABLE 4  
ALPHA COEFFICIENT VALUES

Alpha Value	Description
0	No reliability
≥ 0.70	Acceptable reliability
≥ 0.80	Good reliability
≥ 0.90	Very good reliability
1	Perfect reliability

A reliability coefficient of 0.78 obtained from the calculation suggested that the reading interest instrument was acceptable or reliable (Manning & Munro, 2006). The next stage was the instrument development test after statistical calculations to determine the validity and reliability of the instrument. The data in this study were collected using reliable expert-validated questionnaires targeted at teachers and students.

TABLE 5  
READING INTEREST QUESTIONNAIRE

STATEMENT	VA	A	LA	I	VI
Every day I always take time to read, both at school and at home.					
If I do not have a reading book, I will borrow books from the library.					
After I read, it turns out that I get benefits from reading.					
Even though I am sick, I still read as a recreational activity.					
I always think that reading is something useless and does not need to be practiced.					
When reading, I never look for difficult words or terms that interfere with my reading.					
Reading books as one of the reading activities, for me has no direct benefits.					
The books I read, I get from borrowing either from friends or from the library.					
On certain days, I take the time to read the material I get from the mass media or books in the school library.					
My teachers once taught me about reading methods, hence I can read by understanding the meaning.					
Reading can give me pleasure and a sense of joy.					
If I find it difficult to read, I never ask my friends or teachers about the difficulties I experience.					
If I think deeply, it turns out that reading activities cannot add to my experience of life and living.					
I hate reading the most, especially when there is an assignment from the teachers to read in front of friends.					
If I have more pocket money, I will use it to buy magazines or books that I can use as reading material for studying.					
If I were to win a reading competition, I would continue to develop my abilities, therefore my reading ability would continue to grow.					
I concentrate my reading activities on things related to the mandate related to everyday life.					
When I feel anxious or worried, I do reading activities, therefore my feelings return to calm.					
If I were given the opportunity to take part in a reading competition, I would reluctantly take part in the competition.					
Even though my teacher is a successful newsreader, I feel no need to ask how to read well.					
I do not care if a friend has difficulty reading.					
During semester breaks, I spend time with various activities that entertain myself, such as reading.					
If I were a teacher, I would make reading activities one of the forms of competency tests at school.					
I appreciate teachers who have introduced many reading materials, which can motivate me to read.					
I feel happy when I get a maximum assessment from the teachers when I am asked to read a text.					
When reading, I never make notes or marks on writing that I consider important, because it is a waste of time.					
When there are friends who are not interested at all in reading, I do not care because it is their right.					
I feel bored when I get guidance on good reading techniques.					
I pursue reading activities because I am aware that this activity will provide many positive benefits, one of which is increasing self-confidence.					
I want to continue learning by reading because I know that reading activities provide many valuable experiences in my life.					
The low interest of the community in reading also motivates me to continue learning to increase my reading interest in order to become a quality reader.					
When I get a group assignment to create a text and then read it in front of the class, I leave everything to my friends even though the work has been divided into equal portions.					
I feel unhappy when I see my friends enthusiastic when reading in front of the class.					

After being revised and re-evaluated, the instrument was re-assessed through development testing which featured trials carried out repeatedly to obtain an effective and consistent learning instrument (Thiagarajan et al., 1974). Furthermore,

this stage used respondents, including 100 teachers and 300 students in Central Java to test the validity of the developed instrument. The results of trials of the 4 instrument indicators are presented in Figure 1.

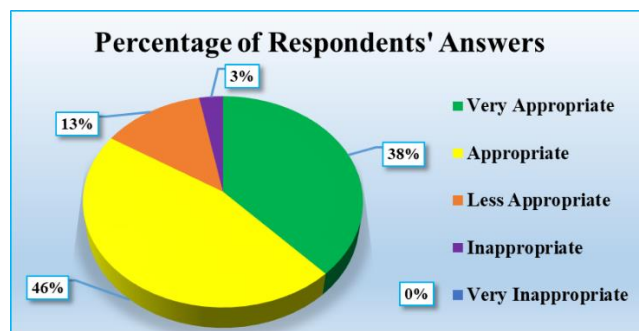


Figure 1. Percentage of Respondents' Answers

Respondents who assessed the reading interest measurement instrument as appropriate using the indicators were 46% and 38% for the very appropriate category, signifying that the achievement percentage of the developed instrument was 84%. Based on the table of estimated validity levels by Moleong, the statement items in this reading interest measurement instrument were confirmed as very good or valid, hence no revision was needed.

#### D. Dissemination Stage

The final stage of the 4D development model was dissemination, which was not carried out massively due to study limitations. The distribution process was conducted in a limited manner according to the network of relations owned by the study team. At this stage, there was still an opportunity to receive inputs and suggestions related to the designed instruments as a reference for further development.

### V. CONCLUSION

This study described reading interest as an important skill to be mastered by all individuals, specifically academics in both schools and universities. The skill could support carrying out work or learning, signifying the need to determine the level of reading interest through measurement activity. Therefore, a reading interest measurement instrument was developed using 4 indicators, including (1) awareness, (2) willingness, (3) attention, and (4) feelings of pleasure in reading activity. This instrument passed through 2 stages of testing, namely expert appraisal and development testing. The results showed that the instrument was considered very good and could be used by academics both in schools and universities to measure reading interest. However, limitations were observed in the instrument distribution which was only carried out on a limited basis according to the network of relations owned by the study team. Further investigations should use and retest the instrument with different sample criteria to achieve a better level of validity and reliability. The test results would be expected to add to the scientific treasury of reading interest measurement theory.

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