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DEVELOPMENT, VALIDITY AND RELIABILITY OF DEEP READING ABILITY QUESTIONNAIRE FOR PRIMARY SCHOOL PUPILS

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Abstract:

This study describes the development, validity, and reliability processes of a Deep Reading Ability Questionnaire (DRAQ) for primary school pupils in English reading. An instrument with 30 items for measuring deep reading ability was developed and validated using item response data from three experts, 10 primary school teachers, and thirty primary school pupils in Xuzhou City, Jiangsu Province, China. The DRAQ consists of three dimensions (inferential, critical, and creative reading skills), with each dimension consists of 10 questions. Pupils responded on a five-point Likert scale (from "strongly disagree" to "strongly agree") in order to effectively assess their deep reading skills. Item analysis was carried out to ensure content and face validity, followed by a reliability assessment measuring internal consistency using Cronbach's Alpha. Content validity was confirmed by three experts in English education with a mean item-level content validity index (I-CVI) of 0.94. Ten non-English subject teachers also affirmed the clarity of all items, supporting face validity. A pilot study with 30 pupils indicated excellent internal consistency ($\alpha = 0.997$). The DRAQ instrument reported in this study will be utilised in the real study to assess primary school pupils' deep reading ability in English reading. These results underscore the robustness of the DRAQ for evaluating complex reading skills at the primary level. The DRAQ instrument developed can also serve to examine students' deep reading skills in different subjects by replacing the English reading material with material from the other subject.

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Keywords:

Deep Reading Ability Questionnaire, English Reading, Primary School Pupils, Validity, Reliability

Introduction

Research on deep learning in English has gradually shifted from university to primary school pupils in recent years. This shift reflects a move away from rote memorization toward higher-order learning modes. These include comprehension, transfer, and application, which align with information society (Chu et al., 2021). Recent metric bibliographic analyses show educators increasingly use interactive learning strategies. These help deepen pupils' understanding of texts beyond surface memory in ESL contexts (Yusoff et al., 2023). The United States shows a growing trend toward deep learning curriculum reforms for primary school pupils. Non-profit organizations like the Flora and Hewitt Foundation financially support these reforms. They aim to enhance students' core subject competencies and 21st century skills (Becker et al., 2017). The TESOL International Association actively promotes deep learning in English. Advocates like Rod Ellis in East Asia promote task-based English language teaching. This approach aims to improve English proficiency and promote deep learning in language subjects (Sonina, 2023). Wang and Hu (2017) developed assessment scales to measure primary school pupils' ability to use English in practice. Their work highlights the need to prioritize deep learning in primary English language education.

English reading plays a crucial role in enhancing the English language abilities of primary school pupils, developing their thinking qualities, shaping good cultural awareness, and promoting their comprehensive learning abilities (Ismail & Al Allaq, 2019; Magableh & Abdullah, 2020; Wang & Chen, 2016). The improvement of reading skills is thus vital for fostering well-rounded pupils and implementing core subject competencies. In recent years, Chinese experts, scholars, and frontline teachers have increasingly focused on exploring teaching strategies for reading to align with English curriculum reforms. Deep learning, as an essential method for cultivating pupils' core competencies and facilitating curriculum reform (McPhail, 2021), offers new insights for the development of reading instruction and the enhancement of reading abilities (Wang, 2018). As a result, deep reading and the ability to engage in deep reading have gradually become significant goals in English reading instruction.

Deep reading is a complex process that promotes understanding (Gordon, 2023). In this process, readers need to use high-level thinking, such as inferential and deductive reasoning, analogical skills, critical analysis, reflection, and other skills to communicate with the author and then construct new meaning from it. Deep reading focuses on the core arguments and problems needed to solve the problem, and its purpose is to guide the learner to think profoundly in deep reading and cultivate their reflective and practical application abilities (LaRusso et al., 2016). Shallow reading, on the other hand, only emphasizes the formulas and external cues required to solve problems through unreflective memorization; all the pupils need to do is mechanically memorize and practice, resulting in limited conceptual understanding as an inevitable consequence (Entwistle et al., 2014; Liang, 2013). However, current reading instruction is mostly superficial. When society largely neglects deep reading, schools should spare no effort in cultivating pupils' deep reading ability (Mulcare & Shwedel, 2017).

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Deep reading ability is based on the theory of deep learning and has the important characteristics of deep learning. Most scholars in China and abroad share certain similarities in their definition of deep reading ability, that is, deep reading ability refers to the learner's capacity to infer, analyze, critically question, reflect, evaluate, imagine, create, and apply knowledge based on understanding the basic meaning of a text, ultimately acquiring higher-order thinking skills and the ability to solve new problems. Through a review of relevant domestic and international literature, the researcher has found that the connotation of deep reading ability mainly includes three aspects: inferential reading skills, critical reading skills, and creative reading skills (Huang, 2017; Lim et al., 2021). These skills are necessary for learners to acquire, process, and output information.

Inferential reading skills refer to the ability to anticipate, complete, or complement implicit or absent information within a text, drawing upon previous conceptual and linguistic knowledge and cognitive schemes (Martelletti et al., 2023). These skills contribute significantly to global text comprehension by aiding in making sense of various words, connecting prepositions, and comprehending texts as a whole (Bayat & Çetinkaya, 2020). Inferential reading requires students to "read between the lines," according to Soto et al. (2019). Students must make reasonable assumptions about outcomes, events, or behaviors based on their understanding of the text. This study considers inferential reading a higher-level skill that helps primary school pupils comprehend text more deeply (Samiei & Ebadi, 2021). Many researchers believe inferential reading skills matter for students. First, these skills help students find the main point in a text. Students can spot supporting details, make smart guesses, draw conclusions, and make meaningful connections. Second, students gain confidence through inferential reading. This helps especially those who struggle with English. Third, students learn to see beyond the words on the page. They can figure out sequence, cause-effect relationships, and grasp what the text is really about. Rahayu and Mustadi (2022) back this up in their work. They found these skills help students identify key sentences, understand the author's tone, and connect more deeply with readings.

Critical reading forms a key part of critical thinking. This skill matters more than ever in today's competitive world (Sultan et al., 2017). Critical thinking uses complex brain processes and advanced reasoning. It is seen as essential for success in school and work in the 21st century (Evans, 2020; Muniroh et al., 2022). Studies show students who read critically perform better academically (Karademir & Ulucinar, 2017). In addition, students need to actively engage in critical reading practices to develop a critical perspective (Al Roomy, 2022). People must acquire critical reading skills to identify reliable information in the age of information explosion. Good reading skills alone aren't enough. People must critically analyze information to identify and adapt to social changes (Li & Wan, 2022; Yasemin, 2020). Critical reading also helps people participate in society more fully. It helps them understand and navigate social, economic, and cultural differences (Sultan et al., 2017). As a high-level skill, critical reading significantly impacts students' long-term success (Aghajani & Gholamrezapour, 2019). It sparks creative thinking and helps students generate fresh ideas by showing them different perspectives (Ocak & Karslı, 2022). To read critically, students must deeply understand the arguments in a text. Finally, readers must identify connections between viewpoints and restructure knowledge based on personal experience (Li & Wan, 2022). Students who lack critical reading skills may struggle to distinguish between fact and opinion. This can lead to misunderstandings (Al-Shaye, 2021; Din, 2020).

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According to Dundar et al. (2023), creative reading skills also involve higher-order thinking. Through creative reading, individuals are able to interpret texts from multiple perspectives and incorporate their own experiences to mine for information beyond what the author literally says. Fernandez and Arriola (2022) emphasize that reading should not be a passive process in which readers merely absorb the author's words. When reading is limited to understanding the author's viewpoint, its potential for deep engagement falls short of that achieved through creative reading (Kasap, 2019). Research by Bakı (2020) indicates that students with stronger creative reading abilities are more likely to enjoy reading and actively interact with books compared to those with weaker abilities. Despite its significance, creative reading remains an overlooked aspect of reading education. Many instructional materials barely address creative reading, and when they do, they often conflate it with critical reading. However, creative reading requires distinct instructional approaches and specialized techniques (Glaveanu, 2019). Engaging in creative reading encourages learners to go beyond basic comprehension, interpretation, and critical analysis, inspiring them to propose innovative or alternative solutions to issues presented in texts (Danesh & Nourdad, 2017).

Although large-scale standardized reading assessments (e.g., PIRLS, NAEP) acknowledge these deeper facets of reading, most traditional tests still emphasize literal recall or superficial inferential tasks (Cho et al., 2018; Kaldes et al., 2024). In classroom practice, many teachers rely on multiple-choice comprehension checks or informal reading inventories, both of which frequently measure only the end-products of reading rather than the processes pupils use to arrive at meaning (Moss et al., 2024). Critics argue that these approaches often fail to capture the detailed strategies—such as re-reading, perspective-taking, and self-monitoring—that are integral to deep reading (Shanahan, 2019).

Additionally, standardized tests commonly rely on short, unrelated passages, limiting the scope for students to integrate and synthesize information across multiple texts. Although scenario-based assessments such as the Global Integrated Scenario-Based Assessment (GISA) attempt to simulate real-world reading situations and develop higher-order thinking skills, they are not yet widely used at the primary level (McCarthy et al., 2023). In addition, many existing reading assessment tools have validity and reliability issues. Factors like cultural bias, background knowledge, and test anxiety can affect them. These challenges are particularly acute for young learners and second language learners (Alkateb-Chami, 2024; Kaivanpanah & Alavi, 2008). Scholars emphasize the need for assessment tools that measure a wider range of in-depth reading skills. These include reasoning, critical analysis, and creative interpretation. This is especially important for primary school pupils at key cognitive developmental stages (Novak et al., 2012). There is a need for more comprehensive assessment methods to capture the complex dimensions of deep reading.

Furthermore, although broader scales for measuring deep learning exist (Lai, 2020), they rarely measure reading-related sub-skills specifically. These include inferential reading, critical reading, and creative reading. These skills are core features of deep reading (Skjæveland, 2020). Current assessment tools lack domain validity for measuring primary school pupils' deep reading skills. This is especially true in English as a Foreign Language (EFL) learning environments. In addition, many of the existing assessment tools have been validated primarily for older students or native English-speaking learners, failing to adequately account for the unique needs of pupils at the primary level in terms of cognitive development and language acquisition (Morea et al., 2024). When these instruments are used with young EFL learners,

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reliability and validity can drop due to cultural biases and differing language proficiency levels. Such shortcomings also highlight the urgent need for a specialized questionnaire, one that accounts for both the cognitive and linguistic profiles of primary school pupils learning English to ensure a valid, reliable measure of deep reading ability.

For primary school pupils, why does deep reading ability matter? Influenced by examination-oriented education, today's Chinese primary school reading instruction prioritizes efficiency for exam preparation, hindering the development of pupils' deep reading abilities (Lai, 2020; Luo, 2020; Wang, 2017; Xie, 2019). For instance, text interpretation remains confined to processing surface-level information, emphasizing measurable knowledge and skills. This superficial approach fosters a shallow understanding of reading (Bai et al., 2024). In fact, in many places, including China, deep reading ability has only recently received attention from a few researchers and teachers (LaRusso et al., 2016). Shallow reading instruction in schools, combined with a superficial reading atmosphere outside of them, makes it necessary to implement effective deep reading instruction. The primary school stage is a crucial period for cognitive development, during which pupils gradually develop their logical thinking, creative thinking, and critical thinking abilities (Lucas & Spencer, 2017). According to "English Graded Reading Standards for Primary and Secondary School Students in China (Experimental Draft)" (Wang & Chen, 2016), pupils' reading abilities are categorized into nine levels. Within this framework, sixth-grade primary school pupils are recognized as being in a significant phase of cognitive development. During this critical period, pupils' capacities for logical thinking, abstract thinking, creative thinking, and critical thinking are progressively formed and enhanced (Rezaei Nazari et al., 2020). Consequently, fostering deep reading abilities during primary school is essential for pupils' overall cognitive development and academic success.

From the previous studies, there is a need to develop deep reading ability questionnaires. This is because there is currently no unified standard for questionnaires assessing English deep reading ability both in China and internationally (Skjæveland, 2020). The available deep learning ability questionnaire does not assess pupils' deep reading ability (Lai, 2020). This suggests that the general deep learning ability questionnaire is insufficient to meet the instrument's validity in measuring the necessary for English reading field. Consequently, based on the research results of previous deep learning ability measurement tools, this study took into account the cognitive characteristics of primary school pupils and developed the Deep Reading Ability Questionnaire (DRAQ) for English reading. This questionnaire includes three dimensions: inferential reading skills, critical reading skills, and creative reading skills.

Method

Sample

A pilot study was conducted to assess the reliability, validity, and practicality of the research instruments in a primary school setting (Gani et al., 2020). Porta (2008) defines pilot study as a small-scale test of methods and procedures intended for use on a larger scale (Sharma & Bagga, 2019). Some studies suggest that a pilot study involving around 30 participants is optimal (Aithal & Aithal, 2020). In this study, the primary school involved for this study is in Xuzhou City, Jiangsu Province, China. Convenience Sampling is affordable, easy and the subjects are readily available (Mweshi & Sakyi, 2020). Thus, the researcher had employed purposive sampling to ensure that selected classes exhibited Piagetian cognitive levels (Maurya & Khan, 2021).

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The pupils who were involved were 30 sixth-grade primary school pupils with equivalent academic qualifications to the targeted real sample and were randomly selected from a public primary school in Xuzhou City. The trial survey was administered to these 30 pupils to evaluate the research instruments. The average age of the sample is 12 years. The choice of sixth grade is because pupils before the fifth grade have not yet accumulated or understood much English knowledge, and their learning habits have not yet developed into a more organized system. Pupils in the sixth grade are a good fit for the subjects of this study since they have some basics in vocabulary and grammar and are generally motivated to learn English well.

In this trial, the DRAQ assessment was administered with a time limit of 45 minutes. The sample consisted of 30 pupils, including 16 females (53%) and 14 males (47%). Although this study had a slight gender imbalance, it was not considered a significant limitation. This is because the primary objective of this study was to validate the effectiveness of DRAQ and assess its reliability. To achieve this objective, three experts in English language education and curriculum studies were invited to evaluate the content validity of the assessment instrument. They provided valuable feedback that ensured a comprehensive review of DRAQ's validity in primary education contexts.

Development of Deep Reading Ability Questionnaire

Deep reading ability was measured using the Deep Reading Ability Questionnaire (DRAQ). The DRAQ was adapted from the Deep Reading Ability Assessment Tool developed by Lai (2020). The Critical Thinking Skills and Creative Thinking Skills sections from Shen's (2021) Deep Learning Ability Scale were also used. The questionnaire was finalized after discussions with three English language education experts. These experts were chosen based on their qualifications and over 10 years of experience in English education. The expert panel consisted of: (i) an associate professor of English education from Nanjing University of Posts and Telecommunications, (ii) an associate professor of English education from Jiangsu Normal University, and (iii) a lecturer with a PhD in curriculum studies from Liuzhou City Vocational College. Their primary responsibility was to review the structure and content of the DRAQ assessment to ensure its suitability for pupils and its alignment with English reading curriculum standards. This evaluation process contributed to refining the assessment content, ensuring that it both matched students' English proficiency levels and adhered to the core dimensions of English reading proficiency outlined in the "English Graded Reading Standards for Primary and Secondary School Students in China (Experimental Draft)" (Wang & Chen, 2016).

According to Lai (2020), referencing the "China's Standards of English Language Ability", it is focused on the specific criteria for levels 4 to 9 in the overall reading comprehension scale, which correspond to the improving and proficient stages. Combined with the connotation of deep reading ability and the six key abilities of deep learning, Lai (2020) develops a dimensional table for English deep reading ability. All three dimensions, encompassing Inferential Reading Skills, Critical Reading Skills, and Creative Reading Skills from Lai's instrument are retained. However, the questionnaire is aimed at assessing the deep reading ability in English of middle school students. A minor modification was made to align the items with the targeted sample and primary school English reading level examined in this study.

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In particular, the language of the questionnaire was designed to be as simple as possible and easy to understand for primary school pupils. The sections on Critical Thinking Skills and Creative Thinking Skills from the Deep Learning Ability Scale developed by Shen (2021) are preferable because the questionnaire assesses critical thinking skills by evaluating how well individuals "consistently perceive and appreciate the similarities and differences between different cultures, critically question the author's viewpoints and text structure from multiple perspectives, and frequently reflect on and evaluate the text to form their own understanding"; and assesses creative thinking skills by evaluating how well individuals "consistently explore the content of the text, frequently propose unique viewpoints and questions, and demonstrate creative writing skills." These sections are easily adapted and can be modified according to the purpose of the study.

The DRAQ is a 30-item instrument designed to assess the English deep reading skills of sixth-grade primary school pupils. The assessment covers three core dimensions: inferential reading skills, critical reading skills, and creative reading skills, and each category contains 10 questions. A five-point Likert scale was used to measure participants' agreement with different statements. Since its introduction by Rensis Likert in the 1920s, Likert scales have been widely used in social science research to quantify individuals' opinions and attitudes (Alhassan et al., 2022). This questionnaire type effectively measures subjective responses (Kusmaryono et al., 2022). Response options for each question include (i) strongly disagree, (ii) disagree, (iii) somewhat agree, (iv) agree, and (v) strongly agree.

In the DRAQ, The inferential reading skills dimension (Questions 1-10) assesses how students integrate textual information with prior knowledge. Hypothetical reasoning stands at the heart of inferential reading. For example, Question 2 ("I can predict the possible endings of a story based on its theme or plot") measures the pupils's ability to reason hypothetically about the text. The critical reading section (Questions 11-20) gets students to question what they read, analyze why authors write what they do, and weigh different opinions. For example, Question 12 ("I often question the content and opinions of the author while reading") emphasises how pupils interact with text in a critical way. The creative reading section (Questions 21-30) measures how well students think outside the box and come up with new ideas. For example, question 23 ("I can offer unique viewpoints different from others about the text") reflects the ability to think creatively in deep reading.

The DRAQ was thoroughly checked with English education experts to ensure language clarity and applicability. A pilot study with 30 sixth-graders was conducted first. Based on the feedback, several questions were modified. For instance, "original viewpoints" was replaced with "unique viewpoints" in Question 23 because students understood it better. The experts suggested adjusting the cultural references in the critical reading section. This made the content both understandable and meaningful for primary school pupils. This careful review process strengthened the validity and usefulness of the questionnaire.

Results and Findings

Validity

Developing valid and reliable research tools is essential for accurate and significant findings. Watling (Chris Siew-Har & Ramasamy, 2022) stated that validity and reliability are key principles in positivist epistemology. Both are widely recognized as the basis for various

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research methodologies. These include tests, interviews, observations, and questionnaires (Akyıldız & Ahmed, 2021; Mohajan, 2018). Validity and reliability determine how effectively a research instrument measures a target construct (Cohen et al., 2017). Two kinds of validity were examined in this study: content validity and face validity. Validity shows how well a tool measures what it's supposed to measure (Masuwai et al., 2024). A valid tool clearly captures the concepts intended for study (de Barros Ahrens et al., 2020). Yusoff's (2019) six-step approach was used to check content validity, as Table 1 shows.

Table 1: Content Validity Steps And Explanation

Content validity steps	Procedure explanation
1. Preparing content validity form	This content validity form provides a brief overview of the research objective, the study framework, the purpose of the DRAQ instrument, the domains used in the instrument, the sample involved, and instructions for experts to validate the instrument and the scale used.
2. Selecting review panel of experts	In this step, it is important to determine the number of experts needed, as this will influence the acceptable cut-off score for the CVI. This study employed three experts, aligning with the research purpose and following Polit and Beck (2006) and Polit et al. (2007), which suggest an acceptable CVI value of 1 when using three to five experts.
3. Conducting content validation	Content validation can be conducted through face-to-face or non-face-to-face methods. Due to the pandemic, this study utilized only the non-face-to-face method.
4. Reviewing domains and items	Experts are encouraged to provide verbal or written comments on items related to the domains specified in the content validity form. All comments are reviewed to refine the final items in the instrument.
5. Providing score on each item	Experts are also requested to score the items based on the provided scale after thoroughly reviewing all items in the instrument.
6. Calculating Content Validity Index (CVI)	

Source: Created by the authors.

After this assessment, the expert panel reviewed every DRAQ question. Specialists in English teaching and curriculum design were brought in to evaluate the tool. Their suggestions helped improve the final version. The first expert teaches at Nanjing University of Posts and Telecommunications in China. He brings over ten years of English teaching experience and has published widely. The second expert works at Jiangsu Normal University. He has taught English for more than a decade and published several research papers. The third expert teaches at Liuzhou City Vocational College and holds a PhD in English curriculum studies. She was chosen because of her active research record and many publications.

Beck (2020) emphasises the importance of quantifying the degree of consensus among experts when assessing the content relevance of assessment instruments. Typically, the researcher calculates the mean of the experts' ratings and applies predefined criteria to judge their

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acceptability. Although ratings are usually made on a four-point ordinal scale, a three- or five-point scale can also be used (Almanasreh et al., 2022). However, a four-point scale is considered superior because it avoids neutral or ambiguous responses. When the panel of experts is less than five, all experts must agree for the scores to be representative (Almanasreh et al., 2022). In this study, three experts assessed the 30 questions of the DRAQ based on a 4-point scale with the following rating scale: 1 = Not relevant; 2 = Partially relevant; 3 = More relevant; 4 = Highly relevant. The expert scores were used to calculate the Content Validity Index (CVI). Table 2 shows these results.

Before calculating the CVI, scores were categorized as either "X" (scores of 3 or 4) or "-" (scores of 1 or 2). Then the Item-Level Content Validity Index (I-CVI) was calculated. This is the proportion of experts who gave a rating of 3 or 4. For example, if 4 out of 5 experts found a question more relevant or highly relevant, the I-CVI was 0.80. The I-CVI values were used to decide whether to retain, modify, or delete certain questions (Yazid et al., 2023).

Table 2 shows most items had a CVI value of 1, except for topics 6, 8, 11, and 14. This high percentage of "X" scores indicates strong content validity for the DRAQ. Expert feedback indicated some questions didn't fully match the target students' cognitive abilities. This could lead to comprehension difficulties. Minor modifications were made to improve clarity and simplify some contextual settings. These changes were discussed with the experts until agreement was reached. All questions were retained. In summary, the DRAQ has high content validity and underwent further reliability testing.

Table 2: Content Validity

Item Rated 3 or 4 on a 4-point Relevance Scale for DRAQ					
Item	Expert 1	Expert 2	Expert 3	Number in Agreement	Item CVI
1	X	X	X	3	1
2	X	X	X	3	1
3	X	X	X	3	1
4	X	X	X	3	1
5	X	X	X	3	1
6	-	X	X	2	0.67
7	X	X	X	3	1
8	-	X	X	2	0.67
9	X	X	X	3	1
10	X	X	X	3	1
11	X	-	-	1	0.33
12	X	X	X	3	1
13	X	X	X	3	1
14	X	X	-	2	0.67
15	X	X	X	3	1
16	X	X	X	3	1
17	X	X	X	3	1
18	X	X	X	3	1

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19	X	X	X	3	1
20	X	X	X	3	1
21	X	X	X	3	1
22	X	X	X	3	1
23	X	X	X	3	1
24	X	X	X	3	1
25	X	X	X	3	1
26	X	X	X	3	1
27	X	X	X	3	1
28	X	X	X	3	1
29	X	X	X	3	1
30	X	X	X	3	1
				Mean I-CVI = 0.94	

Note: I-CVI = the expert in agreement divided by the number of experts.
Source: Created by the authors.

In addition to content validity, face validity was also assessed to ensure the questionnaire effectively measured primary school pupils' deep reading skills in English. Face validity refers to whether the instrument's appearance is consistent with its measurement objectives. A questionnaire with high face validity is easy to understand and clearly represents the study's objectives. This validity is usually judged through subjective feedback from assessors. Ten non-English primary school teachers in Xuzhou, China were randomly selected. They were asked, "Which items in this questionnaire assess primary pupils' deep reading ability?" Non-English teachers were invited to assess the questionnaire's clarity and comprehensibility for different backgrounds. This was especially important for students with low to intermediate English proficiency.

In the face validity assessment, all 10 teachers agreed that the 30 DRAQ questions were suitable for measuring deep reading ability. Only one teacher disagreed with question 3. This result suggests high face validity for the DRAQ among non-English teachers. Therefore, the assessment instrument is considered validated for face validity.

Reliability

The final step before implementing the DRAQ in formal research was assessing its reliability. Reliability refers to the instrument's consistency in measuring the target construct. It ensures stable and repeatable results when applied at different times under the same conditions. An assessment instrument may have reliability without validity, but it cannot be valid without sufficient reliability (Aithal & Aithal, 2020). Schrepp (2020) stated that the reliability coefficient measures an assessment instrument's consistency in meeting its goals.

A pilot study with 30 students was conducted to assess the DRAQ's reliability in practical application. These students had similar characteristics to the formal study participants but weren't included in the main study. The collected data were analyzed using IBM SPSS Statistics software. Reliability coefficients were calculated using Cronbach's Alpha, which usually ranges from 0 to 1. Higher values indicate greater internal consistency between questionnaire questions. Generally, a reliability coefficient of 0.70 or above indicates good

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reliability suitable for formal research (Sürücü & Maslakci, 2020). Table 3 details the reliability coefficients for each questionnaire topic.

Table 3: The Reliability Coefficients of Cronbach's Alpha For The Questionnaire

Dimension	Number of Items	Alpha value (α)	Total Alpha value (α)
Inferential reading skills	10	0.991	
Critical reading skills	10	0.990	0.997
Creative reading skills	10	0.990	

Based on Table 3, the results indicate that the reliability coefficient is at a high level. Therefore, all the items in the questionnaire are excellent to be used in the actual study.

Discussion and Conclusion

This study focused on developing the Deep Reading Ability Questionnaire (DRAQ) for primary level students. The hope is that it inspires scholars and practitioners in English language education and promotes further empirical research. The questionnaire underwent rigorous validation to ensure reliability and validity in measuring deep reading skills. Content and face validity assessments showed the instrument accurately measured its intended constructs. It applied well to the target student population. This foundational work supports future optimization and wider application. The DRAQ serves as an important tool for assessing and improving primary school pupils' deep reading skills.

The results fully support the DRAQ's reliability. It exhibits high internal consistency (α = 0.997) and robust validity. The questionnaire integrates three core dimensions: inferential reading skills, critical reading skills, and creative reading skills. It fills the gap in current reading assessments that generally focus on surface-level comprehension. The high content validity index (I-CVI = 0.94) reflects expert consensus. Experts agree on developing deeper cognitive processes like hypothetical reasoning, analytical thinking, and creative text interaction. These findings confirm the DRAQ's potential as a diagnostic and pedagogical tool. It enables educators to design targeted interventions for developing advanced literacy skills in primary pupils.

A major strength of this study is its comprehensive surface validity assessment. Non-English subject teachers were specifically involved to ensure good clarity and readability. This was important for students with different English proficiency levels. This validation enhances the DRAQ's applicability in various educational settings. These include daily classroom assessments and extracurricular reading programs. The questionnaire aligns with the "English Graded Reading Standards for Primary and Secondary School Students in China" (Wang & Chen, 2016). This further demonstrates its relevance to current curricular reforms. These reforms aim to develop 21st-century core literacies and higher-order thinking skills.

Despite many strengths, this study has certain limitations. First, the pilot study was conducted with only 30 sixth-grade students in one school. This may limit the generalizability of the findings. Second, the assessment relied heavily on students' self-reported data. This may introduce social desirability bias. Students tend to provide answers that meet social expectations rather than fully reflect their reading abilities.

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Future research is recommended to explore correlations between the DRAQ and other deep reading assessment tools. Given the relatively small sample size, subsequent research should validate the DRAQ on a larger scale. This should include students from different cultural and educational backgrounds to increase generalizability. The DRAQ can be applied to other subject areas like Chinese reading comprehension. Researchers can replace English texts with subject-specific materials to extend its application. They could also explore intervention programs for deep reading skills. The DRAQ could track students' reading development over time.

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