Repackaging Character Literacy and Numeracy-Oriented RADEC Learning Model Through Teacher Professional Development Program

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ABSTRACT
A number of literature state that numeracy and literacy skills are the initial capital for every individual to be able to learn. However, it is known that teachers still experience difficulties in teaching character, literacy and numeracy to students in the learning process. This research was conducted to transfer abilities to teachers to design learning with student worksheets which integrate the Read, Answer, Discuss, Explain, and Create (RADEC) learning model. The research model used in this research is Educational Design Research (EDR) since in the research an intervention will be carried out in the form of a workshop on preparing RADEC-based learning designs at Private Elementary Labschool UPI Purwakarta while in several previous studies EDR was also conducted through interventions such as professional development activities in the form of workshop. At the workshop stage itself, numeracy indicators were explained in detail and thoroughly with guidance from the Guide to Strengthening Literacy and Numeracy in Schools. In relation to numeracy, teachers' understanding of numeracy competency is still not comprehensive but on the other hand, surprisingly the teachers were able to integrate numeracy indicators in the lesson plan of non-mathematic subject. Overall, through RADEC learning model, all teachers be able to select appropriate spoken, written, or visual texts or resources based on their individual students' needs and interests. As a result, they can make the necessary changes to the syllabus's contents; choose the best methods, approaches, and techniques to use; plan the most appropriate activities to carry out; and select, design, or adapt the teaching materials.

INTRODUCTION
Good literacy and numeracy skills will help students learn and read more easily and increase the child's level of success at school. A number of literature state that numeracy and literacy skills are the initial capital for every individual to be able to learn. Numeracy can be achieved by building relationships between non-contextual and contextual tasks (Hapsari, 2019; Kolar & Hodnik, 2021). However, the importance of character, literacy and numeracy does not seem to be fully realized. Based on research results, it is known that the literacy skills of Indonesian people are still minimal, this is shown by Indonesia’s still low interest in reading and writing (PISA, 2018) and the adult literacy rate is only 65.5%. In this regard, the Minimum Competency Assessment policy was formed in reaction to low PISA scores among Indonesian students (Machromah et al., 2021). Therefore, numeracy literacy skills are a mandatory ability that every individual must have.
Based on the results of field studies obtained from interview data with the principal of Private Elementary Lab School UPI Purwakarta, it is known that teachers still experience difficulties in teaching character, literacy, and numeracy to students in the learning process. This difficulty is in the form of teacher confusion in implementing the selection of appropriate learning materials that can be integrated for the development of students' character, literacy, and numeracy (CLN). This then has an impact on the lack of optimal development of character, literacy, and numeracy of students at the school. Based on these findings, teachers are considered to need to simulate various strategies in their implementation and this requires serious thought because it is a challenge for researchers in the field of education and teacher competency development (Chudasama, 2021; Guerrero-Hernandez & Fernandez-Ugalde, 2020).

Things that can be improved are learning designs that can use student worksheets (LKPD) as a learning bridge because student worksheet have a positive role in helping students construct concepts and supporting students to achieve the expected competencies (Ranti & Usmeldi, 2019), especially students at the school level. Basics still require pictures or contextual instructions because they are still in the concrete operational stage (Fitria et al., 2021; Saiful et al., 2019). Pictures and instructions that guide students to achieve the desired concept can be included in the student worksheet. This research was conducted in order to transfer abilities to teachers to design learning with student worksheet which integrates the RADEC learning model (Read, Answer, Discuss, Explain, and Create).

**RESEARCH METHODS**

The research model used in this research is Educational Design Research (EDR) because in the research an intervention will be carried out in the form of a workshop on preparing RADEC-based learning designs at Elementary Lab School UPI Purwakarta and in several previous studies EDR was also carried out through interventions such as professional development activities in the form of workshop (Cumbo & Selwyn, 2022). The workshop itself is also part of the research methodology as explained by Ørngreen and Levinson (2017).

Like the almost similar development of professionalism that was carried out by Connolly et al. (2021), in terms of increasing student numeracy, a research team FGD was carried out with teachers at the Elementary Lab School UPI Purwakarta to determine and prepare RADEC-based student worksheet which was able to give rise to CLN students, then after the CLN-oriented RADEC-based student worksheet prototype is formed, expert validation is carried out by education experts, RADEC experts, learning experts, literacy experts, numeracy experts and character experts. This research will be designed into five stages, namely stage (1) Identification and analysis of field needs, (2) preparation/development planning, (3) validation stage.

At the workshop stage itself, numeracy indicators were explained in detail and thoroughly with guidance from the Guide to Strengthening Literacy and Numeracy in Schools published by Directorate General of PAUD, DIKDas and DIKMEN of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia (2021). The components are explained in Figure 1. Numeracy itself basically has a broader scope than mathematics learning. In other words, learning mathematics certainly has implications for numeracy, but numeracy itself is a student's ability to process things related to critical, mathematical and systematic thinking skills which includes many things outside mathematics. Thus, numeracy practices can be seen in other study subjects as exemplified by Figure 2. Many of the pedagogies commonly implemented or recommended in programs designed to support increased numeracy competency potentially reflect one type of cultural and social understanding of numeracy, while ignoring many others, unless teachers are able to design pedagogies that reflect social aspects. and the cultural knowledge that students bring to their classrooms. Developing pedagogy that facilitates shared mathematical meaning is critical to meeting students' diverse mathematics and numeracy needs. Without this, many students will not develop skills strong enough to accommodate further learning and will be disadvantaged in wider social and societal settings.
RESULTS AND DISCUSSION

Results
After obtaining interview data from the principal of Elementary Lab School UPI Purwakarta, it was discovered that teachers still experienced difficulties in teaching character, literacy and numeracy to students in the learning process. Preparations for FGDs and a CLN-oriented RADEC learning model workshop were carried out because from the research findings of Sopandi et al. (2018) the RADEC learning model was proven to develop collaborative character and creative thinking which is the substance of the character as well as critical thinking and problem solving skills which are the focus indicators of Numeracy, in addition to the RADEC learning model, is also very easy to understand, plus findings from other research on the RADEC learning model on elementary school students' mathematical thinking abilities state that RADEC can accommodate all styles learning in achieving increased learning achievement (Nugraha & Prabawanto, 2021).
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FOURTH GRADE LESSON PLAN

Use of Energy in Everyday Life

A. Learning Objectives

1. Cognitive Aspect Objectives (K.3)
   - Through activities/reading, answer, discuss, explain; and/ormeans students can:
     a. Explain phenomena related to the use of energy in everyday life scientifically.
     b. Evaluate scientific investigations related to the use of energy in everyday life.
     c. Interpret data and evidence of scientific investigations related to the use of energy in everyday life.

2. Skill Aspect Objectives (K.4)
   - Through activities/reading, answer, discuss, explain; and/ormeans students can:
     a. Designing scientific investigations related to the use of energy in everyday life.
     b. Find creative ideas for making works related to the use of energy in everyday life.
     c. Making works is related to the use of energy in everyday life.

B. Learning Activities

1. Pre-learning activities
   a. Stage Read
      - Reading class IV thematic books Theme 2 Subtheme 2 pages 50-6 and reading texts from the teacher about the use of energy in everyday life with confidence.
   b. Stage Answer
      - Answer pre-learning questions which have been provided in the link https://bit.ly/2PNCRavp and procedures (Knowing Competency) regarding energy usegoogle form

2. Introduction
   a. Answer greetings; provide news, and answer absences and attendance.
   b. Read together led by student representatives.
   c. Report reading activities and answer pre-learning questions related understanding of facts, processes, concepts, and procedures (Knowing Competency) which has been carried out orally individually.

3. Core
   a. Stage Discuss
      - Divided into groups heterogeneously by respecting differences in number of students
      - Pre-learning questions related understanding of facts, processes, concepts, and procedures (Knowing Competency) and completion of tasks in the LKPD at the link https://bit.ly/3qeZ9FQ
   b. Stage Explain
      - Present the same time, one of the groups was asked to present their work.

   - Another group was asked to realize the information being conveyed and give responses both support and robust.

Figure 3. Example of numeracy profile in a lesson plan

In relation to character and literacy, teachers have been able to create learning designs that bring out indicators of character and literacy. However, in relation to numeracy, teachers’ understanding of numeracy competency is still not comprehensive. This is reflected in the numeracy components in terms of cognitive processes which include understanding, application and reasoning, which can actually be seen appearing in the learning designs designed by teachers at Labschool Purwakarta Elementary School, but from the first two teachers who gave presentations on the learning designs, have made them feel that their learning design has not brought out a numeracy profile. An example of the appearance of a numeracy profile is shown in Figure 3.

Table 1. Post-workshop analysis of teacher lesson plan

<table>
<thead>
<tr>
<th>Grades/Subjects</th>
<th>Subjects</th>
<th>Cognitive Level Profile When It Comes to Numeracy</th>
<th>Specific Indicators</th>
<th>Instructional Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>Indonesian Language</td>
<td>Understanding</td>
<td>Identification</td>
<td>Students have a guided discussion to agree on alternative answers to pre-learning questions about a story they have read.</td>
</tr>
<tr>
<td>Grade 2</td>
<td>Indonesian Language</td>
<td>Understanding</td>
<td>Identification</td>
<td>Reflect and listen to friends' explanations with mutual respect. Discuss collaboratively to agree on ideas and process information on answers to pre-learning questions and completion of tasks in the student worksheet related to</td>
</tr>
</tbody>
</table>

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Grades/Subjects | Subjects | Cognitive Level Profile When It Comes to Numeracy | Specific Indicators | Instructional Process
---|---|---|---|---
Grade 3 | Thematic | Understanding | Identification | Reasoning | Evaluating and Justifying
| | | | Other groups were asked to provide responses, both support and rebuttal, with mutual respect. Students discuss collaboratively to agree and process information on answers to pre-learning questions related to understanding facts and concepts as well as completing assignments that have been provided by the teacher with full responsibility.

Grade 4 | Science and Social | Applying | Doing | Reasoning | Evaluating, Justifying, and Concluding
| | | | Teachers and students discuss the results of information obtained by students through reading activities and answer orally critically.

Grade 5 | Civic Education | Understanding | Identification | Reasoning | Evaluating and Justifying
| | | | Other groups (not presenting) provide responses, either in the form of support or responses with mutual respect.

Grade 6 | Thematic | Understanding | Identification | Reasoning | Evaluating, Justifying, and Concluding
| | | | Students discuss collaboratively to agree and process information on answers to pre-learning questions related to understanding facts and concepts as well as completing assignments that have been provided by the teacher with full responsibility.

All Grades | Arts | Understanding | Identification | Reasoning | Representing
| | | | One group was asked to present the results of a summary of the elements

maintaining personal and environmental cleanliness.

Reasoning, Evaluating, and Justifying

Other groups were asked to provide responses, both support and rebuttal, with mutual respect.

Students discuss collaboratively to agree and process information on answers to pre-learning questions related to understanding facts and concepts as well as completing assignments that have been provided by the teacher with full responsibility.

Reasoning, Evaluating, Justifying, and Concluding

Teachers and students discuss the results of information obtained by students through reading activities and answer orally critically.

Reasoning, Evaluating and Justifying

Other groups (not presenting) provide responses, either in the form of support or responses with mutual respect.

Reasoning, Evaluating, Justifying, and Concluding

Students discuss collaboratively to agree and process information on answers to pre-learning questions related to understanding facts and concepts as well as completing assignments that have been provided by the teacher with full responsibility.

Reasoning, Evaluating, Justifying, and Concluding

Other groups were asked to provide responses, both support and rebuttal, with mutual respect and then draw conclusions.

Reasoning, Representing

After reading, students are asked to group up and write down what is meant by Three-Dimensional Art and Sculpture.

Representing

One group was asked to present the results of a summary of the elements

All Grades | Arts | Understanding | Identification | Reasoning | Representing
<p>| | | | | |
| | | | | |</p>
<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>All Grades</td>
<td>P.E</td>
<td>Understanding</td>
<td>Identification</td>
<td>of fine art, three-dimensional fine art. The teacher explains again about the elements of fine art, three-dimensional fine art, and sculpture. Reflect and listen to the teacher's explanation. Students discuss collaboratively to agree on information about the differences between running and jumping in the student worksheet prepared by the teacher. Another group is tasked with analyzing the information submitted and responding with mutual respect and drawing conclusions together.</td>
</tr>
<tr>
<td>All Grades</td>
<td>Religion</td>
<td>Understanding</td>
<td>Identification</td>
<td>Students discuss collaboratively to agree on ideas or equate ideas and process information on answers to pre-learning questions that have been given previously. One group is asked to present the results of their discussion with full respect, the other group is asked to provide responses both support and rebuttal with mutual respect.</td>
</tr>
<tr>
<td>All Grades</td>
<td>Sundanese</td>
<td>Understanding</td>
<td>Identification</td>
<td>Students discuss collaboratively to agree on ideas or equate ideas and process information on answers to pre-learning questions that have been given previously. One of the groups presented the results of their discussion regarding responses to several terms from the &quot;Healthy Kadamharan&quot; text that had been read. Another group was asked to rewrite the story of &quot;healthy nutrition&quot; using their own language.</td>
</tr>
<tr>
<td>All Grades</td>
<td>ICT</td>
<td>Understanding</td>
<td>Identification</td>
<td>Students discuss collaboratively and operate word processing software (Microsoft Word) to agree and process information on answers to pre-learning questions related to the function of word processing icons (Word Processing). One of the students was asked to present the results of their work on determining hardware and software with full respect. Other students are asked to analyze the information presented, provide responses both supporting and rebutting with mutual respect and making conclusions.</td>
</tr>
</tbody>
</table>
Discussion
Table 1 above illustrates the lesson plan the teachers made after participating in teacher professional development of RADEC Learning Model integration with CLN orientation. Surprisingly, the teachers were able to integrate numeracy indicators in the lesson plan unlike the findings of Getenet (2022) that teachers who focus on non-mathematics curriculum topics, such as art or history, are unlikely to feel prepared to develop mathematical ideas geared toward numeracy. Raising teachers’ awareness and importance of numeracy, as well as encouraging their engagement with numeracy components outside of mathematics curriculum areas, is a difficulty. Integration of habituation of numeracy in all subjects can result in better impact on educational practice (Niklas & Schneider, 2014; Seitz & Weinert, 2021; Sumarno et al., 2022).

Since the initial RADEC strategy is Read and Answer which are pre-learning activities at home (Nurhayati et al., 2022; Sopandi et al., 2022), this requires parental involvement. In line with this, the role of parents is extremely important in their children’s early literacy and numeracy instruction where the child is still in the formative period (Singh et al., 2023). Purnomo et al. (2022) discovered that teachers and students in the new assessment system did not have any experience interacting with questions on numeracy skills. Hence, this has something to do with pre-learning questions that are prerequisite in the RADEC learning model to help accommodate this.

The teachers mostly encourage the students to identify the problem which is supported by Kurniasih et al. (2019) that problem posing is recommended in numeracy ability improvement. Low-performing children also need help to enumerate and thus solve problems requiring counting; this has direct pedagogical implications where RADEC can provide an alternative (Aunio, 2015).

Students must also be creative in order to design a strategy that will allow them to enjoy their trip to the fullest (Machromah et al., 2021). In addition, Merdeka Curriculum also regulates Penguatan Profil Pelajar Pancasila Project that requires creativity among students while RADEC learning model also promotes ideas of creativity among students (Lestari et al., 2022).

An interesting finding was that from several teachers who made presentations, each Class 2 teacher, ICT teacher, and Class 6 teacher said that they each felt that the lesson plans they had made did not show the profile of numeracy emergence. This is an interesting finding from RADEC-based professional development and requires continuity for teachers' understanding because the core purpose of numeracy practice is to provide individuals with the ability to analyze, judge, and make judgments about their alternatives and possibilities in the real world despite when teachers have a strong understanding of the concept of numeracy and are aware of the critical role it plays in allowing an individual to fully interact in society, the inclusion of numeracy within their discipline topic becomes more relevant (Bennison, 2015; Fanshawe et al., 2021; Geiger et al., 2014).

Overall, all teachers are able to select appropriate spoken, written, or visual texts or resources based on their individual students' needs and interests. As a result, they can make the necessary changes to the syllabus's contents; choose the best methods, approaches, and techniques to use; plan the most appropriate activities to carry out; and select, design, or adapt the teaching materials that are best suited for their students in different settings and with varying numeracy or literacy proficiency levels which answers the challenge of previous study of Md-Ali et al. (2016) regarding numeracy learning which is effective even in this study also includes character.

CONCLUSION
This study shows that in relation to character and literacy, teachers have been able to create learning designs that bring out indicators of character and literacy. However, in relation to numeracy, teachers' understanding of numeracy competency is still not comprehensive. The teachers were able to integrate numeracy indicators in the lesson plan. Through the discussion, it is justified that RADEC learning model also promotes ideas of creativity among students in terms of numeracy-oriented learning. All teachers are now able to select appropriate spoken, written, or visual texts or resources based on their individual students' needs and interests. As a result,
they can make the necessary changes to the syllabus's contents; choose the best methods, approaches, and techniques to use; plan the most appropriate activities to carry out; and select, design, or adapt the teaching materials that are best suited for their students in different settings and with varying numeracy or literacy proficiency levels.

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