

## The Effects of Explicit Ruled-Based Approach on Learning Disabled Students' Reading Comprehension Ability

*Grace Annammal Piragasam*

Faculty of Human Development, Sultan Idris Education University, Malaysia

**Abstract:** This study examined the effectiveness of the Explicit Ruled-Based Instruction Approach for teaching reading comprehension to three students with learning disabilities. Students' ability to read narrative texts, to recall narrative texts and to answer comprehension questions were examined after listening to and reading twelve fables. Series of monthly tests were administered to select subjects by assessing students' current weaknesses, strengths and awareness in oral reading as well as in reading comprehension. All narrative texts were textually explicit. Thirty (30) minutes daily instructional series were conducted for twelve weeks. Subjects were evaluated individually on four comprehension measures: a) reading achievement (speed and accuracy); b) comprehension questions concerning character motives and questions concerning important detail cues; c) story recall; d) maintenance tests. A descriptive analysis of each student's overall achievement revealed that students with learning disabilities achieved significant gain in the reading comprehension ability. Positive effects of Explicit Ruled-Based Instruction approach were apparent on the students' achievements during intervention phases in comparison to the baseline phases. Students' achievement however differed in the maintenance test measures irrespective of either four aspects of comprehension measures that have been administered. The discussion is made in explanation of these results within the context of other researches and suggestions for further research.

**Key words:** Special education • Learning disabilities • Instructional approach • Reading

### INTRODUCTION

Reading is an interactive, holistic process involving the reader, the text and instruction. The skillful reader is able to orchestrate a complex system of skills and knowledge. An effective reader has a well-developed system of decoding and comprehension skills [1-2]. An effective reader is an active reader who uses repertoire of comprehension strategies before, during and after interacting with texts. Thus the qualities of an effective reader can be summarized as : the ability to bring back his/her backgrounds to the reading, having plans for comprehending a range of texts, interacting with texts (building interpretation as reading) and shaping responses based on ones' proficiency [3-4]. In short, reading process is a blend of decoding, listening and comprehending reading materials and reading recalling.

Proponents in the field of literacy denoted the importance of identifying main ideas as essential to successful reading comprehension in terms of drawing

inferences from text, studying effectively and reading critically. Previous research concerning how well do the learning disabled (LD) students read, taught to read and to what extent are they able to participate in explicit reading instructions indicate the strategies to improve their ability to comprehend are rather fundamental.

LD students tend to be less aware of text structure and have poorer recall of textual ideas than good readers [5]. In addition they exhibit difficulties to comprehend particularly in identifying main ideas and important details. Student with LD are also known for their failure to readily learn the alphabetic principles and to read fluently [6-7]. Research evidences have related difficulties or reading among middle school students persisted due to their misuse of effective reading strategies, negative attitudes towards and perceptions of reading and limited reading in the classroom.

However a student's success in academic field relies on their knowledge and ability to read and understand what is read. More than 90 percent of students with LD

demonstrate significant difficulties in reading. For this very reason there is a vast range of research emphasizing on reading intervention and its effectiveness in overcoming reading difficulties [8-9]. Students with LD require specific, intensive and explicit reading instruction. Instructions can be either conducted individually or in small groups in order to achieve significant progress.

In addition, specific, intensive and explicit reading instructions enhances experiences of LD student to actively use these strategies. Thus, ensures comprehension and retention of reading material. The National Reading Panel [10] have shed its concern on the fact that systematic and explicit instruction is necessary for young readers acquire of phonological awareness, alphabetic principle, word analysis, fluency and comprehension skills. Nevertheless, teaching LD students to read is an ongoing challenge to the teachers. Efficacy of teacher instruction is extensive to the ability n meeting the needs of the students. Previous studies revealed significant gains from the explicit reading instruction for teaching either one of the five reading skills elements as stated earlier. Other research examined the effectiveness of the explicit reading instruction particularly in text type [11-12]. A further research on the effectiveness of the explicit reading instruction on all five reading skill elements are yet to be investigated. In the Malaysia context of special education, research information on reading effectiveness for LD students are rather unfocal.

The present study investigate the effectiveness of Explicit Ruled Based Instruction Approach on the reading ability and understanding of character motives by LD students. The objective of the study are as follow:

- To determine the differences in the scores of each subject in the baseline, intervention and maintenance phases for the reading fluency-speed reading and reading accuracy.
- To determine the differences in the scores of each subject in the baseline, intervention and maintenance phases for the comprehension on character motive and detail-cue.
- To determine the differences in the scores of each subject in the baseline, intervention and maintenance phases for the story retells on character motive and detail-cue.
- To determine the effectiveness of Explicit Ruled Based instruction approach on the character motive comprehension of LD students.

## Methodology

**Research Subject:** The subjects of the study consist of

three LD student from a secondary school integrated with special education programme located in Bentong, Pahang. Potential students completed series of assessments test to identify their reading ability skills. Selections of students were also based on various categories (ASD, Cerebral Palsy and Slow Learner. The identity of each subject were kept confidential. The average chronological age of all three were seventeen (min=17yrs). Subjects were selected based on their achievements informative and summative language test at the school level. In order to deal with confidentiality concerns, the author have used pseudonyms to replace the names of the subjects. These test were prepared and administered by the language teacher based on the KSSR Bahasa Melayu Year 4 curriculum. The curriculum syllabus for the special education initiated by the Ministry of Education is the only masterpiece that all special teacher have. Products of reference books and workbooks specifically fabricated for special needs students are not available. There isn't a standardized assessments to particularly assess LD students of their academic achievement.

**Settings:** The language teacher piloted three sets of test from the KSSR year four curriculum. The tests fulfilled the criteria of language aspects that needed to be tested on the students. The language aspects are as stated below.

- a) oral reading.
- b) comprehension questions (written and oral).
- c) grammar:
  - Constructing sentences with cue words,
  - Rearrangement of words and sentences to form sequential words of a sentence/sentences of text.
  - Word completion quest.
  - Grammar topics-nouns, verb, prepositions.
  - Language forms and functions.

**Procedures:** The study used a single-subject design with at least three sessions assigned to the baselines, intervention and maintenance phases. The recipients of the intervention were identified students with learning disabilities (LD). The mean score for comprehension skills reported for the LD participant sample derived based on the Curriculum Based Measurements (mid-term and final year assessments). The mean score for comprehension skills was 84% for individual participants. The research is divided into three different phases as mentioned earlier. The baseline intervention is a conditioning phase. Reading test were merely administered to measure students' achievement in all aspects of reading comprehension. Students were required to participate in

the tests without assistance of the experimental teacher. No instructional lessons were conducted. The purpose of establishing this phase is to identify students' strengths and weaknesses apart from their prior knowledge of skills in reading.

The intervention phase is an instructional phase imposed with the Explicit Ruled-Based Approach. Instruction followed a series of multi step procedures for phonological training on selected vocabulary. The second part of the phase is the implementation of the same multi step procedures for determining character motive in the text. Experimental teachers provided explicit model of multi step procedures.

As students mastered the steps (applied for both phonological and reading training), opportunities of independent practice were given. Each level would have to be mastered before moving on to the next step in sequence. Student's responses were monitored and immediate feedback were provided. Specific correction procedure followed when error occurs. Teacher lead the students when needed and tested the students ability to provide the correct response again. Students independently applied the acquired skills after undergoing the guided practice period [13-14]. Like the baseline, the maintenance phase also measures students' ability of all the reading skills after which the intervention is retained.

**Data Collection:** The oral reading test in this study was meant to measure speed reading and reading accuracy. Readings were scored using similar to those used by Christopher et al. [15]. An inter observer agreement was made upon 50% of audio taped session using photocopies of the reading passages. Comprehension tests and story retelling were used to measure students' ability to identify and retell character motive in texts. Additional questions on assisting character motive identification were also posed to the students. Students' prior knowledge about the main character and moral values of the narratives were tested as well. Scoring were scored using similar to those by Shannon et al. [16] and Jitendra et al. [17]. Inter scorer reliability was determined for comprehension and retelling test using Pearson correlation. The mean range was 0.90. Each session was audio taped and transcribed.

## RESULTS

**Reading Test (Speed Reading):** Table 1 provides the means and standard deviations of speed reading per minute for students in each phase of daily retells.

Table 1: Speed Reading Tests

Phases	Ali		Siti		Chan	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Baseline 1	44.8	9.5	27.5	8.8	27.2	7.6
Intervention 1	47.3	10.5	40.2	4.2	63.3	16.3
Baseline 2	48.4	3.6	26.1	1.8	38.8	8.6
Intervention 2	67.6	6.5	40.4	2.8	63.4	14.0
Maintenance	62.6	15.7	50.6	21.2	78.4	6.7

Table 2: Reading Tests

Phases	Ali		Siti		Chan	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Baseline 1	89.9	09	63.0	21.9	75.2	1.4
Intervention 1	90.9	4.2	92.5	1.6	95.1	1.2
Baseline 2	90.5	4.8	80.9	1.8	88.1	2.6
Intervention 2	94.9	0.8	94.0	2.3	96.8	1.6
Maintenance	95.8	1.1	94.9	1.8	77.6	7.3

As Table 1 shows, the performance of the students who were taught explicit comprehension strategies averaged  $M=47.3$ ,  $S.D.=$  and  $M=67.6$ ,  $S.D.=6.5$  correct words per minute for Ali,  $M=40.2$ ,  $S.D.=4.2$  and  $M=40.4$ ,  $S.D.=2.8$  correct words for Siti while  $M=63.3$ ,  $S.D.=16.3$  and  $M=63.4$ ,  $S.D.=14.0$  correct words per minutes for Chan. In contrast, the students performed relatively poor during the baselines measure measure, scoring  $M=44.8$ ,  $S.D.=9.5$  and  $M=48.4$ ,  $S.D.=3.6$  correct words per minute on the textually explicit retell measure for Ali,  $M=27.5$ ,  $S.D.=8.8$  and  $M=26.1$ ,  $S.D.=1.8$  correct words per minute for Siti. Meanwhile Chan's accuracy was recorded at  $M=27.2$ ,  $S.D.=7.6$  and  $M=38.8$ ,  $S.D.=8.6$  correct words per minute during the baseline measures as well. All students performed a higher mean of speed reading during the maintenance phase.

**Reading Test (Accuracy):** Table 2 provides the means, standard deviations of correct answers for students in each phase on the quantitative analysis of daily retells. The explicit rule-based interventions cores were higher than the baseline phases for all students. The mean scores taught with explicit strategies ranged from  $M=75.2$ ,  $S.D.=1.4$  to  $M=96.8$ ,  $S.D.=1.6$ . The students performed with higher mean scores on reading accuracy during the maintenance phase except for Chan.

**Retell Test on Character Motivation:** Comparisons of the mean scores in Table 3, showed that there were gradual increase in the students achievement after each intervention phase. Students tended to perform almost the same pace during the maintenance phase. Retells of

Table 3: Retell Test

Phases	Ali		Siti		Chan	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Baseline 1	30.6	12.7	66.7	22.1	47.2	4.9
Intervention 1	63.9	12.7	77.8	6.7	83.3	0.0
Baseline 2	47.2	12.7	50.0	25.0	61.1	4.4
Intervention 2	88.9	8.3	83.3	16.7	88.9	4.7
Maintenance	83.3	4.8	89.6	21.3	93.8	3.5

Table 4: Character Motive Comprehension

Phases	Ali		Siti		Chan	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Baseline 1	52.7	12.1	82.2	20.7	64.4	4.8
Intervention 1	71.3	6.8	92.7	5.5	87.3	3.5
Baseline 2	59.3	3.1	68.5	14.0	71.8	1.1
Intervention 2	87.3	15.0	96.2	6.7	89.2	3.3
Maintenance	93.5	3.8	89.6	15.0	95.3	3.7

stories have been used as a measure of comprehension in several studies [18-19]. They provide "straightforward" assessment of reading comprehension [16].

**Character Motive Comprehension:** The identification of character motive is a discrete, critical comprehension skill that was difficult for both groups of students with LD prior to the intervention. The participants in this study were required to provide daily retells to measure their ability to determine character motive. The mean scores for comprehension test (Table 4) instate that the students with learning disabilities did not show having difficulty maintaining comprehension skills over time. It is also shown that the students achievement for reading comprehension test recorded the highest mean in comparison with the other tests.

## DISCUSSION

The present study addressed three questions concerning effectiveness of the Explicit Ruled-Based Approach in improving reading comprehension of LD students. Findings of this study that all students performed better during the intervention phases with explicit and systematic instruction. This finding was similar to the previous research [20-21]. However students' achievement were distinctive for each test. Students showed a significant progress in one test and performed less better in another. There were instances where students' achievement were more significant during the baseline phases. Student did show a substantial improvement during the maintenance phase meaning to

manifest the effects of the approach was apparent. However students' achievement were contradicting to this fact on other tests.

Students' achievements were comparable for each phase and each test. Nevertheless there was no particular trend of achievement to prove which student's overall achievement is most proficient. Effects of the Explicit Ruled-Based approach may be significant in improving the mean scores of the students. However, it is a fact that the approach's effect in maintaining and improving the consistency of scores was not significant. There are certain factors that contribute to the effects of the findings.

Generally, the researcher was unable to control behavioural changes of the students throughout the research. Negative and positive behaviors influenced students' engagement to be on-task and in-seat. Students may take much or less time to read according to their pace and mood. Therefore, scoring of correct words per minute escalated at the certain phase. The mean number of words in the text was notified. However the actual number of words in each text was notified. Students may commit less or more error while reading. Likewise certain text may be short or long. The percentage of accuracy relies on the ration of the correct words to read to the overall number of words in the text. Therefore it is another factor that could not be controlled, by which has influenced the students' achievement.

Students showed an erratic achievement in their comprehension and retelling test scores. Observational report showed that regardless of the phases, interest in fables stimulated students ability to identify character motives efficiently. Students' ability to recall and apply the strategies of skills taught was inconsistent. Students seemed to apply the skills while learning during the baseline phases and not during the intervention. Therefore, students' achievement were more significant and homogenous without an explicit instruction.

Students were also receiving individual instruction. The response increased while students involvement were observed and frequent attention of the teacher were given [22-23]. With the presence of the teaching approach, students' achievements accelerated due to a new way of learning (no worksheets, ongoing assessment and ongoing teacher feedback [24-25]. Students improvement resulted in the mean score significantly. However inferences cannot be made on the influence of Explicit Ruled-Based approach on the consistency of scores. Factors leading to such differences were discussed above and identified as extraneous.

**Limitations of the Study:** Findings of the study were beneficial to discover whether the instructional approach is effective to be applied to serve the purpose of increasing reading comprehension skills for LD students. However, findings of the study cannot be generalized to be made inference upon the LD students in the nation. Students of this research are of multi racial background. For one of them, the Malay language is not of her mother tongue. Another two students are Malays yet both have abnormal articulation structure from the mouth to their neck downwards. Thus, language fluency and physical speech deficiency are factors that the research is aware of. It is also the researcher's opinion that these factors must be taken into consideration during instruction [26].

### CONCLUSION

Impressive gains in reading can be achieved by students who face reading difficulties.. Consistent use of explicit reading instruction combined with reading strategy is essential. Teachers need to be given understanding in applying effective teaching models to support their students' achievements. However it is important to recognize students' weakness and readability level before and instruction is planned and conducted. It is also time to move to a new way of promoting "Education For All" beginning from overcoming education barriers due to reading. Appropriate books fitting into the criteria of reading skills of LD students may be materialized in form of publication. The ultimate goal is to reduce the reading failure of the students and to evolve an environment of exciting and successful reading among the LD students in the schools.

### REFERENCES

1. Lipka, O. and LS. Siegel, 2012. The development of reading comprehension skills in children learning English as a second language. *Reading and Writing*, 25(8): 1873-1898.
2. Plourde, L.A., 2011. Increasing reading comprehension through the explicit teaching of reading strategies: is there a difference among the genders?. *Reading Improvement*, 48(1): 32.
3. Almasi, J.F. and S.K. Fullerton, 2012. *Teaching strategic processes in reading*. Guilford Press.
4. Stronge, J.H., T.J. Ward and L.W. Grant, 2011. What makes good teachers good? A cross-case analysis of the connection between teacher effectiveness and student achievement. *Journal of Teacher Education*, 62(4): 339-355.
5. Khoshnevis, I. and S. Parvinnejad, 2015. The Effect of Text Summarization as a Cognitive Strategy on the Achievement of Male and Female Language Learners' Reading Comprehension. *International Journal of Learning and Development*, 5(3): 57-75.
6. Arciuli, J., & Simpson, I. C. (2012). Statistical learning is related to reading ability in children and adults. *Cognitive science*, 36(2), 286-304.
7. Blum, A. and E.J. Johnson, 2012. Reading repression: Textualizing the linguistic marginalization of nonnative English-speaking teachers in Arizona. *Journal of Language, Identity & Education*, 11(3): 167-184.
8. Berkeley, S., M.A. Mastropieri and T.E. Scruggs, 2011. Reading comprehension strategy instruction and attribution retraining for secondary students with learning and other mild disabilities. *Journal of Learning Disabilities*, 44(1): 18-32.
9. Cortiella, C. and S.H. Horowitz, 2014. *The state of learning disabilities: Facts, trends and emerging issues*. New York: National Center for Learning Disabilities.
10. Report of the National Reading Panel. 2000. *Teaching children to read : an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. [Bethesda, Md.?]: U.S. Dept. of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Child Health and Human Development.
11. Haager, D. and S. Vaughn, 2013. The common core state standards and reading: Interpretations and implications for elementary students with learning disabilities. *Learning Disabilities Research & Practice*, 28(1): 5-16.
12. Zadet, Z.Y., F. Farnia and E. Geva, 2012. Toward modeling reading comprehension and reading fluency in English language learners. *Reading and Writing*, 25(1): 163-187.
13. Capellini, S.A., C.D.A.R. Pinto and V.L.O. Cunha, 2015. Reading comprehension intervention program for teachers from 3rd grade's students. *Procedia-Social and Behavioral Sciences*, 174: 1339-1345.
14. Dieker, L.A., J.A. Rodriguez, B. Lignugaris, M.C. Hynes and C.E. Hughes, 2013. The potential of simulated environments in teacher education: Current and future possibilities. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 0888406413512683.

15. Christopher, M.E., A. Miyake, J.M. Keenan, B. Pennington, J.C. DeFries, S.J. Wadsworth and R.K. Olson, 2012. Predicting word reading and comprehension with executive function and speed measures across development: a latent variable analysis. *Journal of Experimental Psychology: General*, 141(3): 470.
16. Shannon, P., E.J. Kameenui and J.F. Baumann, 1988. An investigation of children's ability to comprehend character motives. *American Educational Research Journal*, 25(3): 441-462.
17. Jitendra, A.K., C. Burgess and M. Gajria, 2011. Cognitive strategy instruction for improving expository text comprehension of students with learning disabilities: The quality of evidence. *Exceptional Children*, 77(2): 135-159.
18. Hayward, D.V., R.B. Gillam and P. Lien, 2007. Retelling a Script-Based Story: Do Children with and without Language Impairments Focus on Script and Story Elements?. *American Journal Of Speech-Language Pathology*, 16(3): 235-245.
19. Spencer, T.D., M. Kajian, D.B. Petersen and N. Bilyk, 2013. Effects of an Individualized Narrative Intervention on Children's Storytelling and Comprehension Skills. *Journal of Early Intervention*, 35(3): 243-269.
20. Ehri, L.C., L.G. Dreyer, B. Flugman and A. Gross, 2007. Reading Rescue: An effective tutoring intervention model for language-minority students who are struggling readers in first grade. *American Educational Research Journal*, 44(2): 414-448.
21. Vaughn, Sharon, Jade Wexler, Greg Roberts, Amy A. Barth, Paul T. Cirino, Melissa A. Romain, David Francis, Jack Fletcher and Carolyn A. Denton, 2011. Effects of individualized and standardized interventions on middle school students with reading disabilities. *Exceptional Children* 77(4): 391-407.
22. Lara-Alecio, R., F. Tong, B.J. Irby, C. Guerrero, M. Huerta and Y. Fan, 2012. The effect of an instructional intervention on middle school english learners' science and english reading achievement. *Journal of Research in Science Teaching*, 49(8): 987-1011.
23. Taylor, B.M., P.D. Pearson, D.S. Peterson and M.C. Rodriguez, 2003. Reading growth in high-poverty classrooms: The influence of teacher practices that encourage cognitive engagement in literacy learning. *The Elementary School Journal*, pp: 3-28.
24. Coggshall, J.G., 2012. Toward the Effective Teaching of New College-and Career-Ready Standards: Making Professional Learning Systemic. *Research-to-Practice Brief*. National Comprehensive Center for Teacher Quality.
25. Graham-Day, K.J., K.M. Fishley, M. Konrad, M.T. Peters and V.A. Ressa, 2014. Formative Instructional Practices How Core Content Teachers Can Borrow Ideas From IDEA. *Intervention in School and Clinic*, 50(2): 69-75.
26. Snowling, M.J. and J. Stackhouse, (Eds.). 2013. *Dyslexia, speech and language: a practitioner's handbook*. John Wiley & Sons.