Response to Intervention (RtI) Model: An Alternative to Identify Students with Specific Learning Disability (SLD) in Sub-type of Reading Skill on Elementary Level Grade 1-3

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Abstract—Many students were classified having with SLD on elementary grade level provide poor learning performance especially in sub-type of reading. At this point, researcher tried to investigate RtI model as an alternatively to identify students with SLD using national curriculum standard. The research was conducted at one of elementary school grade 1 - 3 in West Bandung, Java Province. The identification of SLD focus on sub-type of reading such as basic reading skill, reading fluency, and reading comprehension. The method of research using quasi-experimental design with non-equivalent control group. After providing primary intervention strategies were found at-risk students to follow secondary intervention. In secondary intervention the students were progress during nine weeks and they had been identified as students with SLD on sub-type of reading disabilities. Those students were recommended to get a special education services with Individualized Intensive Program.

Keywords—Specific Learning Disability; RtI; Reading Disabilities; Primary Intervention; Secondary Intervention

I. INTRODUCTION

As we have seen in the issue about inability of students with Specific Learning Disability (SLD) is a long-standing issue until this day; so based on that the researcher tried to investigate RtI model as alternatively to identify students with SLD. The students were detected or suspected having with Specific Learning Disability (SLD) basically were having problem to completing his/her learning tasks even they provide poor performance at school [1];[2]. The students with SLD may having difficulty in reading; writing; spelling or do math calculation. There are specific areas of learning disabilities such as oral expression; listening comprehension; written expression; basic reading skill; reading fluency skill; reading comprehension; mathematical calculation and mathematical problem solving[3]. Research were conducted on 1994 by Mulyono and Nafsiyah against 3.215 of students on elementary grade level 1 - 6 in Jakarta Province; Indonesia had shown that there are 16.52% stated that students having with learning disabilities[4].

The problem of identifying students with SLD has been a controversial and much disputed subject within the field of special education. The process to identify of student with SLD is most difficult task[5]. Previous method which known as traditional method to identify students with SLD is IQ-achievement discrepancy model. In the IQ-discrepancy model stated that a student can be diagnosed with LD by a discrepancy between an achievement score and intelligence score. Many researchers argue that IQ-discrepancy model has not been successful in correctly to identify student with LD[6]. Fuchs and colleague argued that students who were identified by IQ-achievement discrepancy and the students who do not classify as having LD are perform similarly on formal test (e.g. reading test). Research had shown that both students with and without LD improve their reading skills when reading problem is clearly identified and explicit instruction was provided[7];[5];[6]. In the IQ-discrepancy model; the students did not received supplemental services until they are identified as LD; consequently they will continue with learning problem (e.g.; reading problem) and it will made from wait-to-fail until the end of beginning into the next grade[5];[8]. Based on American Academy of School of Psychology (2004) and IDEA reauthorization(2004) has provided of statement that a comprehensive evaluation and assessment in all areas of suspected of student with SLD should be done with student response to scientific research based intervention [9].

Response to Intervention (RtI) model is an emerging approach for school; especially the teachers not only to identify students with SLD but to prevent academic failure to all students by providing high quality instruction and intervention so some students that still not progress in their learning outcome were moved through multi-level intervention and get more intensive educational services[10]. Using RtI Model of SLD identification can increase performance of academic failure previously of students. It also can reduce the bias in referral and identification process for students with SLD by utilizing systematic; school-level screening [11];[12].
II. LITERATURE REVIEW

A. Multi-level intervention in RtI model

As defined with systematic approach; basically RtI model; has essential components such as screening; progress monitoring; multi-level intervention system and database decision making [2];[13]. In the RtI model; multi-level intervention system were used as a process in identifying of suspected student at-risk in universal screening and then all the student will receiving in the same instruction in Tier-1. In the Tier-1; called as Primary intervention which using core curriculum that all student received high-quality instruction by effective well-designed teaching practices[14]. High quality instruction refers to instruction and intervention that is designed based on the result of universal screening means based on to students’ needs; and demonstrated by scientific research as an efficient instructional method to help students to increase and filtering them who is still did not provide with a good progress in their learning[15]. The focus on primary intervention is used to identify student who still did not respond instruction and intervention in general education classroom. The duration on primary intervention must be placed for approximately 6-8 weeks in order to validity of measurements[10];[13]. After 6 - 8 weeks; the students were given a brief standardized achievement test in the area of risk[2];[13].

The student that still having a poor performance in Tier-1 were moved onto Tier-2 to received specific instruction with targeted intervention. This tier were designed to the students who are classified as at-risk students resulted from Tier-1 intervention. The students who displays insufficient will received additional instruction and intervention more frequently with curriculum-based measures in duration 9 - 12 weeks [6];[16] and most RtI model were recommend that Tier-2 intervention with an additional time in 20 - 40 minutes along four to five times each week in direct small-group to support targeted in academic or behavior problem with specific skills areas display by the student [13]. Intervention should provide with growth result for the students that still having in academic difficulties and it may include instruction which targets in one particular by focusing with specific areas (e.g.; phonics skill; spelling; math calculation; math words problem) depend on student’s needs. In secondary or Tier-2 intervention; assessment to the students were defined with pinpointing with area of need require additional diagnostic assessments beyond the universal common assessment used as benchmark and/or formative assessment in primary intervention. Assessment in Tier-2 intervention; provide will more frequently (e.g.; weekly or biweekly) than primary intervention and also must be technically adequate such as reliable and valid [14].

The result of secondary intervention should provide the students that showing a good performance and the student that will has a poor performance in their learning. The students that showing with good performance will moved back into regular classroom while students with poor performance were identified with SLD and they need additional educational with supplemental services with individualized educational program (IEP) with more and specific instruction and intervention. The additional or supplemental intervention call with Tertiary intervention and require more intensive assistance for student with insufficient deficit in specific areas of learning [13];[17]. In the tertiary intervention the student having with SLD will received not only more explicit but should be provided with direct instruction that Tier-1 and Tier-2. The students who follow tertiary intervention ideally involved at least one-half hour more and also same with Tier-2 by using evidence-based intervention program[16]. Progress monitoring even more intensive at Tier-3 intervention by recommended measurement with minimum of one to two times per weeks. Intervention were usually entails one-on-one tutoring along with an appropriate mix of instructional and intervention. In Tier-3 intervention; ongoing analysis student performance data is critical and specialized personnel such as special education teachers and school psychologist were involved in this tier [18].

B. Protocols in RtI model

There are three of RtI model approaches when implemented at school and it was depend in determining what level of intervention and resources of students required such as (a) standard treatment protocol; (b) problem solving protocol; or (c) mixed model of both protocol [19];[20]. Three of protocol model are applied similarly although there were considerable research on both protocol models [21]. A standard treatment protocol (STP) provided or deliver a selected instruction and intervention to all students with similar learning and/or behavioral difficulties. STP follows a series of four iterative steps such as (a) assess; (b) identify problem; (c) intervene and (d) assess. The series step in STP were used to ensure fidelity of intervention empirically with supported specific instructional approaches [22].

Use of problem solving protocol (PSP); seeks to address environmental factors related to the instruction and intervention by controlling input such as curriculum and intervention strategies[17]. Like Standard Treatment Protocol (STP); Problem Solving Protocol (PSP) are also follows series same that STP did; however it differs from STP in its level of individualized and depth of analysis conducted prior to selection of an intervention. Problem solving protocol (PSP) is more flexible process with an emphasis on individualized intervention that derive from analysis of environmental and skill deficits[23]; (2) providing quality instruction using a multi-tier approach not only to provide timely intervention and also to increase the amount and intensity of educational resources [6]; (3) A guided by systematic analysis of instructional variables that were designed to isolate the target skill/sub-type skill deficits [24].

The mixed model utilized both the problem-solving and standard treatment protocol has advantages and limitations. The research shows that standard treatment protocol (STP) provides greater control; while problem solving protocol (PSP) is more sensitive to individual differences [6].
C. Reading Disabilities and its intervention

As we know that reading is an essential skill for academic success [25] and it was the area the most students with LD are struggling. Research has shown that more 80% of students were identified having with LD in primary deficit in sub-type of reading skill[26]. Based on What works Clearinghouse; 2012 was provided that some of the sub area of reading skill to be developed and identified from grade Kindergarten School up to Elementary School Grade 1 - 3 focus on (a) basic reading skill such as phonemic awareness; phonological awareness; letter identification; print awareness and phonics; (b) reading fluency such as read text accurately; expression; response to punctuation; and vocabulary development; (c) reading comprehension such as decoding; knowledge of words meaning; and fluency reading; (d) general reading achievement that consist of two combine of basic reading; reading fluency; and reading comprehension.

In the implementation or examining RtI model; instruction will be given to the students and plays with role important that response to instruction and intervention given advances with impact in reading ability of students. In the primary intervention the teacher should provide high-quality instruction in core reading curriculum of elementary grade 1 - 3. The instruction and intervention were delivered with systematic; explicit or direct instruction and provide feedback to the students. A direct instruction and intervention strategies were included in four major stages such (a) a direct instruction should explicit and show the students how to use the skill; (b) Practical skill of students under the supervision from the teachers by providing corrective feedback and praise; (c) student use the skill independently in real academic situations; and (d) students use the skill in variety of other setting or situations [27].

The students that still provide with poor performance after reading intervention on Tier-1 were moved to Tier-2 and they will classified at student at-risk in reading skill and needs additional intervention on Tier-2. In the secondary or Tier-2 for reading intervention will be provided same element on Tier-1 intervention but the intervention should provided differentiated instruction and highly interactive. The focus of secondary intervention for students grade 1 - 3 in reading skill are phonemic awareness; decoding; reading comprehension and fluency skills[28] while additional intervention on Tier-2 focus on vocabulary and encoding specially on grade 1[11];[29];[12]. The students that showed positive response were move back into regular classroom and conversely students who did not show performance increase would receive intensive intervention on Tier-3 intervention.

The student that received supplemental instruction and intervention with individualized intensive program (IEP) will take place in one-on-one instruction and get delivering of special education services in sub-type of reading. The additional of instructional and intervention of times will took place 120 minutes of instruction per-weeks [30]. A key future of instructional feedback in IEP is error correction. For example; if a student incorrectly segmented a word; the teacher should provide accurate opportunity to segment the word; and return to the missed word later in the lesson to reinforce the correct application of the reading skill. The student that sill did not respond instruction and intervention on Tier-3 in reading intervention with individualized intensive program were classified having with SLD and they need should be provided again with IEP until they provided an increasing of performance on reading skill.

III. Method

The method of this research using quasi experimental design with non-equivalent control group. Cohen D effect size (ES) formula is used to calculate the standardized mean difference between two groups with pretest and posttest on primary intervention. The formula is used to see positive effect of intervention below

\[ \text{Cohen's } d (ES) = \frac{M_1 - M_2}{SD_{\text{pooled}}} \]

which \( M_1 \) is Mean of experimental group and \( M_2 \) is Mean of control group

\[ SD_{\text{pooled}} = \sqrt{\frac{SD_1^2 + SD_2^2}{2}} \]

\( SD_1 \) is Standard Deviation of experimental group and \( SD_2 \) is Standard Deviation of control group

Analysis factor (ANOVA) are also used to see significant effect of intervention group during 8 weeks with \( P \) value < .05 compare to control group on primary intervention. Minimum cut-off score to all areas of sub-type of reading skill is 60 (scale 100). The students with below on the cut-off score were suspected as student at-risk.

In secondary intervention; rate of improvement (ROI) or growth measure (slope) also is used with minimum growth measure1 during 9 weeks of progress monitoring. The students with slope or growth measure under 1 were identified having with SLD.

A. Participants

The participants of students consist of below on the table.

<table>
<thead>
<tr>
<th>TABLE-1. PARTICIPANTS ON ELEMENTARY LEVEL GRADE 1-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1 - 3</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>1A (n=23)</td>
</tr>
<tr>
<td>2A (n=26)</td>
</tr>
<tr>
<td>3A (n=25)</td>
</tr>
<tr>
<td>1B (n=25)</td>
</tr>
<tr>
<td>2B (n=25)</td>
</tr>
<tr>
<td>3B (n=25)</td>
</tr>
</tbody>
</table>
IV. RESULT AND FINDINGS

Based on result of primary intervention of reading skill during 8 weeks intervention were provided all students as responder and non-responder students. The non-responder students from Tier-1 intervention that they still got average score below on cut-score were mentioned as suspected students with at-risk students and they were moved into Tier-2 intervention to get additional intervention. In the secondary intervention those students that still not provided with a good performance with slope (rate of improvement) still under 1 were moved to Tier-3 to follow individualized intensive program (IEP) and categorized and identified as students having with SLD in the sub-type of reading skill.

A.1. Responder and non-responder students on primary and secondary intervention grade 1

After providing primary intervention during 8 weeks; positive effect with p <.05 were shown on the student grade 1 at basic reading skill with (ES=.74); reading fluency skill (ES=.99); and reading comprehension (ES=1.32). Below is the table of responder and non-responder students with sub-type of reading skill as result on primary intervention.

TABLE II. PERCENTAGE OF RESPONDER AND NON-RESPONDER STUDENTS WITH N=23 GRADE 1

<table>
<thead>
<tr>
<th>Sub-type of reading skill</th>
<th>% Non-responder students</th>
<th>% Responder students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic reading</td>
<td>13.04</td>
<td>86.96</td>
</tr>
<tr>
<td>Reading fluency</td>
<td>34.78</td>
<td>65.22</td>
</tr>
<tr>
<td>Reading comprehension</td>
<td>26.09</td>
<td>73.91</td>
</tr>
</tbody>
</table>

Based on the result on the table above; the number of students who suspected as at-risk in sub-type of basic reading after primary intervention are 3 students (34.78%) in the area of vocabulary; phonemic awareness; decoding and phonics. Those student are still getting post-test result below in the cut-score of 60 (scale 100). Another area of reading skill were found 8 students (34.78%) still having problem with reading fluency skill that consist of word identification and oral reading (passage reading). And for sub-type of reading comprehension were found 6 students (26.09%) in listening and reading accuracy.

On the secondary intervention the number of students mentioned above were provided with a suitable instruction and intervention depends on the students need with sub-type of deficit skill based on reading difficulties. After providing secondary intervention in the area on sub-type of reading skill for suspected as at-risk student grade 1 (n=3) were found that 1 students shown with slope/growth measure 0.6; in the area of vocabulary; 1 in the area of phonemic awareness; .3 in the area of decoding; and .3 and also .9 in the area of phonics. These student were identified having with SLD in the sub-type of reading skill.

In the area of reading fluency skill grade 1 (n=8) were found that 2 students has slope .2 and .8 for sub-type word identification and 1 student with slope .3 for oral reading fluency skill. In the area of sub-type of reading comprehension were found 1 student has slope .3 and .5 for reading accuracy. Those student were identified has SLD in the sub-type of reading comprehension and reading fluency skill.

A.2. Responder and non-responder students on primary and secondary intervention grade 2

The result after primary intervention on reading skill on grade 2 were also provided with significant effect with p<.05 for basic reading skill (ES=.92); reading fluency skill (ES=0.77). On the area of reading comprehension did not found significant effect p >.05 on reading comprehension (ES=.68). The percentage of responder and non-responder students was shown below on the table 3 below.

TABLE III. PERCENTAGE OF RESPONDER AND NON-RESPONDER STUDENTS WITH N=26 GRADE 2

<table>
<thead>
<tr>
<th>Sub-type of reading skill</th>
<th>% Non-responder students</th>
<th>% Responder students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic reading</td>
<td>7.69</td>
<td>92.31</td>
</tr>
<tr>
<td>Reading fluency</td>
<td>7.69</td>
<td>92.31</td>
</tr>
<tr>
<td>Reading comprehension</td>
<td>11.54</td>
<td>88.46</td>
</tr>
</tbody>
</table>

Refers on the table above; the number of students who suspected as at-risk in sub-type of basic reading after primary intervention are 2 students (7.69%) in the specific basic reading skill area such as vocabulary; phonemic awareness; decoding and phonics. For sub-type of reading fluency skill were found also 2 students (7.69%) still having problem with reading fluency skill that consist of word identification and oral reading (passage reading). And for the sub-type of reading comprehension were found 3 students (26.09%) in listening and reading accuracy.

After following secondary intervention during 9 weeks were found that 1 students still having with deficit skill in sub-type of basic reading in specific areas on vocabulary (slope=.8); phonemic awareness (slope=.2). Two students still shown with slope behind 1 on decoding with slope=0.4 and 0.9 then 0.8 and 0.9 on phonics. Those student mentioned were identified with SLD in basic reading skill.

In the area of reading fluency skill; the students who following secondary intervention were found that 2 students still has deficit skill with slope .3 and .5 on word identification and oral reading. Those student were identified as student with SLD in the sub-type of reading fluency skill. On the area of reading comprehension from 3 students who following secondary intervention were found also that 2 students still has deficit skill on listening with slope .3 and 0.5 on reading accuracy. Those student are also identified with SLD on the sub-type of reading comprehension.

A.3. Responder and non-responder students on primary and secondary intervention grade 3

Significant effect were provided for students grade 3 in primary intervention with p<.05 on basic reading skill...
(ES=.82); reading fluency skill (ES=1.00); and (ES=1.09) for reading comprehension. The percentage of responder and non-responder students was shown below on the table 4:

<table>
<thead>
<tr>
<th>Sub-type of reading skill</th>
<th>% Non-responder students</th>
<th>% Responder students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic reading</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Reading fluency</td>
<td>4.00</td>
<td>86.00</td>
</tr>
<tr>
<td>Reading comprehension</td>
<td>8.00</td>
<td>82.00</td>
</tr>
</tbody>
</table>

Students grade 3 were moved to following secondary intervention during 9 weeks provided with result that still 1 students having with deficit skill in sub-type of reading fluency with slope 0.6 on word identification and oral reading fluency. Same student also still having deficit skill on sub-type of reading comprehension on listening with slope=.5 and two student having deficit skill on reading accuracy with slope=.5 and .3. These student are categorized as students having with SLD on both sub-type of reading fluency and reading comprehension. No students grade 3 were found with SLD on basic reading skill.

V. CONCLUSION

Since the purpose of this research were examined RtI model as alternatively to identify student with Specific Learning Disability (SLD) in the sub-type of reading abilities for students grade 1 - 3; and found some students were identified having with SLD in the sub-type of reading skill after following secondary intervention. Because RtI was integrated with multi-level intervention; screening and progress monitoring and database decision making so the effect of RtI it's not just only for identifying of student with SLD but it could provide to maximize student achievement in their academic learning. All students first should following initial screening (pre-test) by school in order to determine which students had achievement score below on the cut-off score stated by the school. The use of initial screening was needed to closer monitoring of students in primary intervention. Screening is the best opportunity to assist student as the first gate into subsequent tier on RtI.

One of components during RtI implementation is progress monitoring assessment that used to determine academic growth [10];[2]. As part of RtI system progress monitoring assessment used to provide reliable data and how students are progressing related to improve academic performance of reading skill. Progress monitoring is also provided information of the effectiveness of instruction and modification if necessary. In the secondary intervention of reading intervention progress monitoring used to monitor academic growth with targeted instruction in foundation skill in the sub-type area or specific areas of reading disabilities for students grade 1 - 3.

The foundation skill that has to be owned for students grade 1 -3 on elementary level is not only basic reading skill but also skill in reading fluency and reading comprehension; and it must be developed by the teachers to support various subject in the school. If the student having SLD on reading skill so they should be overcome as soon as possible. Therefore the teachers must be able to identify student with learning disabilities through multi-level intervention to avoid more failure in their academic achieving at school. For example if the student grade 1 - 3 having with skill of reading very well; they will able to see letter clearly; given the symbols with appropriate language; and will have sufficient reasoning to understand the reading on the text book. Basically the basic of reading foundation skill of students grade 1 -2 covers and must included letter naming fluency; nonsense word fluency; phonemic awareness; vocabulary and decoding; and word identification; oral reading; listening and reading accuracy for students grade 3.

During intervention on secondary intervention; diagnostic assessment are also be used when it has opportunity to be re-assess for students with specific area of reading disabilities so the sensitivity of assessment result would be valid to identify student with SLD in reading abilities.

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