

Effective Accommodations for Thai Students with Learning Disabilities in Elementary Inclusive Classrooms

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Abstract— Students with learning disabilities, in most countries, encounter a variety of academic difficulties and to help overcome them, teachers must provide special educational services with careful consideration to the students' limitations and needs. The academic success of these students requires that each of them be helped to attain individual's achievement through specific, directed, individualized, and intensive remedial instruction using various accommodations and modifications strategies by experienced teachers. Unfortunately, regular teachers are often not trained or supported to teach students with learning disabilities, and as a result, these students remain among the most marginalized group within the student population in terms of educational opportunity and attainment. This research examined factors which affect teaching accommodations and modifications for students with learning disabilities in Thai elementary inclusive classrooms. The participants were 70 Thai language and Mathematics teachers who taught a total of 70 students in 18 leading inclusive schools in Chiang Mai province. The research instruments included (1) a questionnaire on teachers' knowledge and skills of teaching the Thai language and mathematics subject areas, (2) a student's classroom learning observation form, and (3) a teacher's classroom teaching behavior observation form. The data were analyzed using frequency, percentage, mean, and the interpretative analysis. The results and recommendations will be discussed.

Keywords— learning disabilities; accommodations; inclusion ; special education .

I. INTRODUCTION

The current trend in education is toward inclusive education for all students in regular classroom environment. This calls for a variety of changes in classroom teaching and learning to meet the needs of students with different abilities, especially students with learning disabilities who encounter a variety of academic difficulties including basic reading, writing, and language skills. The National Center for Learning Disabilities describes the most common types of specific learning disabilities as those that impact the areas of reading, mathematics, and written expression. Students with these learning disabilities may also exhibit some other difficulties like attention, language, and behavioral disorders which may also co-exist with even more other associated deficit disorders including auditory processing deficit, visual processing deficit, non-verbal learning disability deficit, and executive functioning deficit (the ability to plan, organize,

strategize, remember details and manage time and space efficiently) [1].

The Learning Disabilities Association of America stated that there are about 2.4 million students in the United States of America who are diagnosed with specific learning disabilities (SLD) and receive services under the Individuals with Disabilities Act (IDEA) [2]. However, many other countries, especially in the developing world have yet to identify all of their respective students with learning disabilities and the types of such disabilities because of the shortage of relevant professionals to assist in conducting the appropriate screening and diagnosis. As a result, their efforts to implement effective national educational policies and practices in schools have been difficult, if not impossible.

In Thailand, most students who struggle with reading, writing, and calculating are placed under classroom teacher observation and given a screening test by trained teachers to determine the specific type of disability they may have. Those students who are identified as having potential learning disabilities are then referred to a physician for clinical diagnosis.

Currently, about 1.8 million Thais are diagnosed with various types of disabilities, and of these, about 361,808 are students who attend inclusive schools throughout the country. Also, of the 361,808 students with disabilities who are enrolled in inclusive classrooms, about 84% (304,016) have been diagnosed with learning disabilities (Ministry of Social Development and Human Security and Ministry of Education). In general, all students diagnosed with disabilities are protected by two keys legislations, i.e., the Thailand's National Education Act (NEA, 1999; 2002; 2010) and the Persons with Disabilities Education Act (PDEA) [3],[4]. Rajakitjanubeksa [5] has described the key features of the concept of access and tuition-free appropriate public compulsory education, as is mandated in Section 10 of NEA in the following way: "In the provision of education, all individuals shall have equal rights and opportunities to receive basic education provided by the State for the duration of at least 12 years." The obvious conclusion from the foregoing description is that compulsory education provided to all students will be based on equality and made available to them free of charge.

Therefore, persons with physical, mental, intellectual, emotional, social, communication, and learning deficiencies;

those with physical disabilities; or those unable to support themselves; or those destitute or disadvantaged do have the right to receive basic education from K-12 at no charge from the time they are diagnosed with a disability. These individuals will also have the right to access educational facilities, media, services, and other forms of learning aids in conformity with the criteria and procedures stipulated in the ministerial regulations. More specifically, Section 8 of the PDEA states that inclusive schools must prepare a student's individualized education plan/program (IEP) which includes a statement describing various services and other necessary support materials that would be made available to each child with disability [6].

The rest of this paper is organized as follows: Section II describes the literature review. Section III describes the proposed methodology. Section IV presents the obtained results and following by discussion. Finally Section V concludes this work.

II. LITERATURE REVIEW

The academic success of students with disabilities requires that they be helped to attain individual's achievement through specific, directed, individualized, and intensive remedial instructions using various accommodation and modification strategies by experienced teachers. Storm [7] indicated that the accommodation strategy helps to change how a student learns the material and the modification strategy helps to change what a student is taught or expected to learn. Work done by PEAK Parent Center [8] has shown that accommodation strategies can include changes in the teacher's utilization of the presentation methods and instructional strategies. It also includes the student's response format and procedures, time/scheduling, environment, equipment, and/or assignment structure -- paper/pencil work.

The modification strategies, on the other hand, include instructional level, content/curriculum, performance criteria, and/or assignment structure -- paper/pencil work. For classroom instruction, accommodation strategies can help students learn the same material and meet the same expectations as their classmates. If a student has some reading issues, for example, she or he might be required to listen to an audio recording of a text. However, if a student's performance is far below that of his or her peers, then some changes or modifications to the curriculum are needed. For example, the student could be assigned shorter or easier reading assignments which matches his or her skills level. Generally, however, students who receive modifications are not expected to learn the same material as their classmates.

Accommodation and modification strategies are the types of adaptation strategies that can assist students with and without disabilities feel comfortable in their educational environment. For students with disabilities, however, these adaptation strategies are the most powerful educational tools available, and if used appropriately, would help them become successful learners.

In the past decade, numerous research studies have showed positive results on the usage of classroom accommodation and modification strategies for students with disabilities. Gonzalez-Ledo [9] examined the effects

computer graphic organizer software had on the narrative writing compositions of 4th and 5th grade students with specific learning disabilities. The results showed that the sample wrote an average of 41.86 more words using the computer graphic organizer than without it, from a range of 54.74 to 96.60 words; planned their compositions on an average of 5.0 minutes longer than they had before, from a range of 4.5 to 9.5 minutes; and included an average of 2.9 more story elements in their compositions than before, ranging from 2 to 5.10 more out of a possible six elements.

Russell [10] investigated whether the use of a standard calculator as an accommodation tool had any effect on 6th-8th grade students' performance in inclusive, resource, and self-contained classrooms. The results showed that students who used a standard calculator to solve math problems were successful in doing it at a higher level. This demonstrated that students with learning disabilities in this study benefited from using a standard calculator as an accommodation strategy. In addition, Elbaum [11] investigated the effects of an oral testing accommodation strategy on the mathematics performance of students with and without learning disabilities. His study results revealed that, for elementary students, oral accommodation strategies yielded greater gains for students with learning disabilities.

Mummaw [12] assessed the preferences of students with learning disabilities regarding accommodation and modification strategies and found that the 10 most preferred accommodation and modification strategies with mean rating from 4.26-3.97, out of a maximum 5.0 points included: cause and effect maps, math formulas listed on assignments, five W's diagrams, sample problems and examples on assignments, word banks, grouping like questions and topics, extra time, calculator use, time line, and Venn diagrams.

Moreover, Anderson, *et al.* [13]; Lee, *et al.* [14]; Kim, *et al.* [15] found that middle and high school students enjoyed learning when taught using mnemonic instruction (for example, key words, peg word, letters), graphic organizers, guide notes, class-wide peer tutoring, coached elaboration, and inquiry approaches. According to Terrill, *et al.* [16] when students with learning disabilities used the pictorial mnemonic keyword strategy, they were able to recall more definitions than those who were in the direct instruction group.

Pyle [17] recently investigated the effects of a targeted and unidirectional peer tutoring intervention on mathematics outcomes for students with learning disabilities in an inclusive setting. The results demonstrated that the three high school students with disabilities and who possessed advanced skills in mathematics and had received training on how to deliver the unidirectional tutorial intervention to students were effective peer tutors for other students with disabilities and classified as low achievers in mathematics. In addition, all three peer tutors increased their criterion and normative performance on teacher-developed weekly mathematics quizzes while they continued to receive the tutoring intervention.

To better serve students with learning disabilities in their quest for successful learning, the role played by qualified classroom teachers remain as the key factor to that success.

Peterson [18] investigated instructional strategies used by 15 elementary schools' general education teachers in inclusive classrooms and the results revealed that these teachers perceived their instructional planning and strategies as adequate in meeting the needs of their students with learning disabilities. They neither expressed any desire to receive additional training in order to improve their teaching skills, nor desired to collaborate with their colleagues, nor needed to improve their skills on planning and providing instructions and accommodations to their students. However, the study participants did report that additional staff members and volunteers to be their most preferred form of support for their respective inclusive schools. They also indicated that parents' objections to integration of students with and those without disabilities were the biggest barriers to the inclusion of students with learning disabilities in their respective classrooms.

Adebowale and Moye [19] investigated teachers' knowledge and attitudes toward students with learning disabilities from 10 elementary schools in Ife East local government areas of Osun State, Nigeria, and the results revealed that 43.6% of them had good knowledge, while 38.3% and 18.1% had fair and excellent knowledge respectively. Moreover, 44.7% of the respondents reported positive attitudes toward any efforts to find appropriate solutions to the severe learning challenges faced by students with learning disabilities in their classrooms and were equally eager and ready to assist in overcoming those challenges.

In addition, Hawpe [20] examined secondary teachers' attitudes toward and willingness to apply accommodation and modification strategies for students with disabilities in their respective classrooms and found that they had positive attitudes toward accommodation and modification strategies and were willing to implement them in their respective classrooms. However, their willingness to apply such strategies was affected by gender, school level taught, teaching assignment (general or special education), and personal disabilities or having a family member with disabilities.

Cameron [21] examined the different methods that could be effectively used to promote the efforts of providing all students with quality and equality in education. The data was collected from both general and special education elementary teachers regarding their perceptions and inclusion of students with disabilities and other specific concerns. The findings showed that special education teachers had more positive outlook on inclusion than their general education counterparts. The results were used to develop an online classroom to train teachers on how to better serve students with disabilities in their classrooms.

In a recent study by Rice [22] on elementary general education teachers' knowledge and experience teaching students with disabilities in Science and Social Studies, found that the participants identified teacher collaboration and professional development as essential to effectively accommodate students with disabilities in the general education (GE) classroom environment. Furthermore, the study confirmed the importance of school leaders to provide an ongoing professional development opportunity for GE

teachers as well as establish ways to foster collaboration between GE and special education teachers.

Unfortunately, in Thailand, regular classroom teachers are often untrained to teach students with learning disabilities, and as a result, these students remain among the most marginalized group within the student population in terms of educational opportunity and attainment.

The objectives of this research study were to evaluate the level in which elementary school teachers of Thai language and mathematics have implemented the teaching accommodation and modification strategies for students with learning disabilities in their respective classrooms. Specifically, the study investigated (1) the characteristics of students with learning disabilities (2) the teachers' general knowledge about current teaching and learning theories and practices, including the effective teaching techniques and methods, (3) the implementation of teaching modification and accommodation strategies for students with learning disabilities in both Thai language and mathematics in elementary inclusive classrooms, and (4) the existing problems and suggestions for developing effective instructional management skills for teachers of elementary inclusive classrooms.

III. METHODOLOGY

This section presents the methodology used

A. Study Sample

The study subjects were 36 and 34 Thai language and mathematics teachers respectively, for a total of 70, who volunteered to take part in this research. They were from the selected 18 leading inclusive schools which are under the Chiang Mai Primary Educational Service Area Office 1-6. In addition, the 157 potential students available for selection for the study were identified using the official screening test, but they were still on the long waiting list to be diagnosed by doctors or psychologists at their local hospitals. Three additional screening tests were also used to further identify their disability status before being included in the study. They were the Test of Nonverbal Intelligence, third edition (TONI-3); the DTVP-2; and the Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-ch). In addition, the results from DTVP-2 and DOTCA-ch for visual perception and cognition, respectively, showed that the mean was lower than the average score (lowest =62 and highest = 111). This indicated that the subjects had had problems with visual perceptions and cognition. At the end, a total of 70 students were selected for the study. Of the 70 students, 36 were from the Thai language classes and 34 from the mathematics classes, and their IQ ranged from 86 to 119.

B. Research Instruments

The research instruments included a questionnaire on teachers' knowledge and skills of teaching the Thai language and mathematics in the elementary inclusive classrooms, a teacher's classroom teaching behavior observation form, and a student's classroom learning observation form. The Data were collected from July 2014 to March 2015 and were analyzed using frequency, percentage, mean, and the interpretative analysis.

IV. RESULTS AND DISCUSSION

This section presents the results used and the proposed discussion

A. Results

Data on the characteristics of the 70 students with learning disabilities who were in grades 2-5 and from five large, ten medium, and three small size schools, respectively, indicated that about 27% were female and 73% were male; they were all experiencing severe difficulties when learning Thai language and mathematics in inclusive classrooms.

Regarding the performance of students with learning disabilities in the Thai language classrooms, the results showed that most of them experienced tremendous difficulties in most of the areas observed. For example, about 92% of the students were confused with the inherent vowels in Thai words; about 86% were unable to read leading consonants; about 83% were confused with the different tone marks and were also unable to pronounce them; and about 75% were unable to correctly pronounce or read the words with the consonant blends. Table I depicts the number and percentage of students experiencing problems when reading the Thai language.

TABLE I. THAI LANGUAGE READING PROBLEMS AMONG STUDENTS WITH LEARNING DISABILITIES (N=36)

| Thai Language Reading Problems | Number/Percentage | |
|---|-------------------|------------|
| | Have | Don't have |
| 1. Phonic Problems | 25 | 11 |
| | 69.44% | 30.56% |
| 2. Skimmed-over words they couldn't read | 26 | 10 |
| | 72.22% | 27.78% |
| 3. Confused with different tone marks/unable to make tone marks correctly | 30 | 6 |
| | 83.33% | 16.67% |
| 4. Used pretend words instead of the correct words | 18 | 18 |
| | 50% | 50% |
| 5. Spelled words while reading | 28 | 8 |
| | 77.77% | 22.23% |
| 6. Confused with consonants at the end of words | 22 | 14 |
| | 61.11% | 38.89% |
| 7. Unable to read consonant blends | 27 | 9 |
| | 75% | 25% |
| 8. Unable to read leading consonants | 31 | 5 |
| | 86.11% | 13.89% |
| 9. Confused of inherent vowels | 33 | 3 |
| | 91.67% | 8.33% |
| 10. Had difficulty remembering the alphabets | 13 | 23 |
| | 36.12% | 63.88% |
| 11. Unable to re-read the assigned materials | 24 | 12 |
| | 66.66% | 33.34% |

Equally, most of the students in the Thai language classrooms were observed experiencing significant difficulties when writing the words of the Thai language. And although they exhibited different levels of difficulties in many areas of writing, the following were particularly noticeable: (1) a significant majority (89%) wrote the word patterns very slowly as if they were not sure of what the letters were or how they were written, or both; about 86%

could not write a compound sentence; (3) about 83% misspelled the words they were writing, even the most simple ones; and (4) about 81% were unable to write leading consonants. Perhaps some of the writing problems could be attributed to students' underdeveloped motor skills. In any case, their reading and writing abilities could not pass the expected performance criteria. Table II depicts the number and percentage of students experiencing problems when writing the Thai language.

TABLE II. THAI LANGUAGE WRITING PROBLEMS AMONG STUDENTS WITH LEARNING DISABILITIES (N=36)

| Thai Language Reading Problems | Number/Percentage | |
|---|-------------------|------------|
| | Have | Don't have |
| 1. Misspelled even simple words | 30 | 6 |
| | 83.33% | 16.67% |
| 2. Erased often what they've just written | 26 | 10 |
| | 72.22% | 27.78% |
| 3. Spelled words quietly while writing them | 24 | 12 |
| | 66.66% | 33.34% |
| 4. Unable to read leading consonants | 29 | 7 |
| | 80.55% | 19.45% |
| 5. Usually used simple words in the simple sentences | 28 | 8 |
| | 77.77% | 22.23% |
| 6. Unable to write compound sentences | 31 | 5 |
| | 86.11% | 13.89% |
| 7. Always wrote word patterns slowly | 32 | 4 |
| | 88.88% | 11.12% |
| 8. Wrote incomplete sentences or words | 30 | 6 |
| | 83.33% | 16.67% |
| 9. Wrote words as they sound | 27 | 9 |
| | 78% | 25% |
| 10. Seemed anxious, unhappy, and stressed while writing | 18 | 18 |
| | 50% | 50% |

Data on performance of students with learning disabilities in inclusive mathematic classrooms showed that the majority significantly experienced some hardship when learning how to solve some math problems. Specifically, about 82% of the students were careless while doing math items. About 79% were slow solving math problems and unable to either estimate or get the sum-values correctly.

The majority, 76%, of the students were also confused on how to carry-over a number from one column and add it to the other number(s) in another column, especially in a multiplication and/or a subtraction process. Likewise, an equal number of 76% of the students were unable to remember how to use the multiplication table. Also, about 74% experienced some difficulties understanding the various processes of using the different math symbols, as well as how math is applied in real life situations.

The data also showed that about 50% of them became easily upset, were unhappy, their self-confident was low, and easily made simple mistakes while performing mathematics exercises. And although all the students worked on a given assignment, only 20% were able to finish it at the end of the class session. Table III depicts the number and percentage of students experiencing problems when solving mathematic problems.

TABLE III. MATHEMATIC LEARNING PROBLEMS AMONG STUDENTS WITH LEARNING DISABILITIES (N=34)

| Mathematic Learning Problems | Number/Percentage | |
|--|-------------------|--------------|
| | Have | Don't have |
| 1. Confused about Number values | 10 29.41% | 24 70.59% |
| 2. Slow in solving math problems | 27 79.41% | 7 20.59% |
| 3. Easily upset, unhappy, lack confidence while doing math | 17 50.00% | 17 50.00% |
| 4. Unable to understand worded math questions | 28 82.35% | 6 17.65% |
| 5. Confused about carrying numbers over | 26 76.47% | 8 23.53% |
| 6. Usually got wrong answers | 27 79.41% | 7 20.59% |
| 7. Unable to keep up with fast thinking math | 14 41.18% | 20 58.82% |
| 8. Confused about number line-sum up and column addition | 15 44.12% | 19 55.88% |
| 9. Unable to understand the concept of time | 21 61.76% | 13 38.24% |
| 10. Careless when doing math problems | 28 82.35% | 6 17.65% |
| 11. Confused on mathematic symbols | 25 73.53% | 9 26.47% |
| 12. Had difficulty remembering the multiplication table | 26 76.47% | 8 23.53% |
| 13. Wrote numbers in reverse | 4 11.76% | 30 88.24% |
| 14. Unable to understand basic math principles | 20 58.82% | 14 41.18% |
| 15. Confused on sorting, ordering, and classifying numbers | 11 32.35% | 23 67.65% |
| 16. Confused on measurement | 22 64.71% | 12 35.29% |
| 17. Unable to apply mathematics in daily life activities | 25 73.53% | 9 26.47% |
| 18. Unable to estimate math values | 27 79.41% | 7 20.59% |
| 19. Unable to personally check math answers | 24 70.59% | 10 29.41% |
| 20. Low ability in most math skills | 23 67.65% | 11 32.35% |

Of the 70 teachers participating in the study, about 87% were female and 13% were male. About 60% were over 50 years of age. All of them had a bachelor's degree in various majors in education and about 20% were specialized in elementary education. But sadly, to note, none of the respondents in this study had received a degree in special education. Only 9% of the teachers had majored in teaching the Thai language and only three of them in mathematics.

However, all reported that they had attended two to three workshops and/or seminars relevant to special education in the previous five years. About 65% of the participants had been in the teaching profession for more than 25 years. In addition, 35% of the teachers had been working with

students with learning disabilities for more than six years. It should be noted that all of these teachers were appointed by the school directors to be responsible for all students with disabilities in their schools.

In terms of the participants' professional knowledge, both Thai language and mathematics teachers were knowledgeable in about most of the teaching and learning theories, in general, including the appropriate teaching techniques and methods. However, the majority were somewhat confused and/or couldn't understand the difference between the modification and accommodation strategies. Likewise, the majority did not know how to appropriately apply some of those strategies in their respective classrooms.

In addition, both Thai language and mathematics teachers exhibited considerable professional competence in their classroom conduct, demeanor, and rapport with the students. They appropriately sequenced the lesson content and made sure that each of their students were correctly following what was being said. This was demonstrated when they frequently asked students if they understood what had transpired, as well as repeated the key points of what they were teaching.

As far as the sequencing of the lesson being presented was concerned, the observations revealed that a significant number of teachers followed a pattern of teaching more routinely. For example, about 88% of them frequently used a variety of materials during teaching, i.e., games, pictures, word cards, etc. A significant majority (84%) routinely checked their students' progress by conducting evaluations and measurements using a variety of techniques, e.g., exercises, quizzes, conversations, etc.

Likewise, about 81% of the Thai language teachers frequently explained to their students how they could apply the newly learned content/information in real life situations. Also, 74% of them frequently conducted warm-up activities using various materials and approaches before presenting the new lesson contents. But regrettably, only 49% of the teachers were observed routinely re-emphasizing the main ideas prior to ending the lesson.

On the other hand, the mathematics teachers, like their Thai language counterparts, were very keen in following the appropriate teaching sequences in their routine. Most notably was that 92% of them frequently reviewed the previously learned material before students could start learning the new ones. About 89% of the teachers routinely introduced the new content after they had completed reviewing the previously learned content. And about 82% frequently conducted warm-up activities of various kinds and approaches, while an equal 82% routinely presented their lesson content based on clearly defined behavioral objectives. Tables IV and V depict the frequency and percentage of Thai language and mathematic teachers' teaching routine.

TABLE IV. THAI LANGUAGE TEACHERS' TEACHING ROUTINE

| Routines | Frequency/Percentage | |
|--|----------------------|--------------|
| | Do | Don't |
| 1. Conducted warm-up activities with various materials | 52 76.47% | 16 23.53% |

| Routines (games-18, songs-20, storytelling-10, situation-4, others-8) | Frequency/Percentage | |
|--|----------------------|--------------|
| | Do | Don't |
| 2. Reviewed previously learned content | 51 75% | 17 25% |
| 3. Introduced new contents/concepts for the new lesson | 38 55.88% | 30 44.12% |
| 4. Presented lesson content based on behavioral objectives (whole class-18, group-17, paired-7 and individuals-9) | 51 75% | 17 25% |
| 5. Explained how new content is applied in real life situation | 55 80.88% | 13 19.12% |
| 6. Re-emphasized the main ideas again before ending the lesson | 33 48.53% | 35 51.47% |
| 7. Conducted evaluation and measurement of students' progress (Exercise-20, quiz-5, practice-12, conversation-16, others-4) | 57 83.82% | 11 16.18% |
| 8. Used various teaching materials during teaching (game-18, picture-5, word card-14, chart-2, additional reading-5, CD-4 others-12) | 60 88.24% | 8 11.76% |

TABLE V. MATHEMATIC TEACHERS' TEACHING ROUTINE

| Routines | Frequency/Percentage | |
|---|----------------------|--------------|
| | Do | Don't |
| 1. Conducted warm-up activities using various materials | 51 82.26% | 11 17.74% |
| 2. Reviewed previously learned content | 57 91.94% | 5 8.06% |
| 3. Introduced new contents/concepts for the new lesson | 55 88.71% | 7 11.29% |
| 4. Presented lesson content based on behavioral objectives | 51 82.26% | 11 17.74% |
| 5. Explained how new content is applied in real life situation | 20 32.26% | 42 67.74% |
| 6. Conducted evaluation and measurement of students' progress (Exercise-20, quiz-5, practice-12, conversation-16, others-4) | 48 77.42% | 14 22.58% |
| 7. Used various materials during teaching (objects-12, pictures-3, word card-2, chart-2, games-2, PPT-3 CD-4) | 28 45.16% | 34 54.84% |

Regarding problems encountered in the elementary inclusive classrooms and the perceived solutions to them,

the data from focus group showed that about 85% of the respondents had encountered some difficulties when screening students with learning disabilities; lacked the knowledge of special education, particularly finding individual student's learning baseline; and did not implement suitable teaching methods and techniques. Also, the data showed that 80% of them did not adequately cooperate with the respective parents when developing the individualized education plan (IEP) or dealing with other matters in order to better serve the students, nor did they make any efforts to help change their own attitudes toward the learning disabilities of the students and their learning environment.

Some solutions on how to alleviate some of the problem's teachers encountered by having students with disabilities in their inclusive classrooms were also reported. About 90% of the respondents stated that they would like to have experts in special education permanently available in schools for consultations on relevant accommodation and modification issues, and particularly how to implement them in their respective inclusive classrooms. Likewise, over 95% of the respondents reported that opportunities for continual annual staff development seminars that focused on teaching techniques/methods and teaching materials/media should be provided to inclusive classrooms teachers. They also added that the government must seriously invest more on new special education teachers within the school system.

B. Discussion

This research study was made possible by a grant from the Thai National Research Fund and was the first to examine both Thai language and mathematics teachers' teaching practices, perceptions, and attitudes toward students with learning disabilities in inclusive elementary school settings in Chiang Mai, Thailand. And the results of this study obviously showed that most of the teachers in the sample were willing and committed to assist any of their students whether with or without disabilities.

However, a significantly high percentage of them (over 85%) lacked the necessary knowledge and skills in special education to appropriately deal with students with disabilities. For example, they were deficient regarding the knowledge related to theories and practices in special education, i.e., screening, identifying, and using appropriate accommodation and modification strategies for each individual student with learning disabilities. Obviously, this is unacceptable situation and every effort should be made to equip teachers in inclusive classrooms with all necessary tools and support they need in their tasking endeavors to educate our students more effectively.

They also recognized their inefficient ability in teaching students who had different abilities and learning needs. More importantly, they doubted their competency skill level for assessing or screening their students and had come to realize that their everyday teaching efforts mounted to nothing and so they could not improve their students' learning efficiency.

Therefore, they strongly requested for help from external teaching professionals and others who are in-charge of educating students with learning disabilities in inclusive

elementary schools, specifically in both Thai language and mathematics classrooms. Such requested help included being provided with more appropriate training in assessing, teaching, and developing sensitivity for their students' cultures, experiences, and learning styles. Undoubtedly, this makes it abundantly clear that the situation in our inclusive classrooms is critical and all essential steps need to be urgently undertaken in order to provide skill developmental opportunities, particularly relevant to special education, to all those involved in teaching students with disabilities.

The external help that the teachers in this study, were requesting is in-line with what Reddy [23] recommends as essential knowledge and skills that teachers of students with disabilities in inclusive school settings must possess. He stated that "the challenge of achieving full educational and social integration of children with disabilities within the society can be easily achieved if the teachers possess better knowledge about disabilities, attitudes towards children with learning disabilities, and competencies to handle the children."

Data from our current research showed that none of the teachers in this study had received a degree in special education and it reflects the current situation of Thai special education teachers throughout the country, which is the lack of qualified teachers. Tongsookdee [24], Tongsookdee and Vittayakorn [25] and Tongsookdee, *et al.* [26] have also noted that in order to improve the lives and learning conditions in schools for students with learning disabilities, specifically in Thailand, the government must implement an aggressive policy that calls for both significantly increasing the quantity and quality of new special education teachers and intensively continue retraining in-service teachers who are working with students with learning disabilities and other disabilities at all-inclusive school settings.

Thankfully, the current study revealed that some teachers were utilizing some of the basic coping strategies in order to manage their classrooms. They had adapted such strategies as reviewing the previously learned content material before starting the new lesson; spoke slowly, clearly, and naturally during the lecture; and summarized the main points before ending the lesson. These basic coping strategies, as part of the accommodation strategies, may be helpful to students without disabilities, but might not be effective with their counterparts who have learning disabilities. It should be noted that these teachers had not known or might not have been knowledgeable of any other effective alternative strategies available to them.

Robuck [27] and Adebawale and Moye [19] observed that the solutions teachers usually offer to assist children with learning difficulties are often focused on the child rather than teachers themselves. So, they are undoubtedly convinced that teachers can successfully reduce or eliminate a child's difficult behavior by simply changing the way she/he presents information, provides assistance, or assesses the way a student demonstrates her/his performance of academic tasks.

V. CONCLUSION

Classroom accommodation and modification strategies are vital tools that regular inclusive classroom teachers can

use to improve the academic performance of students with learning disabilities. Consequently, the student's success in learning would ultimately be enhanced if her/his individual's self-confident and self-esteem increase. Currently, there is an abundance of research-based literature on teaching strategies and techniques that teachers must seriously consider, carefully select, and appropriately utilize in accordance to each student's ability, limitations, and preferences.

The author is undoubtedly confident that teachers, in general, are willing to do their very best to better serve their students. This is in spite of the serious challenges of having inadequate knowledge and skills due to lack of proper professional training or preparation. Therefore, the Thai government need to reconsider both short- and long-term policies to potentiate the development and implementation of effective and efficient ways to help in-service teachers. And at the same time, assist in increasing many new and well-prepared special education teachers that are so desperately needed.

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