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Remedial Education Teachers' Competencies for Differentiated Pedagogy: Systematic Literature Review

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Abstract. Remedial education is implemented to help primary school students who experience difficulties mastering the 3M skills of reading, writing, and counting. This systematic literature review was conducted to review the competency of remedial education teachers for differentiated pedagogy. The study focused on competency of remedial education teachers regarding levels of knowledge, skills, and readiness to implement differentiated pedagogy. Literature was searched through Google Scholar, SCOPUS, and Web of Science and 149 articles that had been published between 2019 to 2023 were identified; of these, 12 were selected for the analysis, which used the Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) approach. The results reveal that not all studies found that remedial education teachers' competency for differentiated pedagogy was at high levels for all three elements – knowledge, skills and readiness. The results of this study can serve as a guide and reference for teachers, the Ministry of Education, and future researchers, to improve remedial education teachers' competency for differentiated pedagogy. Future studies should do a more in-depth exploration, by conducting a survey to review the competency of remedial education teachers for differentiated pedagogy, and the challenges they face in implementing it.

Keywords: teacher competency; differentiated pedagogy; remedial education teacher; systematic literature review; challenges

1. Introduction

Remedial education was implemented by the Ministry of Education in Malaysia in the 1960s to help primary school students who have problems mastering the 3M skills of reading, writing, and counting (Ministry of Education, 2012). In Malaysia, primary education involves Years 1 to 6, of which Years 1 to Year 3 are classified as Level 1, while Years 4 to Year 6 are classified as Level 2. Remedial education complies with the National Education Philosophy, and is intended to

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help improve mastery of literacy and numeracy skills by primary school students, especially those at Level 1 (Adam & Hamdan, 2017). The main focus of education at the primary school level is to ensure that Level 1 students have mastered the 3M skills, hence remedial education prioritizes the principle of “Solving problems as early as possible” to ensure that all Level 2 students have mastered 3M skills (Adam & Hamdan, 2017). Students who have completed Level 1 without having mastered 3M skills will enter remedial education that is available at each school to help them.

Therefore, all teachers, including remedial education teachers, must possess the knowledge, skills, and readiness to implement differentiated pedagogy when planning lessons and preparing learning materials (Agus, 2021). Sulaiman and Wok (2018) state that 80% of teachers still do not grasp the concept of differentiated pedagogy well enough. This means there are teachers who have not been exposed to the implementation of differentiated pedagogy and do not apply this pedagogy in their teaching (Mokhlis, 2021). Remedial education teachers need to be aware that, if they use the same teaching method for all students, it will be difficult to address the diversity of skills of all the students in the class (Mansor et al., 2020). Remedial education teachers should understand the needs and background of each student, so that they can plan lessons that are thorough and meet the needs of each student (Derbala & Yasin, 2022). Hence, differentiated pedagogy must be implemented in classrooms to meet the needs of diverse students (Jawan & Mahamod, 2021). Mustaffa et al. (2021) state that differentiated pedagogy is a suitable teaching method for the classroom, because this method makes it possible for teachers to modify the learning content and the teaching process according to the needs of students.

To plan differentiated pedagogy, teachers are required to have a solid grasp of classroom management techniques and pedagogical strategies, as well as sufficient knowledge of the students and the subjects they teach. It also requires teachers' unwavering dedication to carefully evaluating each student individually, seeking out any discrepancies and carefully formulating alternative strategies (Mengistie, 2020). Mengistie (2020) emphasizes that, although most teachers acknowledge that students in their classrooms have a variety of needs, they rarely implement differentiated pedagogy in their teaching and learning sessions. This is because, for a class with diverse students, there is not enough time for a teacher to plan and prepare suitable learning materials for every student (Noh & Halili, 2020). Because of limited teaching time and the number of classes on the remedial education teacher's teaching schedule, students are not taught at their particular mastery level; instead, the lesson is presented to the class as a whole (Ladjaharun & Ahmad, 2023).

After a review of research on the implementation of differentiated pedagogy, we conclude there are few studies related to remedial education teachers. Research has focused mainly on mainstream primary school teachers, secondary school teachers and special education teachers. Therefore, this systematic review was conducted to review the competency of remedial education teachers in relation to the implementation of differentiated pedagogy. The selected articles focused on

the knowledge, skills, and readiness level of remedial education teachers for differentiated pedagogy. This systematic study is expected to help improve the knowledge and skills of remedial education teachers for carrying out differentiated pedagogy in the classroom, so that the learning process can be carried out in a more interesting and effective manner.

2. Differentiated pedagogy

Differentiated pedagogy is a teaching method that provides all students with equal opportunities to follow the learning process in accordance with their individual needs (Impak & Shaid, 2023). Wan (2015) explains that differentiated pedagogy is a teaching method that considers the diversity of students in relation to learning readiness, interests and learning profiles. Differentiated pedagogy also refers to teaching methods, modifications to the content of lessons, teaching strategies, and accommodating students' skills according to their abilities (Lavania & Nor, 2021).

Differentiated pedagogy is a flexible method of teaching, and involves teaching methods being adapted according to the diverse traits of students in a class, to ensure that they all achieve the learning objectives. Ismaili and Imani-Morina (2018) support this view and state that the implementation of differentiated pedagogy is flexible, as teachers are free to plan their teaching lessons so that they adapt to the needs of students in order to produce better learning. Hisham et al. (2017) state that differentiated pedagogy can increase students' opportunities to achieve perfect learning, because every student is given the same opportunities to meet their learning needs.

Therefore, traditional teaching methods that are based on a one-size-fits-all approach are not suitable for education today (Bondie et al., 2019). Differentiated pedagogy can be implemented in remedial education classes, because it can provide opportunities for advanced and weak students to interact (Magableh & Abdullah, 2020). This is why the competency of remedial education teachers to implement differentiated pedagogy is important, as it enables teachers to identify appropriate and interesting teaching strategies that can be implemented during their teaching sessions (Michael, 2023).

3. Methodology

This study was conducted using a systematic literature review method, which was chosen to carefully analyze information obtained from the literature review. According to Pursell and McCrae (2020), systematic study is a linear research process that is undertaken according to standards to analyze study data that has been selected. This study used Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to select articles that met the inclusion criteria (Rashid & Wong, 2023). PRISMA comprises four steps, namely, identification, screening, eligibility, and inclusion of articles (George & Nasri, 2021).

3.1 Article Search Strategy

The process of searching for articles to review on the topic of pedagogical research was implemented using Google Scholar and the databases SCOPUS and Web of

Science. According to Joklitschke et al. (2018), the most important aspect of the article search process is the keywords or search terms that are used. We used the keywords in Table 1 to find suitable articles. The keywords yielded publications related to remedial education teachers' competency for differentiated pedagogy.

Table 1: Keywords Used in the Search for Publications

Databases	Keyword
SCOPUS	"Remedial education teacher" OR "differentiated pedagogy" OR "teacher's competence towards differentiated pedagogy" OR "differentiated pedagogy for teachers" OR "differentiated instruction" OR
Google Scholar	"teacher's attitude toward differentiated instruction" OR
Web of Science	"teacher's competency"

3.2 Article Selection Criteria

According to Xiao and Watson (2019), studies involving comparisons of literature sources need to have a clear process and criteria for the selection of articles. Thus, this study established certain article selection criteria to facilitate the process of finding suitable articles. Articles had to be full-text articles focusing on teachers' competency for differentiated pedagogy, that had been published in the last five years. Fern et al. (2020) propose that the articles that are selected should have been published in the last five years, so that the issues under discussion are still relevant. The type of reference material selected must be journal articles – theses and books should be rejected. This is because journal articles report on empirical studies with solid findings that were obtained through research processes (Jose et al., 2021). Table 2 lists the acceptance and rejection criteria of articles in this study.

Table 2: Article Acceptance and rejection Criteria

Criterion	Accepted	Rejected
Access	Full-text article	Not full-text article
Year of publication	Journal articles published in the last five years (2019–2023)	Published before 2019
Type of reference material	Journal articles	Theses and books
Field of study of journal article	Teachers' competency for differentiated pedagogy	Topic other than teachers' competency for differentiated pedagogy

3.3 Article Selection Process

The article selection process was launched in June 2023 to find articles related to the competency of remedial education teachers for differentiated pedagogy. The

search yielded a total of 149 articles: 106 articles via Google Scholar, 15 articles from SCOPUS and 28 articles from Web of Science. Figure 1 is a flow chart of the article selection process using PRISMA. After the selection and screening process, 12 articles that met all the acceptance criteria were included in the systematic literature review.

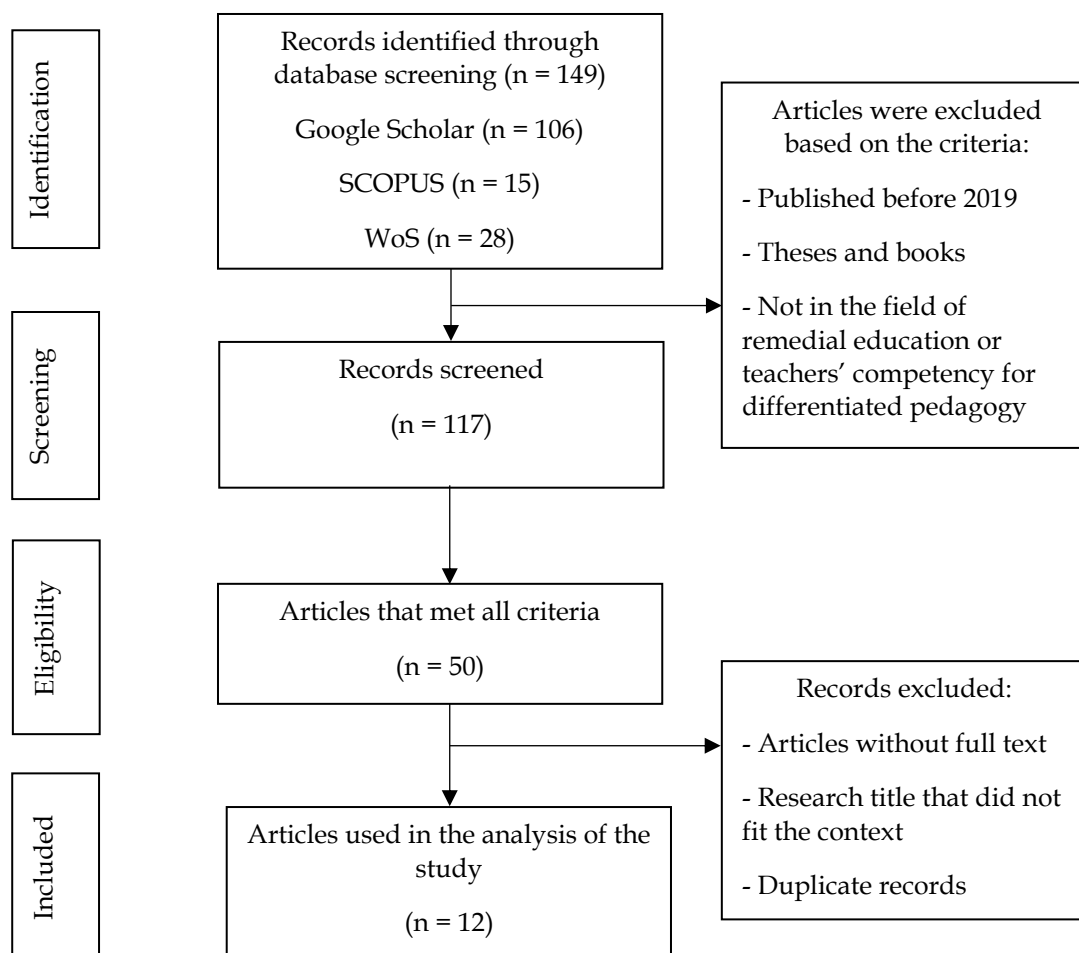


Figure 1: Flowchart of article selection process according to the PRISMA Model (Page et al. 2021)

3.4 Data Collection and Data Analysis

The data collection process was carried out using 12 articles obtained through Google Scholar, SCOPUS, and Web of Science. Table 2 lists the authors, year of publication, article title, journal name, and the purpose of the studies reported in the articles that were selected for this study. Data analysis was done by categorizing the findings regarding teachers' competency for differentiated pedagogy as reported in each article. Teachers' competency covers aspects of knowledge, skills, and teachers' readiness level to carry out differentiated pedagogy during teaching.

Table 3: List of reviewed research article

Title	Author(s) and year of publication	Journal Name	Study purpose
Level of knowledge, acceptance, readiness and teaching practice of remedial teachers against differentiated teachings	Derbala, R. & Yasin, R. M. (2022)	<i>Malaysian Journal of Social Sciences and Humanities</i>	To identify the levels of knowledge, acceptance, readiness, and teaching practice of remedial teachers regarding the implementation of differentiated teaching in remedial education classes
Knowledge levels of different approaches among Malay language teachers	Nadarajah, S. & Mohammad, W. M. R. W. (2023)	<i>Jurnal Dunia Pendidikan</i>	To determine the levels of knowledge of different approaches of Malay language teachers
The level of knowledge and readiness Malay language teachers' to implementation different approach in home teaching and learning during movement control order	Agus, A. N. A. (2021)	<i>Malay Language Education Journal</i>	To identify the levels of knowledge and readiness of Malay language teachers to implement different approaches in PdPR (home teaching and learning) throughout the period of the Movement Control Order.
Implementing differentiated instruction: a mixed-methods exploration of teacher beliefs and practices	Whitley, J., Gooderham, S., Duquette, C., Orders, S. & Cousins, J. B. (2019)	<i>Teachers and Teaching</i>	To explore the relationship between teachers' understanding of differentiated pedagogy, and the effectiveness and practice of implementing differentiated pedagogy
The implementation differentiated instruction approaches among Malay language teachers in rural elementary school Category 3	Muttalip, D. A. A. (2020)	<i>Malay Language Education Journal</i>	To study the perceptions of Malay language teachers (knowledge, acceptance, and practice) of the implementation of differentiated instruction approaches
The effectiveness of the differentiated pedagogy approach in Malay language transitional class: A survey study at a school in Kuantan	Mohamed, R. & Zulkafali, N. R. A (2019)	<i>Journal of Sciences and Management Research</i>	To determine teachers' understanding of differentiated pedagogy in Malay language classes and the extent to which a differentiated pedagogy approach can help teachers to plan effective lessons

Title	Author(s) and year of publication	Journal Name	Study purpose
Differentiated learning in elementary school reading skills teaching	Impak & Shaid (2023)	<i>Jurnal Dunia Pendidikan</i>	To identify the level of knowledge and implementation of Malay language teachers of differentiated learning in the teaching of elementary school reading skills
Knowledge, attitudes and practices among Malay language teachers of Chinese national-type school towards differentiated teaching approaches	Wee, K. Q. & Mahamod, Z. (2023)	<i>International Journal of Education and Pedagogy</i>	To examine the level of knowledge, attitudes, and practices of Malay language teachers at Chinese National Schools for differentiated teaching approaches
Teacher educators' self-efficacy and perceived practices of differentiated instruction in Ethiopian primary teacher education programs: Teacher education colleges in Amhara regional state in focus	Zelalem, A., Melesse, S. & Seifu, A. (2022)	<i>Cogent Education</i>	To examine teacher educators' self-efficacy and perceived practices of differentiated instruction in Ethiopian primary teacher education programs
'I do not think I actually do it well': a discourse analysis of Australian senior secondary teachers' self-efficacy and attitudes towards implementation of differentiated instruction	Porta, T., Todd, N. & Gaunt, L. (2022)	<i>Journal of Research in Special Educational Needs</i>	To investigate the impact of teachers' self-efficacy and attitudes towards the implementation of differentiated instruction in the senior secondary context in two Australian states
Teacher educators' perspectives and experiences towards differentiated instruction	Ginja, T. G. & Chen, X. (2020)	<i>International Journal of Instruction</i>	To investigate teacher educators' perspectives on differentiated instruction and their experiences of differentiating instruction in their lessons
Primary school teachers' knowledge, attitude and practice of differentiated instruction: The case of in-service teacher-trainee of Debra Markos College of Teacher Education. West Gojjam Zone, Amhara Region, Ethiopia	Mengistie, S. M. (2020)	<i>International Journal of Curriculum and Instruction</i>	To explore primary school teachers' knowledge, attitudes, and practices of differentiated instruction

4. Findings

This systematic literature review was focused on studies that had assessed the competency of teachers, specifically remedial education teachers, for differentiated pedagogy. The teachers' competency levels were assessed for three aspects: knowledge level, skill level, and readiness level.

4.1 Teachers' Knowledge Level

To ensure that the needs of diverse students are met during the learning process, all teachers, particularly remedial education teachers, need to implement differentiated pedagogy in the classroom (Jawan & Mahamod, 2021). Teachers should possess knowledge of differentiated pedagogy, such as differences in content, process, and product, so they can plan and implement lessons that are suitable for a variety of student needs (Niam et al., 2022). Table 4 provides a summary analysis of the teachers' level of knowledge of differentiated pedagogy.

Table 4: Teacher's Levels of Knowledge of Differentiated Pedagogy

Study	Teachers' knowledge of differentiated pedagogy
Derbala & Yasin (2022)	High
Nadarajah & Mohammad (2023)	High
Agus (2021)	High
Wee & Mahamod (2023)	High
Muttalip (2020)	Moderately low
Mohamed & Zulkafali (2019)	Low

Note: High: Have a profound and extensive knowledge of differentiated pedagogy; Moderately low: Novice teachers still lack of knowledge and do not understand the implementation of differentiated pedagogy; Low: Before attending the differentiated pedagogy workshop.

Table 4 shows the levels of knowledge of differentiated pedagogy of teachers reported by six studies. In total four articles found that teachers had high levels of knowledge about differentiated pedagogy and these teachers had extensive and deep knowledge of differentiated pedagogy. Derbala and Yasin (2022) state that teachers who have a high level of knowledge about differentiated pedagogy are likely prepare their lessons according to the needs of students, who have different learning styles. This was also the finding of the study by Nadarajah and Mohammed (2023). These authors report that different teaching styles were applied according to the diverse needs of students. The study by Wee and Mahamod (2023) found that 90% of Malay language teachers knew that the content and learning materials had to correspond with the levels of knowledge, readiness, and cognitive abilities of students. These findings clearly show that teachers can understand and possess knowledge about the nature of differentiated pedagogy (Agus, 2021).

However, two of the reviewed articles contradict these findings. Muttalip's study (2020) found that few novice Malay language teachers had a profound knowledge of differentiated pedagogy, thus, making it difficult for them to implement differentiated pedagogy in the classroom. This study confirms findings by Mohamed & Zulkafali (2019), who found that, before teachers attended a workshop, their knowledge of differentiated pedagogy was at a moderately low level. Mohamed & Zulkafali (2019) report that the teachers' knowledge increased after attending differentiated pedagogy workshops; they also had a better understanding of how to identify teaching styles that suited students.

4.2 Teachers' Skills Levels

In addition to knowledge levels, teachers' skills for implementing differentiated pedagogy in the classroom is one of the aspects of teacher competency. Teacher skills include their role as a planners, guides, and evaluators in implementing differentiated pedagogy, furthermore, teachers need to ensure that the implementation corresponds with education as it is implemented today (Impak & Shaid, 2023). Table 5 is a summary of the analysis of the teachers' skills for differentiated pedagogy.

Table 5: Teachers' Skill Level for Differentiated Pedagogy

Reviewed study	Teachers' skills for differentiated pedagogy
Impak & Shaid (2023)	Teachers have high levels of skills for implementing differentiated pedagogy. The planning and implementation of the pedagogy matches students' skills.
Whitley et al. (2019)	Teachers' skills for implementing differentiated pedagogy are at a low level (teachers know about the elements contained in differentiated pedagogy, but do not apply them).
Zelalem et al. (2022)	Teachers lack the skills to implement differentiated pedagogy in the classroom.
Muttalip (2020)	Teachers' skills for the implementation of differentiated pedagogy are still at a medium-low level (teachers do not have a deep understanding of the implementation of differentiated pedagogy in the classroom).
Mengistie (2020)	Teachers' skills for differentiating content, process and product are below the expected level.
Ginja & Chen (2020)	Teachers do not have sufficient skills to practice differentiated pedagogy and their practice of differentiated pedagogy in their lessons was mostly absent or very fragmentary.

The analysis found that only one article reports that teachers have high skill levels for implementing differentiated pedagogy in their teaching. According to Impak and Shaid (2023), teachers who are highly skilled in differentiated pedagogy can provide learning materials and prepare their lessons to accommodate student skill levels. However, five articles report that teachers do not have the skills for implementing differentiated pedagogy. Teachers have knowledge of

differentiated pedagogy, but they do not have the skills to prepare and present lessons that meet the needs of students (Whitley et al., 2019).

In addition, the reason why teachers lack the skills to apply differentiated pedagogy is because they are burdened with other tasks, time constraints, and have too many students in a classroom (Zelalem et al., 2022), and lack a clear understanding of how to implement differentiated pedagogy (Muttalip, 2020). Although teachers realize the importance of differentiated pedagogy, they argue that the implementation of this type of pedagogy is beyond their skill level, and they, instead, rely solely on textbook content without modifying it according to students' needs (Mengistie, 2020). Ginja and Chen (2020) report that the reason why teacher educators did not practice differentiated pedagogy in their classes could be because of inadequate training and misconceptions regarding differentiated instruction.

4.4 Teacher's Readiness Levels

Readiness is one of the facets of teacher competency. Teacher readiness means self-preparation, which involves emotions, and mental and physical preparation for doing something in the classroom (Rathaneswary & Ruhizan, 2022). If a teacher is willing to carry out differentiated pedagogy, it is certain to attract students' interest during the teaching and learning process (Agus, 2021). A summary analysis of teachers' readiness to implement differentiated pedagogy is shown in Table 6.

Table 6: Teacher's readiness for differentiated pedagogy

Reviewed study	Teachers' readiness for differentiated pedagogy
Derbala & Yasin (2022)	The readiness of remedial education teachers is at a high level.
Agus (2021)	The readiness level of teachers for differentiated pedagogy is at a high level.
Mengistie (2020)	Teachers had positive readiness to apply differentiated pedagogy, but did not really know how to identify multiple intelligences in their students.
Porta et al. (2022)	Teachers were ready to implement differentiated pedagogy, but they lacked the skills to implement it.
Mohamed & Zulkafali (2019)	Teacher readiness was at a low level, but increased after they attended differentiated pedagogy workshops.

Table 6 reports that two articles indicated that the level of teacher readiness for differentiated pedagogy was at a high level (Agus, 2021; Derbala & Yasin, 2022). This indicates that teachers can understand the needs of diverse students and are prepared to implement differentiated pedagogy in the classroom by using activities and teaching materials that are suitable for students. One of the articles reports that teachers' readiness levels were initially low, but increased after the teachers attended a differentiated pedagogy workshop (Mohamed & Zulkafali,

2019). Two articles report that teachers' readiness levels were high, but that they lacked the skills and knowledge to implement differentiated pedagogy. According to Mengistie (2020), teachers had positive readiness to implement differentiated pedagogy, but they did not know how to identify multiple intelligences in the students in their classrooms. This finding is supported by Porta et al. (2022), who state that teachers were ready to implement differentiated pedagogy, but they lacked the skills to implement it.

5. Discussion

The purpose of this systematic literature review was to identify the competencies remedial education teachers need for differentiated pedagogy. Differentiated pedagogy accommodates diverse students, which should influence teachers' teaching methods and affect learning outcomes (Kamarulzaman, 2019; Subri et al., 2022). Differentiated pedagogy must be applied in a classroom when the students are diverse and have different abilities (Sapian & Muhammad, 2022). Therefore, planning for teaching needs to be carried out systematically to ensure that no students fall behind in learning and the needs of students can be met.

Teachers' Knowledge Levels

The findings of the articles analyzed show that teachers' knowledge levels for implementing differentiated pedagogy are high. Teachers who have high knowledge levels of differentiated pedagogy have a deep understanding of how to implement this pedagogy and can accept that each student is different (Agus, 2021; Derbala & Yasin, 2022; Nadarajah & Mohammad, 2023; Wee & Mahamod, 2023). This indicates that teachers who possess knowledge about each student's learning background will implement differentiated pedagogy more effectively, because the teachers will plan their teaching lessons according to the students' ability levels or learning styles, so that the learning session will be more productive and meaningful to the students. Doing so also can help teachers to achieve their teaching objectives more effectively (Muttalip, 2020).

However, this finding was contradicted by the results of Muttalip (2020) and Mohamed and Zulkafali (2019), which showed teachers' knowledge levels were at a low level. It is because they are not given exposure to differentiated pedagogy, so they are unable to apply such pedagogy in their teaching. This indicates that the teachers' knowledge levels for differentiated pedagogy can influence the implementation of such pedagogy during teaching. Thus, all teachers, including remedial education teachers, should improve their knowledge about differentiated pedagogy, so that they can conduct learning sessions that are suitable for the students' ability (Nadarajah & Mohammad, 2023).

Teachers' Skill Levels

According to Fung et al. (2017), teachers need to be skillful to create an enjoyable learning environment in the classroom. However, there is only one article that shows teachers have the high skill level to implement such pedagogy (Impak & Shaid, 2023). Teachers should be able to implement differentiated pedagogy by providing learning materials according to the students' ability levels and achieve the learning objectives by the end of lessons (Rashid & Ghani, 2023). Akhir et al.

(2019) state that teachers who are able to modify differentiated pedagogy elements can plan their lessons so that they are compatible with the abilities of the students in the classroom.

In total five articles report that teachers' skills for differentiated pedagogy were at a low level (Ginja & Chen, 2020; Mengistie, 2020; Muttalip, 2020; Whitley et al., 2019; Zelalem et al., 2022). They reached this conclusion because teachers faced challenges in differentiating content, process, and product for differentiated pedagogy (Mengistie, 2020). Among the challenges that cause teachers' skills to be at a low level are that teachers are not supported by school administrators, they lack time to plan teaching and assessment, and lack knowledge for implementing differentiated pedagogy (Whitley et al., 2019). This finding is supported by the study of Zelalem et al. (2022), which found that teachers are unable to implement differentiated pedagogy because their other tasks mean that they do not have time to prepare teaching lessons and materials for each student individually. Other factors standing in the way of teachers carrying out differentiated pedagogy are shortages of materials and resources, lack of support from school administrators, and lack of knowledge (Muttalip, 2020). Collectively, these challenges affect teachers' motivation to practice differentiated pedagogy in their classrooms, which, in turn, means they seldom have opportunities to improve their skills for differentiated pedagogy (Ginja & Chen, 2020). As mentioned by Melese (2019), teachers' knowledge of the concept of differentiated pedagogy is not enough – it must be supported by practice.

Teachers' Readiness Levels

The analysis found that two articles reported that teachers' readiness to carry out differentiated pedagogy in their teaching process was at a high level (Agus, 2021; Derbala & Yasin, 2022). This shows that teachers are prepared to carry out innovation in their teaching lessons, which will help to attract students' attention and prevent them becoming bored during learning (Derbala & Yasin, 2022). Agus's study (2021) found that teachers, regardless of whether they were novice or advanced teachers or taught at rural or urban schools, were always ready to implement differentiated pedagogy for their students. Meanwhile, Mengistie (2020) and Porta et al. (2022) found that the teachers were ready to implement differentiated pedagogy; however, their lack of skill to practice the pedagogy, and their inability to identify student abilities, prevented them from practicing differentiated pedagogy regularly.

One article states that teachers were not prepared to implement differentiated pedagogy in their lessons (Mohamed & Zulkafali, 2019). These authors found that most teachers lacked confidence in their ability to apply differentiated pedagogy when they teach. This was because teachers were unable to plan and choose teaching techniques and materials that were suitable for their students' ability levels. This opinion is supported by Michael (2023), who found that teachers faced difficulties in preparing teaching materials for a classroom that has a varied level of student ability, due to time constraints. Furthermore, teachers, especially those in rural areas, experienced difficulties in obtaining learning materials, and this led to differentiated pedagogy not being implemented properly (Jawan & Mahamod,

2021; Ladjaharun & Ahmad, 2023). Hence, the extent to which differentiated pedagogy was implemented effectively depended on teachers' readiness levels and the ways they facilitated each student's learning.

In conclusion, not all findings of the 12 articles that were reviewed reported that the competency of remedial education teachers for differentiated pedagogy, for knowledge, skills and readiness, was at high levels. Some findings show teachers had high levels of knowledge for differentiated pedagogy, but they lacked the skills to implement the knowledge in their teaching. Likewise, a teacher with a high level of readiness did not necessarily have deep knowledge about differentiated pedagogy. For example, Porta et al. (2022) found that teachers were ready to implement differentiated pedagogy but lacked the skills to implement it. Therefore, after examining the literature on this topic, we conclude that teachers' competency for differentiated pedagogy must be improved by addressing the problems teachers face, so that the implementation of this pedagogy can be more effective.

6. Limitations of the study

This study experienced several limitations. First, this study was conducted by analyzing articles accessed through only Google Scholar, SCOPUS, and Web of Science, and all articles had to relate to teachers' competency. It is possible that other research that relates to the topic of this study were overlooked, even though the researchers undertook a thorough search to reduce the risk of overlooking articles.

Second, the focus of this study is on the competency of remedial education teachers for differentiated pedagogy, and search results for articles on remedial education teachers is limited. Therefore, articles were selected for this study if they related to teachers' competency in general, and not only to remedial education teachers in particular.

Third, this study selected articles that had been published from 2019 to 2023 for analysis. This timeframe was chosen because the researcher wanted to analyze the most recent articles on remedial education teachers' competency for differentiated pedagogy. Unquestionably, this timeframe excluded relevant articles that met the other inclusion requirements, which were not analyzed, because of the timeframe. Future studies could use a longer timeframe, to obtain more information about remedial education teachers' competency for differentiated pedagogy.

7. Conclusion

This systematic literature review reviewed the competency of remedial education teachers for the implementation of differentiated pedagogy as reported by 12 articles that met the inclusion criteria. This study was searched via Google Scholar, SCOPUS, and Web of Science to find suitable articles, and the articles that were selected were analyzed in relation to teachers' knowledge, skills, and readiness to apply differentiated pedagogy. A total of 12 articles were selected. The analysis found that not all studies found remedial education teachers' competency for differentiated pedagogy to be at high levels for all three elements

- knowledge, skills and readiness. Some of the articles reported that teachers had deep knowledge and understanding of the concept of differentiated pedagogy, and they were ready to implement it in their teaching sessions, but lacked the skills to practice differentiated pedagogy in their classrooms. Other articles reported the opposite, namely, that teachers had sufficient knowledge and skills but are not ready to implement differentiated pedagogy. Therefore, remedial education teachers should receive leadership support and attend professional teacher development events so that they can successfully implement differentiated pedagogy. Future studies can explore this topic in more depth by, for instance, administering a survey to review the competency of remedial education teachers for differentiated pedagogy and the challenges they face in implementing it.

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