

Factors Influencing the Teaching Practices of In-service Teachers in Inclusive Education: A Systematic Review

Miaomiao Wu

Faculty of Education, University of Malaya

Dorothy DeWitt

Faculty of Education, University of Malaya

Nor Nazrina Mohamad Nazry

Faculty of Education, University of Malaya

Norlidah Alias

Faculty of Education, University of Malaya

Yuliang Jiao

Faculty of Education, University of Malaya

Abstract

Inclusive education is a new educational trend and its development is being refined in countries worldwide. This study provided a systematic review of the factors that influence the teaching practices of in-service teachers in inclusive education. This study was analysed using a PRISMA-based systematic analysis approach by searching two databases, Web of Science and Scopus, for relevant literature from 2014 to 2023. Twenty-seven articles were finally selected for inclusion in the study. The results showed that factors influencing the teaching practices of in-service teachers in inclusive education include teachers' self-efficacy, teachers' attitudes and teachers' teaching strategies. Also, the existing literature has revealed a need for more training for teachers in inclusive education. To sum up, it is believed that there is more room to improve the professional development of in-service teachers in inclusive education.

Keywords: Inclusive education, In-service teachers, Self-efficacy, Attitudes, Strategies

Article Progress
Received: 25 January 2024
Revised: 08 February 2024
Accepted: 22 February 2024

1. INTRODUCTION

Roger Sly proposes that Inclusive Education (IE) means ensuring equal opportunity for all children to access, presence, participation, and success in regular school, which requires schools to strengthen their ability to eradicate obstacles (Slee, 2018). IE is a method of instruction founded on the idea that schools and curricula should be developed to effectively meet the diverse learning requirements of all students, especially those with special education needs (SEN) (Öztürk, 2019). Countries have endeavoured to make their education practices more inclusive and a significant amount of research has been done on various facets of IE (Van Mieghem et al., 2020). In-service teachers (IST) are considered to be leaders of change in school systems, and numerous research studies have demonstrated that teachers play a pivotal role in creating IE settings for all students,

particularly for diverse learners. Because of this, “teacher-related factors” have garnered a substantial amount of attention from researchers (San Martin et al., 2021). Many studies have highlighted factors associated with teachers creating inclusive classroom environments (Yada et al., 2019).

2. PROBLEM STATEMENT

Offering high-quality IE benefits students with SEN, and it has been advocated as a benchmark practice for all students, resulting in enhanced outcomes (De Bruin, 2020). And Chow (2024) points out that the success of IE relies on IST applying inclusive practices that benefit all students. Besides, it is different from traditional special education methods for teaching students with SEN, which has significant implications for the evolving role of teachers (Chow et al., 2023). However, to what extent do teachers believe they do not have enough support to achieve success for all students (Chow, 2024).

The ineffective implementation of IE stems from various reasons, besides teachers’ personal factors, insufficient training needs to be considered as a significant external factor (Van Staden-Payne & Nel, 2023). Disparities in training also result in differing levels of effectiveness concerning teachers’ embrace of inclusive practices in the classroom (Ismailos et al., 2022). Nonetheless, the majority of educators indicate that they lack sufficient and suitable training (Wu et al., 2024).

IE has attracted the attention of all sectors of society, countries worldwide are discovering methods to enact inclusive policies to genuinely accommodate all students, however, there are still many problems and barriers to IE in practice (Van Staden-Payne & Nel, 2023). How to promote the success of IE has been a widely discussed subject across various fields, and it is valuable to study the factors that influence the development of IE in order to promote inclusion and equity in education. Teachers’ inclusive educational practices, and the factors that influence them, have received scholarly attention, Nevertheless, there is relatively little literature that systematically reviews the factors that influence IST’ practices. Therefore, to ensure successful inclusion, it is necessary to examine the factors that influence the IST’ teaching of IE.

3. OBJECTIVES

Given the above research background and problem statement, the research objectives are;

- i. To provide a systematic overview of the elements that influence the teaching practices of IST in IE.
- ii. To emphasize the need for training as well as trying to introduce a blended learning (BL) training model.

4. THEORETICAL FOUNDATIONS

This study on IE is based on the theory of planned behaviour (TPB). Ajzen (2011) asserts that actions are the end result of one’s deliberate decision to behave in a particular manner. Attitudes held by people are the greatest predictor of their actions, according to TPB (Ajzen, 2005), which states that this is the case. In this regard, one of the factors that appears to have the strongest positive effect in inclusive classrooms is associated with the attitudes and beliefs of IST (Navarro-Mateu et al., 2020). Furthermore, as per the TBP, an individual’s intention can be

forecasted by their attitudes, subjective norms, and perceived behavioural control (Chow, 2024). Hence, the TBP framework can be utilized to corroborate the findings of this study that IST' inclusive practices are shaped by their attitudes, self-efficacy, and teaching strategies. In addition, it is because attitudes are not fixed at birth, attitudes can be acquired later (Ajzen, 2005). Therefore, IST should receive training to shape their positive attitudes towards IE.

Differentiated Instruction (DI) is a teaching strategy that is predicated on the notion that there are a variety of students present in every classroom (Reynaga-Peña et al., 2018). The pioneering model of DI was developed by Carol Ann Tomlinson and has since been refined, recently differentiated learning theory has evolved into an inclusive classroom approach where teachers need to have a proactive attitude to respond to the differentiated needs of students by modifying curriculum, teaching methods, resources and learning activities to create an inclusive learning environment for all students (Griful-Freixenet et al., 2020). The above scholars' perspectives illustrate the need for IST to adopt a positive attitude in selecting instructional strategies that are appropriate for the learning of all students in the mainstream classroom, just as the use of DI facilitates the provision of more targeted learning for students with SEN and promotes equitable and inclusive learning environments in order to increase the effectiveness of teachers' inclusive instructional practices.

5. METHODOLOGY

A systematic literature review was employed to fulfil the goals of the research. This research adhered to the latest Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021), which emphasize several aspects that guarantee open applicable, academically sufficient systematic reviews.

5.1 Search Strategy

A comprehensive search of publications that were published between the years 2014 and 2023 was carried out in two different online databases, namely Web of Science Core Collection and Scopus. The search method was based on the employment of essential ideas about the topic of the study, as well as the use of Boolean operators (AND, OR), along with basic operators embedded inside the parenthesis in the search string. The keywords used for the search were selected based on the original relevant literature and contained: “inclusive education” OR “inclusive classroom” OR “inclusive schools” OR “mainstream schools”; AND “in-service teachers”; AND “teaching practice”.

5.2 Inclusion and Exclusion Criteria

To choose and include just those studies that are relevant to this current study issue and have been uncovered via the use of databases, specific inclusion and exclusion criteria have been created. The inclusion criteria are firstly, the study is a downloadable full-text journal article written in English and not included in other databases and secondly, the investigation relates to factors that influence the teaching practice of IE for IST. While the exclusion criterion is articles to the contrary will be eliminated. Based on the PRISMA 2020 guidelines, a flow chart of the selected literature for this study is shown in Figure 1 below. Initially, a total of 157 articles were identified based on the keywords set for this study, after which a step-by-step screening process was conducted to remove articles prior to 2014, leaving 149 articles; remove articles from non-journals, leaving 126 articles;

remove articles written in non-English, leaving 124 articles; after selecting the full-text downloadable articles, the titles and abstracts were read to conduct a further screening process, and there were 52 articles left. After that, read the full text and select the qualified articles that are related to the research objectives of this study. Eventually, the search method described above resulted in the selection of twenty-seven of the more outstanding documents.

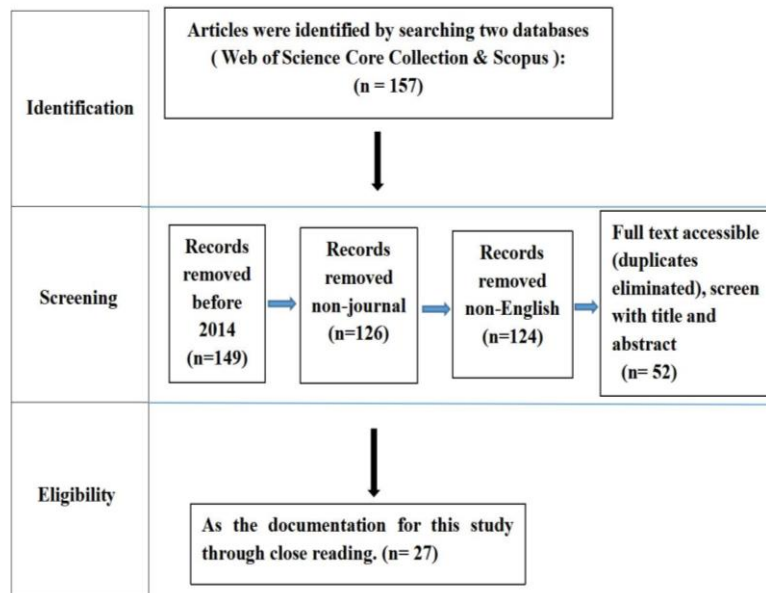


Figure 1: PRISMA 2020 Flow Diagram

(Source: Adapted from Page et al. (2021))

6. FINDINGS AND DISCUSSIONS

By searching and analyzing the literature related to the objectives of this study, it was found that IST' attitudes, self-efficacy (SE), and teaching strategies affect their teaching practices, highlighting the importance of professional development (PD) training for them. The findings are explained below.

6.1 Attitudes

To establish an inclusive classroom, it is essential to take into account the attitudes of everybody involved with creating an inclusive environment, particularly teachers (Emmers et al., 2020). According to Öztürk (2019), forming positive attitudes among educators toward IE ought to be the initial stage in expanding IE practices in educational settings. There are few studies examining instructors' attitudes toward including students with SEN in regular classrooms (Ismailos et al., 2022). However, this study found through a review of the relevant literature that IST' attitudes towards inclusion were a crucial factor in the development of their inclusive practice. The inclusiveness of teaching practices appears to be determined by teachers' attitudes (Damianidou & Phtiaka, 2018). Teachers must possess certain attitudes that make quality education open to all pupils to achieve inclusion (Navarro-Mateu et al., 2020). While most students are already enrolled

in mainstream schools, this is not a complete guarantee that students will reap the benefits of quality education, and it is unlikely that IE will be successfully practiced if school teachers do not have positive attitudes, even when all other conditions are in place (Kurniawati et al., 2017).

When instructors have a favourable attitude toward inclusion, they can more easily modify their teaching approaches to accommodate the diverse educational requirements of their students (Ismailos et al., 2022). It has been recorded that teachers who possess favourable attitudes are more inclined to employ effective instructional methods, whereas those with less positive attitudes may hinder endeavours towards inclusion (Kurniawati et al., 2017). Meanwhile, studies have also indicated that teachers' attitudes are shaped by their level of knowledge, and when teachers have less positive attitudes and limited knowledge, they tend to utilize effective teaching strategies less frequently in inclusive environments (Kurniawati et al., 2017). Consequently, it can be inferred that fostering positive attitudes and equipping teachers with comprehensive knowledge about teaching and learning are crucial for effectively implementing strategies to include students in mainstream schools.

What's more, research has found a positive and significant relationship between teachers' attitudes and SE, and in addition to positive attitudes, teachers need a strong sense of SE to accommodate diverse learners (San Martin et al., 2021). Sharma et al. (2018) emphasized the significance of teachers' attitudes and SE in IE for their inclusive instructional practices, particularly among new instructors. Raguindin et al. (2020) also showed a positive relationship between the effectiveness of IST in implementing inclusive practices and teachers' attitudes and SE.

6.2 Self-efficacy (SE)

Research on the link between teachers' SE and their teaching practice has received substantial focus over the past three decades. Recent studies have switched their emphasis to looking at the levels of SE held by educators who deal with pupils with SEN (Crispel & Kasperski, 2021; Marković, 2022). Teaching efficacy is yet another aspect that is widely researched by researchers to get a better understanding of the methods of instruction that teachers use in the classroom (Sharma & Jacobs, 2016). According to the findings of some researchers, inclusive effectiveness in teaching may be broken down into three distinct sub-constructs, which include teaching efficacy in cooperation, the ability to manage problematic behavior, and the use of inclusive methods of instruction (Sharma & Jacobs, 2016).

Teacher effectiveness is positively correlated with effective teaching and classroom management, reflecting the importance of increasing teacher effectiveness in implementing inclusive practices (Chao et al., 2018). It has been shown that a high level of SE in teachers is connected with improved organizational and planning skills, as well as more excitement, fairness, and clarity in the classroom. In inclusive classrooms, teachers with high SE tend to experiment with different teaching materials and methods and adopt progressive, innovative strategies to find better ways of teaching (Marković, 2022). That is to say, a teacher with a high level of SE will put in more effort to achieve success with his or her pupils than a teacher with a low level of SE would (Schwab & H Alnahdi, 2020). At the same time, teachers' views on SE affect their preparedness, motivation, and capacity to implement inclusive teaching practices, and SE among instructors tend to be bolstered by increased self-assurance and recurrent effectiveness with experiences (Subban et al., 2021).

While the role of teachers' SE in their inclusive teaching practice cannot be underestimated, some studies suggest that some teachers have reservations concerning IE, negative attitudes, and low SE regarding the implementation of IE (Kuyini et al., 2020). According to Schwab and H Alnahdi (2020), educators exhibited a healthy amount of self-assurance in their capacity to do their jobs in inclusive environments. The instructors, on the one hand, have some reservations about certain skills that must be had in inclusive environments. It is also likely that instructors, depending on their training and the ideas they have, have various degrees of effectiveness in adopting inclusive practices in their classrooms (Ismailos et al., 2022). On the other hand, in their training and actual practices, instructors are significantly influenced by their perceptions of their effectiveness as educators (Schwab & H Alnahdi, 2020; Sharma & Jacobs, 2016). Therefore, that is not difficult to conclude that to achieve the effectiveness of IST' IE practice, their SE needs to be secured and that the PD of IST facilitates the promotion of positive SE.

6.3 Teaching strategies

In addition to the above mentioned attitudes and SE of IST that can affect their inclusive teaching practice, when it comes to achieving successful instruction in inclusive classrooms, the curricula that are utilized and the strategies for instruction that are implemented by teachers are also two of the most important factors (Zwane & Malale, 2018). Research has shown that positive teacher attitudes towards inclusion, high levels of teacher effectiveness and inclusive practice are all important factors that lead to successful inclusive teaching and learning, and differences in duration, quality and content of courses influence these courses to improve teachers' attitudes towards inclusion, the effectiveness of inclusive teaching and learning, and ultimately their inclusive teaching practices (Sokal & Sharma, 2017). The educational strategy prioritizes the advancement of inclusive schools, and every progression towards inclusive necessitates teachers' profound self-awareness, a wide array of contemporary teaching strategies, and a strong understanding of diverse learning styles, and teachers must have and continually develop their own competencies and skills to ensure that all students are able to access, engage and learn effectively (Marković, 2022).

Zwane and Malale (2018) make it abundantly clear that the use of ineffective strategies for teaching and learning as well as support material has a detrimental effect on the process of putting IE into practice. Even positive attitudes towards inclusion can be problematic if teaching strategies for the successful practice of IE are lacking (Carew et al., 2019). The focus of successful inclusive classroom teaching encompasses three areas (1) a disposition towards human differences; (2) flexible teaching skills; and (3) the ability to work collaboratively with other professionals and parents (Connor, 2018). With an inclusive curriculum that emphasizes the use of specific objects to benefit all learners, teachers need to be learner-centred and proactive in adapting the curriculum to accommodate all learners, an inflexible classroom environment that fails to accommodate individual differences may not adequately address the varied needs of learners (Zwane & Malale, 2018).

Differentiated teaching is necessary to ensure the effectiveness of inclusive teaching practice, and flexible group practice needs to be integrated with the adaptation of curriculum, teaching methods, teaching materials and practice, with teachers who hold student-centred beliefs differentiating their teaching according to students' readiness, interests and learning profiles, Teachers also need to use student outputs (e.g., conversations, tasks, classroom behaviours) to adapt their instruction accordingly and to ensure that all students meet learning objectives (Griful-Freixenet et al., 2020). Besides, teachers' confidence in the efficacy of IE might be

bolstered by PD that helps them employ strategies for inclusive instruction effectively (Woodcock et al., 2023).

6.4 The need for training

Whether it is the attitude of IST, SE, or their teaching strategies, which seem to be attributed to elements internal to the teachers themselves. The reasons for the ineffective implementation of IE are manifold, apart from the teachers' own factors, inadequate training needs to be taken into account as a key external factor (Van Staden-Payne & Nel, 2023). PD of teachers is one of the most effective ways to strengthen student achievement and is one of the keys to improving the quality of schools (Sokal & Sharma, 2017). The relevant research asserts that better PD of teachers directly influences student success, especially for students with SEN (Öztürk, 2019). Schools and instructors face a significant obstacle in the form of an uphill battle when it comes to altering the attitudes of educators who are predominantly used to conventional modes of instruction, PD training for teachers may be seen as a valuable strategy for tackling the difficult task of altering the attitudes of educators and establishing IE environments that cater to the varied requirements of students (Öztürk, 2019). Teacher training significantly impacts teachers' attitudes, knowledge related to IE and teaching strategies (Kurniawati et al., 2017; Navarro-Mateu et al., 2020).

The study further showed that teachers had negative attitudes towards IE without training and that positive attitudes increased after training (Zwane & Malale, 2018). There are occasions when educators adopt methods of instruction that may not fulfil the requirements of certain students. This is often because the educators did not get proper training (Zwane & Malale, 2018). Identifying access to formal in-service training on teaching in inclusive classrooms as a critical element, it has been determined that such training significantly impacts teachers' self-efficacy, moreover, teachers who possess the capacity to employ effective instructional strategies, collaborate with peers, and effectively manage disruptive behaviour are more likely to achieve success in teaching within inclusive classroom settings (Marković, 2022). In addition, the research indicates that educators who have participated in training programs designed to prepare them to deal with children with SEN for twenty hours or more typically obtain the greatest degree of SE when it comes to IE (Marković, 2022). Lack of training IE, negative attitudes and lack of familiarity with the necessary strategies were barriers to inclusion, teachers should place emphasis on their requirements for instructional approaches, personalized teaching via curriculum modifications and individualized education plans, as well as management of behavioural challenges (Ali, 2018).

Research has demonstrated the significance of ongoing training, especially among qualified educators, and training is crucial for achieving the goals IE, giving teachers efficient methods of instruction, altering their attitudes, and enhancing their SE (Crispel & Kasperski, 2021). If educators get excellent training, the ensuing standards of educational instruction can firmly influence the inclusion of educational settings and also contribute to their growth as better practitioners, and regardless of worldwide standards for IE, there is not much empirical data regarding how to efficiently educate teachers, especially among countries with low or middle incomes (Carew et al., 2019). The national requirements for teacher training can vary significantly between nations and are frequently deficient (Zwane & Malale, 2018). Therefore, teachers must be provided with appropriate initial training, continuous training and PD.

6.5 Blended learning (BL) training

Researchers believe that the role of teachers is crucial in the implementation of educational reforms and that they need effective support to play an effective role in promoting educational progress (Almazroa & Alotaibi, 2023). If teachers lack adequate training support, the students they produce will fall short of expectations and appropriate training mechanisms must be in place for serving staff (Almazroa & Alotaibi, 2023). But it has been noted that despite the recognition of the importance of IST training, research into the PD and training of a wide range of teachers remains relatively limited. Donath et al. (2023) suggest that in order to enable inclusive teaching among teachers, long-term training that has significant practical value and personalized learning chances is necessary.

According to the findings of Triviño-Amigo et al. (2022), a significant proportion of educators had the impression that the training they received when they first entered the profession was inadequate to prepare them to cope with the variety of their student body. Additionally, the majority of them claim that ongoing training has assisted them in enhancing inclusive teaching and that they are eager to participate in inclusion-focused training courses if they were offered (Triviño-Amigo et al., 2022). Although accessing PD offers numerous advantages for teachers, research also highlights that they encounter certain challenges, the most commonly reported difficulties include time constraints or work pressure, the financial burden associated with PD, and limited accessibility to available courses (Nic Aindriú et al., 2023). The blended learning model of teacher training appears to alleviate barriers to teachers' PD.

BL is a learning strategy that emerged from the coexistence of traditional and emerging digital education (Huang et al., 2023). As a result of ongoing technological advancements, there are now a growing variety of tools and platforms available for the PD of educators. It has been extended to teacher education since the 21st century (Huang et al., 2023). As stated by Krasnova and Shurygin (2020), BL improves the teaching procedure more adaptable and it offers additional educational chances while taking into account the educational requirements and capabilities of teachers. The majority of research put forward that using a BL technique is an efficient tactic for teacher's PD, however, one of the drawbacks of blended techniques is that for them to operate at their full potential, it requires the collaboration of several different organizational structures (Huang et al., 2023). Accordingly, the question of how to implement BL methodologies in a manner that is more efficient to boost the PD of various kinds of educators will be the focus of subsequent research (Huang et al., 2023).

Following the emergence of COVID-19, the use of the Internet for acquiring knowledge, and online education has all been suspended (Mukuka et al., 2021; Wu et al., 2024). In this case, previous research has indicated that the educational landscape also needs to transform to adapt to increasingly rapid global developments. In line with the need to keep pace with innovation, teachers' approaches to PD need to be kept up to date. IST are encouraged to share their knowledge, experiences, resources, and most successful teaching practices with their colleagues as part of PD (O'Toole, 2019). Providing training to teachers on the utilization of technology and implementing innovative instructional practices is crucial for continual enhancement of their abilities and knowledge, enabling them to deliver high-quality education to their students, efforts are also being made to integrate educational technologies and enhance digital competencies through training, thereby fostering the development of flexible and adaptable educational environments (Salmerón

Aroca et al., 2022). For instance, professionalized training digital communities need to be created so that IST can learn from each other (Thornton & Cherrington, 2019). Meanwhile, virtual reality (VR) in the form of instructional video games elicits a range of feelings and encourage participation, which will facilitate teachers of IE to create an inclusive learning environment for all students. VR has been utilized for training in the automotive sector (Abdullah et al., 2020), but it is less often employed for teaching (DeWitt & Alias, 2023). The reason for this may be because while being excited to use VR personally, a lack of assistance and a perception of difficulties prevented the use of VR in the school (Bower et al., 2020). There is reasonable to believe that training teachers in pedagogical techniques to improve their digital competencies facilitates their training in BL models.

7. CONCLUSION

In view of the rapid global trend towards IE, countries are improving IE to satisfy the requirements of diverse students and to bring more and more students with SEN into mainstream classrooms. However, for various internal and external reasons, the advantages of IE have not been fully exploited. IST have an important role in creating inclusive classrooms for all students. Some literature exists that explores the effects of inclusive education practices, but it only examines individual influences, and there are relatively few studies that examine the effects of inclusive teaching practices on teachers, particularly IST comprehensively and systematically. Understanding systematically the factors that influence IST' teaching practices in IE can contribute to the success of teaching practices. This study concludes from an analysis of selected literature that teachers' attitudes towards IE, their SE, and teaching strategies that allow for diverse teaching and learning to accommodate all students are key factors that influence IST' teaching practices.

Despite the attention paid to IE by IST, there are still problems with IST' SE, attitudes and teaching strategies, which are partly responsible for the lack of implementation of IE. For teachers to have positive attitudes towards teaching, strong SE, and flexible and appropriate teaching strategies, IST need ongoing teacher training. This paper attempts to suggest a blended learning training model for IST, which not only reduces the burden of their training and makes it easier for them to improve their professional development, but is also a reasonable solution to meet the needs of the times, improving their digital skills and helping them to develop new talents who can adapt to the needs of the new era. There may be more factors that impact IST' inclusive teaching practices, such as the beliefs and intentions of serving teachers. But this study can still provide value for IE and teacher training for in-service and pre-service teachers in particular. More effective factors will also be explored in the future to enhance the inclusive practice of IST, Also, sub-influences affecting teachers' SE, attitudes and teaching strategies are possible directions for future research.

8. ABBREVIATIONS

IE: Inclusive Education; IST: in-service teachers; BL: blended learning; TPB: theory of planned behavior; DI: Differentiated Instruction; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; SE: self-efficacy; PD: professional development; SEN: special education needs; VR: virtual reality.

9. ACKNOWLEDGEMENTS

This research is supported by the Ministry of Higher Education, Name of Grant: Fundamental Research Grant (FRGS), Project Code: FRGS/1/2021/SSI0/UM/02/7.

REFERENCES

- Abdullah, A. G., Mulyanti, B., & Rohendi, D. (2020). TVET learning innovation on automotive virtual laboratory based on cloud openstack. *Journal of Technical Education and Training*, 12(3), 51-60.
- Ajzen, I. (2005). *EBOOK: Attitudes, Personality and Behaviour*. McGraw-hill education (UK).
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. 26(9), 1113-1127. <https://doi.org/10.1080/08870446.2011.613995>
- Ali, A. D. (2018). Identifying training needs of in-service EFL teachers in inclusive schools in Egypt. *Arab World English Journal (AWEJ) Volume*, 9. <https://doi.org/10.24093/awej/vol9no1.12>
- Almazroa, H., & Alotaibi, W. (2023). Teaching 21st Century Skills: Understanding the Depth and Width of the Challenges to Shape Proactive Teacher Education Programmes. *Sustainability*, 15(9), 7365. <https://doi.org/10.3390/su15097365>
- Bower, M., DeWitt, D., & Lai, J. W. (2020). Reasons associated with preservice teachers' intention to use immersive virtual reality in education. *British Journal of Educational Technology*, 51(6), 2215-2233. <https://doi.org/10.1111/bjet.13009>
- Carew, M. T., Deluca, M., Groce, N., & Kett, M. (2019). The impact of an inclusive education intervention on teacher preparedness to educate children with disabilities within the Lakes Region of Kenya. *International journal of inclusive education*, 23(3), 229-244. <https://doi.org/10.1080/13603116.2018.1430181>
- Chao, C. N. G., Lai, F. T. T., Ji, M., Lo, S. K., & Sin, K. F. (2018). Which inclusive teaching tasks represent the highest level of teacher efficacy in primary and secondary schools? *Teaching and Teacher Education*, 75, 164-173. <https://doi.org/10.1016/j.tate.2018.06.014>
- Chow, W. S. E. (2024). Examining factors influencing teachers' intentions in implementing inclusive practices in Hong Kong classrooms. *Journal of Research in Special Educational Needs*, 24(2), 376-388. <https://doi.org/10.1111/1471-3802.12632>
- Chow, W. S. E., de Bruin, K., & Sharma, U. (2023). A scoping review of perceived support

- rt needs of teachers for implementing inclusive education. *International journal of inclusive education*, 1-20. <https://doi.org/10.1080/13603116.2023.2244956>
- Connor, D. J. (2018). Contemplating Teachers' Disposition and Pedagogical Skills within Inclusive Classrooms: Responsibilities of, and Implications for, Teacher Education Programs and In-Service Professional Development. *DDS–Die Deutsche Schule*, 110(1), 75-86. <https://doi.org/10.25656/01:26003>
- Crispel, O., & Kasperski, R. (2021). The impact of teacher training in special education on the implementation of inclusion in mainstream classrooms. *International journal of inclusive education*, 25(9), 1079-1090. <https://doi.org/10.1080/13603116.2019.1600590>
- Damianidou, E., & Phtiaka, H. (2018). Implementing inclusion in disabling settings: The role of teachers' attitudes and practices. *International journal of inclusive education*, 22(10), 1078-1092. <https://doi.org/10.1080/13603116.2017.1415381>
- De Bruin, K. (2020). Does inclusion work? In *Inclusive education for the 21st century* (pp. 55-76). Routledge.
- DeWitt, D., & Alias, N. (2023). Creative Digital Pedagogies for Student Engagement: Preparing Students for Industry 4.0. In *Digitalization and Development* (pp. 112-132). Routledge. <https://doi.org/10.4324/9781003367093-7>
- Donath, J. L., Lüke, T., Graf, E., Tran, U. S., & Götz, T. (2023). Does Professional Development Effectively Support the Implementation of Inclusive Education? A Meta-Analysis. *Educational Psychology Review*, 35(1), 30. <https://doi.org/10.1007/s10648-023-09752-2>
- Emmers, E., Baeyens, D., & Petry, K. (2020). Attitudes and self-efficacy of teachers towards inclusion in higher education. *European Journal of Special Needs Education*, 35(2), 139-153. <https://doi.org/10.1080/08856257.2019.1628337>
- Griful-Freixenet, J., Vantieghem, W., Gheysens, E., & Struyven, K. (2020). Connecting beliefs, noticing and differentiated teaching practices: A study among pre-service teachers and teachers. *International journal of inclusive education*, 1-18. <https://doi.org/10.1080/13603116.2020.1862404>
- Huang, Y., Syed-Abdullah, S. I. S., Zulkifli, N. N., & Ghazali, N. (2023). Blended Learning as an Optimal Strategy for Teacher's Professional Development: Systematic Literature Review. *Educational Administration: Theory and Practice*, 29(2). <https://doi.org/10.17762/kuey.v29i2.701>
- Ismailos, L., Gallagher, T., Bennett, S., & Li, X. (2022). Pre-service and in-service teachers' attitudes and self-efficacy beliefs with regards to inclusive education. *International journal of inclusive education*, 26(2), 175-191. <https://doi.org/10.1080/13603116.2019.16>

[42402](#)

- Krasnova, L. A., & Shurygin, V. Y. (2020). Blended learning of physics in the context of the professional development of teachers. *International Journal of Technology Enhanced Learning*, 12(1), 38-52. <https://doi.org/10.1504/IJTEL.2020.103814>
- Kurniawati, F., De Boer, A., Minnaert, A., & Mangunsong, F. (2017). Evaluating the effect of a teacher training programme on the primary teachers' attitudes, knowledge and teaching strategies regarding special educational needs. *Educational Psychology*, 37(3), 287-297. <https://doi.org/10.1080/01443410.2016.1176125>
- Kuyini, A. B., Desai, I., & Sharma, U. (2020). Teachers' self-efficacy beliefs, attitudes and concerns about implementing inclusive education in Ghana. *International journal of inclusive education*, 24(14), 1509-1526. <https://doi.org/10.1080/13603116.2018.1544298>
- Marković, V. (2022). Relationship between educational qualifications and self-perceived self-efficacy of teachers working with students with special educational needs. *Hrvatska revija za rehabilitacijska istraživanja*, 58(1), 50-72. <https://doi.org/10.31299/hrri.58.1.3>
- Mukuka, A., Shumba, O., & Mulenga, H. M. (2021). Students' experiences with remote learning during the COVID-19 school closure: implications for mathematics education. *Heliyon*, 7(7), e07523. <https://doi.org/10.1016/j.heliyon.2021.e07523>
- Navarro-Mateu, D., Franco-Ochoa, J., Valero-Moreno, S., & Prado-Gascó, V. (2020). Attitudes, sentiments, and concerns about inclusive education of teachers and teaching students in Spain. *Frontiers in psychology*, 11, 521. <https://doi.org/10.3389/fpsyg.2020.00521>
- Nic Aindriú, S., Connaughton-Crean, L., Ó Duibhir, P., & Travers, J. (2023). The Design and Content of an Online Continuous Professional Development Course in Special Education for Teachers in Irish Immersion Primary and Post-Primary Schools. *Education Sciences*, 13(3), 281. <https://doi.org/doi.org/10.3390/educsci13030281>
- O'Toole, C. (2019). "Virtual Learning Environment Faculty Continuing Professional Development-Networked Learning Communities" A Critical Literature Review. *Irish Journal of Technology Enhanced Learning*, 4(1), 48-67. <https://doi.org/10.22554/ijtel.v4i1.50>
- Öztürk, M. (2019). An Evaluation of an Innovative In-Service Teacher Training Model in Turkey. *International Journal of Higher Education*, 8(1), 23-36. <https://doi.org/10.5430/ijhe.v8n1p23>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *International journal of surgery*, 88, 105906. <https://doi.org/10.1016/j.ijsu.2021.105906>

- Raguindin, P. Z. J., Ping, L. Y., Duereh, F., & Lising, R. L. S. (2020). Inclusive Practices of In-Service Teachers: A Quantitative Exploration of a Southeast Asian Context. *European Journal of Educational Research*, 9(2), 787-797. <https://doi.org/10.12973/eu-jer.9.2.787>
- Reynaga-Peña, C. G., Sandoval-Ríos, M., Torres-Frías, J., López-Suero, C., Lozano Garza, A., Dessens Félix, M., González Maitland, M., & Ibanez, J. G. (2018). Creating a dialogic environment for transformative science teaching practices: towards an inclusive education for science. *Journal of Education for Teaching*, 44(1), 44-57. <https://doi.org/10.1080/02607476.2018.1422620>
- Salmerón Aroca, J. A., Moreno Abellán, P., & Martínez de Miguel López, S. (2022). Teachers' Professional Development and Intelligent Ways of Coping with It: A Systematic Review in Elementary and Middle School Education. *Journal of Intelligence*, 11(1), 1. <https://doi.org/10.3390/jintelligence11010001>
- San Martin, C., Ramirez, C., Calvo, R., Muñoz-Martínez, Y., & Sharma, U. (2021). Chilean teachers' attitudes towards inclusive education, intention, and self-efficacy to implement inclusive practices. *Sustainability*, 13(4), 2300. <https://doi.org/10.3390/su13042300>
- Schwab, S., & H Alnahdi, G. (2020). Do they practise what they preach? Factors associated with teachers' use of inclusive teaching practices among in-service teachers. *Journal of Research in Special Educational Needs*, 20(4), 321-330. <https://doi.org/10.1111/1471-3802.12492>
- Sharma, U., Aiello, P., Pace, E. M., Round, P., & Subban, P. (2018). In-service teachers' attitudes, concerns, efficacy and intentions to teach in inclusive classrooms: An international comparison of Australian and Italian teachers. *European Journal of Special Needs Education*, 33(3), 437-446. <https://doi.org/10.1080/08856257.2017.1361139>
- Sharma, U., & Jacobs, D. K. (2016). Predicting in-service educators' intentions to teach in inclusive classrooms in India and Australia. *Teaching and Teacher Education*, 55, 13-23. <https://doi.org/10.1016/j.tate.2015.12.004>
- Slee, R. (2018). *Inclusive education isn't dead, it just smells funny*. Routledge.
- Sokal, L., & Sharma, U. (2017). Do I really need a course to learn to teach students with disabilities? I've been doing it for years. *Canadian Journal of Education/Revue canadienne de l'éducation*, 40(4), 739-760.
- Subban, P., Round, P., & Sharma, U. (2021). 'I can because I think I can': an investigation into Victorian secondary school teacher's self-efficacy beliefs regarding the inclusion of students with disabilities. *International journal of inclusive education*, 25(3), 348-361. <https://doi.org/10.1080/13603116.2018.1550816>

- Thornton, K., & Cherrington, S. (2019). Professional learning communities in early childhood education: a vehicle for professional growth. *Professional Development in Education*, 45(3), 418-432. <https://doi.org/10.1080/19415257.2018.1529609>
- Triviño-Amigo, N., Mendoza-Muñoz, D. M., Mayordomo-Pinilla, N., Barrios-Fernández, S., Contreras-Barraza, N., Gil-Marín, M., Castillo, D., Galán-Arroyo, C., & Rojo-Ramos, J. (2022). Inclusive Education in Primary and Secondary School: Perception of Teacher Training. *International Journal of Environmental Research and Public Health*, 19(23), 15451. <https://doi.org/10.3390/ijerph192315451>
- Van Mieghem, A., Verschueren, K., Petry, K., & Struyf, E. (2020). An analysis of research on inclusive education: a systematic search and meta review. *International journal of inclusive education*, 24(6), 675-689. <https://doi.org/10.1080/13603116.2018.1482012>
- Van Staden-Payne, I., & Nel, M. (2023). Exploring factors that full-service school teachers believe disable their self-efficacy to teach in an inclusive education system. *Frontiers in Education*, <https://doi.org/10.3389/educ.2022.1009423>
- Woodcock, S., Gibbs, K., Hitches, E., & Regan, C. (2023). Investigating Teachers' Beliefs in Inclusive Education and Their Levels of Teacher Self-Efficacy: Are Teachers Constrained in Their Capacity to Implement Inclusive Teaching Practices? *Education Sciences*, 13(3), 280. <https://doi.org/10.3390/educsci13030280>
- Wu, M., DeWitt, D., Nazry, N. N. M., & Alias, N. (2024). Digital Literacy from 2019-2023: A Scientometric Study. *International Journal of Business and Technology Management*, 6(1), 81-93. <https://doi.org/10.55057/ijbtm.2024.6.1.8>
- Yada, A., Tolvanen, A., Malinen, O.-P., Imai-Matsumura, K., Shimada, H., Koike, R., & Savolainen, H. (2019). Teachers' self-efficacy and the sources of efficacy: A cross-cultural investigation in Japan and Finland. *Teaching and Teacher Education*, 81, 13-24. <https://doi.org/10.1016/j.tate.2019.01.014>
- Zwane, S. L., & Malale, M. M. (2018). Investigating barriers teachers face in the implementation of inclusive education in high schools in Gege branch, Swaziland. *African journal of Disability*, 7(1), 1-12. <https://doi.org/10.4102/ajod.v7i0.391>

Miaomiao Wu (Corresponding author)
Faculty of Education
Universiti Malaya
Kuala Lumpur
50603, Wilayah Persekutuan Kuala Lumpur, MALAYSIA
Email: s2026817@siswa.um.edu.my

Dorothy DeWitt
Faculty of Education
Universiti Malaya
Kuala Lumpur
50603, Wilayah Persekutuan Kuala Lumpur, MALAYSIA
Email: dorothy@um.edu.my

Nor Nazrina Mohamad Nazry
Faculty of Education
Universiti Malaya
Kuala Lumpur
50603, Wilayah Persekutuan Kuala Lumpur, MALAYSIA
Email: nazrina@um.edu.my

Norlidah Alias
Faculty of Education
Universiti Malaya
Kuala Lumpur
50603, Wilayah Persekutuan Kuala Lumpur, MALAYSIA
Email: drnorlidah@um.edu.my

Yuliang Jiao
Faculty of Education
Universiti Malaya
Kuala Lumpur
50603, Wilayah Persekutuan Kuala Lumpur, MALAYSIA
Email: jiaoyuliang@gmail.com