ORGANISATIONAL, JOB-RELATED AND PERSONAL VARIABLES ON INNOVATIVE WORK BEHAVIOUR OF SPECIAL NEEDS SCHOOL TEACHERS IN MALAYSIA DURING PANDEMIC: MOTIVATION AS A MEDIATOR

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by

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FAKTOR ORGANISASI, KERJA DAN PERIBADI TERHADAP TINGKAH LAKU KERJA INOVATIF GURU SEKOLAH PENDIDIKAN KHAS DI MALAYSIA SEMASA PANDEMIK: MOTIVASI SEBAGAI PENGANTARA

ABSTRAK

Pendidikan 4.0 ialah gaya pengajaran dan sistem pembelajaran baharu yang membentuk pembelajaran kendiri, pemikiran kritis, keupayaan digital dan kapasiti penyelesaian masalah pelajar hasil daripada Revolusi Industri 4.0. Pendidikan adalah komponen penting dalam kehidupan bagi orang kurang upaya kerana ia membolehkan mereka membaca dan menulis, mencari kerja, dan mengambil bahagian dalam membuat keputusan. Pelajar berkeperluan khas di Malaysia menghadiri sekolah pendidikan khas, yang membolehkan mereka belajar dengan cara yang paling berkesan untuk mereka. Oleh itu, peranan guru pendidikan khas adalah kritikal. Untuk membolehkan pelajar berkeperluan khas mendapat manfaat daripada kemajuan pendidikan yang positif, guru mesti mempamerkan tingkah laku kerja yang inovatif. Tambahan pula, motivasi memainkan peranan penting dalam menentukan tingkah laku kerja inovatif guru. Selain itu, banyak pembolehubah mempengaruhi motivasi dan tingkah laku kerja inovatif guru sekolah pendidikan khas. Teori Pertukaran Sosial (SET) berfungsi sebagai asas untuk kajian ini. Oleh itu, model penyelidikan yang lebih komprehensif telah diwujudkan untuk menyiasat hubungan antara pembolehubah organisasi (iklim organisasi, struktur ICT yang berkesan, dan keadilan organisasi), pembolehubah berkaitan pekerjaan (pembangunan profesional guru, autonomi pekerjaan, dan sokongan sosial), dan pembolehubah peribadi. (personaliti proaktif,

kecekapan menggunakan pedagogi digital, dan efikasi kendiri) dan motivasi, serta hubungan tidak langsung antara ketiga-tiga jenis pembolehubah dan tingkah laku kerja yang inovatif. Data kajian telah dikumpul daripada guru-guru di 11 sekolah pendidikan khas di Semenanjung Malaysia termasuk sekolah rendah dan menengah. Data yang dikumpul kemudiannya dianalisis menggunakan Partial Lease Square Analysis (Smart PLS). Menurut penemuan kajian, iklim organisasi, pembangunan profesional guru, autonomi pekerjaan, dan personaliti proaktif semuanya dikaitkan secara positif dengan motivasi. Sementara itu, motivasi didapati tidak mengantara hubungan antara iklim organisasi dan tingkah laku kerja inovatif, pembangunan profesional guru dan tingkah laku kerja inovatif, autonomi kerja dan tingkah laku kerja inovatif, dan personaliti proaktif dan tingkah laku kerja inovatif. Sumbangan teori dan praktikal hasil kajian akan berguna kepada Kementerian Pendidikan Malaysia, sekolah pendidikan khas, dan guru sekolah pendidikan khas. Mereka boleh belajar tentang pembolehubah yang mempengaruhi motivasi dan cara meningkatkan tingkah laku kerja inovatif mereka. Akhirnya, batasan kajian, serta hala tuju penyelidikan masa hadapan turut dibincangkan.

ORGANISATIONAL, JOB-RELATED AND PERSONAL VARIABLES ON INNOVATIVE WORK BEHAVIOUR OF SPECIAL NEEDS SCHOOL TEACHERS IN MALAYSIA DURING PANDEMIC: MOTIVATION AS A MEDIATOR

ABSTRACT

Education 4.0 is a new teaching style and learning system that shapes students' self-learning, critical thinking, digital capabilities, and problem-solving capacity due to the Industrial Revolution 4.0. Education is an essential component of life for people with disabilities because it allows them to read and write, find work, and participate in decision-making. Students with special needs in Malaysia attend special needs schools, which would enable them to study in the most effective way for them. As a result, the role of special education teachers is critical. In order for special needs students to benefit from positive educational advances, teachers must exhibit innovative work behaviour. Furthermore, motivation plays a crucial role in determining teachers' innovative work behaviour. Apart from that, many variables affect special needs school teachers' motivation and innovative work behaviour. The Social Exchange Theory (SET) serves as the foundation for this study. Hence, a more comprehensive research model was established to investigate the relationships between organizational variables (organizational climate, effective ICT structure, and organizational justice), job-related variables (teachers' professional development, job autonomy, and social support), and personal variables (proactive personality, competencies for digital pedagogy, and self-efficacy) and motivation, as well as the indirect relationship between the three types of variables and innovative work

behaviour. The study's data was gathered from teachers at 11 special needs schools in Peninsular Malaysia, including primary and secondary schools. The collected data was then analysed using Partial Lease Square Analysis (Smart PLS). According to the findings, organizational climate, teachers' professional development, job autonomy, and proactive personality were all positively associated with motivation. Meanwhile, motivation was discovered to mediate the relationships between organizational climate and innovative work behaviour, teachers' professional development and innovative work behaviour, job autonomy and innovative work behaviour, and proactive personality and innovative work behaviour. The theoretical and practical contributions of the research findings were addressed. The study's findings will be useful to the Malaysian Ministry of Education, special needs schools, and special needs school teachers. They can learn about the variables that influence motivation and how to improve their innovative work behaviour. Finally, the study's limitations were discussed, as well as future research directions.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discusses the study's background, including the problems addressed in this research, research objectives, research questions, study's scope, study's significance, and the definition of the key terms.

1.2 Background of the Study

The rise of Industrial Revolution 4.0 (IR 4.0) has emphasized skills and capabilities, transforming people into more inventive individuals (Baharuddin, Masrek, & Shuhidan, 2019). The IR 4.0 has led to Education 4.0, which signifies a new era of teaching and learning (Bujang et al., 2020). The nation as a whole is seeing the eruption of IR 4.0, which affects people from all walks of life (Saad et al., 2023). As a result, deliberate efforts must be taken to help students acquire new skills (reskilling) and enhance their current talents (upskilling) in order to better equip them for the demands of the job sector (Saad et al., 2023). The features of education 4.0 influence students' capacity for self-learning, critical analysis, digital literacy, and problem-solving (Puncreobutr, 2016). In other words, Education 4.0 has provided extra progress for reform in education. (Xing & Marwala, 2017). It involves more complex, dialectical, and exciting education, potentially transforming society to be better (Xing & Marwala, 2017).

In recent years, Malaysia has made significant efforts to improve special education by implementing inclusive education programs, improving teacher training, and designing individualized learning plans for students with disabilities. However,

the success of these programs is strongly dependent on the skill, enthusiasm, and adaptability of special needs school teachers, who deal directly with students with complex learning and behavioural issues.

Globally, special needs school teachers face increasing pressures due to the complexity of student needs, the rapid integration of educational technology, and the growing urge to innovate in teaching approaches. According to research, many teachers face limited professional development, emotional exhaustion, and a lack of institutional support. Challenges include a lack of confidence in using technology, hurdles to using creative methods, and a perceived lack of recognition compared to mainstream teachers. These challenges are echoed in Malaysian rural schools, which cite teacher fatigue, antiquated infrastructure, and uneven training opportunities (Zaid et al., 2020).

Mirzajani et al. (2016) predicted that Education 4.0 will be driven by innovation and will prepare students to be better innovators. Students must be trained, mentored, and facilitated in a different educational approach to correspond with new possibilities (Bujang et al., 2020). Thus, teachers and academicians must adapt to the changes brought about by Education 4.0 (Ishak & Mansor, 2020). This is because learning in this era requires everyone to be equipped with the best ability, leading to the importance of an innovative and dynamic environment (Ishak & Mansor, 2020).

Education is crucial for fostering national development as well as an individual's intellectual and personal growth (Nasir & Efendi, 2017). According to Sanaky (2017), education involves building the basis of culture and human life by developing values and social development. Education plays a vital role in the lives of people with disabilities because it helps them read and write, communicate in English, find employment, and participate in decision-making. (Singal et al., 2015). According

to the Persons with Disabilities Act (2008), “Persons with disabilities shall not be exempted from the general education system on the basis of disability, and disabled children shall not be exempt from preschool, primary, secondary and tertiary education, on the basis of equality with persons or children's efforts, including vocational training and lifelong learning”.

Under the Persons with Disabilities Act (2008), a person is defined as having a disability when they ‘have long-term physical, mental, intellectual or sensory impairments that may hinder their full and effective participation in society in interaction with various barriers.’ The category of learning difficulties includes Down syndrome, autistic spectrum disorders (ASD), attention-deficit/hyperactivity disorders (AD/HD), mild mental retardation, and specific learning difficulties (such as dyslexia) (Ministry of Education Malaysia, 2014). According to Kirk et al. (2000), children with disabilities differ from the average or normal children in terms of mental characteristics, sensory abilities, communication abilities, behaviour, and emotional development, or physical characteristics. Due to these differences, these children require special education services to develop their unique capabilities. They are referred to as special needs or learning-disabled children who require assistance and support in the classroom to reach their maximum academic abilities (Kirk et al., 2000). Special education has grown steadily in Malaysia. Four stages in the growth of Malaysia's special education sector were outlined by Lay and Hui (2014). These are the following phases: (a) pre-1900, pre-colonial period; (b) pro-independence, 1900–1957; (c) post–independence, 1957–1990; and (d) contemporary Malaysia, post–1990. Previously, only the traditional Malay shed school (Sekolah Pondok) provided an option for those with impairments to attend school (Lay & Hui, 2014). The first stage, known as the Pre-1900 (Pre-colonial Period), saw informal education attempts such as

traditional Malay religious institutions (Sekolah Pondok), with little formal access for those with disabilities. The second stage, from 1900 to 1957 (pro-independence), saw the establishment of the first institutional special education facilities under British authority, including the Princess Elizabeth School for the Blind and the Federal School for the Deaf. The third stage, 1957-1990 (post-independence), saw the Ministry of Education assume responsibility for special education, embracing Western models and adopting a biological approach in policy and practice. Finally, the fourth stage, Post-1990 (Contemporary Malaysia), aimed to integrate students with disabilities into mainstream schools using inclusive education ideas, national policies, and legal frameworks like the Persons with Disabilities Act 2008. This gradual development demonstrates Malaysia's growing commitment to educational equity for students with special needs (Lay & Hui, 2014).

The British Strait Government established the Princess Elizabeth Special Education School in Johor Bahru in 1948–1950 as the first special school for students with visual impairments, and the Federal School for Deaf Children in Penang as the first school for students with hearing impairments (Lay & Hui, 2014). Non-governmental organisations (NGOs) provided education for individuals with disabilities throughout this period, and their funding was mostly provided by NGOs and missionary groups (Lay & Hui, 2014).

After independence, the Ministry of Education has jurisdiction over the provision of education for students with disabilities. For the purpose of teaching Braille and sign language, schools used a Western curriculum at the time. Later, they embraced Western ideas of disability and special education as well as their expertise (Lay & Hui, 2014). During this period, the bio-medical paradigm was adopted to shape policy and practice, demonstrating the dominance of Western influence. This

eventually resulted in the use of welfare and charitable methods in services and facilities for Malaysians with disabilities (Lay & Hui, 2014).

Malaysia has made remarkable progress in special education since 1990 (Nasir & Efendi, 2017). Currently, the government offers educational opportunities to students with special needs, including those with learning difficulties, visually impaired students, and hearing-impaired students (Ministry of Education Malaysia, 2021). The Ministry of Education Malaysia has provided educational opportunities through the following programs (i) program for visually impaired students (ii) program for hearing impaired students (iii) special education integrated program (in regular schools) (Ministry of Education Malaysia, 2021). The special education program's goal is to provide equal educational opportunities to all students regardless of their disabilities (Ministry of Education Malaysia, 2021).

The significance and pertinence of special needs schools in Malaysia arise from the nation's dedication to inclusive education and equitable access to educational opportunities. Malaysia is a signatory to the United Nations Convention on the Rights of Persons with impairments (UNCRPD) and implements the Persons with Disabilities Act 2008, which ensures equal educational rights for individuals with impairments (Ministry of Women, Family and Community Development, 2008). Special needs schools offer tailored instruction, individual support, and specific facilities to address various learning requirements, including autism, Down syndrome, ADHD, and sensory impairments (Ministry of Education Malaysia, 2021). These institutions are essential in mitigating educational inequalities, particularly in rural and marginalized areas. Moreover, special needs schools conform to national regulations like the Malaysia Education Blueprint 2013–2025, which underscores access, equity, and inclusivity (Ministry of Education Malaysia, 2013). By endorsing special needs

education, Malaysia fosters social inclusion and advances Sustainable Development Goal 4—ensuring inclusive and equitable quality education while fostering lifelong learning opportunities for everyone (United Nations, 2015).

Special education schools provide one-of-a-kind curricula tailored to the needs of students with disabilities (Borgen Magazine, 2021). The schools enable special needs students to study in the most effective method for them. They may not be hampered by the distractions or problems that are inherent in mainstream schools. These schools primarily serve students who have visual, hearing, and learning disabilities (Borgen Magazine, 2021). Special needs education refers to a variety of customized education approaches that can be delivered in various ways and settings (Wellrehab, 2021). In addition, there is no such thing as a "one-size-fits-all" approach to special education (Wellrehab, 2021). It is designed to suit the requirements of students with special needs or learning difficulties (Wellrehab, 2021).

According to the UNESCO International Bureau of Education in Malaysia (2009), special needs students require a basic education of 13 years, an extra two years compared to other students. The schooling consists of 1 year of preschool, 6 years of primary, 3 years of lower secondary and 2 years of upper secondary education, and extra 2 years either taken at the primary or secondary level. Currently, there are a total of 28 special needs schools in Peninsular Malaysia. Out of the 28 schools, 21 are primary schools, while 7 are secondary schools (Ministry of Education Malaysia, 2021). As of June 2019, 2492 special needs students are currently under Special Education Schools (New Straits Time, 2019).

While the Malaysian education Blueprint (2013-2025) establishes clear goals for equity, diversity, and innovation in the classroom, its execution has highlighted significant problems, particularly in the context of special needs education. Although one of the MEB's core goals is to promote equal access and quality education for all students, reports show that special education teacher training and upskilling are inconsistent throughout areas (MOE, 2022). Many special needs teachers report few professional development options, notably in education technology, innovative pedagogy, and inclusive practices (Zaid et al., 2020; Yusof et al., 2021). Furthermore, despite the policy's emphasis on innovation, there is little evidence that the Malaysian Education Blueprint (MEB) has successfully developed innovative work behaviour among special education teachers (Yusof et al., 2021; Zaid et al., 2020). These gaps indicate a mismatch between the MEB's goals and the real-world readiness of special needs school teachers, emphasizing the need for research into how workplace and personal factors influence their motivation and innovative potential (Nordin & Ghani, 2019; MOE, 2022).

1.3 Innovative Teachers

Teaching is considered a respectable career that the community honours because it involves a tremendous role in shaping society with knowledge (Rodzi et al., 2017). According to Surajudeen, Ibironke, and Aladesusi (2023), special education teachers receive training in specialized programs and are usually certified to teach students with special needs. Teachers who specialize in special education customize general education teachings to accommodate students with mild to moderate disabilities. Subjects taught include reading, writing, and math. Additionally, they provide those with severe disabilities with lessons in reading and communication

skills. Teachers who specialize in special education may work one-on-one with students or in small groups (Ibironke, Aladesusi & Surujudeen (2023). Both the teaching abilities of teachers and the learning of children with special needs are significantly impacted by innovative teaching practices (Sedef et al., 2021). Teachers who use innovative pedagogical approaches with special needs students are extremely important since they help to maximise the potential of these students and provide learning activities that cater to their specific differences (Sedef et al., 2021).

In recent years, Malaysia's special education regulations and personnel practices have shifted gradually. The Department of Statistics Malaysia (DOSM, 2024) reported 826 special education teachers at the primary level and 473 at the secondary level in 2023, for a total of 1,299 teachers nationwide. Compared to prior years, this represents a 1.0% decline at the primary level and a 2.4% increase at the secondary level. To further understand the trend, data from recent years show that the number of special education teachers in Malaysia has fluctuated over time. In 2021, there were estimated 1,320 teachers nationwide, with 1,312 in 2022 and 1,299 in 2023 (DOSM, 2024). This represents a gradual year-on-year decline, particularly in the primary sector. While the number of secondary school special education teachers has marginally increased, the overall trend indicates issues with teacher retention and recruiting. This reduction may result in larger teaching loads, increased stress, and a greater requirement for innovative work behaviour to manage limited resources. As a result, this tendency reinforces the need to investigate the variables that drive and enable teachers to innovate in increasingly demanding instructional settings.

These shifts point to persistent issues in teacher recruitment, distribution, and retention in the special education field. The variability in teacher numbers, particularly the decrease in primary-level employment, may put more pressure on current teachers

to adapt, diversify their instructional methodologies, and innovate in their classrooms. These trends underscore the importance of this study, which seeks to investigate the factors influencing innovative work behaviour among special needs school teachers in Malaysia.

Innovative teachers who can engage in a range of teaching and learning activities are critical to the field of education (Thurlings, Evers & Vermeulen, 2015). This is because the creation and maintenance of effective schools depend heavily on their teachers (Balkar, 2015). Teachers must have the ability to plan, control, and facilitate interaction in the classroom to teach students with special needs (Di Gennaro et al., 2014). Innovative teaching practices can improve student achievement (Izzati, 2018). But most teachers these days are reluctant to be innovative in what they do (Baharuddin et al., 2019). This is a result of the fact that most teachers are content with their current roles in the classroom and would rather stick to using traditional teaching techniques rather than creating new ones that employ novel techniques and approaches (Izzati, 2018).

Patterson (2009) emphasized the necessity of identifying the qualities and actions of innovative people, as well as fostering innovative work behaviour among members of an organization. This highlights the need for innovative work behaviour in the workplace, particularly in educational institutions (Izzati, 2018). In these challenging times, teachers must always be imaginative in preparing students for the difficult obstacles that await them in the future (Prayudhayanti, 2014). According to Kivunja (2015), innovative teaching refers to teachers' ability to engage students in classrooms, improve students' ability to learn, and identify individual students' different needs. This will help the teachers identify their creativity in the learning process (Kivunja, 2015).

Messmann and Mulder (2011) stated that teachers' innovative work behaviour encompasses observing, listening to, and adapting ideas, building action strategies, assessing through reflection and evaluation, and adjusting to innovations. Today's rapid social, economic, and technological changes have led teachers to play a crucial role in creating and maintaining effective learning in schools (Akiri & Ugborugbo, 2009). Thus, efficient knowledge and innovative work behaviour among teachers are crucial in delivering high-quality education (Van der Heijden et al., 2015). Hence, teachers' innovative teaching is imperative to meet today's present and future educational needs (Abdullah & Ling, 2016). Teachers' innovation is vital in the education process since it improves students' teaching methods and attention management (Buxton, Phillippi & Collins, 2015).

According to Thurlings, Evers and Vermeulen (2014), there are three significant reasons for the importance of innovative work behaviour among teachers. First of all, it allows teachers to keep up with the rapid changes in society. Second, it promotes new learning and technology. Thirdly, it is considered a starting point for developing creative and innovative citizens. As a result, teachers who exhibit innovative work behaviour will be able to work creatively and contribute positively to their organization (Baharuddin et al., 2019). After all, education plays an important role in encouraging students' creativity and innovation. Innovative behaviour among teachers is essential for further developing the educational professions, schools, and the growth of the knowledge society (Thurlings et al., 2015). Furthermore, it is the responsibility of special education teachers to ensure that students with special needs have the chance to benefit from positive educational developments (Rodzi et al., 2017). This clearly emphasized the powerful impact of innovative work behaviour in the

teaching profession, especially the teaching strategy's effectiveness among teachers who teach students with special needs.

Sufean (2004) asserted that teaching effectiveness is closely related to teachers' motivation in accomplishing their responsibilities. According to Ali et al. (2014), teachers lack the motivation to teach special needs students, leading to ineffective teaching (Rodzi et al., 2017). Their lack of enthusiasm for teaching will prevent them from meeting the expectations of the students and the government's standards (Rodzi et al., 2017). Even with all of the government initiatives to make education more accessible to students with special needs, these adjustments won't work if they are not carried out correctly (Rodzi et al., 2017). Students are greatly impacted by the way teachers carry out their education tasks. As a result, in the educational system, teachers need to have a high sense of self-worth and carry out their best duties (Rodzi et al., 2017).

The majority of students who need special education are currently placed in special schools, where teachers work under extreme pressure because they lack professional skills, have high student-teacher ratios, inadequate facilities, and a lack of practical training (Lai et al., 2016; Zee et al., 2016). Teachers must adjust to this inadequate teaching environment in order to teach effectively (Minghui, Lei, Xiaomeng & Potměšilc, 2018). In addition, the COVID-19 pandemic has caused stress to both teachers and students. Insufficient assistance may lead to job-related stress and experiences of vicarious trauma, which may have an adverse effect on teachers' mental well-being and ultimately impact student performance (Robinson et al., 2023). Furthermore, as the pandemic's future is still unknown, administrators, legislators, and other pertinent stakeholders can better plan further support for special needs school

teachers with a fuller awareness of teaching-related concerns during COVID-19 (Robinson et al., 2023).

In conjunction with the widely recognized importance of teachers' innovative behaviour, it is vital for special needs schools to make sure that their teachers continuously give their best while teaching their students. Hence, this study intends to examine the relationships between organizational, job-related, and personal variables on innovative work behaviour of special needs school teachers and the role of motivation as the mediator.

1.4 Problem Statement

Recently, there has been an increase in research on innovative work behaviour among teachers (Hosseini & Haghighi, 2021; Alfy & Naithani, 2021; Zainal & Matore, 2021). The pandemic outbreak has had a significant impact on the education system, and teachers were required to shift gears immediately in order to meet the needs of students and families in response to the COVID-19 school closings (Jones & Kessler, 2020). Aljedaani et al. (2023) pointed out that the transition from a physical classroom to a fully virtual one presented many kinds of difficulties, particularly for students who are hard of hearing or deaf. Teaching students with special needs is a unique challenge that requires a teacher to understand the specific requirements of each student. Jiu et al. (2023) emphasized the importance of innovative teaching strategies in addressing the challenges faced by students with disabilities. Teaching special needs students requires the application of appropriate instructional practices. Students may readily understand what is being taught if the right methods are used (Jiu et al., 2023).

Despite all this, teachers responded in an instant to the need to teach in new ways. They have videotaped themselves performing experiments, hosted Zoom, and prepared materials for students with irregular Internet access (Jones & Kessler, 2020). However, many previous studies have focused on the manufacturing and industrial sectors (Bawuro et al., 2018), the healthcare sector (Masood & Afsar, 2017), the business service sectors (Kheng et al., 2013), the banking sector (Kor, 2016), and the telecommunications sector (Onhon, 2019). Teachers in special needs schools have a more challenging job than ordinary school teachers because they work with a broader spectrum of students, are exposed to more stressful conditions, and must exhibit specialized abilities in order to deal with special needs students (Yasmeen et al., 2019). Hence, more research on innovative work behaviour among special needs school teachers is needed to address the challenging issues confronting the education sector today.

Although studies on innovative work behaviour have gained popularity worldwide, research in Malaysia remains restricted, notably in the special education sector. Existing Malaysian studies on innovative work behaviour have primarily focused on corporate employees, academic staff, and mainstream school teachers (Musa & Omar, 2020; Ahmad & Khalid, 2021). However, few studies have examined IWB among special needs school teachers despite the increasing demand for innovation in their teaching practices due to diverse learner needs and technological shifts (Yusof et al., 2021; Zaid et al., 2020). Furthermore, little is known about the motivational factors and workplace conditions that support or hinder innovation among these educators (Nordin & Ghani, 2019). Therefore, this study aims to address this research gap by exploring the predictors of IWB among special needs school teachers in Malaysia, focusing on motivation as a mediating factor.

The rapid changes in the education system in the twenty-first century necessitate innovative actions from all teachers (Zainal & Matore, 2019). Innovation is required to assist education in keeping up with the rapidly expanding Industrial Revolution 4.0 era (Zainal & Matore, 2019). Education 4.0 is a reaction to the needs of IR4.0, in which humans and technology collaborate to create new opportunities (Hussin, 2018). According to Fisk (2017), the new learning vision pushes students to acquire the essential skills and information while also identifying the source from which they can obtain these skills and knowledge. Innovative behaviour is critical to keeping the educational system relevant to current developments and trends (Zainal & Matore, 2019). In education, one of the critical factors that must be addressed and cannot be overlooked is innovation (Kundu & Roy, 2016). For example, in the classroom, innovation can create an environment that encourages students to succeed in their studies. A little bit of imaginative thinking on the part of teachers will result in more innovative learning methods, more comprehensive application of teaching methods, and the use of new tools and technologies, all of which will help students and the education system.

Innovative behaviour will help teachers keep up with a society that is evolving at an accelerating rate (Catio, 2019). The standards and requirements of the educated society of today differ greatly from those of previous generations (Catio, 2019). Today's society expects students to be capable of thinking creatively, critically, and have problem-solving skills in addition to being good at reading and counting in school (Afida, Aini, & Rosadah, 2013). Teachers who are creative and innovative will be able to achieve complex educational goals and instil critical skills in their students, allowing

them to act more effectively in today's globalized world (Ayob, Hussain, & Majid, 2013).

Furthermore, the rapid development of technologies that can aid in the teaching and learning process in this day and age necessitates teachers' innovative behaviour (Catio, 2019). As technology advances, traditional teaching methods become less relevant to today's educational needs because technologies used in teaching and learning have become very diverse and central to the teaching process (Yunus, 2018). As a result, teachers must be constantly changed to ensure that the methods used remain relevant, which will necessitate innovative behaviour on the part of teachers (Yunus, 2018). In short, teachers' innovative behaviour is critical to the development of the education system and school organizations that can contribute to creating an enlightened society (Zainal & Matore, 2019).

The variety of behaviours exhibited by teachers molds the learning environment and institutional culture of educational institutions (Johari et al., 2021). The arrival of Education 4.0 has mandated that educational institutions transform their conventional classrooms into digital learning environments with a focus on innovation and leadership (Göker & Göker, 2020). Industry 4.0, previously referred to as the Fourth Industrial Revolution, has caused a huge social shift, paving the way for educational revolution (Lee et al., 2014). According to Harkins (2008), Education 1.0 was created to meet the needs of the agricultural era, Education 2.0 arose from the first industrialization boom, Education 3.0 emerged from a globalized world, and Education 4.0 is being shaped by the era of burgeoning innovations. As a result, teachers and schools must prepare students to enter a future workforce of innovative inventors and implementers (Carvalho & Goodyear, 2018). The significance of innovative work behaviour among teachers may be seen in their ability to respond to

quickly shifting societies, set an example for others to follow, and meet the criteria of an Education 4.0 ecosystem at the institutional level (Puncreobutr, 2016).

Moreover, the current educational issues faced by developing nations have made it imperative to integrate innovation into all facets of academics. In an effort to produce qualified, pertinent, and skilled workers, the Malaysian government launched the Malaysia Education Blueprint (2013–2025), which aims to include innovation into teaching and learning methods (Ministry of Education, 2013). Accordingly, the curriculum for Malaysian schools has been updated and refined into a comprehensive package that incorporates components of innovation, critical thinking, creativity, and balance in the fields of science, technology, and communications (Ahrari et al., 2016). In addition to a student's attitude, values, self-esteem, humanity, and spirituality, schools and teachers should take into consideration their physical and mental development standards (Enzai et al., 2021). The new curriculum also places a strong emphasis on the innovative usage of content development and delivery, which has a direct impact on the caliber of instruction and learning (Enzai et al., 2021).

According to the findings of several studies conducted during the COVID-19 pandemic, access to ICT infrastructure is a major barrier to the digitalization of teaching and learning in tertiary institutions (Oyediran et al., 2020; Ojo Joseph et al., 2021). The issue of limited access to specialized expertise and guidance in using and integrating ICTs is a prevalent concern in numerous classrooms in poor nations (Ocana et al., 2020). Morata (2020) asserted that the COVID-19 epidemic has led to a significant rise in the utilization of new technology. Because of the pressing need to transmit information, these technological tools are being used in a very perilous manner today; as a result, more people are using social media and virtual platforms to spread knowledge (Katz, 2018). But the problem is, not all students have the necessary

hardware (PC, laptop, or cell phone), software, or even Internet access (Katz, 2018). In addition, the COVID-19 epidemic and social distancing have had an impact on the educational system for students with impairments, resulting in a shift to online learning. Students with disabilities, like those in traditional learning environments, have additional educational requirements, especially if they transfer to online learning environments abruptly (Alawajee & Almutairi, 2022).

On top of that, the convergence of talents and creativity is common in Education 4.0 environments. Teachers are required to acquire additional skills, take on new roles, take ownership of activities that promote creative growth, and participate in the change processes that build the new school climate as innovation stewards (Johari et al., 2021). Because of the severe and realistic difficulties, the majority of teachers steer clear of workplace innovation (Johari et al., 2021). According to Izzati (2018), Malaysian school teachers are locked in their familiar territory, preferring to apply only old and known learning methodologies and fall back on blanket answers. As a result, student diversity is not acknowledged (Johari et al., 2021).

According to the United Nations Conference on Sustainable Development Goals, two of the goals are directly related to people with disabilities and the education sectors, with goal four focusing on inclusive and equitable quality education and the promotion of life-long learning opportunities for all. It also aims to eliminate gender inequities in education and ensure equitable access to all levels of education and vocational training for the most disadvantaged, including those with disabilities. Plus, the plan calls for the development and upgrading of child, disability, and gender-sensitive educational facilities, as well as the provision of secure, nonviolent, accessible, and effective educational settings for all (United Nations, 2022). The Malaysian government has also taken the initiative to achieve this goal, by

demonstrating the government's plan for economic integration and empowerment of people with impairment and/or chronic illness in the first and second Action Plans for Persons with Disabilities (The Sun, 2016). For example, the Action Plan for Persons with Disabilities 2016-2022 focuses not only on increasing the employment rate of disabled people and encouraging their participation in entrepreneurship, but also includes programs to increase the number of community-based rehabilitation centres that produce products and train skilled workers among their clients (The Sun, 2016).

Aside from that, the government implements a number of policies to that end, including employment quotas, tax breaks for employers, business start-up grants, business expansion grants, and a disabled worker allowance (The Sun, 2016). Despite the government's various initiatives and agendas, teachers lack experience in carrying out the education process for students with special needs (Athir, 2020). Furthermore, teachers also face challenges due to a lack of basic facilities, particularly devices and Internet access in rural and inland areas (Amir, 2020). Teachers are the most critical agents in improving students' and schools' performance, and they play an essential role in boosting student success (Balker, 2015). This is due to the fact that teachers who exhibit innovative work behaviour will employ creative teaching strategies and stimulate students' interest in learning (Khikmah, 2019).

Each year, the number of disability cases in Malaysia rises. In 2018, there were 453,258 registered disabled people (Social Welfare Department, 2019). The number increased to 537,000 in 2019 (Social Welfare Department, 2019). The rising rate indicates that more people are being identified as disabled, and they require assistance to live a more meaningful and productive life. Section 29 of Malaysia's Disabled Persons Act 2008 aims to employ at least 1% of disabled people in public sectors. However, only 0.01% of the total number of people with disabilities registered landed

a job and were placed in various employment sectors (Social Welfare Department, 2019). Until 2018, government entities reportedly recruited 3,782 persons with disabilities, with an objective of 12,811 employment counts (Social Welfare Department, 2019). Notwithstanding this, education for special needs students must focus on assisting them in learning and absorbing as much as possible while also encouraging teachers to be more innovative in order to prepare students for future employment.

People with disabilities are still having difficulty finding work, and this is a serious problem that needs to be addressed (Trezzini et al., 2020). On top of that, people with disabilities frequently face difficulties obtaining competitive employment (Kirby et al., 2016). It demonstrates that entering the labour force is a significant challenge for young adults with disabilities (Scott et al., 2018). Furthermore, employees with disabilities are seen to face a variety of challenges at work. They are noted to struggle with time management, organization, communication, self-determination, and adaptability (White et al. 2016). Thus, social and behavioural aspects have indicated that employees with disabilities struggle in the workplace (Flower et al., 2019). Indeed, the role of an innovative teacher is deemed important to prepare students with various kinds of skills needed for employment survival.

Students must be properly educated to face the challenges ahead in the future. As a result, special needs school teachers must display innovative work behaviour to prepare students for life after school, including employment (Zainal et al., 2020). Teachers must ensure that these special needs students are able to integrate themselves into the workforce (Zainal et al., 2020). Aside from that, teachers are responsible for assisting special needs students in becoming skilled, responsible, trustworthy, and constantly striving to improve themselves (Zainal et al., 2020). Teachers can also

provide valuable feedback and recommendations about their students' strengths and interests, and they play a significant role in developing and implementing many of their students' goals (Levinson & Palmer, 2005). As a result, having innovative work behaviour is the best way to help special needs students understand all of the necessary aspects.

Moreover, teachers are also facing other various unprecedented challenges (Subramaniam, 2012). They are responsible for building human capital and are expected to encourage their students to acquire knowledge and skills by emphasizing creativity and innovation (Subramaniam, 2012). As a result of these challenges, teachers must take on greater responsibilities in their schools to meet the expectations of students, parents, and the community (Türkoglu, Cansoy & Parlar, 2017). These expectations have resulted in a requirement for lifelong learning, including abilities such as research, critical thinking, problem-solving, teamwork, and the use of information and communication technology, which has significantly altered teachers' roles (Türkoglu, Cansoy & Parlar, 2017). Moreover, school bureaucracies cause teachers to become stressed by role overload and lack of autonomy (Ghani et al., 2014). The COVID-19 pandemic has worsened the situation by causing confusion, particularly for students with special needs, for whom regular school schedules and learning activities have been replaced with online courses and printed modules (Malaysia Now, 2020). This disruption requires teachers to use their creativity, such as video recording, to allow special needs students to follow each class as often as they need to, instead of depending solely on virtual classes (Malaysia Now, 2020).

According to an article published in The Star, students with special needs perform better in school. They are unable to spend extended periods of time in front of the phone or computer. However, when schools reopened, some students were

unable to attend because they refused to wear masks. Parents must learn how to modify behaviour and, in collaboration with teachers, devise innovative ways to ensure that students use the masks. Furthermore, when conducting remote learning, some students with low vision are unable to see what is on their phones or computers. Thus, they require parental assistance (The Star, 2021).

Prof Datuk Dr.. Yasmin Hussain, former director of the Education Ministry's Special Education Division, stated in an article published in the Star that “it is important to distinguish the regular, planned practice of online instruction from the kind of instruction occurring immediately after schools were shuttered. The teachers and students were not ready. We have to overcome the gap. There is no face-to-face communication, what more dealing with behavioural issues and needs. Two cohorts of my (special education program) students completed their teaching practice online. They had difficulty communicating with their students, organizing synchronous sessions, and assisting and supervising their special needs students with insufficient teaching aids. Online teaching is not a 100% solution to the current situation. Teachers can make wonderful plans but to what extent does the lesson reach students? The connection in between is questionable” (The Star, 2021).

Similarly, Dr. Grace Annammal Piragasam, senior lecturer at Universiti Pendidikan Sultan Idris (UPSI), stated, “Our children lost one year of education, and I speak on behalf of the autism community. They missed out on therapy, school, and a proper structure. People with autism need to follow a schedule. Not only did you take away the structure, but you also taught on the computer. Many had difficulty sitting their children in front of the computer to do work. For these children, computer time is entertainment time, not looking at their teachers teaching them. Teachers have to talk to parents. For example, instead of a 10 am to 12 pm session, maybe have it for

20 minutes. There has to be give and take between educators, parents and children'' (The Star, 2021).

In a similar vein, former chairperson of the National Autism Society of Malaysia (NASOM), Feilina Feisol, stated, "I teach deaf students and those with mild learning disabilities. I use Zoom and Google Meet to carry out remote learning, sometimes at night. I have one student who comes to my house to learn because he has problems with Internet access. As many of my students stay in the interior areas of Sabah, their Internet connection is weak. Previously I got a letter from the police station permitting me to travel to my students' houses to check in on them and pass them their homework. But sometimes, students use poor Internet access as an excuse not to do their work. When I checked their handphones, I could see the number of hours they had been on social media. Students can't focus and understand well with remote learning. It is also hard to test their performance. Some of them got good marks because they copied answers from Google Search. Moreover, deaf students learn through mouth movements. When conducting physical classes in the college, I have no choice but to teach without my mask'' (The Star, 2021).

Besides challenges that teachers face due to the COVID-19 pandemic and bureaucracies, teachers must also handle special needs students' behaviour. According to Zirpoli (2013), students with special needs are often disruptive, non-compliant, impulsive, do not pay attention, hyperactive, and aggressive. This has brought a massive challenge to teachers, specifically in behaviour and classroom management (Ali et al., 2014). The requirement to educate students with special needs is not easy and requires patience, commitment, and preparation (Ali et al., 2014). According to Yasmeen et al. (2019), special needs school teachers have a more complex task than teachers working in normal schools because special needs school teachers are more

diversified, face more demanding situations, and need specific competencies to handle students with special needs. Moreover, they must work with the parents and community to ensure special needs students' personal, social, and academic development (Yasmeen et al., 2019).

According to Balker (2015), teachers play a vital role in schools because they are the ones who boost their students' success and academic performance. This is even more essential for teachers in special needs schools. The teachers' willingness to adapt to teaching sessions to meet students with special needs requirements is one of the key challenges (Siti Fatimah, 2018). This can only be achieved through innovation in teaching and learning, which will provide the students with a challenging and rewarding experience (Subramaniam, 2012). Outstanding teachers help students to express their creativity during the learning process (Kaycheng, 2016) and have a beneficial impact on their students through their creative teaching tactics and inventive behaviour (Mahajan & Kaushal, 2017). Furthermore, an innovative classroom environment fosters students' curiosity about learning (Khikmah, 2019) and raises academic performance (Baghaei & Riasati, 2013). Teachers' innovative actions are essential because of the various roles they play in supporting students' learning and school progress (Wamalwa & Wamalwa, 2014).

Malaysia emphasizes creativity and innovation, parallel with its mission to become a high-income nation (Beh, 2019). Beh (2019) stated that creativity is a basis for innovation because creative thinking leads to successful innovation implementation (Beh, 2019). According to the Global Innovation Index, Malaysia was ranked 35th out of 126 countries with a score of 43.0 in 2018, compared to 37th with a score of 42.7 in 2017 (Beh, 2019). Even though there is an improvement in Malaysia's Global Innovation Index, the level of individual innovative work behaviour

is still moderate (Sapie et al., 2015; Yunus et al., 2014). For Malaysia to become an innovative country, it needs to emphasize nurturing its citizens into having a world-class mindset with creative and innovative thinking (Beh, 2019).

Many previous studies have been conducted on innovative work behavior. However, most of the conducted studies focused on manufacturing and industrial sectors (Bawuro et al., 2018). These studies were done in various fields to achieve a better understanding of the factors that influence or promote innovative behaviour at work (e.g., De Jong & Kemp, 2003; De Jong et al., 2007; Hartmann, 2006; Janssen, 2005; Knol & Van Linge, 2009; Pieterse et al., 2010). Many variables were examined, including job commitment and innovative work behaviour (Awang-Hashim, Thaliah & Kaur, 2017; Dhar, 2016), educational levels and innovative work behaviour (Etikariena & Muluk, 2014), and emotional intelligence and innovative work behaviour (Basrawi, 2012). A relatively few studies have focused on school teachers' innovative behavior and self-efficacy (Fairuz et al., 2013), work engagement (Runhaar et al., 2016), job control and creative requirements (Binnewies & Gromer, 2012), job satisfaction and interaction with the job (Thibaut et al., 2018). Thurlings et al. (2015) stated that only a few studies directly look at teachers' innovative work behaviour and the variables that influence it. Messmann, Mulder and Palonen (2018) supported this notion by stating that very few studies have been conducted involving teachers' innovative work behaviour. While these studies suggest that various motivational factors can influence innovative behaviour, they also raise additional concerns, such as the cumulative impact of the various motivational factors on teachers' innovative work behaviour.