

Exploring ESL Suburban Primary School Teachers' Readiness towards the Integration of IR5.0 Technology into the Teaching of English Language

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Abstract

As the world gearing up towards Industrial Revolution (IR) 5.0, it is now pertinent to explore ESL suburban primary school teachers' readiness in integrating Industrial Revolution (IR) 4.0 into the teaching of English Language (TESL) as English has been the crucial part of language that serves as lingua franca throughout the world. This research attempts to discover ESL primary school teachers' readiness in the face of IR5.0 into the teaching of English language. The participants for this research are teachers who have been teaching English Language in the suburban primary schools in Sarawak. A total of 30 teachers have been selected through purposive sampling to answer a survey. The data gathered were analysed using quantitative method. The findings from the questionnaire shows positive acceptance of IR4.0 and are ready to integrate technologies into their teachings. The educational programmes have been gearing teachers and students towards the use and familiarisation of technology in the teaching and learning be it in the primary, secondary, and tertiary level. However, there is a subtle rejection from integrating IR4.0 technologies into their teachings and some discomfort in using IR4.0 technologies due to technological barriers, and digital skills gap. Through exploring suburban teachers' readiness in the face of IR5.0 for this research, it is discovered that despite the challenges they faced, it is undeniable that there are big potentials in integrating IR5.0 into English Language teaching due to the waves of technological tools that could optimizing the teaching and learning in the classroom settings.

Keywords: ESL Teachers, IR4.0, IR5.0, Technology Readiness Index (TRI) 2.0, Suburban Primary School Teachers.

Introduction

The digitalization of the 21st century has evolved to a greater extent due to the pandemic where all the teaching and learning is done remotely by utilizing the technology as the main medium so its undeniable for teachers to feel overwhelmed of the drastic changes in the education system in parallel to the demands of the current trends in the evolution of education system worldwide. According to Himmelsbach quoted in Van et al (2021), people can access and gather knowledge on the Internet whenever needed. This is corroborated by Ahmadi (2018), who claims that technology may be used as a tool to help students learn more efficiently and effectively. Lawrence, Lim and Haslinda (2019) points out that there is a crucial need to transform Malaysian education system to cater to the demands of IR4.0 as the consequences of the rapid advanced technological developments that causes many sectors in need to transform, especially the education sector.

With the demanding and rising needs to be competent in teaching English language at this digital age that emphasizes the demand to extend the scope of English language teaching goes beyond traditional teaching methods to the production of multimodal ensembles which includes prospects of other semiotic modes and engaging students in digital literacies. The finding identifies the importance of incorporating digital literacy into English language teaching and urges educators to adapt to the changes of demands in teaching English language of the digital age (Hafner, 2014). It has already been a challenging task for primary school teachers in the suburban areas due to geographical and socioeconomic factors, there is a need to explore teachers' readiness and concerns to prepare their students in the face of the IR5.0 era.

The Fifth Industrial Revolution, also known as IR5.0 will be centralised with the interdependency of both human's activities and machine's activities. Workers will need to upgrade their skills, becomes the driving force of mass customisation and personalisation for individual clients. IR5.0 intends to allow workers while recognising the emerging skills and training needs of the employees. Difficult or monotonous work rapidly becoming mainstay of almost all business and factories due to the cost efficiency, speed and more efficient as compared to human beings.

With the demanding needs for customised and individualised items, the precision of creation is blooming and that's only the starting of it all. Attentions towards using robots for this precision and intricacy continue to flourish. Robots with pre-programmed installed in them will quickly be replaced with flexible AI-based frameworks featuring synergistic robots that allow for communication between humans and machine. This collaboration between human and machine suggests more efficiency and halt operational failures. With both human knowledge and machine's efficiencies, the information garnered will improve AI capabilities. Through the understanding of the newly and complexity of having digital age evolving in our daily life, our education system; in the Malaysia Education Plan 2015-2025 stated that there is a mismatch in the supply-demand of graduates, with companies claiming that graduates lack the necessary skills and education institution not having clear signals of industry's requirement (Aziz et al., 2023). This skills gap is primarily due to the lack of clear indicators within the education system regarding industry demand (The Star, 2020).

Rather than emphasising the replacement of technology with humans, shifting emphases in the IR5.0 prioritise efforts to identify where each actor thrives and how humans and technology may interact. Given that teachers bear most of the responsibility for realising the potential of educational technologies, there is recognition in the literature of teachers as the "key element" (Almerich et al., 2016, p. 111). Its fundamental idea is that technology and

people should work together closely to maximise each other's advantages and mitigate one other's disadvantages. Humans and robots "dancing together" is how Gauri and Van Eerden (2019) figuratively characterise this kind of cooperation. Humans and robots can collaborate and build upon each other's strengths instead of competing to produce solutions that are harmonic and synergistic for all parties involved.

The impact of the Covid-19 pandemic as a catalyst for teacher pedagogical and technological innovation and development has been explored by Moorhouse and Wong (2022) in which highlighted the rapid adaptation of teachers to online teaching methods and the integration of digital tools. This finding uncovers the potential for ESL teachers to embrace IR5.0 in response to external disruptions and the need for ongoing professional development to enhance readiness. There is also a study by Bai et al (2019) in Hong Kong that investigated primary school English teachers' continuance intention to teach with ICT which resulted in the teachers' perceived usefulness and satisfaction with ICT significantly affected their intention to continue using ICT in their teachings. This finding suggests that ESL teachers' readiness to incorporate IR5.0 into English language teaching may be influenced by their perception of the usefulness of these technologies.

This can be further confirmed by the study by Lukas and Yunus (2021) in which the finding identified various challenges in their investigation of the challenges faced by ESL teachers in implementing e-learning during the covid-19 pandemic. The challenges include lack of technological infrastructure and inadequate digital literacy among teachers. Hence, it is crucial to address technological readiness and capacity building among ESL teachers to effectively integrate IR5.0 into English language teaching. Parasuraman (2000) developed the technology readiness index (TRI), a 36-item scale to measure TR. TR affects the acceptance of new technology. TRI is defined as "people's propensity to embrace and use new technologies for accomplishing goals in home life and at work." TR affects the acceptance of new technology. TR embodies a "gestalt of mental motivators and inhibitors that collectively determine a person's predisposition to use new technologies."

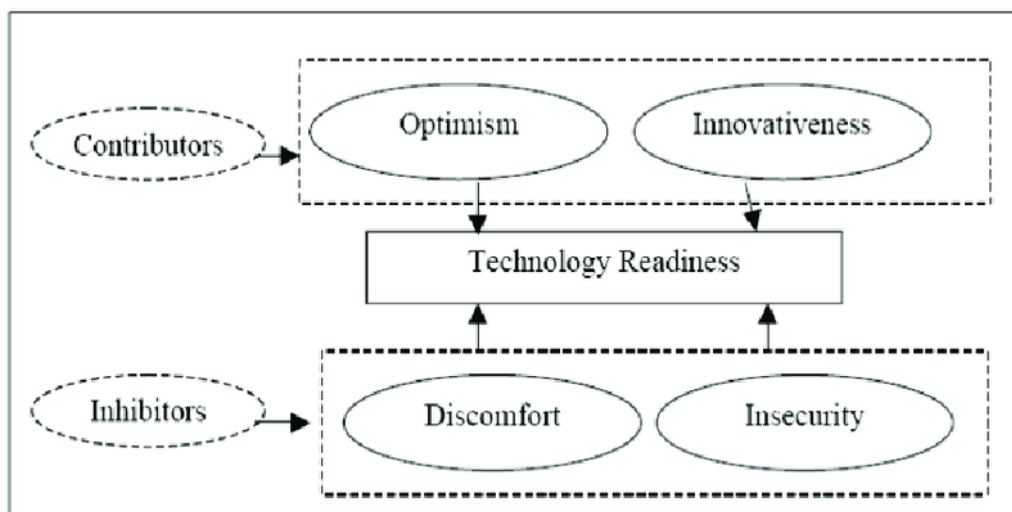


Figure 1. Technology Readiness Index (Parasuraman, 2000)

In the concept paper by Avelino and Ismail (2022), the authors suggested a theoretical framework to assess ESL teachers' knowledge and readiness in integrating 4IR into teaching practices that simplified the Technology Acceptance Model (TAM) 3 by Venkatesh & Bala

(2008) in which studies the level of knowledge and readiness among the ESL teachers. Based on the proposed adaptation of TAM3 by Avelino and Ismail (2022) and Technology Readiness Index (TRI) by Parasuraman (2000), the researcher intends to explore ESL primary school teachers' readiness to teach English language in the face of IR5.0 in the suburban areas in Sarawak, Malaysia.

Figure 2. Theoretical framework by Avelino & Ismail (2022) adapted from TAM3 by Venkatesh & Bala (2008)

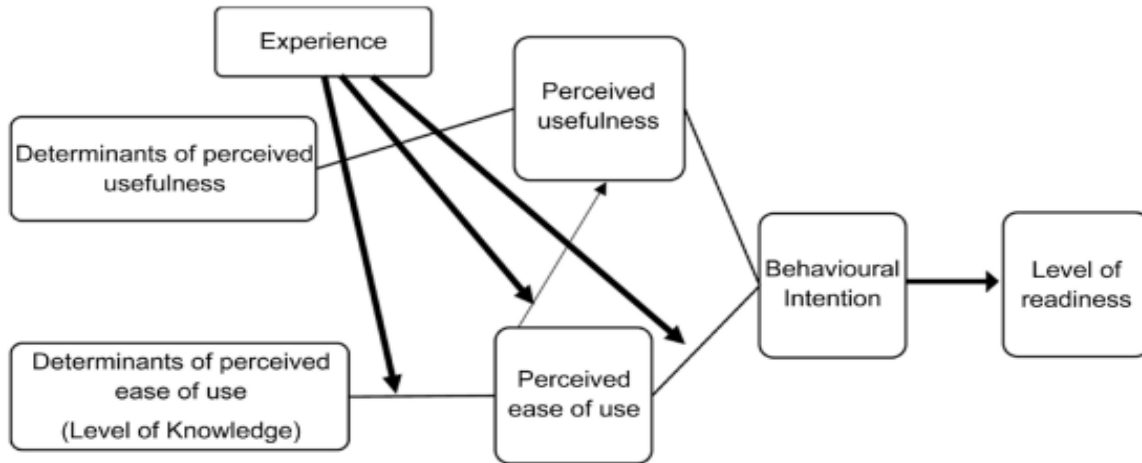
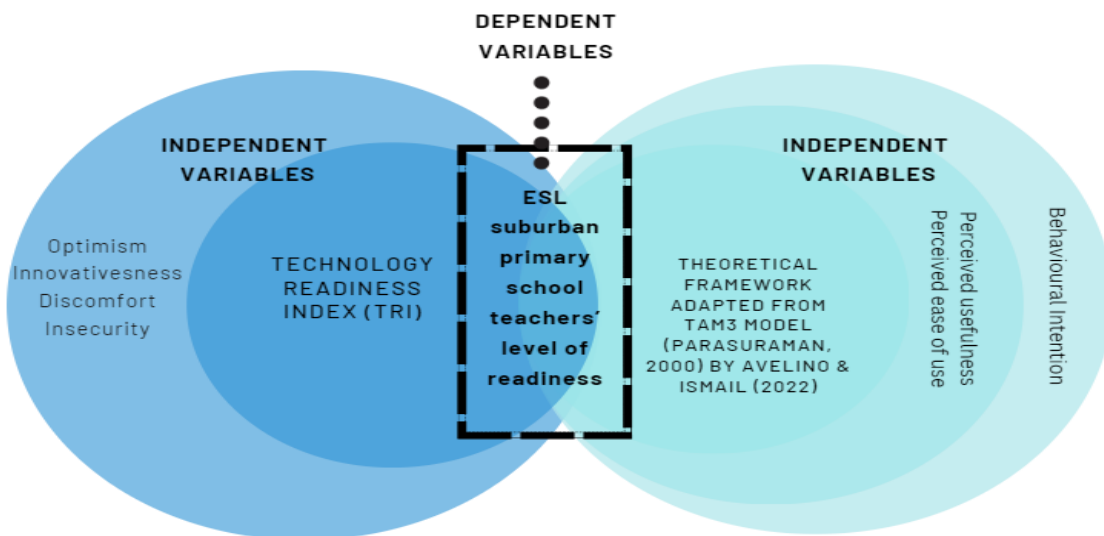


Figure 3. A theoretical framework adapted from TRI (Parasuraman, 2000) and TAM3 adapted by Avelino & Ismail (2022)



Looking into the needs to consider teachers as one of the main mediums of delivering knowledge to the students in the primary education level, the teachers' readiness and concerns need to be addressed. Therefore, the purpose of this study is to investigate how does ESL primary teachers' level of readiness affect their integration of technologies into their teaching practice in the face of IR5.0 in the suburban areas.

Literature Review

Fifth Industrial Revolution (IR5.0)

The Industrial Revolution (IR) is reaching to its fifth generation, IR5.0 and the drastic jump in concepts from the previous generation of IR pushes people all around the world to hastily learn to adapt and adopt the knowledge and skills in relevance to the changes in IR5.0 where it is about the meaningful life of a human by help from the transformation of artificial intelligence Sari (2020) and this affect the education system the most. Unlike the shift from the first to the second industrial revolution, where the main changes were technological, the transition from 4.0 to 5.0 is marked by a shift in ideology. The 21st century and the emergence of IR4.0 (currently, IR5.0) is the era of information superhighway (Murti, 2013). Thus, technology plays an essential role in this era to help humans work more manageable and less time consuming (Raja & Nagasubramani, 2018). In relation to IR5.0, the education system currently undergoing similar transformation where the emphasis is put on innovation-producing education Harkins (2008) instead of spoon-fed the students, education nowadays gears learners with the skills to identify the source of the knowledge (Hussin, 2018). Unlike the shift from the first to the second industrial revolution, where the main changes were technological, the transition from 4.0 to 5.0 is marked by a shift in ideology.

Industrial revolution has been ongoing since the 18th century with the First Industrial Revolution (IR1.0) when the world discovered the use of steam-powered engines as means of transportation and industrial purposes. From IR1.0, the revolution continues with Second Industrial Revolution (IR2.0) with the existence of electrical power which impact the industrial and domestic living greatly. Entering the Third Industrial Revolution (IR3.0), in 1970 the world experienced the revolutionary use of Information Communication Technology (ICT) which is not only influenced the industrial sectors, but it changes a lot of every aspect of life. The robust revolution of ICT usage in the life of many although some parts of the world or places might not have the exposure as compared to the big cities where there are network coverages, the impact it has on every matter of life since then has been noted. The concept Fourth Industrial Revolution (IR4.0) is to transform the ICT era that emerges from IR3.0 to an upgraded version which is the digital revolution. IR4.0 basically a concept that transform mankind and technological roles in industries following pursuit of the rise of ICT in IR3.0 (Cheok & Ran, 2023).

According to TM One (2019), the industrial revolution from IR1.0 to IR4.0 in Asian countries is not as gallant as the western countries and unlike some of the Asia Pacific countries (APAC) such as Vietnam, Thailand or Singapore, Malaysia shows some difficulties adopting IR4.0 due to the wide and accustomed to using manufacturing technology from IR3.0. As mentioned in the report provided by TM One (2019), the difficulties of many manufacturers encounter in deploying IR4.0 are (1) the hesitancy of converting the conventional business operations oriented into advanced infrastructure and methods, (2) unable to convert raw data gained into beneficial information to the business growth, and (3) lack of big data skills to digitizing business processes. These difficulties identified to be the factor for reluctance to invest in innovative automation technologies and greatly impact the integration of IR3.0 to IR4.0.

As the emergence of IR5.0 has begun to unfold, the world might be experiencing a more dynamic relationship of human and machine. IR5.0 promises to empower employees at the same time attending to equip employees with the skills and training much needed. This will help the country to draw outstanding talents and ignites competitiveness of industry. This co-activity between human and machine encourages great efficiency and hamper operational failure. With IR5.0, the world will experience the demands of humans to be more inclined

towards honing new skills because humans need to acquire both technical and soft skills to work with these smart machines.

What IR4.0 has given to the education world is where it gauges towards adapting to suit the teaching and learning to suit the individual styles and strategies. The impending IR5.0 surely shifts the education system soon to have any teaching and learning institutions to train people on how to work with new machinery, integrating advanced technologies into education is imperative; particularly in the field of English Language Teaching. Hence, understanding Malaysian suburban primary school ESL teachers' readiness to embrace these changes is essential for successful implementation. This study delves into suburban primary school ESL teachers' perception of their readiness in terms of ease of use, usefulness and behavioural intentions that collaterally will affect the integration of IR4.0 into their teachings in the face of IR5.0.

The Use Technology in ESL Classroom

The changes and transformation in the utilization of technology in education have taken place in the early 20's but it became serious in the late 20's and with the pandemic occurred in 2020 and 2021, the sudden transition of the nature of education required teachers to prepare themselves for the digitalization of education in instant. Teachers must acquire three types of knowledge; the content, the pedagogy and technology knowledge to adopt online educational technologies in the lesson effectively as proposed in the Technological Pedagogical Content Knowledge (TPACK) framework (Koehler & Mishra, 2009; Philip et al., 2019; Tan et al., 2019). During the teacher training education program, all pre-service teachers are equipped with content and pedagogy knowledge. However, the robust use of technology in education set foot in the early 21st century, so not all in-service teachers were exposed to technological knowledge during their teacher training programs.

Thus, some teachers lack confidence in adopting online educational technologies in the lessons because they have limited TPACK knowledge (Benjamin, 2017; Kandasamy & Shah, 2013; Razak et al., 2018). The inclusion of technology into the education system promises great improvement and enhancing teaching and learning processes. Digital tools, such as interactive simulations, virtual reality (VR) modules and augmented reality (AR) applications, can provide hands-on experiences that stimulate real-world scenarios, allowing students to develop technical skills in a safe and controlled environment. According to International Labour Organization ILO (2018), there is a 15% increase in learning outcomes from integrating technology into vocational education and hence lessen the dropout rates among students.

The use of technology in ESL instruction has metamorphose traditional teaching methodologies, providing new avenues for engaging students and expediting the acquisition of the language. In language courses, digital tools which include educational software, online platforms, multimedia materials, and language learning apps are ubiquitous. These tools offer tailored instruction, immediate feedback, and collaborative interaction. The way humans live is impacted by IR, which in some style transforms traditional methods into cutting-edge strategies that produce more at all costs with less work. Regarding the delivery and perception of knowledge and skills, the education system is one of the sectors that has been indirectly impacted by the industrial revolution.

To fully utilise digital technology, educational settings are required to be 4IR-ready. This includes incorporating advancements such as artificial intelligence (AI), the Internet of Things (IoT), automation, cloud computing, big data, and virtual reality to permeate every area of life (Yeoh, 2022). The implementation of IR4.0 in educational settings is reassured by the

abundance of internet coverage available in different areas of Malaysia and the infrastructure of dedicated networks. (DeWitt & Alias, 2023). The notion of digital education must be implemented in educational settings to comply with IR4.0's changes and benefit from them. From an educational standpoint, educational institutions must adapt to the evolving digital transition in order to successfully manage it (Sidek et al., 2022).

Malaysians are currently aware of IR, particularly the controversial IR4.0. Based on a study given to 400 students at Malaysia's public universities, the majority of respondents were aware that IR4.0 existed (Idris, 2019) with 360 of the respondents had heard of IR4.0, a total of 300 respondents had some basic knowledge of IR4.0 meanwhile 260 respondents conscious of the significance it is to support education in order to improve IR4.0 expertise and skills. According to the preliminary examination of millennials' perspectives on the readiness and possible economic implications of IR4.0, Malaysia has the capacity to implement IR4.0 in educational settings (Idris, 2019). Nevertheless, the digital competency among educators with IR4.0 technology in the teaching and learning environment has yet to be discovered as the world now gearing towards IR5.0.

Methodology

This study employed the quantitative method research design to analyse the data collected from the questionnaires. The sample selection was carried out using purposive sampling that focuses on English teachers in the primary schools of the suburban areas in Sarawak, Malaysia. 30 English teachers were asked to answer a set of 16 questions in relation to the research. Since the research is to explore suburban primary school teachers' readiness in teaching of English language in the face of IR5.0, the questions were adapted from Avelino and Ismail (2022) with three major constructs; (1) perceived ease of use, (2) perceived usefulness, and (3) behavioural intention, were operationalized using items adapted from Davis (1989); Davis et al (1989) of the TAM3 model. The data gathered were analysed using the quantitative approach (in the form of numbers that are tabulated). Then, Cronbach's Alpha was also conducted to determine both the reliability and validity of the instruments used in the questionnaire. The Cronbach's alpha for the 31 items in the questionnaire is .808, above the .7 recommended for a reliable measure of a construct.

Findings from the Questionnaire

Section A : Demographic Data of Respondents

Table 1

Distribution of the gender of the respondents

Gender	Frequency	Percentage
Male	12	40%
Female	18	60%

Table 2

Distribution of the age group of the respondents

Age group	Frequency	Percentage
20-30 years old	7	23.33%
31-40 years old	17	56.67%
41-50 years old	4	13.33%
51 years old and above	2	6.67%

Table 3

Distribution of the years of teaching English language experience of the respondents

Years of Teaching English Language Experience	Frequency	Percentage
1-5 years	4	13.33%
6-10 years	15	50.00%
11-15 years	9	30.00%
More than 15 years	2	6.67%

Table 4

Distribution of the knowledge on IR5.0 of the respondents

Knowledge on IR5.0	Frequency	Percentage
Nothing	0	0.00%
Little	5	16.67%
Aware of it	15	50.00%
A lot	10	33.33%
Fully understand	0	0.00%

Based on the data gathered of the demographic of the 30 respondents that involved in this research, there 60% female teachers and 40% male teachers (Table 1). As for the age group, teachers of the age group from 31 to 40 years old made up most of the respondents, 56.67% or 17 out of 30 respondents (Table 2). Meanwhile, there are only 6.67% (2 teachers) from the age group of 51 years old and above that participated in this questionnaire. Looking at the distribution of the years of teaching English language's experience of the respondents (Table 3), the majority teachers with 6 to 10 years of experience answered the questionnaire which made up to 50% of the total respondents followed by teachers with 11 to 15 years of experience which made up 30% of the respondents and teachers with more than 15 years of experience made up the least number of respondents at 6.67% (2 teachers).

Based on the results of the distribution of the knowledge on IR5.0 of the respondents (Table 4), it can be said that the teachers know about IR5.0 because not one knows nothing about IR5.0. 50% of the respondents are aware of IR5.0 but there is still 16.67% teachers know little about it. With the integration of technology in the education, teachers are expected to know about any latest information on current development of technology in the education world. Hence, there is a number of 33.33% respondents in this research seems to know a lot about IR5.0 even though all of the teachers chosen for this research are from the suburban schools.

Section B: The findings of the three major constructs on the adoption and use of information technology (IT) adapted by Avelino and Ismail (2022) based on Davis (1989) and Davis et al. (1989) of the TAM3 model

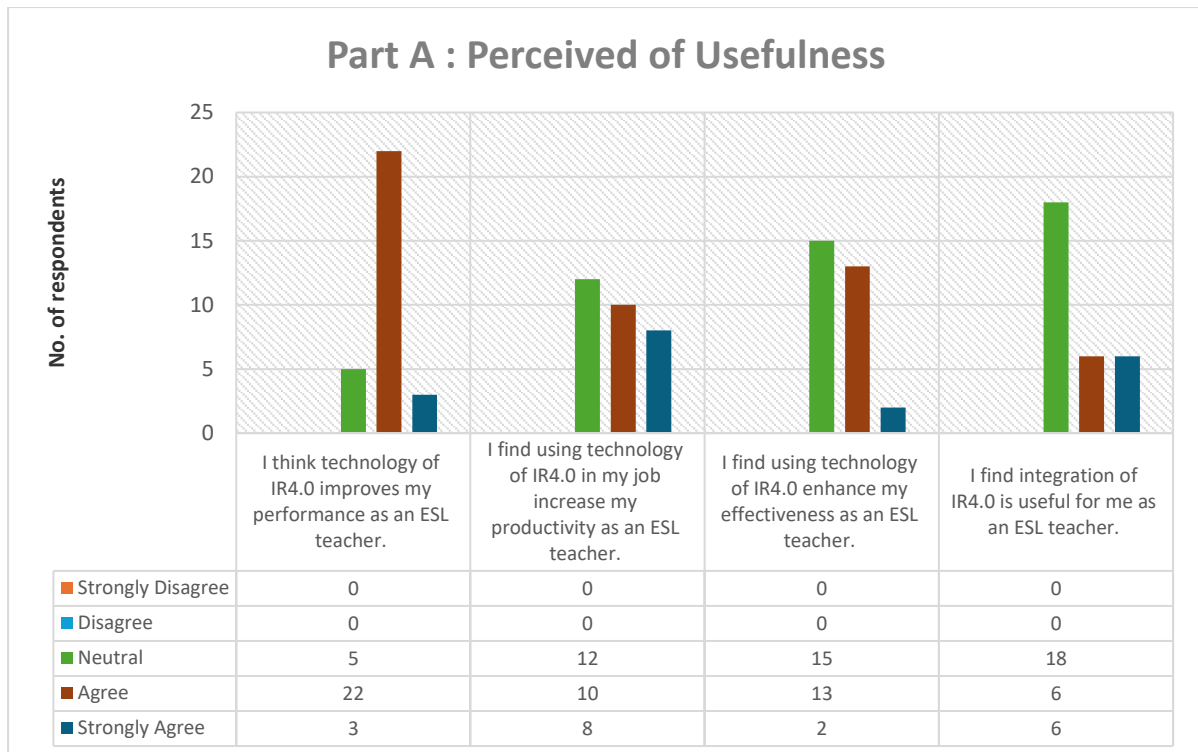


Figure 4. Findings from the questionnaire on perceive of usefulness on the adoption and use of information technology (IT)

The above results showed that most of the teachers (73.3%) agreed that technology of IR4.0 improves their performance as ESL teachers with another three teachers (10.0%) strongly agreed and five other teachers (16.7%) are neutral with the statement above. From the graph above, it can be stipulated that teachers perceived of usefulness; neither disagree nor strongly disagree on the adoption and use of information technology (IT). This shows that teachers do find that technology is useful in their teaching and performance as an ESL teacher.

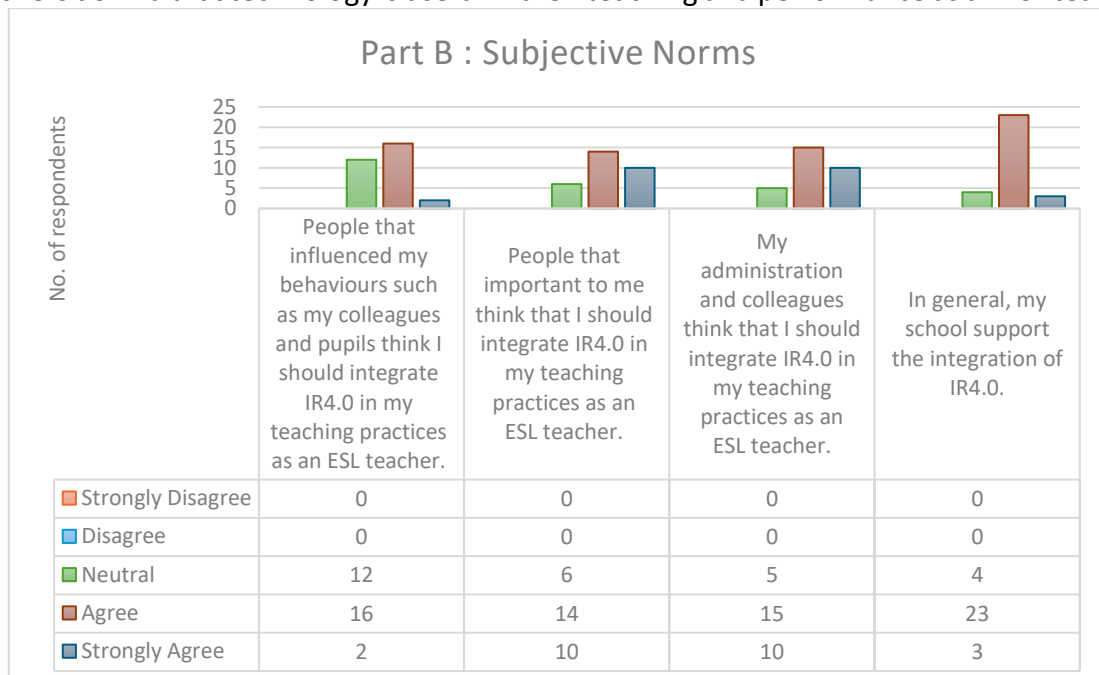


Figure 5. Findings from the questionnaire on subjective norms on the adoption and use of information technology (IT)

Figure 5 shows the results from the questionnaire on subjective norms on the adoption and use of information technology (IT). This is the second part for Section B of the questionnaire and highlighted the influence of others and school support system on the integration of IR4.0 technology in the teaching practices of suburban primary school ESL teachers. From the results shown, most of the teachers agree that people and schools should encourages the integration of IR4.0 into their teaching practices as an ESL teacher. People and schools that influenced the teachers to integrate IR4.0 into their teaching practices somehow create encouraging norms which is beneficial for an ESL teacher to feel comfortable and confident in integrating IR4.0 into their teachings.

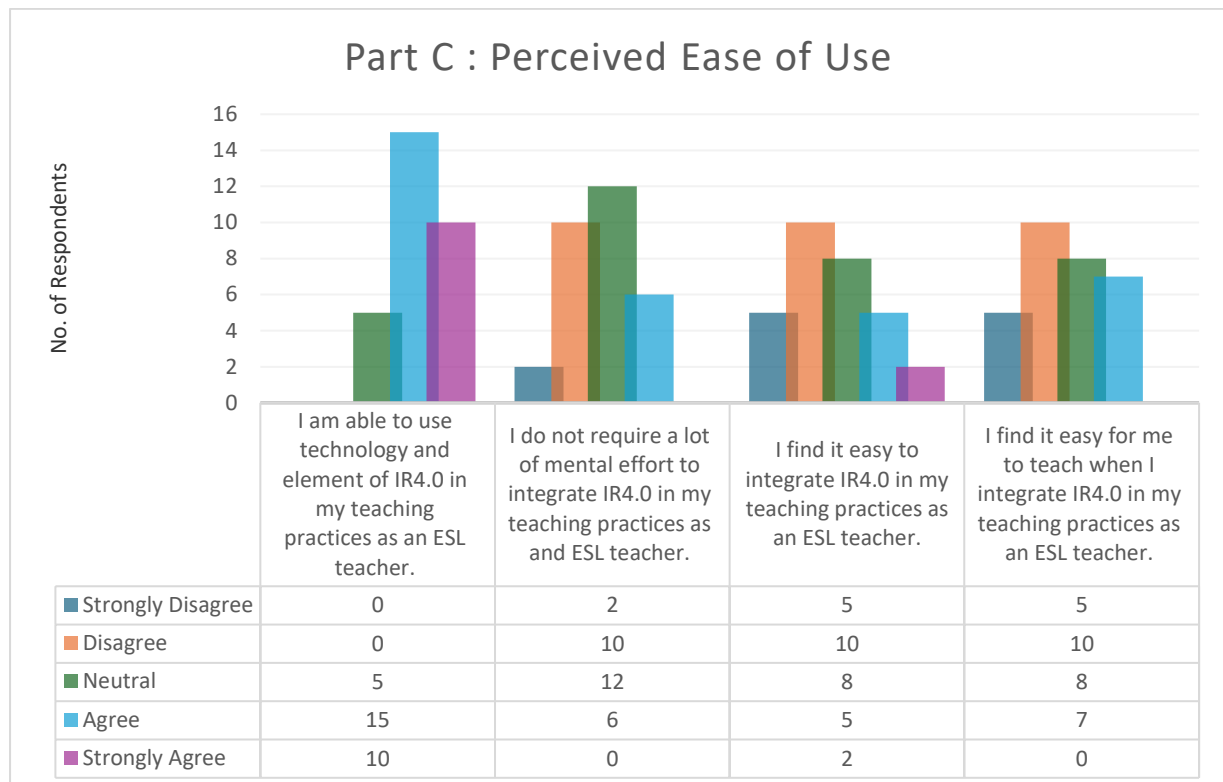


Figure 6. Findings from the questionnaire on perceive ease of use on the adoption and use of information technology (IT)

In the figure above, it shows that the teachers can use the technology and elements in IR4.0 in their teachings (33.3% of the teachers strongly agree and 50.0% agree that they can use the technology and element in IR4.0 in their teaching practices as an ESL teacher) but it requires a lot of mental efforts (33.3% of the teachers disagree and 6.7% of the teachers strongly disagree that integrating IR4.0 does not require a lot of mental effort) in which half of the teachers (33.3% of the teachers disagree and 16.7% of the teachers strongly disagree that it is easy for them to integrate IR4.0 in their teachings) finds it difficult to integrate IR4.0 in their teachings. Out of 30 teachers, only 7 teachers agree that it is easy to teach when they integrate IR4.0 in their teaching practices as an ESL teacher. This clearly affirms that suburban primary school ESL teachers can use the technology but not to an extent that it gives out the ease of using it thus contributes to the reluctance of integrating IR4.0 technology into their teaching practices.

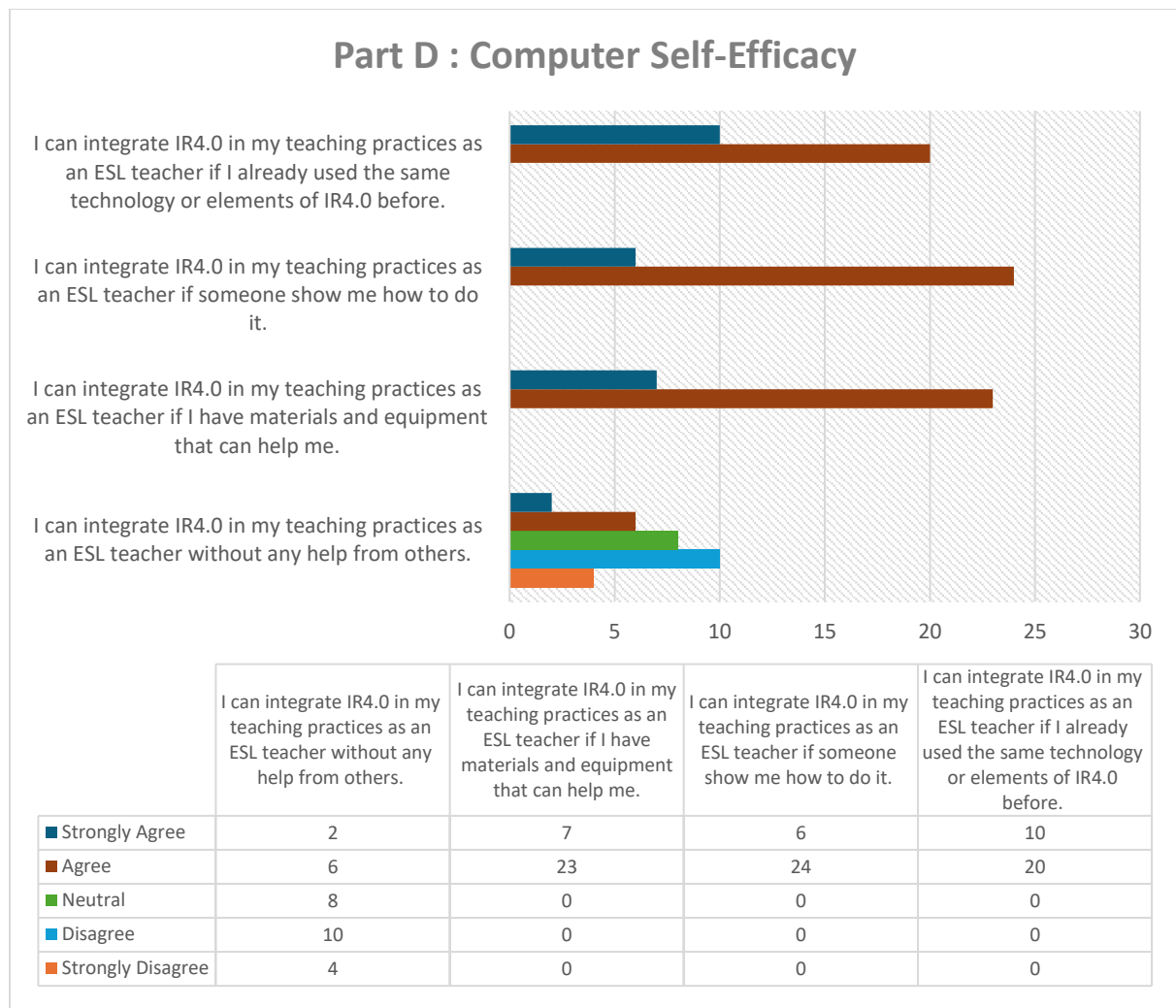
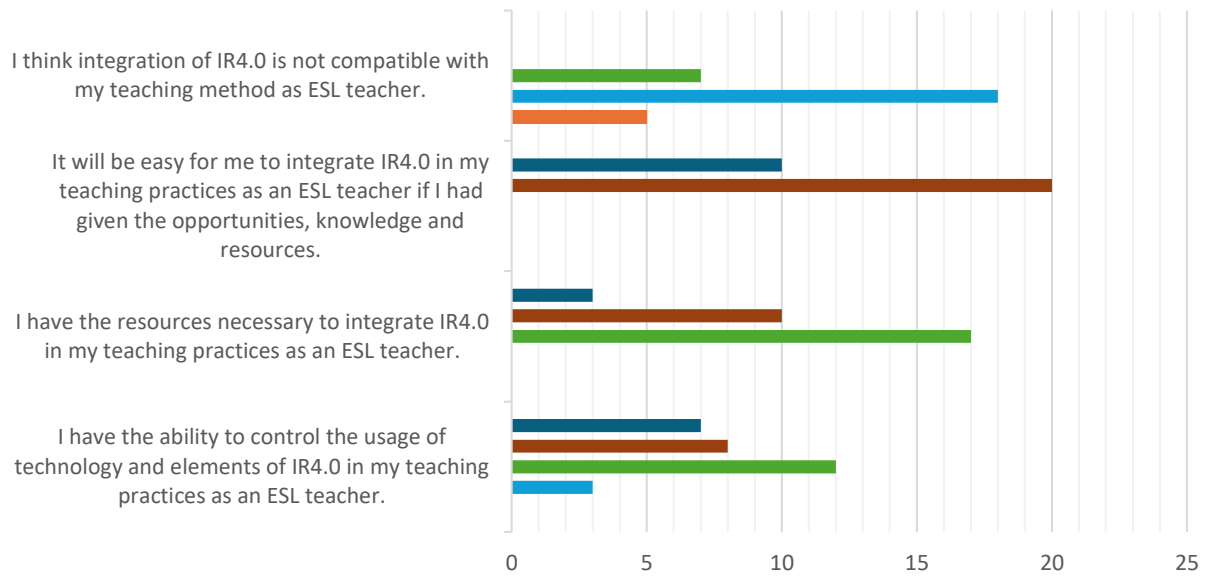


Figure 7. Findings from the questionnaire on computer self-efficacy on the adoption and use of information technology (IT)

According to Figure 7, most of the teachers can integrate IR4.0 in their teaching practices as an ESL teacher if they have the materials, the equipment, the assistance of someone showing them the tutorial and they have used the same technology or elements of IR4.0 before. With regards to the statement “I can integrate IR4.0 in my teaching practices as an ESL teacher without any help from others”, 33.3% of the teachers disagree and 13.3% strongly disagree of the statement. It shows that almost half of the teachers need help from others with the IR4.0 technology integration into their teaching practices as an ESL teacher. Hence, as for computer self-efficacy on the adoption and use of IT, suburban primary school ESL teachers need to be assisted and guided for them to be more IT literate in the future.

Part E : Perception of External Control



	I have the ability to control the usage of technology and elements of IR4.0 in my teaching practices as an ESL teacher.	I have the resources necessary to integrate IR4.0 in my teaching practices as an ESL teacher.	It will be easy for me to integrate IR4.0 in my teaching practices as an ESL teacher if I had given the opportunities, knowledge and resources.	I think integration of IR4.0 is not compatible with my teaching method as ESL teacher.
■ Strongly Agree	7	3	10	0
■ Agree	8	10	20	0
■ Neutral	12	17	0	7
■ Disagree	3	0	0	18
■ Strongly Disagree	0	0	0	5

Figure 8. Findings from the questionnaire on perception of external control on the adoption and use of information technology (IT)

In figure 8, the perception of external control on the adoption and use of IT among suburban primary school ESL teachers shows that the teachers have the ability to control the usage of technology and elements of IR4.0, have the resources to integrate IR4.0 and it becomes easier if they have given the opportunities, and knowledge of IR4.0 integration to their teaching practices as an ESL teacher at the suburban primary schools. However, for the statement “I think integration of IR4.0 is not compatible with my teaching method as ESL teacher” shows that 60.0% of the teachers disagree and 16.7% strongly disagree with the statement. It can be argued that the suburban primary school ESL teachers might not have the resources, opportunities, and knowledge to execute the integration of IR4.0 technology or elements in their teaching practices which means that external factors do contribute to the adoption and use of IT in the suburban school settings.

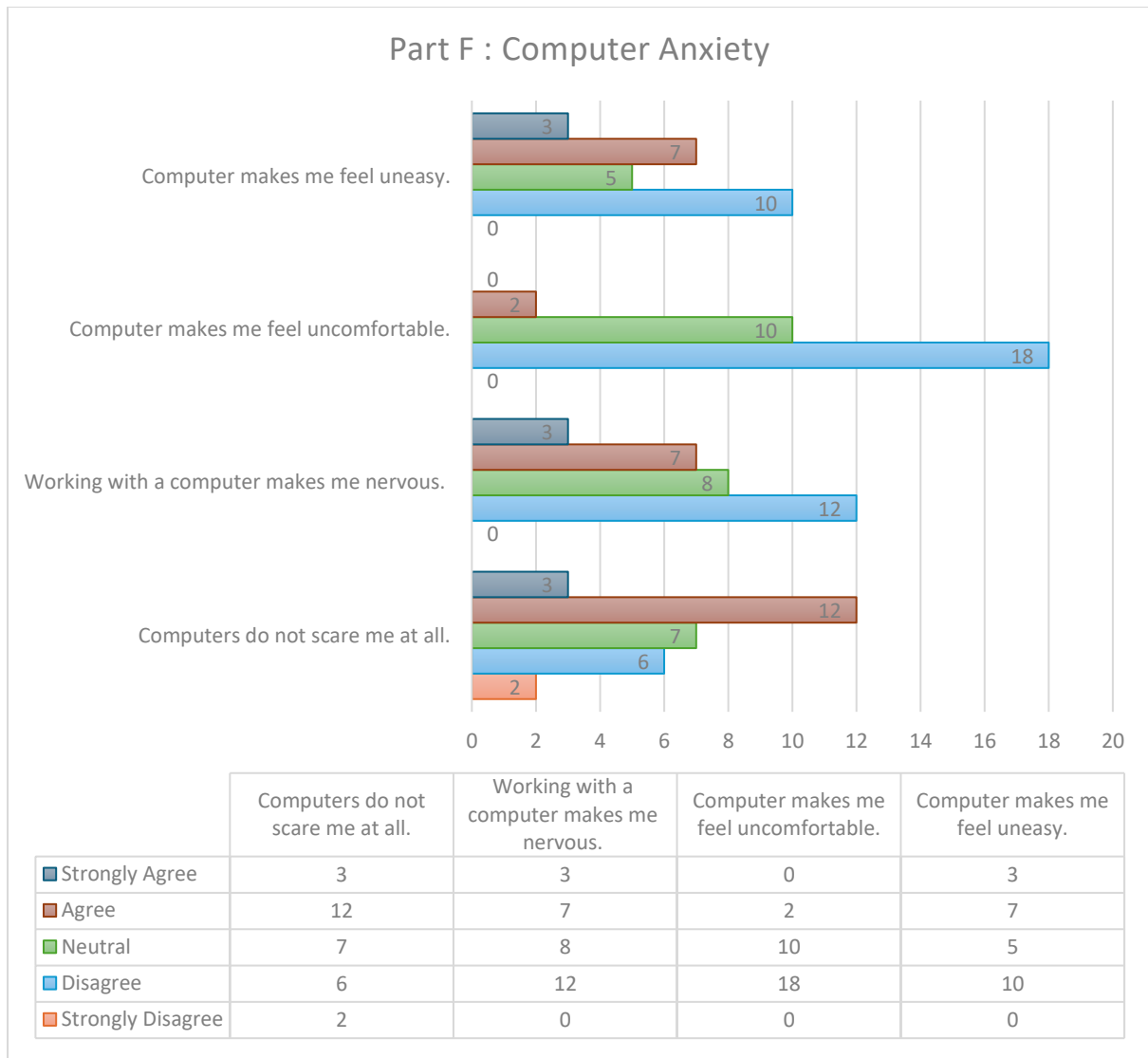


Figure 9. Findings from the questionnaire on computer anxiety on the adoption and use of information technology (IT)

The results show for the computer anxiety on the adoption and use of information technology (IT) among the 30 teachers show that there are still teachers who have discomfort feelings towards using computers. These feelings of discomfort include scared, nervous, uncomfortable, and uneasy. 20% of the teachers disagree and 6.7% of the teachers strongly disagree with the statement “Computers do not scare me at all” which signify the hesitancy to integrate IR4.0 technology into their teaching practices although more teachers are not scared of computers. The same goes to the feeling of nervousness and uncomfortable working with computer, the number of teachers disagree and strongly disagree exceeds the number of teachers who agree and strongly agree. Out of 30 teachers, 10 teachers are nervous working with computers and only 2 teachers feel uncomfortable working with computers. Meanwhile, there is a balance distribution of number of teachers who feel uneasy and easy working with computer. The feelings of discomfort can easily influence the confidence and readiness of teachers to integrate IR4.0 technology or elements in their teaching practices as an ESL teacher which resulted in the unsuccessful or difficulties facing the upcoming IR5.0.

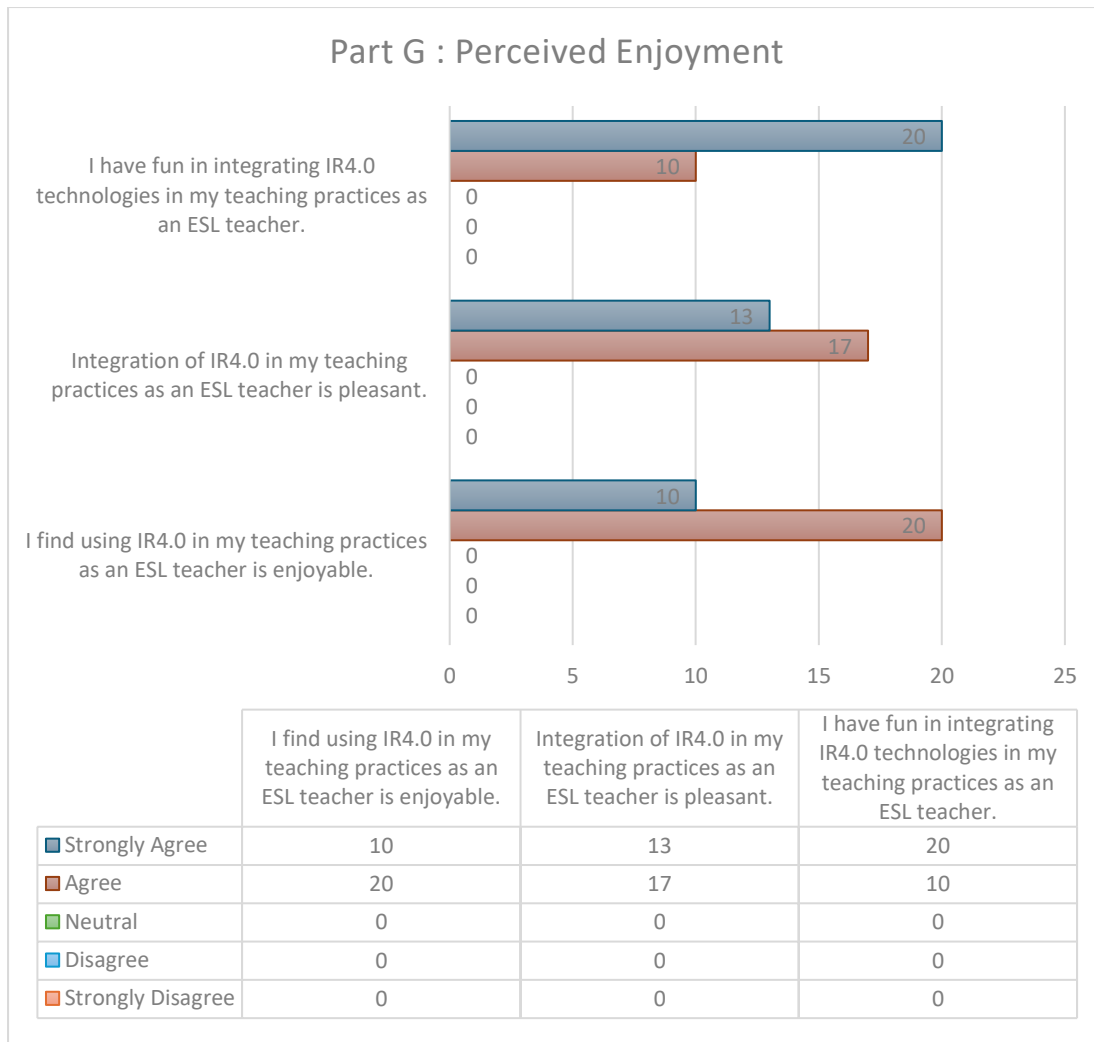


Figure 10. Findings from the questionnaire on perceived enjoyment on the adoption and use of information technology (IT)

Looking at the results gathered from the questionnaire for perceived enjoyment on the adoption and use of IT among suburban primary school ESL teachers, it is applaudable that all the teachers agree and strongly agree that by integrating IR4.0 into their teaching practices is fun (66.7% of the teachers strongly agree and 33.3% of the teachers agree that they had fun integrating IR4.0 in their teaching practices as an ESL teacher), pleasant (43.3% of the teachers strongly agree and 56.7% of the teachers agree that the experience integrating IR4.0 in their teaching practices as an ESL teacher is pleasant), and enjoyable (33.3% of the teachers strongly agree and 66.7% of the teachers agree that using IR4.0 technology in their teaching practices as an ESL teacher is enjoyable).

Discussion

As similar as IR4.0 (digital evolution) emerges from IR3.0 (ICT), IR5.0 is the continuation of what digital evolution has to offer but with a twist of drastic jump in concept which is marked by a shift in ideology. With the existence of digital evolution, in IR5.0, humans are to collaborate with machines to further flourish the concept of meaningful life of a human by assistance from the transformation of artificial intelligence (Sari, 2020). In 2021, about 3.7 billion people, majority of them are from developing countries, have poor access to the internet, impeding their capacity to gain from digital learning (World Bank, 2021).

Governments, organisations, and other stakeholders must work together to provide the necessary infrastructure and resources to close this gap (Kilag et al., 2023). The rampant revolution in innovation has offered another education model for the future; Education 4.0 which pivots on the development of education and skills, customary, smart, portable, accessible, and virtual future learning. As a result, Education 4.0 addresses the requirement for IR 4.0; while the new educational paradigm encourages students to acquire the required knowledge and skills and to locate the resources from which they can do so.

However, according to Liu et al (2016), there are four main factors that could influence educators to integrate technology in their teaching; (1) teachers' background (education level, years of experience and gender), (2) teachers' specific characteristics (readiness and confidence in using technology), (3) school characteristics (access to the technology and technological support system), and (4) contextual factors (students' literacy and numeracy). Hence, the need to do this research; to explore the readiness of suburban primary school ESL teachers in the face of IR5.0 into the teaching of English language. Hence, this paper attempts to answer the research question; how does ESL primary teachers' level of readiness affect their integration of technologies into their teaching practice in the face of IR5.0 in the suburban areas? Inferential analysis is used to analyse the data gathered to identify the relationship between the independent and dependent variables (Figure 3). In Figure 3, the independent variable is teachers' Technology Readiness Index (TRI) – optimism index, innovativeness index, discomfort index, and insecurity index meanwhile the dependent variables are teacher's perceived usefulness and perceived ease of use which influence their behavioural intention. As this research focuses on ESL primary teachers' level of readiness that affects their integration of technologies into their teaching practice, the later part of this paper describes the perceived usefulness, perceived ease of use and behavioural intentions coined by Avelino and Ismail (2022) of the 30 selected ESL suburban primary school teachers in Sarawak.

Perceived usefulness

Based on the data in Figure 4, most respondents agreed and strongly agreed that the integration of IR4.0 technologies into their teaching practices improved their performance as ESL teachers. This finding aligns with Ramli et al (2020); Hashim (2018), who states that teaching and learning of the language activities in the classroom can be elevated by using technology. Further evidence supported the notion that using IR4.0 technologies into educators' lesson plans enhances their effectiveness as educators. In item 2, Part A; the respondents acknowledged that IR4.0 technologies help increases their productivity as ESL teachers. With the various applications of modern technology, like tablets, smartphones, and laptops, which enable teachers to access work swiftly no matter where they are, it increases the productivity (Hashim, 2018). The findings for the perceived usefulness determinant align with the findings of a study conducted by Junid et al (2019); where these researchers found that teachers will be hesitant to incorporate IR4.0 technologies into their teaching practices if they believe that doing so will not improve their job performance.

Perceived ease of use

Perceived ease of use is influenced by the teachers' level of knowledge to integrate the IR4.0 technologies into their teaching practices. Based on the results in Figure 6, suburban primary school ESL teachers can use the technology but not to an extent that it gives out the ease of using it which influence their reluctance to integrate IR4.0 technologies into their teaching

practices. This corresponds to Romy et. al (2019) who recommended that teachers should have the knowledge and pedagogical skills required to integrate the technology to maximise the utilization of technologies in their teaching practices. This acknowledges to meet the demands of the IR4.0, the teaching practices is affected by the different levels of knowledge about the technology the teachers possessed.

Behavioural Intention

In figure 5, as most of the suburban primary school ESL teachers agreed that they are influenced by the people and schools around them because it creates encouraging norms to make the teachers feel comfortable and confident in integrating IR4.0 technologies into their teachings. This demonstrates that the respondents had enough support from their workplace to include IR4.0 technologies into their teaching methods. Therefore, it is incomprehensible if educators do not use technology into the teaching and learning process as a communication medium (Ahmed and Nasser, 2015). However, since most suburban primary school ESL teachers need to be guided and assisted to use the technology (Figure 7 on computer self-efficacy), this aligns with Mpungose (2020) in which claims that teachers who do not have any notion of advanced knowledge to integrate IR4.0 elements could possibly reluctant to improve their skills in integrating IR4.0 elements although they have good mastery the standard content, pedagogy and technology. Another studies by Aprilia Sari et. al. (2022) on pre-service EFL teachers resulted in most of the respondents require more knowledge to use various digital technology effectively to support their language instruction although they have adequate basic digital skills to use technology in the classroom. This subsequently proves that to know how to use the technology is different than to only know about the technology.

Conclusion

Industrial Revolution (IR) 4.0 presents both exciting opportunities and difficult circumstances. The advent of the digital age has brought about revolutionary transformation across all industries, particularly in education. Education sector, like all the other sectors be it health, economy, tourism, etc; have been remarkably impacted by the proliferation of ICTs and the education institutes are compulsory to prepare students for the global employment market. Malaysia is gradually but steadily embracing the digital revolution and utilising the benefits it provides as it makes its way to the IR4.0 (TM One, 2019). This ideally contribute to the one question, “are Malaysians ready for the emergence of IR5.0?”

After the Third Industrial Revolution, since teachers' roles shifted from being the only source of information to acting as a facilitator to help students gain the necessary knowledge and skills, the integration of technology into teaching and learning already began (Avelino and Ismail, 2022). Hence, the readiness and view of teachers will become the dominant factor whether they accept the digital revolution of education. Therefore, since primary school ESL teachers play a crucial role in introducing the technology to the primary school students; this research intends to explore suburban primary school ESL teachers' readiness in the face of IR5.0 into the teaching of English language.

The implications of this research serve as reference to the teachers, policymakers and private sectors or non-profitable organizations. Teachers can infer the reality of suburban schools' settings that contribute to the challenges of integrating IR4.0 technology in the teaching and learning environment. Although the current changes in the education system granted that teachers all over the country required to know how to integrate technology into their teaching practices, teachers must look at the practicality of it in the suburban classroom

settings. As for the policymakers, this research hopes to enlighten the struggles that ESL teachers face in the suburban schools by giving more attention to the needs to overcome these struggles and could possibly reform a new curriculum that allows the integration of the technology suited to the different school settings.

The private sectors or non-profitable organizations can benefit from this research by acknowledging, collaborating, and supporting the needs to have better infrastructure in the suburban schools so that the students will not be so far left behind in the face of IR5.0. It can be beneficial for both the private sector or non-profitable organizations and the students as the students will be the employees in the global market. This consequently shape the better employment generation in the future. This adheres to the claims made by Kilag et al (2023) in which the researchers put forth the initiatives of urging governments, organisations, and other stakeholders work together to provide the necessary infrastructure and resources to close this gap. All in all, this research ought to be a reference for further research studies at other parts of the country as well as to ensure that IR5.0 will not be of a far-fetched goal for all Malaysians.

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