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CAWANGAN PULAU PINANG

Remarks of Professor Ts. Dr. Salmiah Kasolang, Rector of UiTMCPP,
for the Inaugural Address
on the Debut of the International Journal of Practices in Teaching and Learning (IJPTL)

We, UiTM Cawangan Pulau Pinang (UiTMCPP), are proud to release the first debut of the INTERNATIONAL JOURNAL OF PRACTICES IN TEACHING AND LEARNING (IJPTL). The intention was clear that we wish to offer everyone the opportunity to write without experiencing the burden of not being able to publish.

IJPTL is intended, in its first phase, to welcome as many writers as possible, especially among UiTMCPP staff and students to contribute ideas related to practices in teaching and learning based on their own experiences. We wish to facilitate the sharing of these ideas into writing and consequently turn it to be published in IJPTL.

I remember throwing this idea to Associate Professor Ir. Dr. Rashidy Razali (the Deputy Rector of Academic Affairs) in one of our many discussions held in the third quarter of 2020 and trying badly to identify the right person- in- charge to lead this journal as the Chief Editor. After a few names, it was finally identified that Dr. Rofiza Aboo Bakar, the Head of Centre of APB would lead this special project. We received a positive response when we approached her though she was a little reluctant at first as she was battling with the fear that there might be others who were more qualified to lead such an salient and special project such as this. After some discussions, her eyes and facial expression were full of positive energy. In no time, the idea was picked up and during this first quarter of 2021, the first debut will be launched with 10 papers.

With the right intention and support, even the impossible could be turned into a reality. Well done and congratulations to the Chief Editor and team for the strong commitment and passion in making this IJPTL a reality! We are very hopeful that this journal, our humble beginnings, will serve many people and become a reputable reference in teaching and learning.

Together, we will make IJPTL notable.

Foreword from the Chief Editor: The Inaugural Issue of the International Journal of Practices in Teaching and Learning

Dr. Rofiza Aboo Bakar

Welcome to the inaugural issue of the International Journal of Practices in Teaching and Learning (IJPTL): a peer-reviewed journal in the field of teaching and learning and is launched by STALITE (Society for Teaching and Learning for Tertiary Education). IJPTL is only making its small and humble beginning. However, it aims to provide a cross-disciplinary medium for educators to publish innovative practices in teaching and learning that can be shared for the benefit of all.

This journal whose research articles are written in an easy-read manner, seeks to aspire both new and experienced writers to share their expertise and perspectives in fields that they are involved in. The theme for this inaugural issue is **Corporate Social Responsibility (CSR).**

Although IJPTL is new and has not made its mark as an indexed journal, its research articles have gone through a double-blind peer-review process. This is done since it hopes to savour benefits, such as original and high standard research papers, and significant contributions. I hope readers can attain meaningful ideas put forth in this issue, and I look forward to many more varied discussions in subsequent issues.

Finally, I would like to take this opportunity to thank the associate editors, editorial board members, international peer reviewers, contributing writers, and many others for making IJPTL and this first issue possible. Special thanks also go to the members of the STALITE publishing team, and most importantly, Professor Ts. Dr. Salmiah Kasolang, who sparked the wonderful idea of IJPTL that she terms as an “affectionate’ journal which inspires new writers cum researchers to write and publish with no fear of rejection. We make the best ‘Thinker – Connector – Doer Team’ and we hope to “do ordinary things with extraordinary love”, always.

Dr Mohd Muzafa Jumidali

Norazah Umar

Dr Ainorkhilah Mahmood

Dr Mohd Nadzri Mohd Najib

Dr Wan Ismahanisa Ismail

Reviewers

Aulia Annisa Lubis

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IJPTL

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Understanding CSR Initiatives Between NFP and Higher Education Institutions in Australia

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Abstract— Addressing the gap between students, graduates, and the industry has been a problem; the students claimed that there seemed to be a scarcity of opportunities for them to upskill and be involved in the industry, likewise for the industry claiming that students, especially recent graduates lacked the skills needed in the job market. Various stakeholders, including the higher education institutions, schools, and not-for-profits (NFP), have been involved in addressing the industry's gap. These have been translated in both short-term and long-term programmes, allowing and encouraging engagements between the students and industry players. This study explored the relationship of CSR initiatives between NFPs and higher education institutions and its benefits for all involved participants through reputation and relationship building, including collaborations amongst students (higher education students and high school students involved in the programmes), researchers, industry players, and university institutions. This account was based on the authors' observations and engagements with several NFPs based in Melbourne, Australia, from 2018 to 2020 guided by Vygotsky's sociocultural theory. This paper also provided recommendations for all the stakeholders involved to develop further and drive these initiatives.

Keywords— *Collaboration, corporate social responsibility, higher education institution, not-for-profit, and reputation.*

I. INTRODUCTION

Findings from academic research and industry trends often mentioned gaps; industry gaps wherein graduates lacked the practical experience or expertise needed in the job market, likewise for graduates claiming that the university institutions and industry lacked in providing relevant pathways, such as volunteering opportunities to address the said gap [1]. Additionally, studies also showed that there were "ceilings", where students, both from higher education institutions and high school students were unable to "break" as they lacked platforms and opportunities to connect with industry players and be involved in the said industries. This is further exacerbated as reports forecasted that unemployment would increase because of the COVID-19 pandemic [2] as inequality of job supplies and demand increases, shifts in the working environment, and the widening gap due to technological advancements.

To address these issues, university institutions have implemented various programmes and initiatives to bridge the gaps mentioned catered for students and their respective fields [3] as the emphasis was given on both soft and hard skills needed in the job market. Similarly, various organisations, such as corporations, non-governmental organisations, not-for-profit (NFP) corporations, among many others, have also taken the initiatives to address the gap. These NFP organisations operate under the education sector and work closely with university institutions, higher education students, and high school students in various fields. Most importantly, several NFPs have focused on bridging the gap with the industry, higher education, and high school students, which incorporated the design-thinking approach, cultivated mentor-mentee relationship, and produced project-based outcomes, as Lecy and Swedlund [4] found that these NFP models have been significant and beneficial for all the parties involved.

Thus, this study explored the relationship of CSR initiatives between NFPs and higher education institutions and its benefits for all participants involved through reputation and relationship building, including collaborations amongst students (higher education students and high school students involved in the programmes), researchers, industry players, and university institutions. This paper also provided recommendations for all the stakeholders involved to develop further and drive these initiatives.

This account was based on the authors' engagements with several NFPs based in Melbourne, Australia, from 2018 to 2020. Due to the recent COVID-19 pandemic, this study focused on Australia, as most NFPs have shifted and implemented their programmes online; thus, initiatives were not necessarily bound by geographical restrictions.

II. LITERATURE REVIEW

A. Theoretical Framework

This paper was guided by Vygotsky's sociocultural theory [5], particularly on knowledge, learning, and motivation as this theory posited that knowledge is constructed based on

social interactions within a knowledge community, which integrates the learners into the learning processes. Further supported by intrinsic and extrinsic rewards, the learners are motivated by the knowledge community towards their learning goals and journey. Hence, this view ultimately shapes the teaching implications, which collaborative learning and group work is encouraged while being guided by an educator. The theory was clearly illustrated in each participant's involvement through reputation and relationship building, including collaborations amongst students (higher education students and high school students involved in the programmes), researchers, industry players, and university institutions. The NFPs structured approach with project-based outcomes and particularly for the mentor-mentee relationship demonstrated the sociocultural theory approach, in which both the mentor and mentee were involved throughout the learning process, guided and supported by the mentor and resulted in a collaborative learning effort. Thus, these ideas supported the importance of CSR initiative relationship and benefits between NFPs and higher education institutions.

B. NFP in the Education Sector

The Australian Accounting Standards Board (AASB) defined NFP as a body that provides services to a particular group or community without incurring any profit for its members, shareholders, and the organisation [6]. Philanthropy Australia reported that there are currently 600,000 NFPs, with the most common engagements including religious activities, primary and secondary education, grant-making, social services, and aged care services. The education sector involves kindergartens, schools, universities, industry training organisations, and operates mostly for research purposes and education advancement. Additionally, to stay relevant in competitive environments and address demands from the society, donors, and stakeholders involved, NFPs continuously assess the needs or gaps in knowledge and skills relevant for the current and future market. This also consists of utilising resources and networks to broaden their effectiveness and impact on the community [7].

Correspondingly, NFPs also act as a "mediator" by providing platforms, networking opportunities, linking, and sourcing for relevant parties in their initiatives. For instance, BrainSTEM, a Melbourne-based NFP that runs "Innovation Challenges", pairs up high school students (mentee) with students from higher education institutions and researchers (mentor) from science, technology, engineering, and mathematics (STEM) field to work on real-life problems and create feasible solutions as part of their programmes [8]. Other NFP organisations, such as Girledworld, In2Science (Victoria), among many others, provide similar initiatives that focus on design-thinking approach, mentor-mentee relationship, and a project-based outcome. These programmes not only offer access or "break the ceiling" between students from high school, higher education institutions, and industry players, they also provide the opportunity to learn and contribute to STEM innovation projects.

C. CSR in Higher Education Institutions

Corporate social responsibility in university institutions focuses on the impacts that the university's operations and activities on its internal and external publics [9]. Nejati et al. [10] found that university stakeholders, including students, looked beyond university rankings, research publications, and student intakes; however, stakeholders were more focused on how the university can contribute and improve the communities. Thus, universities' engagement with NFPs was seen as one of the university's efforts to promote social responsibility amongst faculty, scholars, deans, staff, students, and external publics based on ethical learning.

In addition to building social responsibility, these initiatives were also part of the institution's portfolio, branding, and recognition among stakeholders and potential students (particularly millennials) as they value these areas when choosing institutions and brands that they engage with. Institutions have been more committed to reduce carbon footprints, improving labour policies, advocating for fair trade, recognising and organising more volunteering in the community, among others.

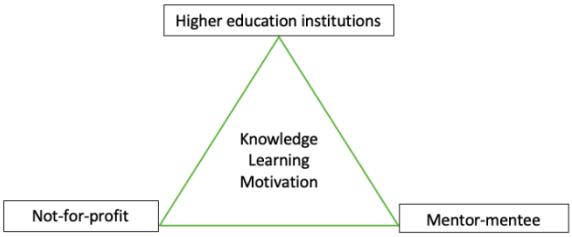

Fig. 1. Using Vygotsky's sociocultural theory to illustrate the relationship and benefits of CSR initiatives between NFPs and higher education institutions through reputation and relationship building, including collaborations.

III. METHODOLOGY

This study adopted an unstructured observation on the author's engagements with several NFPs in Melbourne, Australia, from 2018 to 2020. This method was utilised as observations were made in a more natural setting with an open-ended approach without predetermined categories and classifications [11]. Reoccurring themes were identified and analysed based on the engagements and relationships amongst the stakeholders mentioned.

IV. RESULTS

Based on the observation conducted, this study identified three emerging themes, namely reputation building, relationship building, and collaborations amongst students (higher education students and high school students involved in the programmes), researchers, industry players, and university institutions. Further analysis showed that all

the stakeholders mentioned benefited from the CSR initiatives.

V. DISCUSSION: CSR INITIATIVES BETWEEN NFPS AND HIGHER EDUCATION INSTITUTIONS

A. Reputation

CSR initiatives between NFPs and higher education institutions aid in reputation-building and branding for universities as part of their university social responsibility strategies [12]. Additionally, it would increase their recognition and outreach amongst stakeholders, such as prospective students, parents, employees, board members, among others. These engagements also provided further industry opportunities, which were beneficial for current and future students as they were able to build and improve on both their soft and hard skills relevant to their degree and interests. Both the high school and higher education students benefited from this by building their resume, personal branding, and networking with industry players and researchers. In the long run, these initiatives also empowered both parties as knowledge transfer occurred, and both parties learned from one another throughout the programmes. The NFPs also experienced the spill-over effects from matching students and industry experts, built network, and gained recognition, all of which were important (vital) for the NFPs operations and other programmes for success measurement and its effectiveness in advancing education [4].

B. Relationship

Stelter et al. [13] stated that a trusting and positive relationship between a mentor and mentee was beneficial for both parties involved, albeit mixed experiences were recorded from the mentor-mentee relationship from both parties. Provided with proper training, programme structure, approach, and support given, both mentor and mentee could learn and support one another as both parties further developed their skills, such as networking, mentoring, networking, and other project opportunities, echoing the above idea on reputation-building. Stelter et al. also found that positive mentoring relationship increased the participants' interest and willingness to learn in their field as they were highly likely to venture into more mentor-mentee programmes based on their experiences in learning and engaging with a mentor in their relevant areas. Resultantly, these engagements have bridged the industry and research gap with knowledge transfer occurred from the parties involved as mentors were better informed regarding the student's university learnings and activities, while the mentees were able to familiarise themselves in the workforce and (with) skills needed [14].

C. Collaboration

As high school students, higher education students, and researchers engaged in project-based outcomes, these allowed collaboration and co-creation, leading to lasting results, such as knowledge production, innovation, and social capital [15]. Additionally, these programmes increased the participants' visibility in the education and research communities, which also provided opportunities for potential partnerships in the industry and other sectors, such as (in particular) the government. The adoption of the design-thinking approach also benefited them as it provided the participants with a structured problem-solving method and it was also listed as one of the needed skills in the market, regardless of their field [16]. As mentioned, this also benefited NFPs as part of their programme effectiveness and future programmes and collaborations with other industry players. Lecy and Swedlund [4] recorded that successful programmes from NFPs were crucial in maintaining and improving the organisation in receiving more sponsorship, donations, collaborations, and volunteers.

Concerning the recent COVID-19 pandemic, most high school students, higher education students, and research have now shifted towards virtual learning, communication, and collaboration. Thus, these programmes encouraged participants to get involved in working and utilizing collaboration tools, such as Padlet, Miro, Google Documents, etc. and attend virtual meetings via various platforms, namely Zoom, Microsoft Team, Skype, among many others. These also provided them with an opportunity to enhance and prepare themselves towards the shift in the future working environment and create a competitive advantage for them [2].

VI. CONCLUSION

This study explored the relationship of CSR initiatives between NFPs and higher education institutions and its benefits for all involved participants through reputation and relationship building, including collaborations amongst students (higher education students and high school students involved in the programmes), researchers, industry players, and university institutions.

Based on Vygotsky's sociocultural theory [5], the CSR initiatives between NFPs and higher education institutions have demonstrated that knowledge was based on social interactions with all the participants involved, particularly during mentor-mentee sessions and project-based outcomes. The learners (both the mentor and mentee) were directly involved in the learning process, which also comprised the broader knowledge community, such as higher learning institutions, industries, and research centres, which further benefited them in building their reputation and relationship. These engagements and benefits also motivated the participants and provided them with the intrinsic and extrinsic rewards needed to achieve learning and project outcomes by the mentors' guidance. The reputation and relationship building could also be argued to consist of both the intrinsic and extrinsic motivations for all the participants involved. Ultimately, the CSR initiatives between NFPs and higher education institutions have shown collaborative learning and group work while being guided by an educator

(mentor), which supported the last point on collaboration, particularly considering post-pandemic changes in the work environment.

Universities should prioritise and create more engagements between NFPs and high school students to ensure more collaboration and long-term relationships. They should also create more opportunities for various fields and recognise these engagements for participating students to build their skills and personal brand. NFPs should also adopt a similar approach using design-thinking (or other future skills needed), mentor-mentee relationship, and project-based outcomes. Additionally, NFPs should provide training for both the mentor and mentee, including providing a structured engagement for a period of time to enhance their experience further. NFPs should proactively engage, create, and optimise initiatives based on a needs assessment, both from students and the industry to stay relevant and provide the best outcomes for education advancements. Schools of students of all ages should also proactively search for such initiatives from NFPs and higher education institutions to expose and provide the best learning outcomes for their students.

This paper only focused on the author's account based on a short period and limited engagements as a marketing communication person volunteering for the NFPs. Future research will be beneficial to explore NFPs' role for more extended periods across various fields (apart from STEM). Investigating from different stakeholder positions will also be useful to further understand CSR engagements between NFPs and higher education institutions. Future studies should also explore other parameters apart from reputation, relationship, and collaboration to investigate the relationships and benefits involved.

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Scaffolding Children with Autism: Teaching Swimming through Instilling Trust

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***Abstract*—** Generally, children with autism are known to display inadequacies in communication skills, social interaction and motor performance. Previous studies have suggested that swimming is beneficial for children with autism. However, they are still marginalized in this activity as swimming teachers' knowledge about these learners is inadequate. Embracing the Sociocultural Theory by Vygotsky, particularly the 'Zone of Proximal Development' which states that a learner can achieve success with guidance and support from a skilled teacher, this paper is aimed at featuring the importance of swimming teachers exercising patience and building learners' trust. These traits and their implications are discussed further in this paper.

Keywords*—swimming teachers, children with autism, patience, instilling trust.*

I. INTRODUCTION

Children with autism suffer from multifaceted deficiencies in communication skills, social interaction and physical skills, and have repetitive behaviours, restricted interests and special obsessions [1]. Autism is a spectrum disorder, which means that some individuals with autism may have serious mental retardation and austere language interruptions, whereas others may be high-functioning individuals who can speak and are very intelligent [2]. The explanation signifies that individuals suffering from it can have symptoms that can extremely vary on a spectrum. The diagnosis is principally clinical and supported by interviews with the parents and specific tool tests [3].

Autism is on the rise worldwide. Studies in Europe and Scandinavia have found as many as 12 in 1,000 children with autism, while in the United States between two and seven per 1,000 children [3]. In Malaysia alone, close to 50,000 children are diagnosed suffering from autism and this number keeps increasing at 3% every year [4].

Swimming has been claimed to be beneficial for children with autism [4] since it can be stimulating and motivating, besides allowing them to increase their eye-contact, attention, social skills, balance and muscle strength [5]. However, children with autism are marginalized in swimming worldwide as swimming teachers' knowledge to handle them is inadequate [6].

The researchers are both swimming teachers for people with disabilities and have had extensive experience teaching swimming to children with autism. It is true that most of the children whom we have worked with have displayed such behaviours which we normal people would have termed as 'disruptive' since they yell, hum, show tantrums and self-hit. In addition, some others may have exhibited poor eye-contact and made no engagement with us when being taught. To many, all these can lead to another misapprehension of them being rude and non-attentive although in actual fact they are not.

However, the time has come for all to not be ignorant of autism. Children with autism may have limitations but learning more about their disorders can help bridging the relationship of theirs and ours. Just like other abled children, they can achieve success if they are given guidance and scaffolding.

Reflecting on the experiences working with children with autism in some corporate social responsibility projects sponsored by the Bank Rakyat, Malaysia, and revisiting Vygotsky (1986) Sociocultural Theory with the concept of 'Zone of Proximal Development' [7], this paper, thus is aimed at featuring the importance of swimming teachers exercising patience and instilling trust in children with autism while teaching them swimming.

II. REVIEW OF LITERATURE

A. Theoretical Framework

Our experiences were informed by the Sociocultural Theory by Vygotsky (1986) that proposes that social process adds to human learning. In the theory, it is stated that communication that children have with their significant

others like parents, teachers, friends and society can contribute to the children's learning.

An important postulation in the Sociocultural Theory is the Zone of Proximal Development. It means that children can obtain knowledge and perform skills with guidance from more knowledgeable others, for example their teachers. Similarly, children with autism require no exception. Although children with autism may have several deficiencies, the theory illuminates that they can benefit from very patient and passionate teachers who can teach them the most vital component -- instilling trust -- and focus on what the pupils can accomplish rather than what they cannot do. He called it 'positive differentiation'. Teachers are required to provide continuous necessary assistance or scaffolding until the learners can achieve the specified tasks independently, and until specific learning goals are met. Besides, it is also important that swimming teachers learn about how these children learn.

B. How Children with Autism Learn

There is no one right way of teaching children with autism [8]. However, knowing in general how they learn can help us teach them better.

Teachers need to establish an initial rapport with children with autism. They normally have difficulty following instructions given by unfamiliar people. Thus, prior to teaching, teachers must create an initial rapport with the children, such as devising some ice-breaking activities to secure their auditory and visual attention [8]. Some other activities are smiling to them, shaking their hands, looking straight into their eyes, and telling them the teachers' names. These give indications that they are significant and that the teachers are interested in teaching them. For example, we can introduce ourselves by saying, "Hi. I'm Coach Jaz and this is Coach Rofi." We can then ask them to state their names. However, there will be some who will only repeat after us using the words we have used; nonetheless, this is expected, and it is called 'echolalia'.

Children with autism may have difficulty complying with verbal directives [8]. Thus, it is suggested that systematic instruction is used with them. One example of a systematic instruction is discrete trial teaching, which consists of any of these: verbal instructions, modelling or physical prompts, responses and consequences. Discrete trial teaching may begin with an explicit, short verbal instruction, such as, "Kick your feet", "Face down", "Blow bubbles" and "To the wall". The verbal instruction will only be given when the autistic learner whose ears are above water, pays attention, and not talking to or playing with any toy. The verbal instruction is immediately followed by a modelling or physical prompt first by the teacher and then the learner. For example, after saying "blow bubbles", the teacher puts his face in the water and blows bubbles out of his nose for the autistic learner to see. The learner is required to follow the physical prompt, which is intended to help the learner produces the targetted or correct response or behaviour. This targetted behaviour is then given a positive reinforcement, such as, "Good job" or "Well-done", or non-verbal social feedback, such as smiling and high fives. Children with autism respond well to positive reinforcement [8][7]. However, if the target behaviour is not portrayed, the swimming teacher needs to re-issue the verbal instruction in simpler and a more directive manner than on the first attempt.

III. SWIMMING TEACHERS EXERCISING PATIENCE

We believe in a one-on-one approach when teaching swimming to autistic learners. We have seen that many children with autism perform better in private classes.

We also believe that any swimming teachers who want to teach children with autism must be able to exercise patience and handle the class in an appropriate and safe manner for both of them and the children. A swimming class should start with teaching the importance of walking near a swimming pool and not running. Then, the children are taught to sit on the pool deck and paddle their feet to warm up. They may touch the water and get a little excited, but this is all right.

However, because the swimming pool is not a usual place that these children always visit, the unfamiliarity may result in some of them acting out with physical aggression or tantrum when they enter the water. This may sound weird but physical aggression happens because of their inability to communicate pain or fear. This type of communication somehow is effective and universally understandable [9]. They may also grip onto, pinch or bite the teachers. Thus, swimming teachers need to know how to handle these behaviours, such as holding them at one arm's level, and comforting them by hugging as parents always do. An important thing to do is to maintain the patience and not to over-react.

IV. SWIMMING TEACHERS INSTILLING AUTISTIC LEARNERS' TRUST

Being in water can be a very fearful experience for many, children with autism included. Thus, the issue of fear must be addressed by swimming teachers. There is a need to instill trust among the children in their swimming teachers, the swimming noodles, the swimming pool deck and the learners themselves. However, the question is "How?"

A. In Swimming Teachers

Swimming teachers have a very important role to play since they need to teach children with autism to be safe, confident and competent in water.

Swimming teachers must at least hold a lifeguard certification. Having teaching certification for swimming for people with disabilities is a bonus. Parents who put faith in the teachers for taking care of their children's lives,

especially, can be rest assured that their children are in a safe environment while learning to swim.

Handling children with autism is an art in itself. To develop a trusting relationship between the swimming teachers and the autistic learners, the latter need to be shown that the teachers mean what they say. For example, many will at first be scared to soak their face in the water. We tell them in simple words that anyone is scared. Then, we tell them that we will do this together with them. Putting both hands under their armpits and holding them tight, the teachers and the learners go under water together. We let them share this experience and show them that they need not fear because we are there for them. Doing this a few times will instill confidence in them.

Fig. 1. Instill trust in the swimming teacher

B. In Swimming Noodles

Swimming noodles are made of polyethylene foam and are about three inches thick and four feet long each. Swimming noodles have a few characteristics that explain their benefits. They can float very well, and are durable, flexible, and inexpensive.

When swimming noodles are placed across the chest and under the armpits of the children with autism, these swimming noodles allow the children to keep their heads above water, and float in a vertical position without strain.

Later, when the children have mastered balance and felt comfortable, the swimming noodles can be placed across their chests and under their armpits while floating in a horizontal prone position to practise the flutter kick or the breaststroke kick.

Swimming noodles can provide the feeling of comfort and security to children with autism. These help them learn swimming without being scared. However, when these noodles are deliberately taken away from them, they consequently learn that they are capable of sinking. Thus, they realise that they must trust the swimming noodles which act as additional support for them in learning swimming.

Fig. 2. Instill trust in the swimming noodle

C. In Swimming Pool Deck

From the very beginning, our autistic learners are taught to trust the swimming pool deck. They are taught to come down safely from the swimming pool deck, hold it with their two hands while blowing bubbles, and get up on it when swimming is over.

They need to understand the discipline that they must swim back to the swimming pool deck for safety. We start small by bringing them off the pool deck and in the water with about an arm's length and allow them to swim back to the deck. When they are braver and become more confident, the length is gradually increased. When these learners touch the swimming pool deck, we say, "Good job," and encourage them to swim again to us. The same process is repeated until it stays in their memory.

Their success in swimming back and forth is a great achievement for these children and is celebrated by giving them a high-five. The positive words and warm gestures are actually positive reinforcement and motivation for larger accomplishments.

Fig. 3. Instill trust in swimming to the pool deck.

D. In the Learners Themselves

When children with autism feel confident of the learning atmosphere: they are comfortable with the swimming teachers, can rely on the extra support provided by the swimming noodle, and know that there is a safe spot, that is the swimming pool deck, they will be eager to learn further. Learning to float, kick, and tread water, first with the help of the swimming teachers and then on their own, helps in instilling the trust that they can actually swim after undergoing some learning process.

Trusting oneself is a trait that is built over time and takes place from influences of the surrounding. If the swimming teachers exude a trusting behaviour and confidence over the children with autism, the latter will learn that from the

former. Teachers' cheers of assurance and positive language used while teaching these learners swimming all play a part in making them feel confident, content, safe and wanting to learn more.

Fig. 4. The learner believes in herself that she can swim.

V. CONCLUSION

We presented at the beginning of the paper that swimming, although beneficial for children with autism, is not taught to them by many swimming teachers all over the world since the latter lack the vital knowledge in handling these types of learners. Then we argued that children with autism can be taught swimming if we scaffold them and instill trust among them. Trust can come in many forms: trusting the swimming teachers, the swimming noodles, the swimming pool deck and the children themselves.

What we have presented in this paper are our awareness of the Sociocultural Theory by Vygotsky (1986) and the knowledge and experiences we have obtained by teaching hundreds of children with autism swim. Our hope in writing this paper is to share with other teachers and policymakers our successful strategies in helping our autistic learners swim.

If policymakers are to take this study seriously, other autistic learners in Malaysia and other parts of the world may be assisted in swimming. We believe that instilling trust is the key to opening their many potentials, not just in swimming but also in other aspects of their daily lives. Having said that, we understand that our paces are still a beginning. In the name of helping them celebrate life, it would be fruitful for other researchers to pursue further research about instilling trust among these learners in other areas too besides the ones we have written.

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Read Aloud and Total Physical Response with Kindergarten Students

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***Abstract*—** This paper reports the Corporate Social Responsibility (CSR) programme that was carried out by the lecturers from the Akademi Pengajian Bahasa (APB), Universiti Teknologi MARA, Cawangan Pulau Pinang. A literacy programme that involved a collaborative effort by the department, Perpustakaan Awam Pulau Pinang (PPAPP), and a kindergarten developed by the local community programme (Tabika KEMAS) was conducted. The participants were 14 kindergarten learners who were enrolled in one of the branches of TABIKA KEMAS, which is located in the sub-district of Bukit Mertajam, Pulau Pinang. The main aims of the programme were to encourage reading habits among young learners and to help them in their English language skills using Total Physical Response (TPR) and read aloud methods. The report of the study was based on observations on the activities conducted and responses by the target participants. The findings reported that the kindergarten learners responded well and were able to follow the English language activities conducted. The use of reading aloud and total physical response in the reading activities for a CSR project with kindergarten learners are appropriate and may be effective to be adopted by other education departments. Activities based on these concepts will allow learners to be active and more responsive which can lead to a more meaningful learning experience.

***Keywords*—** *Kindergarten Learners, Read Aloud, Total Physical Response.*

I. INTRODUCTION

Corporate Social Responsibility (CSR) programmes are activities conducted by government bodies, private sectors or a specific department in an organisation that involves the community or environment. *A* company that engages in CSR can help to enhance the society and the environment instead of contributing negatively to them. As important as CSR is for the community, it is equally valuable for the company. CSR programmes normally involve community service projects that can be done in a variety of forms such as donation (money, food or other items), sharing of knowledge and expertise, foster care, or physical activities that can help a target community in some way.

Realising the importance and benefits of CSR for the wellbeing of the surrounding community, language lecturers of Akademi Pengajian Bahasa (APB), Universiti Teknologi MARA, Cawangan Pulau Pinang (UiTMCPP), in a collaborative effort with a local state library, the Perpustakaan Awam Pulau Pinang (PPAPP), and a kindergarten developed by the local community programme (tabika KEMAS), had conducted a literacy programme with children from the kindergarten.

Program Literasi bersama Kanak-kanak Tabika Kemas was organised by APB UiTMCPP in a CSR programme which involves helping the local community, specifically young English learners to learn English by motivating them to read. Conducting this programme helped to inculcate good reading habits among Malaysian citizens starting from a young age, and benefitted the university in terms of social recognition by the local surrounding community.

According to a profile study by the National Library of Malaysia (Perpustakaan Negara Malaysia) on the reading habits of Malaysians, there was an increase in the books read by Malaysians annually from only an average of 2 books in 2005 to an average of 15 books per year in 2014 [1]. However, this is number is still low compared to those from developed countries who read an average of 40 books a year. To promote the reading habits of the citizens, especially among children, the 'Read Me a Book' campaign was created by the National Library for Children and Young Adults, South Korea, with a joint effort from ten other ASEAN national libraries (the Philippines, Indonesia, North Korea, Cambodia, Laos, Malaysia, Myanmar, Singapore, Thailand and Vietnam) [2]. The aim is to develop children's effective reading habits as well as create a social environment of reading aloud that provides opportunities for children to have a pleasant experience in reading. The "Read Me a Book" campaign has been carried out by the South Korea National Library of Children and Youth since 2012. During the seven-year of implementation, this campaign has been attended by 2,691 schools and public libraries in South Korea.

Hence, in line with the aspiration of the Malaysian government to inculcate the reading culture among its citizens, Program Literasi bersama Kanak-kanak Tabika

Kemas by the lecturers from APB, UiTMCPP was conducted. The lecturers acted as facilitators for the programme and conducted English language reading activities with the young learners from the target community developed kindergarten using Total Physical Response (TPR) method and read aloud strategies.

The main objectives of the programme were to encourage reading habits among young learners and to help them in their English language skills using Total Physical Response (TPR) and read aloud methods.

II. LITERATURE REVIEW

A. *Vocabulary learning of pre-school ESL learners in early elementary education*

Parents expect their children to be proficient in their language classes, whether it is for second language (SL) or foreign language (FL), especially at an early age. In Malaysia, English is taught as early as kindergarten (age 4-6) as a second language (ESL). One of the most important things for children to master first is its vocabulary [3; 4] because it is one of the most essential elements of language proficiency [5]. Hence, kindergarten teachers play an integral role in early childhood language development.

In second or foreign language development, vocabulary plays a great role for young learners [3]. When someone does not master vocabulary, that person will also find difficulties in applying grammar [5]. Therefore, the mastery of vocabulary is usually the key intention of a teacher when teaching young learners in early elementary education. Nevertheless, teaching young learners is not an easy matter because the skills needed to teach them are not the same as teaching elsewhere in the educational system [5]. More often than not, the choice of methods to be used in order to teach vocabulary to young learners depends on how much the teacher spends both in money and time and the pupils' involvement in the implementation of the chosen method [4]. When the delivery of the lesson is not interesting to the children and is not developmentally appropriate, retention or mastery will not be fully attained [4]. Children get bored fast. A common problem in classroom teaching is teachers usually make use of conventional ways of teaching vocabulary instead of utilising innovative methods. Thus, students are not enthusiastic to learn and master the vocabulary of the target language. So, teachers should choose methods that are not only convenient but fit to the nature and ability of the target learners they are teaching. Children will easily soak what they are taught when the materials are meaningful and concrete [5]. That is why the vocabulary activities in the classroom should be able to meet their language needs that focus on meaning more than accuracy and emphasising the value of activity while providing rich context [5]. Activities involving a lot of movements and gestures in response to rhythmic and repetitive language are helpful when teaching young learners new vocabulary [5]. Teachers can enhance student learning by using mnemonic strategies such as Total Physical Response (TPR) and Reading Aloud Protocol.

B. *Total Physical Response (TPR)*

One popular mnemonic strategy for teaching ESL vocabulary is Total Physical Response (TPR) developed in 1965 by psychologist James Asher [3]. Described as a behavioural language learning theory, TPR is a comprehension teaching approach focusing on teaching the target language comprehensively and to develop basic communication skills through physical movements [6]. When using this method, ESL instructors give a series of commands in English while learners are expected to respond and follow the commands with whole-body movements [6]. It is a language teaching method built around the coordination of speech and action [3; 4; 6].

TPR is a popular method for introducing vocabulary about action or movement in early education [4]. What distinguishes the TPR method from other methods is that listening comprehension comes before speech. It is a method that aims to develop listening comprehension first and then verbal communication skills at the beginner's level through physical actions by eliminating psychological pressure [6]. After learning how the target language works, speech begins automatically. When there is anxiety between learning and what is to be learned, learning may become difficult [6]. For successful language teaching, the level of anxiety must be lowered. The TPR method aims to reduce the pressure in language learning by improving listening and comprehension skills, matching language with applied actions.

Given that children registered in early elementary school are not developmentally prepared to focus and sustain attention for long periods of time while staying still in their seats, using TPR to teach ESL vocabulary seems to be an age-appropriate and efficient method for kindergarten classrooms [3]. Moving makes children happy. By moving, they begin to get to know their environment, discover actions and recognize new objects. Therefore, the TPR method which does not restrict the mobility of children in early education is an excellent type of activity for mixed skill classes. It can be a rewarding method for children with dyslexia and other learning problems [6].

Actions and the use of the imperative forms of the target language are seen as the basis of language learning [6] because they are powerful tools for manipulating learners' behaviour and guiding them toward understanding through motion and action [4]. The imperative form is used as a linguistic tool directed by the instructor. The instructor encourages learners to recognize and respond to such simple instructions such as walk, jump, tip-toe, and so on. While the students perform the movements shown by the teacher and watch what other friends do, the learning processes continue. The implementation of the TPR method can be successful if learners can understand and follow what the instructor submitted. A study by [6] showed kindergarten students who were taught English words using TPR were more successful in learning the target language words and structures than students who learned using means of conventional methods. In addition, it was observed that the lessons were more entertaining and students concentrated more during the TPR activity.

TPR can easily be applied in the classroom due to its accessibility, vitality and attractiveness to learners. The teaching of vocabulary by using the TPR method is believed to be meaningful since the instructions are supported by movements, pictures and practices [5]. However, teachers

who use the TPR method need to understand its appropriate applications for it to be a success. Teachers are the role models for the learners. A community service done by the English Language Education Study Program of the Faculty of Teacher Training and Educational Sciences in an Indonesian university was successful in teaching kindergarten teachers to increase their knowledge in teaching English using TPR and YouTube [5]. However, in another study by [4], they found that teachers who ignorantly referred to the TPR method from the Internet and failed to grasp its theoretical implications might face problems with their young learners and activities. Hence, to overcome such challenges, teachers need to be given appropriate training and exposure in using the TRP method in teaching young ESL learners. One can use many other teaching techniques for young learners in addition to the TPR.

C. Reading Aloud Protocol

Audiovisual education or multimedia-based education is an instruction method in which particular attention is given to the audio and visual presentation of the learning material to improve comprehension and retention [7]. It can be used by instructors to deliver lessons by the means of materials that use the senses of sight and hearing to stimulate and enrich the learning experience of young learners. Children will not adopt literacy behaviours simply because the teacher tells them stories. The use of PowerPoint, Google Meet, YouTube videos, and other online materials can make audiovisual lessons more interesting, dynamic, and effective to garner attention from young learners. Young learners listen attentively if they are not ready to speak [7]. Teachers' thoughtful choice of books, the ways in which the books are shared and the nature and quality of interactions during the teacher's class sessions may open or close learning opportunities to use language for a wide range of purposes [8]. The presence of colourful pictures in teaching materials promotes the interest of the young learner and reinforces the learning of abstract items in second language instruction [7]. As learners in kindergartens do not possess the ability to read by themselves, teachers are anticipated to read the story aloud and repeat certain words to encourage retention. To deepen and extend the children's content knowledge, vocabulary and concepts of text structures, teachers have to plan the read aloud sessions carefully [8].

Reading aloud is a frequent practice in early childhood education and it provides great potential for developing literacy skills for young learners including vocabulary, comprehension, text structure awareness, visual literacy and fluency [8]. Students enjoy the experience, as it offers engaging stories and tends to be infused with animated voices and gestures that are amusing and witty [10]. The read aloud method allows instructors to interact with their learners when reading stories to them and opportunities are provided for vocabulary development as well as for the young learners to respond and comprehend the story using the target language [9]. The practice of reading aloud to young children has been thought as an effective instructional strategy and a part of a comprehensive method for instructors to utilise [8; 11] whereby it provides the ESL learner with the opportunity to hear stories they might not otherwise be able to read as in the situation of pre-school children in the rural areas [9]. By reading aloud, learners do not just enjoy the learning session; they can also acquire knowledge, make sense of complex content, and develop discourse skills on specific topics [10]. Reading aloud affects the development of learners' vocabulary and increases their ability to recognize words [9]. Storybook reading, for instance, provides a range of experiences on vocabulary acquisition in terms of involvement in conversations and exposure to new and sophisticated words [9]. Besides, studies have demonstrated that effective read-aloud sessions can promote many types of skills and abilities that enhance children's vocabulary building skills and literacy learning that are crucial in learning a second language. In addition to providing in-depth vocabulary supports before, during and after read aloud sessions, active engagement with the text can foster student understanding and teachers can help students make connections to other read aloud activities or to experiences in their own lives [10]. To maximise the effectiveness of read aloud activities for developing young learners' vocabulary and comprehension skills, instructors must invite the learners to talk about the text before, during and after the read aloud sessions [8]. In a study conducted by [11], it was found that kindergarten teachers spent an average of 15 minutes per day reading aloud to their students. This is a large portion of the instructional day. Another finding from the study was narrative texts are typically chosen by teachers for read aloud sessions. In a different study in Norwegian first grade classrooms [8], most teachers practised reading aloud every day. The findings showed that the method is helpful for teachers to teach young learners to understand new words and themes, connect with the text, interpret text features and reflect on the language choice. Teachers were particularly focused on texts as a source for learning new words when they read aloud. Outcomes of read aloud sessions are generally positive. In an intervention study on first grade students by [10], findings indicated students who followed read aloud instruction had better outcomes on vocabulary, listening comprehension and language proficiency.

The strategies used in read aloud sessions incorporated engagement activities before, during and after read alouds to foster active participation and comprehension. Five strategies for improving comprehension recommended by [10] are summarising texts, asking and creating questions, working collaboratively with others, representing texts structurally and graphically, and monitoring comprehension. Beck, McKeown and Kuean, cited in [9] proposed six effective vocabulary activities when using the read aloud method:

1. The teacher reads and discusses the story with the children.
2. The teacher introduces target words one at a time.
3. The teacher asks the children to repeat each word.
4. The teacher introduces child-friendly definitions.
5. The teacher shares examples of the words in contexts that are different from contexts in the story.
6. The teacher engages the children in thinking about and using the meanings of the words.

In a study examining how a pre-school teacher conducted her vocabulary building activities using read aloud protocol sessions for her young ESL learners in a rural area in Malaysia, findings showed that four of the six proposed steps were utilised throughout five sessions [9]. The findings also indicated that there is a need for teachers to

conduct read aloud sessions in an interactive manner and to provide more opportunities for young learners to use the vocabulary items learned. Using read aloud protocol to complement the TPR; teachers can employ effective vocabulary teaching strategies that assist children in storing and retrieving words in the English language. Interactive read aloud sessions can provide many benefits for young learners to explore the world and develop their literacy in pre-school. In addition, providing different types of literature to children in read aloud sessions can offer a better understanding and give them access to different cultural aspects regardless of their ability to read or their home literacy environment [8]. This shows that the technique is flexible and can be used to help students from rural areas.

III. METHODOLOGY

The report of this study was based on the observations by the facilitators throughout the programme. The study was conducted on September 17, 2020. The programme was originally planned to be conducted on March 20, 2020 to coincide with the 100-day "ASEAN is Reading – Read Me a Book" challenge from January 15, 2020 to April 23, 2020. However, the programme was delayed due to the arising number of COVID-19 cases in the country at that time. There were three main activities which involved 14 kindergarten learners aged 5 and 6 years old from a local community developed kindergarten, Tabika KEMAS Kampung Tok Elong in Bukit Mertajam, Pulau Pinang. The number of learners was limited due to the need for social distancing during the COVID-19 pandemic in Malaysia. Each activity was conducted by a group of three to four facilitators with a duration of 30 minutes. With the consent of the teachers and the district educational officers who were helping out in facilitating each activity, a video recording was conducted for all three activities. The video recording was used to consolidate the observations made by the facilitators. All activities were conducted using both English and Malay languages to ensure better comprehension and engagement.

A. Activity 1

The first activity involved reading aloud a book titled 'A Monkey in the Tree' by Pamela TJ. The facilitators assisted the children during the reading aloud session by projecting the pages of the scanned book on the screen as well as using pictured flashcards. The procedure was as follows:

1. One of the facilitators read aloud the projected page from the book.

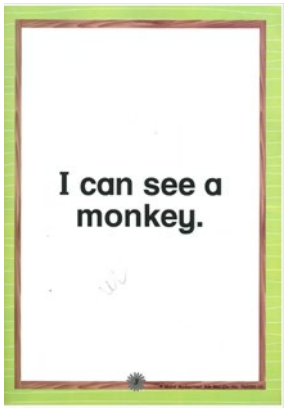

Fig. 1. An example of a page from the book

Fig. 2. Reading aloud from the story book

2. The children were required to listen carefully and repeat after the facilitator.
3. Next, one of the children was selected to read aloud the page individually.
4. The facilitator then asked all children to focus on the noun on the page while other facilitators held other pictured versions of the noun.
5. The facilitators, together with the learners, spelt and repeated the nouns on the page of the book. The facilitators focused on pronunciation and reading style. Nouns such as monkey, cat, butterfly and dragonfly, which are used in the book, were pronounced loudly, repeatedly and in style so that the young learners can know the animals in English and how to pronounce them correctly.

B. Activity 2

The second activity highlighted the basic greetings in everyday lives such as 'Good Morning', 'How are you?' and 'Nice to meet you'. The activity was conducted as follows:

1. The children watched a video clip on greetings. In the video, the characters were greeting each other.
2. The children then watched the greeting expression on the YouTube video and flashcards held by the facilitators.

Fig. 3. The facilitator was holding a flashcard.

3. The children watched the songs involving greeting and sing along to the expressions shown in the song lyrics.

4. The children were then given a matching exercise worksheet where they were required to match the correct expression from the boxes while listening to the song again.

C. *Activity 3*

The third activity involved a storytelling session and a full Total Physical Response based activity involving an action song. The steps taken were as follows:

1. The children listened to one of the facilitators reading aloud a story of a birthday party celebration.

Fig. 4. The facilitator read aloud from the big story book

2. The children were then given a party pack set. In the set, the children learnt to identify words involved in the read aloud session. They were taught to recognize a few items like party hats and balloons.

3. Then, the children were asked to form a human circle. They had to walk in a big circle and act out the verb mentioned in the recording. For example, the children were encouraged to gallop when they listen to the sound of the horse and hop when they were asked to hop like a rabbit by the facilitators.

Fig. 5. The TPR activity involved different types of verbs.

IV. RESULT AND DISCUSSION

From the recorded observation of Activity 1, the children were quiet and were trying to carefully listen to the read aloud session by the facilitators. The sentences are as follow:

I can see a monkey. I can see a monkey in the tree.

I can see a squirrel. I can see a squirrel in the tree.

I can see a bird. I can see a bird in the tree.

I can see a cat. I can see a cat in the tree.

I can see a butterfly. I can see a butterfly in the tree.

I can see a dragonfly. I can see a dragonfly in the tree.

I can see more monkeys. Four monkeys! One, two, three, four. Four monkeys in the tree.

For each noun in a sentence, the facilitators asked the young learners to tell the meaning of the animal in Malay and English using pictures on the screen and flashcards as well as by making actions and sounds for them to comprehend. Some of them were able to identify the animals, albeit in Malay such as *monyet* (monkey), *burung* (bird), and *rama-rama* (butterfly). Then, the children tried to read and repeat together the sentence on each page of the book. At the beginning of the session, they were shy, reading and repeating with a low voice. After some motivation by the facilitators, all except one female student, who was in a bad mood, were able to read and repeat loudly. Each child was also selected to read aloud a sentence individually. There were some who volunteered to read aloud.

From the recorded observation of Activity 2, the session continued immediately after the previous session with a short YouTube video clip that contains greetings. The children were quiet when the video was played for the first time. They then tried to follow the greetings the second time the video was played. After that, the facilitators asked them to read aloud the greetings on the flashcards: *good morning, how are you, nice to meet you, good afternoon everyone* and *my name is Kate.* Following the facilitators, the young learners were able to say each greeting out loud, fluently and repeatedly. However, when asked about the meaning of the greetings, many were not able to answer. Hence, the facilitators had to explain the meaning of each greeting and when the greetings can be used.

Next, the children were shown a video of a song titled 'The Greetings Song'. During the first playing of the song, they sat quietly while listening to the song. The song contains the following greetings:

Good morning!

Good afternoon!

Good evening!

Good night!

I'm sorry.

Goodbye!

Some children were interested and tried to sing along during the second playing of the song. Then, the facilitators asked them to repeatedly say each greeting loudly. At first, the young learners were shy and repeated each greeting in a soft voice. Some did not want to open their mouths at all. However, with the motivation from the facilitators, they started to be more confident and finally were able to say each greeting loudly. For the morning and afternoon greetings, the children were able to say them out loud because they usually use the greetings at school (according to their teachers). The young learners had difficulties when saying the afternoon, evening and night greetings due to not being used to say them at home with their family. After that, they were asked when would each greeting be used. Most of them were able to correctly answer for the morning and night greetings but they had problems with the afternoon and evening greetings. At the end of the session, all participants were able to respond to all greetings.

From the recorded observation of Activity 3, the session started with the facilitators reading aloud a picture book about a dog named Kipper and his birthday party. Throughout the read aloud session, the facilitators asked questions about what the young learners can see and their opinions on certain things that were shown in the book. The participants were able to respond to each question which indicated their understanding of the content and their eagerness to listen and pay attention to the story. Next, each of them was given a birthday invitation card from the main character of the book (Kipper) as well as a party hat, a balloon, and a cupcake. The facilitators proceeded to pronounce each word using actions such as opening the card and blowing the balloon. The words used in the session were verbs *open, blow, sleep*, and *knock*; nouns *card, balloon*, and *cupcake*; and adjectives *red, yellow*, and *green*. Then, the children were encouraged to sing birthday songs in English. After that, a TPR session involving movements was conducted. During the activity, all children and facilitators had to stand in a circle and follow the sounds from the audio that was being played, for example, walking, galloping, running, and hopping. The participants imitated the movements of the facilitators for each sound and action.

Based on the observation made during the three sessions, the young kindergarten students were thrilled during all activities. The majority of the participants were excited to be involved in the activities after they had warmed up to them and encouraged by the facilitators. As it has been mentioned earlier, a total involvement on the learners' part physically is fruitful especially among children [4]. Although few of them were anxious and shy during the first session, they started to open up and get involved in the following activities. This observation is supportive of how TPR can lower the anxiety which exists in learners when facing English language learning sessions [6]. [6] in their study have also shown how learning of the target language is much more effective when it is conducted using TPR.

In any CSR reading activities involving kindergarten students, it is very vital to keep the session short and alive as the young learners' attention span is quite short. Repetition of words during activities conducted in this study has been observed to increase confidence in learners and make them remember new words. Reading aloud repetitively as suggested by [8] allows students to improve their pronunciation and learn new words effectively.

Total Physical Response incorporation in the activities is very vital to allow the students to not only become more motivated to follow the session and retain their focus but also to allow them to experience the reading vocabulary involved. This makes learning sessions very meaningful to them.

V. CONCLUSION

The effort made by everyone from Akademi Pengajian Bahasa UiTM Cawangan Pulau Pinang had received positive feedback from the kindergarten teachers and the district educational officer who observed the whole session. The use of reading aloud and total physical response in the reading activities for CSR projects with kindergarten learners were appropriate and may be effective to be adopted for future CSR projects. Activities based on these concepts allow young learners to have meaningful learning experiences.

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Utilizing Teaching Laboratory to Produce Face Shields for Front Liners during the COVID-19 Pandemic

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***Abstract*—** Coronavirus infection was declared a pandemic by the World Health Organization (WHO) on March 11, 2020, after a sharp increase in cases all over the world. UiTM Pulau Pinang Branch staff had the initiative to produce face shields for front liners to combat the disease in the communities. The team started the Community Social Responsibility (CSR) project by producing face shields (FS) using three-dimensional (3D) printer machines. The production of FS is changed to injection molding (IM) to overcome the lagging in supply to the problem. The main objective for this initiative is to supply FS to front liners including schools for teaching and learning purposes. Nearly 12,000 FSs were successfully sent to front liners, including hospital staff and health clinics, schools, the police, civil defense, veterinarians, and others.

***Keywords*—** *coronavirus, COVID-19, 3D printer, injection molding, face shield.*

I. INTRODUCTION

The global pandemic of coronavirus 2019 (COVID-19) infection has been going on for nearly a year. Although all preventive measures have been taken to curb the spreading, new cases continued to increase worldwide to the number of 29 million cases when this paper was written. In Malaysia, the Malaysian Ministry of Health (MOH) and the National Security Council (MKN) play an essential role in overcoming this problem. Besides, to ensure Malaysians' safety, front liners such as hospital health personnel, schools, the military, the police, and the civil defense department have work diligently to curb the spreading of the disease. Responding to the community social responsibility, the FS manufacturing project was started by the UiTM Penang branch staff to support Malaysia's front liners.

The main problem that prompted this CSR team to be established was the shortage supply of FS for front liners' usage. It is also compulsory for students to wear face shields in school in order to reduce transmission of the virus. According to World Health Organization (WHO), the limited supply of FS was not only faced by Malaysia but all over the world [1]. A press statement issued by the Malaysian Ministry of Health on April 14, 2020 said that the Malaysian government faced a shortage of FS stock for front liners' use, with FS which could only last for 25 days [2]. According [3], a survey conducted on pediatric otolaryngology specialists to assess their usage and access to personal protective equipment during the COVID-19 pandemic showed 91.6% from a total of 96 respondents used FS consistently.

Meanwhile, [4] conducted a survey on 296 institutions which covered core facilities and affiliated hospitals of the obstetrics and gynecology training programmes and to hospitals of the national perinatal medical liaison council in Japan, and it was revealed that 65.0% of facilities for doctors and 73.5% of facilities for midwives used PPEs beyond the standard gowns or aprons, surgical masks, goggles or face shields during labour of asymptomatic women. In addition, the running stock of FS was noticed at 2.7%. As a consequence, the 14% of facilities had to do re-sterilization and re-used the FS to cope with the shortage of PPE stocks.

The problem while using the PPE is also noticeable and this affects health workers' performance. A web-based survey was conducted regarding the availability and usage of personal protective equipment (PPE) of health workers to

deal with COVID-19 patients. It was reported that FS or visors were used by 62% of 2711 respondents. They also agreed with the duration of a median of four hours comfort level of wearing PPE. Adverse problems of using PPE include heat (51%), thirst (47%), pressure areas (44%), headaches (28%), inability to use the bathroom (27%) and extreme exhaustion (20%) [5, 6].

In addition, [7] investigated the physical problem faced by nurses when using PPE. 47.9% of the users informed that they experienced vision problems when wearing goggles or FSs. In addition, the research also concludes that four hours maximum use of PPE is recommended to avoid discomfort. They suggested further improvement on PPE quality, characteristics, efficacy, and optimal uses are necessary to maintain a healthy workforce.

The additive manufacturing technologies can be used for fabrication of protective FSs for Covid 19 front liners. [8] applied Ender 3 Pro 3D printer to produce face shield headbands. Although the printing process is slow, they managed to produce 126 face shields in four weeks which were then delivered to hospital wards, thus easing the shortage of PPE [8]. In the meantime, [9] also joined the FS fabrication using 3D printer Gtmax3D Core H5 and were able to produce single FS in three hours and 44 minutes using ABS material. They claimed the product is feasible and reduces cost, adding to the list of possibilities to produce PPE to fight Covid-19 pandemics.

II. METHOD

There are two phases in the manufacturing of the FS: the first phase uses a 3D printer, and the second phase of manufacturing uses an injection molding machine. The use of 3D printer machine in producing FS started on March 27, 2020, until April 18, 2020. The manufacturing of FS using an injection molding machine started on 19 April 2020 until now.

A. 3D Printer

In the beginning, the CSR team used 3D printer machines to produce FSs. The polylactide (PLA) material was used as raw material and the 3D machine printer operates for 18 hours per day. A total of four 3D printer machines were used simultaneously. On average, the 3D printer machines have a capability to produce 80-90 FSs in a day. The process of producing a FS takes about 35-45 minutes. About 1400 FSs have been successfully produced using 3D printer machines.

B. Injection Molding (IM)

Due to the time-consuming process of producing FSs using 3D printer machines, the team look for other high productivity manufacturing method. In addition, the demand for face shield is rapidly increasing as the number of cases became more widespread in Malaysia. The shift from 3D printers to plastic IM process was the best solution. The new mold for FSs was made and installed to the IM machine. The polypropylene (PP) granules was used as the raw material as it provides greater stiffness and flexibility. The PP material was contributed by Petronas while the cost of FSs mold was financed by Tasek Gelugor Member of Parliament.

The process of making FS using plastic IM machine needs to go through several phases, namely:

1. The plastic pallet (polypropylene, PP) material is mixed with colorant.
2. The plastic pallet is sucked into the hopper of the IM machine.
3. The PP pallet is heated and forced into the mould by rotating a screw inside the barrel.
4. After solidifying, the mold is opened and the FS headband is ejected by ejector pin.
5. The finished product is sent for the disinfection process. The product is soaked in the disinfectant for five minutes.
6. The cleaned and disinfected FS is dried between one hour to two hours.
7. After drying, the FS is packed neatly and ready for delivery.

The comprehensive production process flow in producing FSs is illustrated in Figure 1. Meanwhile, the activities involved in disinfection process is extensively illustrated in Figure 2.

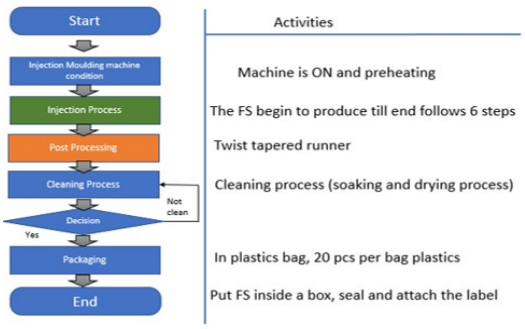

Fig. 1. Face shield headband production process flow using plastic injection moulding machine

Fig. 2. The flow of disinfection process of FS.

The disinfection process was done with a team member from the Faculty of Health Sciences, Bertam campus. The preparation process comprised of several stages. This process requires a mixture of bleach with at least 5% Sodium Hypochlorite and water with the mixing ratio of 1:9. This process requires the team members to wear gloves, apron, mask, and goggle. They need to wash their hand before and after the disinfection process. Then, the drying process took place in a non-contaminated area at normal room temperature. Finally, the FSs were labeled and packed neatly in boxes ready for delivery.

III. RESULT

The process of producing a face shield using a 3D printer machine was very time-consuming. Figure 3 shows the productivity of face shield on weekly basis. It was noticed that the high productivity of face shield happened in week 2 and week 3. The high productivity was mainly influenced by the machine reliability and the optimization process taken to reduce the printing time. Meanwhile, the lower productivity which occured in week1 and week 5 was influenced by the machine breakdown and maintenance.

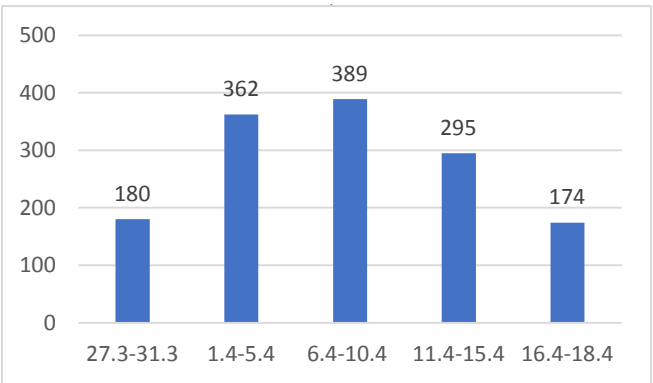

Figure 3. The number of FSs produced using 3D printer machines on weekly basis.

Referring to Figure 3, the amount of FSs produced in the beginning and in the end using 3D printer machines was relatively low due to several factors. In the first five days (March 27 to March 31), the team was on trial. Some improvements were made so that the process of producing the FSs could be improved. In the final weeks of using 3D printer machines, the output of the face shield was relatively low because the team was transitioning to the use of IM machines in full.

Using the IM machine, the production of the face shield increased compared to using 3D printer machines. A unit of FS took about 27 seconds to produce. Hence, the productivity had remarkably increased whereby 1200 pieces of FSs could be produced in a day. This achievement had successfully helped to reduce the shortage of FS stock in Malaysia as required by the front liners.

Schools staff and students were also required to use face shields for teaching and learning purposes. Thus, thousands of face shields had been distributed to schools. Besides, school students were more comfortable wearing the face shield compared to the face mask. The schools which benefitted from this initiative were Sekolah Kebangsaan Kebun Sireh and Sekolah Kebangsaan Seberang Jaya.

Figure 4. Picture of a teacher and a student wearing a face shield.

IV. CONCLUSION

In conclusion, many parties play a role in the production of the FS in terms of money donation, time and energy for the project to be carried out successfully. This project was to provide as much assistance as possible to the front liners facing the fight against Covid19. A total of 21 hospitals had benefitted from this project, with a total delivery of 11909 units. Simultaneously, contributions to health clinics, schools, police departments, civil defence, and others reached 5569 units. This contribution figure will continue to increase over time, depending on the current pandemic situation. This is also one way to ease the process of teaching and learning for school teachers and school children when they must conduct the face to face sessions in the classrooms.

ACKNOWLEDGMENTS

Appreciation goes to the former Campus Rector, Associate Prof. Ts Dr. Mohd Hisbany Mohd Hashim, for allowing the team to start the CSR project. Also, Tasek Gelugor Member of Parliament, Datuk Haji Shabudin Yahaya, who

contributed financially for the team to start the IM machine production of FSs.

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Teaching the Elderly Conversational English as Part of the Corporate Social Responsibility

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***Abstract*—** Many philanthropic projects aim for the active community such as the students, the working adults and the underprivileged people. For example, most Corporate Social Responsibility (CSR) programmes focus on foster homes for the senior citizens. Thus, a small fraction of senior citizens who live on their own are often forgotten. However, this group of senior citizens were willing to join programmes to fill up their time. Taking into consideration their interest, a CSR programme was designed to teach conversational English language to this fraction of senior citizens over a period of 8 weeks. This paper records the encounters of one Malaysian senior citizen who experienced the programme in attempt to uncover issues related to teaching English to senior citizens as part of community service. Narrative interpretation experience was collected through journal writing and, a qualitative approach was adopted to analyze the data. The outcome of this paper suggests that learning undertaken by senior citizens is for personal satisfaction. It is found that learning will be more satisfying if some of the challenges are identified and addressed prior to the CSR programme.

***Keywords*—** *qualitative analysis, journal writing, experiences.*

I. INTRODUCTION

The senior citizens of Malaysia make up 15.3% of the Malaysian population. According to [1], the percentange of those in aged 65 and above will rise steadily yearly. By 2030, Malaysia will have a significant aging population that makes up almost close to 18% of the Malaysian population. Many CSR programmes do not focus on this population. Most CSR inniatives focusses on companies and stake holders of the companies. In a recent study by [2], it can be concluded that companies in Malaysia are beginning to realize the significant value of social responsibility as a form of communication with stakeholders and with the community. By having CSR programmes, it indirectly promotes the branding of the organization or company.

This trend can be seen in another study done by [3]in their researh findings of CSR programmes in Malaysia. The landscape of Malaysian CSR is still at the infancy stage, and most companies conduct CSR to fulfill their public relation aspect in order to gain and secure future work with the government and public listed companies. In their study, they highlighted that most companies were still confused of what CSR is all about. Companies see CSR as a Public Relation (PR) tool. These companies have concepts of merely donating and therefore the CSR work is considered done. These 'confused' mindsets needed to be changed in order to make way for the authentic CSR.

An ideal philantrophic programme done by PETRONAS, a petrochemical industry, had been cited as one of the best CSR programmes in Malaysia. [4] further elaborated programmes such as rural education, health care, sponsoring art and sport events, renewable energy projects and helping single mothers were carried out by PETRONAS. The continuous effort of this CSR programmes by PETRONAS has helped underprivileged rural/kampung people and these efforts seemed to be well grounded.

Similarly, with this concept in mind, the Academy of Language Studies (ALS), Universiti Teknologi MARA Cawangan Pulau Pinang decided to conduct a CSR project for senior citizens. As this population grows, it is important to consider a CSR project for them. Senior citizens play an adequate role in the community as well. As companies and institutions find ways to engage the community, an innovative way will be conducting CSR for the senior citizens. It can help to enhance the older citizens and encourage employees to devote their time and resources to the elders. Below is the module designed for the elders.

Week	Module	Activities
1	Ice-breaking session	Language Games
2	Greetings/ Introduction	Role Play
3	Making reservations	Role Play
4	Making Reservations	Role Play
5	Language Expressions	Turn Taking
6	Language Expression	Turn Taking
7	Storytelling	Presentations
8	Storytelling	Presentations

The CSR project was aimed to create fun activities with role plays to bring pleasant experience of learning to the senior citizens. Conversational English were taught over a period of 8 weeks with 4 lecturers of ALS involved. WABES is an organization that specializes in educating the Bukit Mertajam society such as giving awareness on health, finance and other essential services.

II. AIM

This paper addresses the issue of corporate social responsibility towards the community of senior citizens. It aims to understand the experiences of senior citizens learning at a later stage of their adult life. This paper attempts to uncover issues related to teaching English to senior citizens as part of community service based on one Malaysian senior citizen on her narrative reflections.

III. JOURNAL WRITING

Throughout the community service programme, the participants were asked how they felt about the programme. One participant, named Makcik Aisyah (pseudonym) was willing to write her feelings in a journal to be shared with the lecturers. According to [5], journal writing is a form of reflective and a device for working on experiences and events. [5] in [6] identify several charateristics of journal writing. The characteristics are as follows:

- To deepen the quality of learning, in the form of critical thinking or developing a questioning attitude
- To enable learners to understand their own learning process.
- To increase active involvement in learning and personal ownership of learning
- To enhance professional practice or the professional self in practice
- To enhance the personal valuing of the self towards self-empowerment
- To enhance creativity by making better use of intuitive understanding
- To free-up writing and the representation of learning
- To provide an alternative ‘voice’ for those not good at expressing themselves
- To foster reflective and creative interaction in a group

Using this guideline, journal writing is seen as the best tool to investigate the feelings, expressions, motion and emotions of the participants. It allows reflections to take place. Reflections, similar to diaries, record one’s experiences and no two persons write in the same exact way although feelings and experiences may be the same.

IV. METHODOLOGY

Conversational English was taught to senior citizens of Bukit Mertajam community. The senior citizens consisted of 20 females aged between 60 to 70 years old. Modules were designed over 8 weeks for a period of 2 hours per session. The participants were all females, age ranging from 55 to 70 years old. The short programme consisted of modules pertaining to communications skills like phone skills, greetings, pep-talks, sales-marketing skills and presentation skills. Participants were asked to do short role plays to act out the scenes during the lessons. As the participants were mostly those born in the late 1950’s to early 1960’s, their communication skills in English were good. This was the generation who used English Language as the main medium of instruction in schools back then. As the medium of instruction in schools changed in 1989 to Bahasa Melayu, the generation after the implementation of the change faced deterioration in the English Language competency. This view was echoed by [7] in their research paper entitled English Language in Malaysia Education System: Its Existence and Implication in which most of the participants were able to construct simple sentences and were able to speak English Language moderately. These participants were participating actively and enthusiastically in all the lessons taught.

The data from this paper was based on one female senior citizen, aged 60 years old from the Bukit Mertajam, Pulau Pinang community. It is a series of narrative reflection from the journal writing that was done during the CSR programme Her reflections were written in a mixture of English and Bahasa Melayu during the process of teaching conversational English. Her reflections were analysed using a narrative analysis. The data is limited to one sample and the research is qualitative by nature, therefore the findings of this paper may not be generalized.

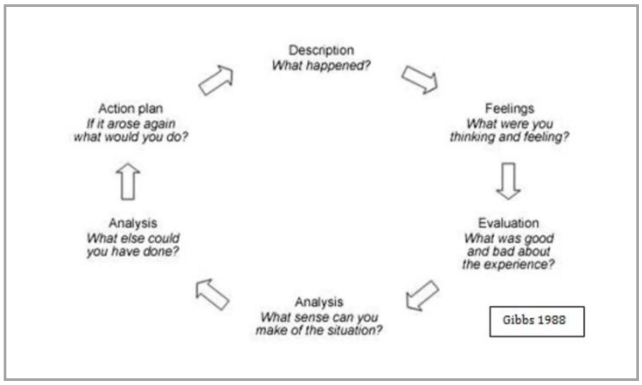
V. RESULTS AND ANALYSIS

For this paper, a narrative analysis approach was done to comprehend the experiences of the participants. Narrative analysis or narrative inquiry is a qualitative research approach whereby the researchers analysed the stories people create, engaging in an inquiry of asking a given question of the narrative 'texts' for a given purpose. This approach can help us to understand how people are representing themselves, or their experiences, to themselves and to others.

Narrative analysis, as mentioned by [8] is an eye opener to the feelings and expressions of the sample. In the social science field, it is significant that a researcher understands the experiences of a particular community by viewing the events and experiences of on individual representing the society. Although narrative analysis is subjective in nature, reflections are real as the subjects truly have experienced it. One individual’s experience cannot represent the majority, and this is true because each culture might have differences on what is good and what is not. Nevertheless, this analysis can be seen as an eye opener for the senior citizen

community as these experiences can be used a case study or an initial effort to understand the experiences of senior citizens.

In order to analyse the journal writing, structural learning experience was used in the narrative analysis. This analysis adopts [9] structural learning [10] experience model as such:



[9] Structural Learning Experiences Model

This model goes through six stages although one's experience might not undergo all the stages or might differ in the stages or even go through only a few of the stages. The six stages are

- Description
- Feelings
- Evaluation
- Analysis
- Analysis(conclusion)
- Action Plan

The first stage which is description, answers the questions of what happened, when and where it happened, who was present, what one and the other people did, what the outcome of the situation was, why one was there and what one wanted to happen.

The second stage is feelings. It attempts to answer the questions like what one was feeling during the situation and what one was feeling before and after the situation. It also includes questions like: what you think other people were feeling about the situation, what do you think other people feel about the situation now, what were you thinking during the situation and what do you think about the situation now.

The third stage is evaluation. Evaluation addresses the issue of how good and bad the experience is. It helps to answer questions like what was good and bad about the experience, what went well, what didn't go so well and what did you and other people contribute to the situation (positively or negatively).

The fourth stage is analysis. Analysis is when one tries to evaluate the experience and focused on the details of what happened.

The fifth stage would be analysis(conclusion). Here one should summarise the learning and highlight what changes could improve the outcome in the future.

Finally, the action plan answers the question of what you would do differently in a similar or related situation in the future.

This research uses [5] and [9] to analyse the data. Following this model closely, a narrative analysis from the journal writing was carried out to investigate the experiences of a participant in the programme, known as Mak Cik Aisyah (pseudonym).

Journal 1:

Mak Cik Aisyah wrote in her reflections after the programme was conducted. When asked about her feelings towards the programme, she claimed that she had an enjoyable lesson as the teachers were friendly and helpful. In her journal writing she used emotion words like 'menyeronokkan', 'happy', 'baik' describing her lessons. She further elaborated that she found the lesson to be simple and easy. She participated in the programme as she wanted to be with her friends and not to be lonely in her house. She felt the programme was very interesting as most of the time she will be enrolling in religious classes.

Narrative Analysis: Active Involvement and Personal Ownership of Learning.

Journal 2:

Mak Cik Aisyah describes the lesson as enjoyable. Her choice of words are positive connotations towards her feelings and experience in the programme. When it comes to group work preparing for the role plays, Mak Cik Aisyah wrote her encounter as not so pleasant. Her partner doesn't have the same level of English proficiency and due to that she ended up bored as she had to help her partner with the scripts. She found this to be boring, however she enjoyed task that were done in prompt and spontaneous. She learned many new words of the modern English of which she has never used. New vocabularies like making reservations for trips was the most enjoyable lesson she had. She discovered words like websites, e-hailing, WhatsApp, waze, eco-tourism, gastronomy and many more. As she wrote the new vocabulary in the journal, she also wrote a paragraph on how she used to learn English in her school days back in St Georges, Penang. Her journal entry for this section was the longest she wrote.

As this was the longest reflection, she wrote, she expressed her anxiety towards having a partner who was less proficient, making the lesson mundane. However, by learning new vocabularies, she found the lesson to be effective thus connecting her to her past, where she learnt English in school during her school days. As she learns new words in the lesson, it triggers her memories of her schooling days.

Narrative analysis: Foster reflective and creative interaction in group and personal ownership of learning.

Journal 3:
In one of her entries, Mak Cik Aisyah complained about her health. As she missed two lessons during the programme, she realised that the time for the lessons shouldn't last for more than 2 hours. She gets tired easily at night. She lamented on how she had inadequate sleeps at night as she had to go for supper with her friends after the programme ended although she enjoyed the supper with friends. She said, "I always listen and laugh at their jokes during supper. Usually I will only drink *kopi*". As she was not able to drive, she had to wait for her friends for a lift home. This has caused some constraints for her. Ranting on health issues was one of the major problems she faced in attending night classes.

Narrative Analysis: Alternative voice to express concerns

Journal 4:
In this entry, Mak Cik Aisyah described how she enjoyed storytelling. She shared her stories of her younger years when she learned cooking and owned a restaurant. Her daughter now is the owner. She shared her stories of meeting clients and sharing recipes with her children. She gave out tips like 'Customer *selalu betul*', '*kena ingat untuk anak-anak', 'kita masak sendiri baru sedap'*. Mak Cik Aisyah recalled how she woke up at early morning to go to the wet market in Bukit Mertajam. 'Seronok pi ngan arwah pakcik pagi-pagi'…she wrote. 'Selalu beli barang nak masak' she recalled. She further wrote the success of operating a restaurant: "*kena baik dengan* customer, '*masak ikhlas nak cari rezeki'*. Her stories were events she had experienced in her younger years. It was her proud moment in her life.

Narrative Analysis: personal valuing of the self towards self-empowerment.

These interpretations can be summarized in a table based on Gibb's structural learning experiences. Here is the same scenario, which was used in the example above; however it is presented much more briefly.

Describe	In the role plays, I was asked to act out a scene where I need to do hotel reservation. There were words like booking.com, surf the internet and calling the receptionist. I have to work with my partner sitting next to me.
Feelings	I learn new words and I can tell my grandchildren I know what is booking.com, surfing the internet is. Our conversation was guided by teacher. My partner only gave out a few ideas, I have to do the rest. I feel frustrated.
Evaluation	I know now my English Language is still good. I can speak English with my grandchildren now.
Analysis	Dividing work with my partner is important. I prefer to speak spontaneously but my partner wants to write it down.
Conclusion	I remembered now some of the words that I've learnt in school. I can still use these words to speak to others.
Action plan	I will have to practice more to remember what I have learnt.

The experience model by Gibbs allows one to learn by experience. It demonstrates that it is important to reflect the teaching and learning. From Mak Cik Aisyah's encounter, it can be concluded that the senior citizens enjoy and bring back the confidence of using English Language to them despite some health issues. It is important to design lessons that involve more activities as they are proficient speakers. By having CSR programme with them, it allows them to have their time occupied.

VI. DISCUSSION

From this CSR programme, there are a few keys to be reminded in order to create more programmes with the senior citizens. Below are the key points that will be useful for this type of programme in the future.

1. Direct your comments or attention to him or her. They are entitled to be recognized when matters involve them. Example selected task. Name the task accordingly to their names instead of general numbering. Some senior citizens have problem with remembering, so task need to be repeated.
2. Communicating with elderly requires a lot of patience. Always repeat your instruction clearly and talk to them on one-to-one basis.
3. Watch for feedback and cues to guide communication and information sharing. A lot of empathize is needed during this time.
4. Avoid being over friendly and address them with their proper name such as Encik Ahmad, Puan Aisyah or Pakcik, Makcik instead of Ahmad and Aisyah. This is to show respect and value to them.
5. Acknowledge them. This is the key to the success of the programme. They need attention and expect support from us.

Journal writing is important part of the module. It is significant to know the feeling, the understanding and the experience towards what have been thought. These thoughts from the participant are important to help design modules in the future. From this journal writing, it can be concluded that independent knowing is more important than contextual learning when the learners are the elderly or senior citizens. Independent knowing is essential here when the learners are experienced and possess values that they want to share with us. Independent knowers believe that everyone has their own opinion and beliefs. [6]. This is to avoid miscommunication when dealing with senior citizens learners.

Unlike normal classroom, a different approach is important to be used in this learning. One aspect is interacting with them and it is important to listen to what they have to say, the tone of the voice and tell them in a very caring manner. Also age-related issues, like health, hearing impairment, inability to understand, declining memory and vision need to be considered in handling them.

VII. CONCLUSION

The senior citizens or the elderly have their own unique personalities. Some are loud and assertive, while others might be easy going and quiet. From this CSR programme, it is important to highlight that designing a well-balanced module is important. Personal factors such as paying attention, giving attention, showing concern, showing sympathy, empathy is prudent when dealing with them.

In order to improve their lives, more initiatives are needed. It is hoped there will be many more CSR programmes for the senior citizens in the future Afterall, without them, we would not be here!

Here are some of the pictures taken during the CSR programme.

Picture 1: Briefing during the programme

Picture 2: Games activities by the participants

Picture 3: Participants were encouraged to interact with others

Picture 4: Active involvement from participants

Picture 5: More activities involving participants

Picture 6: Explaining to participants

Picture 7: Presentations from participants

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Junior Scientist Programme: From Science to Social Responsibilities

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***Abstract*—** Science Technology, Engineering and Mathematics (STEM) in the educational curriculum in schools is one of the Ministry of Education Malaysia efforts to promote and foster students' interest and participation in science and technology. This article illustrates the initiatives that were carried out with the aid of a systematic schedule that has been planned and mutually agreed with schools in implementing a project known as Junior Scientist Programme. This knowledge was then applied into a practical-based learning approach that was introduced in the Junior Scientist Programme, a project to enhance interest in science and technology by integrating STEM education through a carefully designed module that is implemented in Sekolah Menengah Kampong Selamat, Sekolah Menengah Permatang Tok Labu, and Sekolah Rendah Kampong To'Bedor and was continued in Sekolah Menengah Kampong Selamat for the second series. The students were divided into groups to accomplish the cooperative group task that was given. Upon completion of the task, they presented their results as the true evidence to exemplify their understanding of the project. This project proves that collaboration in STEM learning can be carried out in all schools regardless of the context and as a Corporate Social Responsibilities (CSR) of the Faculty of Pharmacy, as well as UiTM Bertam campus. Admittedly, there were challenges and limitations in accomplishing this programme. However, with the cooperation from the schools, UiTM and our students, we managed to complete this programme according to the given timeline and the designed module.

Keywords: *STEM education, Junior Scientist Programme, practical-based learning*

I. INTRODUCTION

The Ministry of Education (MoE) Malaysia has introduced Science, Technology, Engineering, and Mathematics (STEM) education in schools since 2013. STEM education applies real-world context by connecting the education sector, community and industry to enhance STEM literacy and human capital in driving the nation's economic development [1]. With the same objective, Fazilah Razali et al. 2020 conducted a quantitative study on the motivational factors in learning science among Form 4 students within careers related to STEM through survey on Motivational Science Questionnaire (MSQ II) and STEM Student Questionnaire (S-STEM). The findings show that the motivation for indirect science learning can influence the growth of the interest of Form 4 students in STEM careers. [2]. More recently, social responsibility through training on university students was investigated by Estefanía Martínez-Valdivia et al. 2020 as it is a key to the commitment and social justice into schools. The study indicates that the competence for social responsibility in the university setting should be developed through preparation, leading to an increase in the degree of social responsibility of university students in order to cope with changes in society [3]. Back to the year of 2009, an article described the outcome of the integrative Science, Technology, Engineering, and Mathematics (STEM) education in Virginia Polytechnic Institute and the State University in Blacksburg. At Virginia, the approaches have explored teaching and learning between or among the STEM subject areas, and or between a STEM subject and one or more other school subjects. It outlines the elements of constructivism that are present in integrative STEM education; it stresses the role of technology education in integrative STEM education in the U.S [4]. The finding is consistent with the findings of past studies which have defined Science, Technology, Engineering and Mathematics (STEM) education as a meta-discipline, the "creation of a discipline based on the integration of other disciplinary knowledge into a new 'whole'". STEM education offers students one of the best opportunities to make sense of the world holistically, rather than in bits and pieces. STEM education removes the traditional barriers that have been erected between the four disciplines, by integrating them into one cohesive teaching and learning paradigm[5].

II. RATIONALE AND OBJECTIVE

The importance of training students in STEM education is highly emphasised recently due to the shortage of graduates in STEM [6]. Qualified STEM professionals as well as the lecturers in university are needed to contribute their expertise to remain competitive in the global market and to meet contemporary demands such as ensuring adequate and sustainable energy, efficient healthcare and in considering technological development[7]. The introduction of quality STEM education in schools will provide students with more opportunities to improve their skills not only in science, but

also in technology, engineering and mathematics as well as related fields. Successful STEM preparation will equip students with core competencies. The development of core STEM competencies would eventually allow them to become critical and innovative thinkers.[8] Accordingly, the Junior Scientist Programme is aimed to support the Ministry of Science, Technology and Innovation (MOSTI) agenda to open the minds of secondary schools students, specifically to foster interest in science and technology as their first choice for their future career. The primary goal for this project is to provide more chances for secondary students in the exploration of science and technology. Besides that, it is hoped that this project can boost the confidence level of students in secondary schools as well as the excellent schools. Significantly, the project focused on the community service rendered by the Faculty of Pharmacy in Bertam campus to the rural residents in the area of Pulau Pinang, specifically, Kepala Batas to increase the students' interest in science and technology, which eventually can increase the intake of students into UiTM.

III. METHODOLOGY

In this project, we have successfully completed four programmes of Junior Scientist Programme in 2016 and 2017 (Refer Table 1). In series 1, Sekolah Menengah Kampong Selamat, Tasek Gelugor was chosen as the pioneer school for the S2A programme in Mac 2016. A student-centered approach was applied in the programme with the assistance of a committed facilitator who helped the students to accomplish the given task. STEM-based learning can enable students to face new obstacles and increase their willingness to learn. [9]. For the first project, the selection of 30 potential students had been accomplished by voluntary, committed and cooperative teachers of Sekolah Menengah Kampong Selamat. The selected students were divided into six (6) groups and were requested to accomplish the given task in the required time, assisted by 10 facilitators. The students had to record and write all their results in the logbook. For the following year, we continued to implement the module of S2A programme education in (SMK) Permatang Tok Labu on 30th. September 2017, and in Sekolah Rendah Kampung To' Bedor on 28th October 2017. All the selections of potential students were done by the committed teachers of SMK Permatang Tok Labu and Sekolah Rendah Kampung To' Bedor (refer Table 1). The students worked cooperatively in group-helping and supporting one another with ideas and information to accomplish the given task in the module (refer to Table 2). Seeing the success of the STEM program in SMK Kampong Selamat in 2016, we continued this meaningful program for a second time in the same school with more interesting and scientific modules to further boost the students' interests and enthusiasm for science and technology (refer to Table 3). For this series, the programme was scheduled to be conducted at UiTM Cawangan Pulau Pinang, Kampus Bertam, which was intended to give exposure to students to acquire the feeling of real experience in our campus life (refer Table 1).

Table 1: Timeline of Junior Scientist Programme

Date	**Junior Scientist programme**
5 March 2016	Junior Scientist Programme Sekolah Menengah Kampong Selamat series 1/2016
30 September 2017	Junior Scientist Programme Sekolah Menengah Kebangsaan Permatang Tok Labu series 1/2017
28 October 2017	Junior Scientist Programme Sekolah Rendah Kampung To' Bedor Series 2/2017
4 November 2017	Junior Scientist Programme Sekolah Menengah Kampong Selamat series 3/2017

Figure 1: Junior Scientist Programme Sekolah Menengah Kampong Selamat series 1/2016

Figure 2: Junior Scientist Programme Sekolah Menengah Kebangsaan Permatang Tok Labu series 1/2017

Figure 3: Junior Scientist Programme Sekolah Rendah Kampung To' Bedor Series 2/2017

Figure 4: Junior Scientist Programme Sekolah Menengah Kampong Selamat series 3/2017

Table 2: Module of Junior Scientist programme in SMK Kampong Selamatseries 1/2016, SMK Permatang Tok Labu 1/2017 and SK Kampong To'Bedor 2/2017

Activity	**Description**
Systematic Scientific Research	The introduction of scientific method and its terminology. Students learn about as well as how to conduct scientific research, and gain more understanding through hands-on activity.
Natural Indicator	The natural alternative of pH paper using red cabbage juice to test the acidity and bases of some food and drinks. The application of research methodology using acid-base indicator while students gain exposure to do experiment using surrounding material and food. Also, information and exposure to the safety precautions in the laboratory are included in the module.
Creative Innovation and Invention	The students will be given the task to innovate a product using recycled materials such as bottle, tin, box and straw. This module fosters creative thinking among participants as well as increases communication skill among the participants through the presentation.
Young Investigator	This module instills investigative interest in students to explore the mystery behind the science of material around us, while encouraging them to enhance their interest in science. Besides, the cooperative spirit among the participants inculcates healthy competition among students in a group.

Table 3: Module of Junior Scientist programme in SMK Kampong Selamat series 3/2017

Activity	**Description**
Density	Explore the phenomena that are related to the density of compound around us and the factors of it."Students will conduct an experiment on the density of sugar by applying a research method.
From Milk to Plastic	Investigate how milk protein changes into plastic by adding acid to alter the structure of the milk protein. Students get exposure about the natural properties of protein and the difference between acid, base and neutral compound.
The Magic of Diaper	The chemistry behind a diaper is the existence of 'sodium polyacrylate' powder that can absorb water up to one hundred times of its mass. Students get exposure by doing an experiment of absorption of water by a commercial diaper.
Know your Medicine	Introduces the concept of how to consume medicine in the right way while promoting the cooperative spirit among the participants. Students can gain knowledge of useful information about medicine and share it with family and friends.

IV. THE RELEVANCY OF THE PROJECT TO SCHOOLS IN MALAYSIA

The practical-based learning approach in STEM creates a learning environment that fosters creativity and teamwork and teaches students to find innovative solutions to problems that are always changing. In addition to that, practical-based learning also boosts the creativity of students, enhances the students' skills in STEM-based learning, increases the imagination of students and also their curiosity. [10] Studies show that students who study science through practical-based learning as well as through the activity of the Junior Scientist programme enjoy more and are happy in their class, with stronger support from educators and productive partnerships between teachers and students.[11] The program is seen as relevant to schools in Malaysia as well as for rural areas around Pulau Pinang in ensuring the Malaysian government to integrate STEM education in schools during early learning in science and technology with the participation of professionals from university and the collaboration of teachers. Besides, this project can also be implemented by increasing students' participation from various schools in the rural areas of Pulau Pinang. This project is aligned with the concept of 'A low-cost project that can lead to projects that are worthy'. STEM-integrated education should involve all students regardless of their grade and background since the purpose of implementing STEM is to increase the students' interest in the subject matter [12]. Of course, all students must be given the opportunity to be involved and to participate actively in the STEM programme regardless of whether they are from rural areas or the aborigines' school. Teachers need to arouse students' interest creatively by

getting them to be involved in the meaningful STEM projects with the help of the stakeholders. Different forms can be taken to increase the interest of students in STEM, such as successful approaches [13][14]. Based on the feedbacks from the participants and our observation during the programme, the student's interest can be seen from them volunteering and their teamwork in order to accomplish the project[12]. As the students develop the project, they will also gain interest in the topic, thus leading to an innovation or solution to the related problem.

V. INNOVATION IN STEM EDUCATION

The Junior Scientist programme promotes innovative skill in the students through the successful module of creative innovation and invention. In this case, students successfully create a building and bridge using recycled materials based on the module creative innovation and invention. This is an example of students successfully implementing STEM disciplines by adapting scientific facts that are coupled with the use of technology to design the building and bridge model. Implementation of STEM is not the addition of a subject but rather to help develop science-literate people who can use it to solve problems in everyday life [12]. Apart from that, the presentation after accomplishing the task is a clear example of applying communication skills and to foster a healthy competition among the students. This collaborative learning and practical-based learning are in line with the approach of STEM that has been introduced by the Malaysian government. The government should ensure that a curriculum that meets the characteristics of a consistent integration of STEM is enforced [15]. Practical skill was seen in the active participation of the students in the module of Natural indicator where the participants have the chance to engage in a hands-on experience in the laboratory using food in the kitchen, as an example the usage of red cabbage as a pH indicator instead of the chemical litmus paper. Moreover, laboratory hands-on experience is one of the important roles in sustaining and enhancing the students' interest in STEM [12].

VI. LIMITATION AND FUTURE SUGGESTION FOR STEM IMPLEMENTATION

The programme is relevant as it is an advancement in STEM education because the concept of STEM is important in Malaysia education. The relevance of this programme to the students in schools is that the programme provides the opportunity and exposure for them to participate and be represented through active participation in the module, which indirectly promotes science learning among students, even though not all the students may participate actively in the programme . Correspondingly, this is a pioneer project in our faculty, and as such, there are some limitations in its implementation. However, it can give an idea to teachers on how to implement practical-based learning. Despite facing some obstacles, this project has been conducted as planned; many of the teachers and students who are involved have offered their best cooperation and commitment to ensure the smooth completion of the project. As stated earlier, this project has its limitation. First, the programme has been conducted based on a limited number of schools and in a limited time. It should also be noted that the activities were carefully prepared in order to promote teaching, learning innovation, STEM concept, collaboration among students, to provide exciting opportunities, and learning engagement that must be continued every year for all the schools regardless of the school location's background. Moreover, to implement an annual programme in all the schools will involve a high budget and the support and initiative from the administrator as well as professionals. Herein, some recommendations are suggested to ensure the success of STEM implementation in all schools in the future. First, there is a need for the authorities to develop awareness among STEM teachers; through awareness of the meaning of STEM, teachers will feel inspired and indirectly influence the motivation of the students and their engagement in the STEM operation [16]. Thus, teachers who are involved should aim to find awareness about this STEM. Financial liability is regarded as being the concern of the authorities, however, parents and the society may also play their part in providing schools with some source of income [12]. In addition, the authorities need to provide the appropriate training and facilities with the assistance of other stakeholders that can help improve STEM implementation in schools. Schools need to be equipped with the necessary equipment to facilitate students' learning in order to ensure the effectiveness of STEM implementation. In order to endorse "T" in STEM, basic technologies such as computers, LCD projectors and the internet are a must. Laboratory facilities are also important to ensure the success of STEM implementation[17]

VII. CONCLUSION

This article presents the outcome of the Junior Scientist Programme implementation in schools in the area of Kepala Batas, Pulau Pinang. Consequently, the project is significant as it can promote the learning of science among students, even though not all the students have been were seen to be highly active during their participation. All the modules have been successfully conducted by the facilitator and all the participating students have given their best cooperation and dedication to ensure that this project was completed smoothly. However, this designed project has its drawbacks. It has been performed with a limited frame and number of schools to encourage teaching in the 21st century; that is in learning creativity, STEM theory, collaboration, and to be in line with the objectives of the community services of UiTM to the residents in the rural area in Kepala Batas - by contributing our expertise in science and technology through STEM education. As such, further programmes need to be conducted in implementing STEM in schools.

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Community Education in Promoting Independence in Daily Life due to Post-Injury, Ageing Process and Developmental Delay

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***Abstract*—** Health is one of the precious things in the world that is always taken for granted. Health status could deteriorate due to ageing process or trauma at any phase of life. However, health and wellness are not interrupted just by physical injury. Mental health, family relationship, community involvement, and caregiver burden could contribute to reduced health status. Previous studies have suggested that community education can be administered by means of exhibition, poster presentation and therapeutic play. Based on Social Learning Theory, this paper is produced to determine the method of educating community in promoting independence in daily life due to post-injury, ageing process and developmental delay. The methods and benefits are discussed further in this paper.

***Keywords*—** *Occupational therapy, independence, activities of daily living, post-injury, ageing, developmental delay, community education*

I. INTRODUCTION

Injury can happen to anyone. Injury leads to decreased range of motion, muscle strength, hand function and poor quality of life. Injury can be caused by direct trauma, motor vehicle accident and falls. Injury happens when there is excessive pressure upon contact body part. Injury amongst older persons usually happens due to falls. Lack of stability due to ageing process exposes the older persons to experience falls.

To promote independence in daily life due to post-injury and ageing process, a program needs to be organised. This program will improve awareness to the public about methods of adapting or modifying life and improve quality of life. During this program, participants learn about method of using assistive devices, energy conservation technique, adaption to the environment to improve mobility around house and foundation about common disorder or illness among older persons.

Many previous studies have found that community education gave benefits for the public. The purpose of this paper is to discuss methods and benefits of doing community education. This event is called "Optimise Your Ability" which was conducted in Masjid Abdullah Fahim, Bertam, Pulau Pinang in November 2019. This program was organized by Occupational Therapy Students (OTHENS), in collaboration with Unit Pendidikan, Jabatan Kebajikan Masyarakat, Seberang Perai Utara, two occupational therapy units from Klinik Kesihatan Sungai Dua and Hospital Kepala Batas. The objective of this program is to educate and share information in promoting independence of one's ability among older persons and children due to injury, ageing process and developmental delay.

II. LITERATURE REVIEW

A. Social Learning Theory

Social Learning Theory is a theory developed by Albert Bandura in 1963. This theory is based on the idea that learning becomes interactions with others in a social context [1]. In this theory, it consists of personal factors, behaviors and environmental factor. In social learning theory, it emphasises on observational learning which consists of four important factors; 1) Attention 2) Retention 3) Reproduction 4) Motivation [1].

It is about the ability to pay attention to activities. Staying focus and being able to present in the moment is essential in order to grasp the knowledge well.

In retention, it is about the ability to remember how to imitate skills in different context. Retention is all about memory which consists of working memory and short-term memory. Working memory is memory that is used to plan and carry out behavior[2]. Working memory can be strengthened by rehearsal dan repetition. For example, remembering phone numbers or any figures which involves words and numbers. Short term memory is the capability when someone is relating an information with another information. Short term memory has temporal decay and limits of chunk capacity [2].

In reproduction, it is about imitating the skills. In order to imitate the skills, one needs to have an idea on how to do the

activity which involves sequence of actions. This situation is called praxis. Praxis involves ideation (generate the ideas of what to do) and motor planning (how to do the activity) and execution (carrying out what to do) [3]. Without any of these components, it will hinder someone to do the desired activity effectively.

In motivation, it is about the importance of model and reward or benefits of doing the activity. Every action taken needs to have motivation to move forward or to be completed. Reward plays a significant role as positive reinforcement for any actions to be taken. Reward creates dopamine effect, which will develop someone's habit. There is also negative reinforcement, which is a situation that causes discomfort or undesired result. By learning the effect, whether positive or negative, it works as reinforcement whether to continue or stop similar action in the future.

B. How Community Learns

The event is titled "Optimize Your Ability". The general aim of this event is to educate people from all age range about occupational therapy services which was made available to assist people in need of returning to maximal function and re-engaging in daily activities who need to re-engage in daily activities and return to maximal function. Health is one of the most precious things in the world that is always taken for granted. Health status could deteriorate due to ageing process or traumatic injury. However, health and wellness are not interrupted just by physical injury. There are other aspects which could contribute to deterioration of health status such as mental health, family relationship, community involvement, and caregiver burden.

Community consists of children, adults, and older persons. This event particularly target children and older persons as main audience. Children basically learn differently compared to older persons. The differences between these two categories of people happens due to nature of age.

Children are more engaged with learning that involved movements and physical activities. They love to move their bodies, hands, and legs while learning as children are energetic, curious about everything and love to explore the environment.

Meanwhile, elderly persons prefer listening and watching in learning. They are more comfortable with auditory and visual input rather than moving vigorously like children. They prefer calmer learning environment which does not require them to move around like jumping up and down, shaking their limbs or doing any body movements.

Thus, in order to educate community effectively, proper methods are deemed necessary so that the community can include some activities during the community education. Methods should be suitable and comfortable with the audience and interesting enough to get their attention in grasping the knowledge.

Occupational therapists play an essential role in leading and assisting to establish, implement, and nurture the relationships among the established child welfare system, the educational system, the medical system, and other existing intervention systems [4]. Physical activity definitely has proven to promote overall health which include increased physical health, reduced depression and anxiety, and improved academic performance. Physical activity is always construed as something that requires someone to sweat a lot and will experience pains and aches. By having this idea in mind, some individuals will avoid participating in physical activity and prefer sedentary lifestyle. Thus, it is essential for the occupational therapy department to portray the idea of doing physical activity in enjoyable way and exposing the benefits of doing physical activity. Individuals are not motivated towards change until they experience an inner conflict with their current lifestyle choices and are presented with ideas or strategies for change, such as the healthy occupations programme [5]. Plus, by organizing this event which involves crowd, it helps people to identify their roles and occupations and assess the method to optimise their abilities in order to improve performance. A study has found that by emphasising occupations through roles and activities, it could help in promoting connection, belonging, and contribution among peers [6].

III. METHODS OF COMMUNITY EDUCATION

There are three methods of community education used during this event. Lecturers and students have prepared the methods prior to the day of the event. The methods consist of exhibition, poster presentation and therapeutic play.

During exhibition, audience were exposed with several tools and equipment about promoting independence in self-care and activities of daily living. For example, like the type of walking aids which consist of fixed canes, adjustable canes and crutches. These are the tools to enhance mobility. Audience were also exposed with equipment used to measure grip and pinch strength, which are necessary in order to perform daily occupation effectively. The audience are shown how grip strength is measured by using hand dynamometer and pinch strength is measured by using pinch gauge. Grip strength is essential in daily life like holding knife while cutting fruits or vegetables, holding bag filled with groceries without falling and avoid heavy object slipping through the hands and fall on toes. Meanwhile, pinch strength is important in turning key, pulling out small object and any activities that require fine motor movements.

Devices exhibited on the day by Occupational therapists from Hospital Kepala Batas and Klinik Kesihatan Sg. Dua are aids for wearing socks, shoes, buttons and plate guard to prevent spilling of food while feeding, and special curve cutlery for people with limitation of movement limitation. Cognitive screening for elderly, advices on safety aspect of mobility with wheelchair including advantages and disadvantages between manual standard wheelchair and lightweight folding wheelchair in the exhibition hall was explained by part 5 occupational therapy students, accompanied by clinical instructor and lecturer. 10 posters about devices for self-care such as showering, grooming, dressing and minimising risk of falls, respecting and managing pain, and managing stress or boredom for 10 different ailments are explained by part 3 students.

There were demonstrations on techniques and methods of self-care, home management, mobility and recreational activities. The demonstrations were shared by an occupational therapist. This building skill is essential to help individual personal empowerment with the aim of strengthening community empowerment [7].

Picture 1: A group of students feeding information to the public about method and modified equipment to reduce risk of getting injured at home based on the posters.

In poster presentation, audience were allowed to move to any posters with the poster presenters standing next to the poster. There were nine posters that cover various topics. The topics covered on common issues among adults and elderly persons. The topics consist of Parkinson disease, osteoarthritis, rheumatoid arthritis, multiple sclerosis, left cerebrovascular accident, right cerebrovascular accident, epilepsy and spinal cord injury tetraplegia and spinal cord injury paraplegia. There were three to five students waiting at each poster and the visitors were seen going to their topics of interest and the students explained the posters.

Other than the strategy to maintain healthy lifestyles for adults and elderly, there are many fun games created by the students. Children from nearby houses and twenty children from Rumah Inapan Kasih Sayang surely enjoyed 10 different sensory motor games. The games have specific purposes but in general were to promote and encourage children's participation in playing. Children learn best in fun, yet tolerable challenges. The students apply knowledge about developmental stages of human growth and establish rules of the game according to their capability with specific purpose to maximise such as motor planning, eye–hand and eye-foot coordination, auditory perception, visual perception, fine motor skills, body awareness and tactile perception games. All children were rewarded by stickers and small token made by students upon completion of each game. Body awareness aerobic, choreographed by students was the first event of the morning. These activities were created specifically to stimulate children's development.

Picture 2: One of the games or activities for sensorimotor games which promote learning skills for the children.

In therapeutic play, there were numbers of play set outside the hall. It is children's nature to play. They learn by playing. This method matches the nature of children in order to get them involved and learn new activities. Therapeutic play is about activities that involve sets of tasks which require certain skills. Therapeutic play is divided into three categories which consist of gross motor skill, fine motor skill and cognitive skill.

Gross motor skill requires the children to be able to move bigger joints like trunk, shoulder, elbow, hips and legs. There are many movements involved during gross motor skills activity like hopping, running, jumping on one foot and maneuvering ball using long sticks. Examples of gross motor games are "walk along the line", in which the children need to walk along a straight line according to the colour, for "tossing ball"; the children need to throw a ball into a basket and for "strike the pin"; the children need to roll a ball towards a targeted object.

Fine motor skill activity involves more about manipulating small objects using fingers and touching several types of textures. Fine motor skill is essential functional performance such as writing, donning shirt, buttoning and handling eating utensils. Example of fine motor games is "treasure sea" where the child will pick a card, then find the animal in the sea which match the card.

Cognitive skill involves more about information processing of interpreting the activity. It includes recognising basic concepts like shapes, colours, numbers and alphabets, naming common objects like household items, stationeries, fruits, animals, and vegetables, sequencing photos and solving jigsaw puzzles.

IV. BENEFITS OF COMMUNITY EDUCATION

There are many benefits of having community education. These benefits can be gathered from different methods of community education.

The benefit of organizing exhibition is, it is more visually engaging. The tools or equipment displayed can be touched and visitors are allowed to try using the tools or equipment. People loves something that can be touched compared to items that can only be seen. This method grabs the attention and gathers more crowd.

This event also used poster presentation as a medium. The posters displayed during the event were presented in infographic which can be easily understood and graphically interesting. These benefits bridge the gap of knowledge of the visitors about common illness among the elderly. Furthermore, with the presenter standing next to the poster, the visitors can ask questions right away if there are any confusions and their questions would be clarified clearly by the presenter. This method provides opportunity for face-to-face interaction with the presenters by bringing closer contact to the audience in terms of delivery aspect. This method also allows the visitors to select and read the specific topic of interest only rather than listening to the whole sharing session from a speaker. Thus, it provides in-depth information that could be beneficial for the visitors [8].

Lastly, this event used therapeutic play as a method to educate the community in terms of children development. Previous research has proven that therapeutic play has huge amount of benefits to the children [9]. It helps the children to develop coping strategies and enhance problem solving skills. It can be seen from growth of emotion and the children's ability to find solution for the problem when engaging with the activity. Therapeutic play also serves as a platform for exceptional learning experience. For example, obstacle course uses multiple sensory approach to encourage the children using more than two senses when doing the activity. Using more senses definitely helps the children to learn better.

Therapeutic play also helps children to improve cognitive function [9]. For example, hopscotch is used not only for coordination but also for counting, discriminating left and right and recognising shapes. It also serves as medium for the children to learn how to interact and communicate better with other children. It can be observed in turn taking, initiating conversation, and following instructions while playing. Lastly, therapeutic play helps the children to improve physical development. There are two big components in physical development which consist of gross motor skill and fine motor skill. These two big components of physical development can be enhanced via playing therapeutic play and helps the children to reach physical development according to their milestone.

REFLECTION OF THE EVENT

This event is a starting point of strengthening relationship between UiTM Cawangan Pulau Pinang Kampus Bertam with the community. One of the mosque committee has responded that this was the first time UiTM Bertam organized an event in Masjid Abdullah Fahim. He was really glad about the event and hope that there will be a continuity in terms of other events conducted by UiTM Bertam in Masjid Abdullah Fahim. Deputy Rector of Students Affairs Associate Prof. Ts Dr Mohd Rozaiman Aziz and UiTMPP Bertam Campus Assistant Rector, Dr Siti Nur Fadzillah believed that this event was impactful and encouraged this type of event to be organized annually. They are keen with the idea of reaching out to community while the students will have the opportunity to apply what they have learnt between four walls to the community. The impact of organising this event was to announce to the public about services offered by occupational therapy department UiTMPP Bertam campus in improving efficiency in activities of daily living and nurturing more effective and safer environment.

Elderly was explained about adapted tools and equipment to help them manage themselves better in self-care like long-handled sponge, modified eating utensils and dressing aid. They were also exposed to cognitive screening and safety issues at home so that they can perform better and age gracefully. This finding is similar to a study which found that the implementation of group programs helps in promoting social participation and foster healthy aging amongst community dwelling with older adults [10].

Meanwhile, children were exposed about physical activities which supports the idea that physical activities are fun and there are beneficial for the children in order to grow healthily and excitingly. In this digital era, many children opt for activities which depend on screen. This situation reduces the opportunity of the children to engage more in activities that requires them to move their body, arms and legs.

There was a brief feedback session after the event. Masjid Abdullah Fahim women bureau expressed their gratitude to UiTMPP Bertam Campus for having this event at their place and look forward to continuing this event in the future.

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Early Intervention Workshop for Community-Based Rehabilitation of Children with Disabilities

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***Abstract*—** The necessity of community-based rehabilitation (CBR) centres for early education and intervention of children with disabilities is rising with the population of children born with disabilities increased from 13,785 to 16,947 in 2013 and 2017, respectively [1]. The empowerment of more than three thousand staff and supervisors of 544 community-based rehabilitation (CBR) centres across the country is vital to ensure the successful of CBR as a one-stop early intervention centre for more than 20000 registered trainees. UiTM Cawangan Pulau Pinang with many experts in medical sciences has collaborated with the Department of Social Welfare Seberang Perai Utara in conducting two days early intervention enhancement workshop to the staff of nine CBR centres and parents. The workshop has successfully provided knowledge transfer and upskilling activities through practical session of essential daily intervention activities to empower more than 100 participants in handling intervention programme at CBR centres.

***Keywords*—** *Rehabilitation, disability, intervention*

I. INTRODUCTION

The Malaysian government has acceded to the Convention of the Rights of Persons with Disabilities (CRPD) in 2008 to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedom by all persons with disabilities, and to promote respect for their inherent dignity [2]. The development of community-based rehabilitation (CBR) centre pilot project started in 1984 in Mukim Batu Rakit, Kuala Terengganu with 55 persons with disabilities (PWD). The community-based rehabilitation (CBR) centres can play an important early care and education role for children with disabilities. They prepare the children with disabilities before the latter are enrolled in the national schools to receive formal education. Since the implementation of the zero-reject policy for learners with special needs by the Malaysian government, over 10,000 children with disabilities have been enrolled in education [2]. This policy is in line with the no Children Left Behind (NCLB) 2001 and CRPD. The registered Person with Disabilities (PWD) in 2017 were nearly 500,000 persons and preparing them with adequate education will enable them to experience personal growth and development. The data shows that PWD with learning disabilities was the second highest compared to registered PWD with physical disabilities. Figure 1 shows the percentage of PWD by categories in Malaysia obtained from the Department of Social Welfare Malaysia [1]. Based on the 2017 data, there were more than 150,000 persons who were registered under the learning disability category. Data between 2013 and 2017 shows that there was an additional of 3612 disabled children born which represented more than 2% of increment. Therefore, a holistic approach is required to address this situation especially with the Shared Prosperity Vision 2030 which specifies social well-being as one of its main seven strategic thrusts.

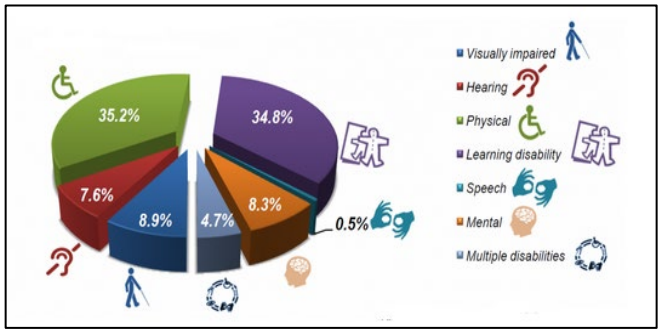

Fig.1: Percentage of Person with Disabilities in Malaysia (Department of Social Welfare, Malaysia)

Programmes in CBR centres are divided into three models: home-based, centre-based, and centre-home based. The main activities conducted at the CBR centres are gross-motor skills, fine-motor skills, social and language development, self-management, pre-writing, reading, calculating, and drawing. Others include educational and creativity games, recreational activities, vocational training, music therapy and sports. The concept of the one-stop CBR centres is an integration community approach for each district. This programme will allow active and meaningful participation of parents and local communities in the rehabilitation of children with disabilities.

This paper discusses the implementation of early intervention programmes as a corporate social responsibility (CSR) with the involvement of more than 50 trainers and facilitators involving lecturers and students from the Faculty of Health Sciences, UiTM Kampus Bertam, Pulau Pinang.

The two-day CSR programme focused on the knowledge transfer of basic understanding in the systematic identification and assessment of children with disabilities. The participants were also presented with practical session of daily routine intervention activities.

II. EARLY INTERVENTION FOR CHILDREN WITH DISABILITIES

Early intervention programme (EIP) is a series of various programmes including therapy and education that focus on assisting and supporting children with development delays or other specific health conditions [3]. With various therapy programmes, education, encouragement and support, children with disabilities are reported to have shown improvement in the personal care skills and confidence.

The two-day workshop began with a series of talks to address all related fundamental knowledge to more than 100 participants including CBR centre staff, children, and parents. These were followed by practical sessions on the second day. The programme was conducted in the Dewan Besar of UiTM Cawangan Pulau Pinang as shown in Figure 2.

Fig.2: Trainers and staff from CBR centres

III. FUNDAMENTAL IN INTERVENTION SKILLS AND REHABILITATION

The programme started with a talk on the identification of slow development of children by Muhammad Azwan Azri, a lecturer of the Faculty of Health Sciences. The understanding, the early identification, and skills in the prevalence of developmental delay in children benefits the parents and CBR staff for developmental surveillance and screening. Assessment at CBR centres should include a general and systematic examination, involving growth centiles, hearing and vision assessment, referral to a paediatrician and counselling. The systematic approach and essential tools in the identification process will enable necessary action to be taken and rehabilitation programmes be done at the early stage of the children development.

Fig.3: Knowledge sharing session from UiTM lecturer

It is common knowledge that children with disabilities have delays in fine and gross motor development. For normal children, both types of motor skills normally develop together because many activities depend on the coordination of both skills. The enhancement of participants' knowledge and understanding of fine and gross-motor skills for children will allow them to grasp the basic skills in early detection and screening of delayed development. Motor skills are practically a set of skills that enable the movement and routine task we perform on daily basis. Gross motor skills are normally related to the large muscles in the body and include broader movements such as walking, crawling, and jumping (Figure 4). Whereas the fine motor skills are related to the high degree of control and precision in the small muscle of the hand, such as picking up small items from the floor and handing spoon and fork. Figure 5 shows fishing and interlocking block activities conducted in a practical session that require fine motor skill.

Besides, children with disabilities normally perform less well socially than normal children. Moreover, they are subjected to poor acceptance by their peers and this social rejection can lead to psychological difficulties and depression. The talk was also focused on social and interaction skills to enable participants to have a basic understanding on how this issue can affect the overall development of disabled children. Well-developed social interaction skills are important for disabled children so that they can have a safe and healthy interaction with their parents, teachers, peers, and others either in or outside the CBR centres.

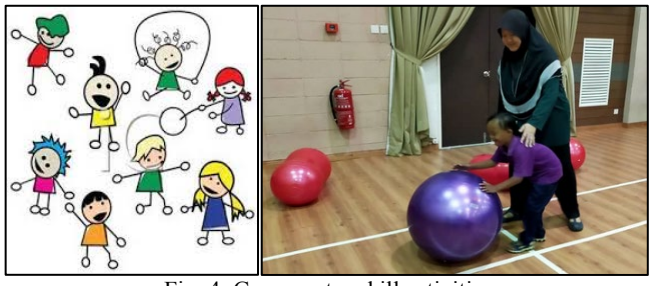

Fig. 4: Gross motor skill activities

Fig.5: Fine motor skill activities

The sensory issue is practically detected when a child has a difficult time receiving and responding to information from his or her senses. Muhammad Radhi Rahimi Abu Bakar, another speaker, had discussed in details common sensory processing disorder including sensory overload that can lead to sensory meltdown. Some children seem to have trouble handling the information their senses take in, such as sound, light, touch, taste, sight, and smell. There are also senses related to body awareness, and sense of body movement, balance, and coordination. Understanding this will allow parents to initiate early assessment and treatment.

Other common behaviour problems among disabled children are aggressive behaviour, agitation and social isolation. Previous studies have shown that disabled children are more likely to present behaviour problems, including social and peer problems, conduct and oppositional behaviours, attention difficulties and hyperactivity compared to their non-disabled peers [4]. This is further complicated if parents are reluctant to seek help, perhaps due to poor knowledge or having feelings that their children's disabilities cannot be treated. Thus, having knowledge on these key issues will allow parents and staff of CBR centres to practise more effective and safer counter measures in handling difficult situations.

The final part of the talk series aimed at imparting knowledge of essential daily routine intervention activities among children with disabilities. The activity-based intervention (ABI) is one of the best methods to integrate the routine activities into effective intervention programme based on children's interests. If an activity is interesting for a child's developmental intervention, it can be integrated into the child's natural activities without disrupting the flow of his or her activities and learning. Thus, a sustainable intervention programme can be developed and carried out successfully. The series of talks on various issues related to the early intervention knowledge framework delivered form both experts had enabled the participants to have meaningful reflection and re-alignment of the best practices in handling children with disabilities.

IV. INTERVENTION ENHANCEMENT THROUGH PRACTICE

It is believed that the knowledge input from the series of lectures will allow participants to grasp the essential skills in the intervention practice. Consequently, all participants from the nine CBR centres were divided into smaller groups that consisted of instructors, CBR centre staff, parents and children with disabilities as shown in Figure 6. All necessary tools and gadgets were provided for each group to familiarise them in practicing all relevant intervention techniques.

With direct demonstration and guidance by experienced instructors and facilitators, the practical session was deemed meaningful to all participants. Figure 7 shows the therapy demonstration by a physiotherapist to stimulate better understanding of the practices.

Fig. 6: Group practical session

Fig. 7: Demonstration session by instructor to participants

V. DISCUSSION AND CONCLUSION

A two-day early intervention programme for CBR centre staff and parents with disabled children was deemed fruitful and had greatly supported the Department of Social Welfare in providing the training and upskilling course for the staff of nine CBR centres in Seberang Perai Utara. The collaboration between the Department of Social Welfare Seberang Perai Utara and UiTM Cawangan Pulau Pinang had provided effective knowledge transfer medium specifically to the PWD community and general community at large. The feedback from participants were indeed positive and more knowledge transfer programmes in the future will be planned. Such meaningful effort from the smart collaboration between the government agencies and institute of higher learning had produced a meaningful contribution towards the development of the rights of children with disabilities in which no one shall be left behind in the national Sustainable Development goals 2030. Systematic and continuous knowledge and skills enhancement should be in place to ensure the disabled community is well taken care of [7]. A nation greatness is not only measured by her economic and technological

advancement, but also by how she treats her disabled society members.

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Reach out Programmes By Mytribos: Stem Initiatives

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***Abstract*—** Malaysian Tribology Society (MYTRIBOS) is a learned society established mainly to pull tribologists especially in Malaysia into delivering a concerted effort in line with the purpose or objective of establishment. MYTRIBOS is also engaged in various Corporate Social Responsibility (CSR) activities such as those related to STEM and Donation of Face-shields during the COVID19 pandemic. In this entry, the experience of MYTRIBOS in promoting STEM to a secondary school in Shah Alam has been described. MYTRIBOS was supporting the STEM event by the Faculty of Mechanical Engineering, University Teknologi MARA, Cawangan Selangor. Through this activity, the students were exposed to tribology and matters related to it. The event was also supported by many different faculties in UiTM and other outside organisations. This paper also highlights other issues on STEM including STEM and National Agenda, STEM Players, and Making a Difference Through STEM.

Keywords*—STEM, secondary school, tribology, SCR.*

I. INTRODUCTION

Malaysian Tribology Society (MYTRIBOS) is a learned society established mainly to pool tribologists especially in Malaysia into delivering a concerted effort in line with the purpose or objective of establishment. MYTRIBOS was officially registered with ROS in 2007 after about one year of its initiation in 2006 [1]. Among a few people responsible for MYTRIBOS were Professor Ali Erdemir, who succeded Professor H. Peter Jost, the founding father of Tribology, when he passed away in 2016 [2]. The affiliation to ITC is meaningful to MYTRIBOS as it shows the global recognition for its contribution at national and international level. Figure 1 shows the organizational structure of MYTRIBOS executive committee from 2020 to 2021.

Fig. 1: MYTRIBOS executive committee from 2020 to 2021

MYTRIBOS eventual vision and mission is to help reduce energy consumption by making machinery more energy efficient in line with the core function to reduce friction and the consequence in the form of wear and tear of interacting components. In many instances, this is achieved through the introduction of lubrication. Partly, efficient machinery means less greenhouse gas (GHG) emission and healthier environment. Eventually, with a proper address of tribology issues, a better quality of life and more sustainable world can be achieved.

MYTRIBOS is also involved in CSR activities as part of its reach-out programmes. Currently, there are two such programmes successfully organised by MYTRIBOS: STEM Programmes for Secondary School and Donation of Face-shields for selected Front-liners.

This paper describes the experience of MYTRIBOS in promoting STEM to school children at SMK Section 9 Shah Alam. The associate meaning and consequences are also discussed by the author in appreciating the overflowing benefits from such initiatives.

II. Review of Literature

A. STEM and National Agenda

STEM is the acronym for Science-Technology-Engineering-Mathematics. STEM is a global agenda and many countries around the world have embedded STEM into their education systems. What is STEM? Why people adopt it?

STEM is considered a necessary education model for preparing future workers that fit the industry requirements. It is believed that in actual, there is a cross disciplinary situation where integration of disciplines is needed in offering a plausible and effective solution that leverage on the synergy of the multidisciplinary integration.

In the context of Malaysia, STEM was reported in Ramli and Talib (2017) to have started in 2016 and officially addressed in the Malaysia Education Blueprint 2016-2020 (MOE, 2013, 2016) [3]. Subsequently, STEM has been embedded in Malaysian Curriculum since 2017 in the Secondary School Standard Curriculum (Curriculum Development Division, 2016). Another study by Chia and Maat (2018) found that generally teachers' attitudes towards the integration of STEM in education are positive [4]. They acknowledged the advantage of having STEM in the curriculum. In another study [5], the experiences of teachers in three countries namely Australia, India and Malaysia were discussed.

The desire to have more upper secondary school students doing Science stream has started way before 2016. This is partly to support the government decision to have industrial based economy during the stewardship of Tun Mahathir Mohammad, the fourth Prime Minister in 1991. A target ratio of 60:40 (Science over non-Science students) was agreed upon and had become a national target and policy in Malaysia education [6] The challenge remain the same that the number of science classes is comparatively small [7].

It was reported that this national target has not been achieved since its debut in 1967. An article entitled *Hope Yet for a Drying Stream* published in the STAR online (Sunday, 28 Feb 2016) by Rabecca Rajaendram pointed that the number has been declining [8]. In 2010, the ratio was 48:52 and by 2014, the ratio came to 47:53. Over these past few years, the percentage of Science students over those non -Science in upper secondary school has been declining.

In tertiary education, more academic programmes with inclination towards Sciences, Engineering and Technology have been offered in line with the national decision to have industry and technology-based economy. Today, some of these programs face an alarming risk of not having enough students to fill up their minimum target enrolment to run at breakeven due to a reduced ratio of Science over non-Science students in upper secondary school. In article entitled *Interest in Science Continues to Drop* by Christina Chin published in the online the STAR (Sunday, 17 March 2019), it was reported that students' enrolment for STEM related fields including Manufacturing and Construction was at 334,742 whereas for Art and Humanities, Education, Social Science, Business and Law, the number was 570,742 [9]. Hence, there is a strong call to double up in our effort to facilitate and promote STEM in school. MYTRIBOS is determined to be engaged in CSR projects with school.

B. STEM PLAYERS

Who are STEM Players in Malaysia? The most important and the anchoring body for the integration of STEM in education is the Ministry of Education (MoE) that looks after the national agenda on achieving the target ratio of 60:40 as described earlier. Academy of Science Malaysia, with the auspices of MOSTI, has been helping with relevant data presented in Science Outlook since 2015 (the first debut). Then, the second edition called Science Outlook 2017 followed. At present, the latest version is Science Outlook 2020 that gives the profiling for about 30-year spectrum [10]. The aim of Science Outlook is to provide insights into Science, Technology and Innovation (STI) landscape in Malaysia.

Generally, Malaysia is blessed with many STEM efforts championed not only by government agencies but also by others such as learned societies, NGOs and communities who see the importance of STEM for securing economic stability and social harmony in the country. Association of Science, Technology and Innovation (ASTI) is directly supporting the national STEM agenda. MYTRIBOS also indirectly supports STEM initiatives through collaboration with other organizations. Another strong body to reckon with is National STEM Movement headed by Dato Professor Noraini Idris. Figure 2 shows a poster for the first national STEM seminar in 2018 organized by National STEM Movement and other collaborators. Other important bodies are Pusat STEM Negara and STEM @ UiTM.

Fig. 2: The First National STEM Seminar

III. STEM AT SMK SECTION 9

Figure 3 is the first STEM event that MYTRIBOS had initiated and it took place at SMK Section 9, Shah Alam. MYTRIBOS was represented by Prof. Ts. Dr. Salmiah, Ts. Dr. Nik Roselina Roseley and the research team from Centre for Tribology (CenTrib), Faculty of Mechanical Engineering UiTM. Through this event, tribology was introduced to the students by highlighting the main subsets namely friction, wear, and lubrication. There were many students that turned up at the desk and they had the chance to observe the work of friction using the demo kit prepared. The demonstration on Friction was a good attraction where the students could appreciate friction force for different materials.

Fig. 3: The crowd at MYTRIBOS booth

IV. MAKING A DIFFERENCE AND GROOMING

Everyone can make a difference in supporting and propagating the integration of STEM in Malaysian education. For those directly involved in education such as those working in schools, polytechnics, universities, and even parents and the students themselves, the opportunities are clear and wide open. Communities can also take part through societies and NGOs.

A. Everyone Can Contribute

Indeed, everyone can contribute. Parents can give early exposure to their kids through play, games, cartoons and others. All it takes is the desire to pursue STEM. Perhaps, initiatives on STEM should measure the impact on the desire of the stakeholder, the public, and the target groups to embrace integrated STEM education. How to make upper secondary students feel important in this journey and that they realise that the nation is dependent on them as the future generation to make it happen. There just ought to be a significant group of students who dare enough to pick up this challenge to take up STEM. On one end, teachers, parents, and other parties must help prepare these students so that they are qualified to be in STEM classes based on their academic performance. This means the preparation period must start earlier from the kindergarten.

There is another teaching and learning model called CDIO (Conceive-Design-Implement-Operate) Initiatives which can be an alternative approach to enhance the integration of STEM in education. CDIO initiative is an innovative education framework that help to inculcate creative thinking among students. The author herself is one of the master trainers in Faculty of Mechanical Engineering, UiTM.

In Figure 4, the author had the opportunity to share CDIO Initiative at BMS College of Engineering Bengaluru in India.

Fig. 4: Instilling Creative Thinking Through CDIO

B. Visibility and Necessity

CSR is part of strategic action to improve visibility of an institution or organisation. For many companies, doing CSR projects also means portraying a good image to existing customers and potentials ones on companies' commitment to create a safe and happy community, especially local community with concerns. For academic sectors such as universities, CSR activities like STEM movements, the benefits are multi folds. CSR on STEM is not only for image but also for sustainability of the many programmes offered especially those related to STEM. The annual programme such as Selangkah UiTM is very good but a more engaged platform is needed. It is strategic to have a direct engagement with schools (Primary and Secondary) based on a regular basis which are formalised through MoU or MoA for better record and documentation which are needed for future studies and statistics. Projects like *Sekolah Angkat* is a good example that allows a continuous engagement and support from universities, NGOs, companies with better impact. STEM initiatives in UiTM have grown into a big scale with multiple benefits including creating entrepreneurial mind among students and staff (Figure 5).

Fig. 5: STEM in UiTM

V. CONCLUSION

CSR is a strategic platform to help national agenda in improving the ratio of science to non-science students to achieve the national target of 60:40 which was announced in 1967. Relatively recent infinitives on the integration of STEM in national education has been well received by many from universities, NGOs, companies, learned society, and many more. Many have been done but challenges remain in achieving the set target ratio. Obviously, more activities need to be done and everyone can contribute towards a concerted effort which include parents and the students themselves as they are the ones who will make the final decision. MYTRIBOS, as a learned society, is determined to make a difference in this matter in line with the purpose of its establishment: to promote TRIBOLOGY.

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Community Awareness towards Open and Distance Learning Service towards International Students' Mobility During Covid-19 Pandemic

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***Abstract*—** Covid-19 pandemic has increased the community interest towards open and distance learning at universities around the world. Higher learning institutions are now coping with the need to sustain their enrolment to stay relevant and most importantly, to survive this huge and phenomenal test. To suit the demand especially for new international students, a university must be able to embrace the key elements in welcoming students, accommodating them in campus and be excellent in handling their open and distance learning experiences. This paper presents the current scenario that the community must be aware of pertaining to open and distance learning, and the possible challenges faces by international students. In order to address the challenges, this paper presents strategies that can boost the international students' enrolment especially during the movement control order by most of the affected nations. The best practices in open and distance delivery are discussed, giving the readers the idea to perform the right strategy to manage the content deliveries in fair and sustainable manners, thus improving the international students' confidence towards higher learning institution.

***Keywords*—** *Covid-19 Pandemic, open and distance learning, international students, movement control order, sustainable enrolment.*

I. INTRODUCTION

In many countries, the Covid-19 pandemic has created an unprecedented challenge not only towards their national health system, but also the economy and education sectors, the three major sectors which must be taken care of at all cost by the government. They are mutually interrelated and dependable, requiring each component to quickly respond in an agile manner. Besides, a responsible government must give the right awareness, direction and solution towards the war on this pandemic so that every citizen is not left behind in terms of health, economical and education [1-3]. Higher Educational Providers or HEP relies on students' enrolment to survive and thus ultimately to sustain their functions as the backbone of national centre for development of future leaders and workforces to run the country. In the current state where the pandemic continues to escalate, United Nations Educational Scientific and Cultural Organization (UNESCO) has estimated about 1.2 billion students across the planet will experience this unprecedented disruptive open and distance learning environment. The crucial implementation of this open education will have direct impact towards ethical sustainability, social justice and human rights to ensure the quality of accessible learning possibilities [4-5]. Not only that, the pandemic has slowly obliterated the keen to further study by many affected school leavers and unfortunately the international students' enrolment. A research in Australia shows that up to 86% of university students are affected by the pandemic in many ways during their studies [6]. In addition, digital disruption in UK universities during Covid-19 pandemic has caused the academic community as frontline providers of higher education to move into emergency online migration [7]. On top of that, the closure of international boarder has become university's nightmare for international students' mobility programmes. The key to this is to stay relevant and to seek a rapid ability to act in flexible ways in handling the international enrolment of students. At the end of the day, the ability to sustain the students is the top priority for the university management to stay relevant. This paper presents the best practices of open and distance learning through strategic management and ways to make and sustain an adaptive approach to new international students so that they can continuously feel motivated to be in the system. Then, the paper will discuss the challenges faced by international student in the aspect of mobility, thus, propose strategies to address them.

II. STRATEGIC MANAGEMENT OF OPEN DISTANCE LEARNING

A. Student Online Education Accessability: A Survey

As the main customer, stakeholder and the final product of a university, students and their feedback are very crucial in making a progressive and quality decision-making system. A survey towards Universiti Teknologi MARA, Cawangan Pulau Pinang students in the early stage of open and distance learning implementation during movement control order indicated that the students' ability in accessing the internet to perform online learning can be categorised into

three major groups. The first group is the students with the least ability, or the no-internet-connection group at their own places. The second group is the student with limited internet data plan, and this group was found to be the majority. Another category of student is the students who have unlimited internet data connectivity at their places, such as broadband service.

B. Management of Open Distance Learning: Best Practices

Based on the abovementioned categories of students' internet data plans, universities are encouraged to let the students enrol into open and distance learning classes according to their internet-capability categories as shown in the following Table 1.

Table 1: Best Practice in ODL Management Execution

Open and Distance Learning Modes	Category 1: Student with no internet access: **Learning Package Postal Delivery** Lecturers post learning packages, students receive the packages and starts learning within a timeframe set by lecturers. Students and lectuers communicate through voice call for discussion.
	Category 2: Student with limited internet access: **Asynchronous Online Learning** Lecturers upload materials in online platforms such as UFuture (UiTM Platform), Google Classroom, MS Team, WhassApp, Telegram etc. Students download materials and learn within the timeframe set by lecturers. Students upload questions, and lecturers answer within a timeframe.
	Category 3: Student with unlimited internet access: **Synchronous Online Learning** Lecturers and students engage in online classes at the same timeframe. Platforms include MS Team, WEBEX, Google Meet, Zoom, FB Live etc.

The bigger picture of the approach in Table 1 is to make sure no one is left behind in the implementation of open and distance learning. This new normal will slowly converged into the right momentum on students' engagement, hence, towards their motivation to keep going. Students in the no-data-plan Category 1 will still be provided with academic packages and two-way communication through voice call by their lecturers. Category 2 students are set to learn in the anytime-anywhere access scenario whenever the learning materials are uploaded in platforms such as google classroom or Youtube. The challenge in preparing the assessment for these two categories to be at par with Category 3 students is addressed through training and guidelines by university academic division. The lecturers' skillset in open and distance learning can be enhanced through series of training to ensure that the intended deliveries are materialised.

III. International Student Mobility: The Challenges

Dennis [1] forecasted that the effect on intake for both domestic and international students into universities will see a long-shadow implication of Covid-19, ranging from six months to five-years. Apart from that, a 15% to 25% decline in enrolment is expected to be down the road as the recovery of Covid-19 is uncertain. For record, previously the higher education took two years to recover from the impact of the SARS epidemic. On top of that, this virus has put the spotlight on antiquated financial models, rigid admission and registration procedures and dismal student progression and graduation rates [1]. Figure 1 presents the challenges faced by universities in their international students' mobility programmes. The most critical part of all is the action taken by most countries to impose restriction on international students' visa, with tighter Foreign Educational Policy to control their boarders. As a result, travel ban imposed to all inbound and outbound international mobility, which has caused universities to face uncertainty in their international mobility programmes. Apart from that, the implementation of Standard Operating Procedure (SOP) to combat the pandemic at students' accommodation will reduce the available number of rooms by almost half for social distancing. The research students will also experience reduction in study duration due to the limited access to laboratories for social distance arrangement. Another challenge faced by international students is the uncertainties in getting fund or sponsor due to economic downturn in post Covid-19. Without reliable scholarship or sponsorship, getting into international programmes is very challenging. Finally, the real challenge is to cope with online classes, the ability that depends on the internet access availability at the study place. Due to this, the number of students' withdrawal has increased in this period of difficult time.

Fig. 1. International Student Mobility Challenges.

IV. Strategies to Sustain International Students' Mobility in post Covid-19

Many higher education providers are aware of the challenges but still experiencing difficulties when trying to overcome them. Strategically, managing the challenges must be strongly supported by the university top management. With the right attitude and commitment, the university top management can uphold the right strategies as proposed in the following Figure 2.

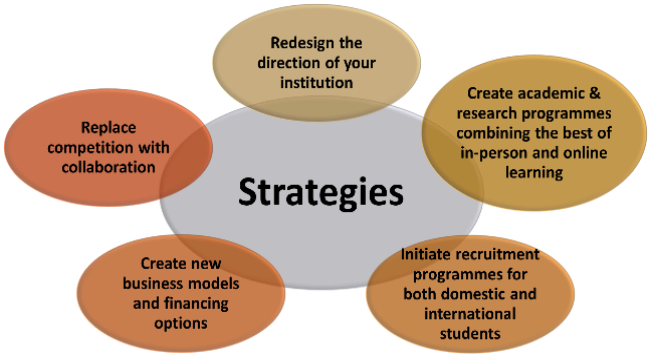

Fig. 2. Proposed strategies to address the international student mobility challenges.

As shown in Figure 2, the top management must focus to redesign the educational strategic direction of its university to pave creative and sustainable ways in producing agile academic programmes that will suit the need of potential international students in the post Covid-19 era. The hybrid program featuring the face-to-face and online learning is one of the best examples to market the university's readiness in future open and distance learning environment. In addition, the recruitment type of programmes must also be introduced to attract the students' mobility systematically through a smart engagement. Furthermore, universities must create a sustainable business model in order to offer attractive financing option for international students. Finally, another wise strategy is to turn competitors into collaborators, creating better initiatives such as students' exchange programmes with a win-win benefits for long term partnerships. In conclusion, this paper has proposed the best practices in open and distance learning management at Universiti Teknologi MARA Cawangan Pulau Pinang, and suggested the strategies for universities to sustain their international mobility programmes in post Covid-19 era.

V. Conclusion

In this paper, the challenges of open and distance learning have been discussed. The best practices to address students' internet capability variation has also been elaborated. The challenges in sustaining the international students' mobility program by university in the Covid-19 pandemic period has been presented and explained, exposing the need for universities to strive for better solutions in the long run to stay relevant to national education sector. Finally, strategies to address the challenges in sustaining the international students' mobility has been successfully presented and discussed. At the end of the day, it is up to the universities' top management to initiate the changes in order to market their international programmes for a better global visibility.

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