

The Effects of Mindfulness on Adolescents With Special Needs' Readiness for Learning

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Abstract

Special needs educators, anecdotally, feedback that students demonstrated adverse learning behaviours and attitudes towards academic learning by adolescent age, compared to their peers, when they face severe learning challenges. With preliminary evidences supporting mindfulness-based programmes' positive effects on academic functioning, this pilot study aims to investigate the effects of providing adolescent students with mindfulness tools and its impact on their learning in a school setting. The study employs a single group pre-post no-control design. The students were screened with behavioural rubrics that examine attention, self-control, participation, and respect for others, as well as their phonological skills. Four students were shortlisted to attend a 12-session mindfulness held twice weekly for an hour. They practiced mindfulness activities for the first half of each session followed by activities on phonological awareness. Six applications of mindfulness: body, senses, breath, attention, thoughts, and emotions were covered. The students demonstrated improved attentional regulation, self-control, participation, and respect for peers and facilitators. Their abilities to perform phonological awareness activities also advanced. Post student attitudinal questionnaires reflected their focus in sessions, preferences, and likelihood to continue using mindfulness tools after the programme. This presentation will address whether mindfulness intervention is associated with improvements in various indices of student behaviour and learning via facilitators' report and students' self-evaluation. Implications of this study may contribute to the future use of mindfulness in class setting to promote learning. Inclusion of control group and larger sample size are needed for future studies.

Keywords: Mild Intellectual Disability, Mindfulness, Readiness to Learn

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Introduction

APSN Tanglin School is a Special Education (SPED) school for students with mild intellectual disability between the ages 13 to 16 years old. Its curriculum aims to engage students with the required knowledge, skills and attitudes for living, learning and working in the 21st century. Specifically, it prepares students with pre vocational skills necessary for their transition to post-school options, for example learning a vocational curriculum leading to national certification in selected industry areas (i.e., food and beverage, retail operations, horticulture, hotel and accommodation services), customised training pathways or work options.

Typically, to achieve quality of life, among other skills, reading and spelling is a core skill that will enable one to learn and obtain necessary qualification on a skill for equitable remuneration as well as to function adequately in our daily activities of living, since we live in a text-based society. However, in the process of teaching and remediating reading and spelling skills, anecdotally, SPED educators and Speech Pathologists feedback that this profile of students lacked the readiness to learn in addition to their learning disabilities. Generally, these students demonstrated adverse learning behaviours and attitudes towards academic and pre vocational learning by adolescent age, compared to their peers.

Having diminished abilities to cope with academic-related stress can negatively impact their academic functioning, educational performances, and their overall self-concept in academic domains. Considering the significant challenge of SPED educators providing both academic and social behavioral support to these students in the classroom, a collaboration between the allied professionals trialled a small group mindfulness and phonological intervention for this profile of students.

Currently, there are numerous studies suggesting that mindfulness practices in school enhanced students' attention and self-regulation as well as having positive association with school readiness, social skills and academic performances (Beauchemin, J., Hutchins, T.L., & Patterson, F., 2014; Harpin, S., Kim, R.A., Swanson, L.M., 2016.). It is also suggested that mindfulness training creates a positive learning environment for students to learn and prime their focus in learning, in the process they also became more calm, responsive and participative in learning (Magaldi, D., Park-Taylor, J. (2016).

Defined as a mental state, mindfulness refers to an ability to pay attention that arises from moment to moment, in a nonjudgmental way (Kabat-Zinn, 1994, p.4). In teaching and applying mindfulness activities (MA) such as the use of breathing, senses, attention, movement, thoughts and emotions, the hypothesis is that SPED students could apply these strategies in dealing with academic challenges.

Aims

This study explored the effect of the "I am Ready" (IAR) programme, i.e., a group intervention programme which uses MA to improve the readiness to learn skills and acquire phonological skills for adolescents with Mild Intellectual Disability (with or without commodity of autism spectrum disorder, ASD).

It hypothesizes that when MA are taught and practiced, SPED adolescents are able to:

- Understand and use mindfulness tools.
- Pay attention to participate in tasks.
- Gain composure to participate in tasks.
- Physically regulate and engage in activities.
- Show care and respect for others.

In addition, it is also hypothesized that equipped with mindfulness skills, SPED adolescents are able to improve their readiness to learn skills which is evident by being able to acquire the following phonological skills that will improve their ability to decode (read) and encode (spell):

- Identify letter-sound of the 26 letters in the English alphabet.
- Identify, segment and blend syllables in words.
- Identify initial, final and middle sounds in words.
- Blend, segment, and manipulate sounds in words.

Methods

This study used a pre-post no-control design, with three months follow-up.

Participants

Participants were required to have a diagnosis of mild intellectual disability with little or no awareness of phonological skills (PA), and were in their first year of study at APSN Tanglin School. While five participants met the inclusion criteria of the study, after being screened by the literacy teachers and the speech pathologist, one of the participants was excluded from this study due to absenteeism. Hence, four participants took part in the study and they were aged between 12 to 13 years old with or without commodity of autism spectrum disorder.

Interventions

The participants had an hour of IAR programme twice weekly for a total of 12 sessions. Each session is approximately 60 minutes. The MA, led by the psychologist, was conducted for the first half of the session. The MA was explicitly taught, modeled and the participants were provided opportunities to practice MA. A total of six elements of MA were covered in the programme: (1) introduction to mindfulness, (2) mindful breath, (3) mindful body and senses, (4) mindful thoughts, (5) mindful attention, and (6) mindful emotion. Details of the sessions are shown in **Table 1**. The materials used consist of visual illustrations, videos and customized scenarios to support the participants' understanding. In addition, they were encouraged to decide their preferred MA and to practice it during the sessions.

Table 1: MA session details

Sessions	Mindfulness activities (MA)
Session One and Two <i>Theme: introduction on mindfulness</i>	Introduction to mindfulness Mindful body – grounding (five senses) Mindful looking – bubble bounce Mindful breathing – square breathing
Session Three and Four <i>Theme: mindful breath</i>	Recap Mindful breathing – sunshine breathing, mountain pose, moon pose
Session Five and Six <i>Theme: mindful body and senses</i>	Recap Grounding (five senses) Mindful listening Mindful taste test
Session Seven and Eight <i>Theme: mindful thoughts</i>	Recap Mindful thoughts – WAIT Mindful breathing – rainbow breathing Mindfulness activities – choice of participants
Session Nine and Ten <i>Theme: mindful attention</i>	Recap Mindful breathing – choice of participants Mindful attention – find the quiet Mindfulness activities – choice of participants
Session Eleven and Twelve <i>Theme: mindful emotion</i>	Recap/Wrap up Mindful breathing – choice of participants Mindful emotion – be the pond Mindfulness activities – choice of participants

The PA activities, led by the speech pathologist, were conducted in the second half of the sessions. It used the explicit instruction structured approach i.e., systematic synthetic phonics (SSP) to introduce PA to participants. They learn the relationships between the sounds (phonemes) of spoken language and the letter symbols (graphemes) of the written language. Participants sound, blend (e.g., “What word do these sounds make when we put them together?”), segment (e.g., “Let’s sound out this word”), and manipulate (e.g., “Which letter should we change to make this word?”) letter-sounds after learning a few letter-sounds (e.g., letter-sounds of ‘s’, ‘a’, ‘t’, ‘p’, ‘i’ and ‘n’). They build up their phonic skills from their smallest unit (graphemes) and alphabet knowledge while they continue to practice the skills of blending, segmenting, and manipulating as they learn more letter sounds. PA activities included “games”, visual materials, and gestural movements to increase participants’ engagement, and orthographic mapping.

Outcome measures

The Student Behavior Rubric by Kinder Associates, LLC (2007). The facilitators (psychologist and speech pathologist) rated the participants’ behaviors in the programme using four behavioral metrics: (1) paying attention, (2) self-control and self-calming, (3) physically self-regulating and engaging in activities and (4) show respect and care for others. Each item was ranked using the Likert scale from zero to four (i.e., 0 = *no attempt*, 1 = *needs continual support*, 2 = *some of the times*, 3 = *most of the times*, 4 = *all of the times*). The Krippendorff’s Alpha was 0.77, an indicative of a tentative statistical conclusion for inter-rater agreement.

Post Attitudinal Survey. The participants completed post intervention survey, ranging from the least agreed (zero point) to the most agreed (10 points) (e.g., the frowning face = *the least agreed*, the smiling face = *the most agreed*), to evaluate their own focus, composure, participation, level of care and respect for others, rate their liking of the programme and the likelihood of continuing to use MA on their own. In addition, the participants were asked to rank their preferences towards MA by using the Likert-scale (e.g., 1 = *the least preferred*, 5 = *the most preferred*) and list at least three MA that they will continue to use on their own.

Phonological Awareness Survey. The speech pathologist screened the participants' alphabet knowledge and phonological skills before and after the programme using Really Great Reading's complimentary phonological/ phonemic awareness survey. It is a one-on-one assessment of phonological awareness skills, including blending word parts, and phonemic awareness skills, including matching, identifying, blending, and segmenting phonemes in words. Students were also screened for their ability to write the 26 letters in the English alphabet, their letter sequence and letter-sounds.

Results

The intervention effect on the participants' behavioral performance based on facilitators' reports indicated that the participants showed overall improvement on their attentional control, demonstrated better self-control and self-calm, increased participation in activities, and displayed better care and respect for others. The result was shown in Figure 1. These improvements were also maintained after the intervention period, after three months follow-up. There was however no statistical significance between the baseline, intervention and maintenance phase.

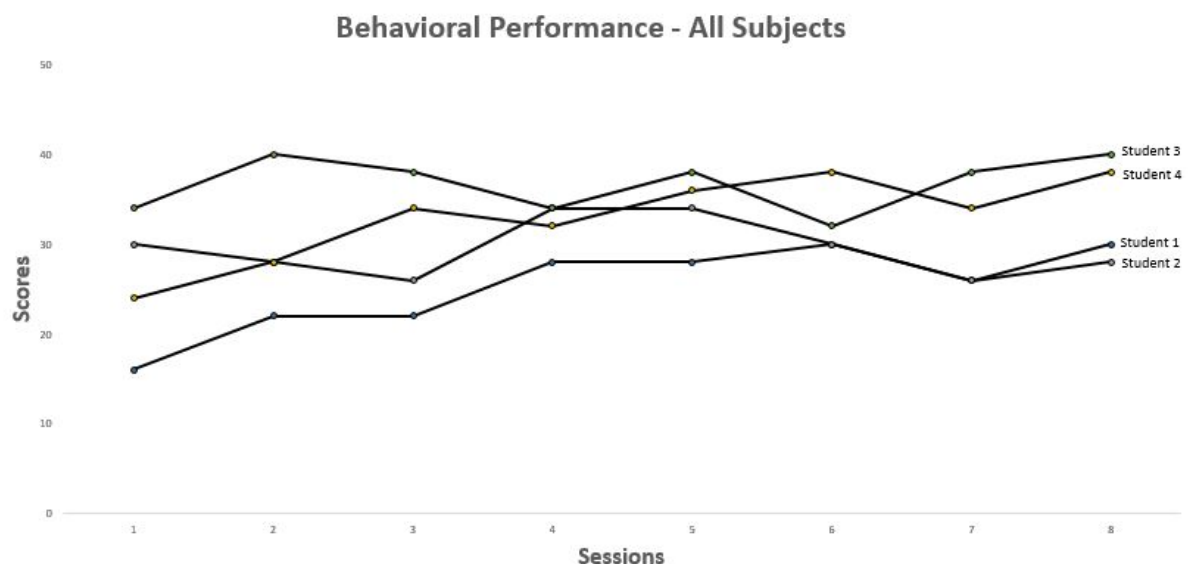


Figure 1: The change of behavioral performance for all subjects

The post attitudinal survey asked the participants to offer a brief verbal response to their understanding of mindfulness. Responses from the participants indicated that mindfulness led to feelings of calm, relaxation, focus and overall positive feelings. Participants' self-report on their attitudes and performance on their own focus, composure, participation and level of care and respect for others indicated that they had an overall positive evaluation i.e., the mean response was 8.6. The participants also gave their statement that rated their liking of the

programme and the likelihood of continuing to use MA on their own, resulting in a mean score of 9.5 that were shown in Figure 2. The survey also offered participants the chance to rank their preferences on deep breathing techniques taught in the programme, indicated the ranking as such i.e., from most preferred to least preferred: (1) rainbow breathing, (2) sunshine breathing, (3) mountain pose, (4) moon pose and (5) square breathing that were shown in Figure 3. Similarly, the participants ranked their preferences on other MA and the ranking was (1) mindful listening, (2) mindful looking, (3) mindful taste test, (4) be the pond, (5) find the quiet voice, (6) WAIT technique and (7) grounding that were shown in Figure 4.

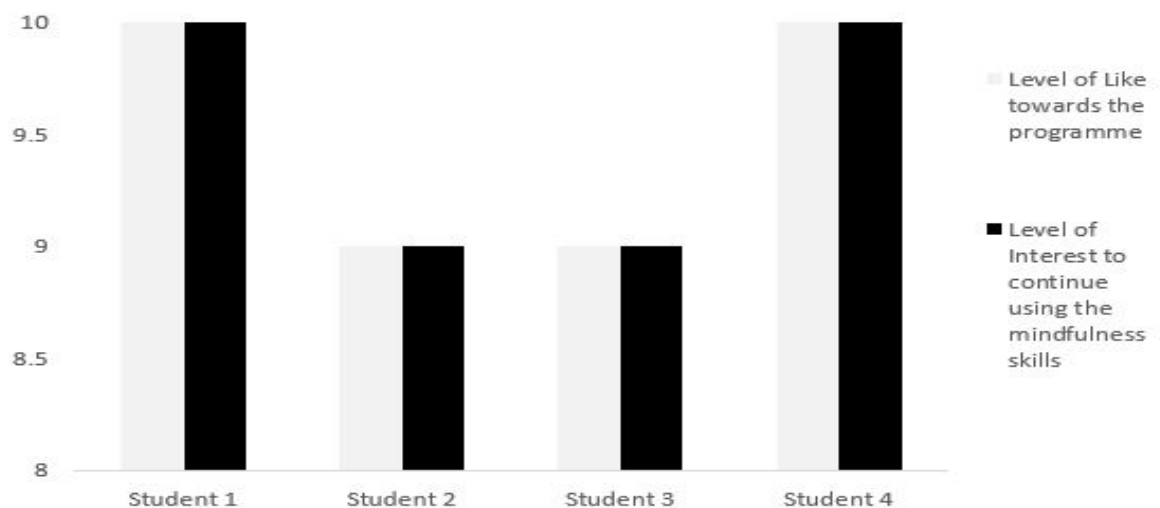


Figure 2: Level of like and interest toward mindfulness activities

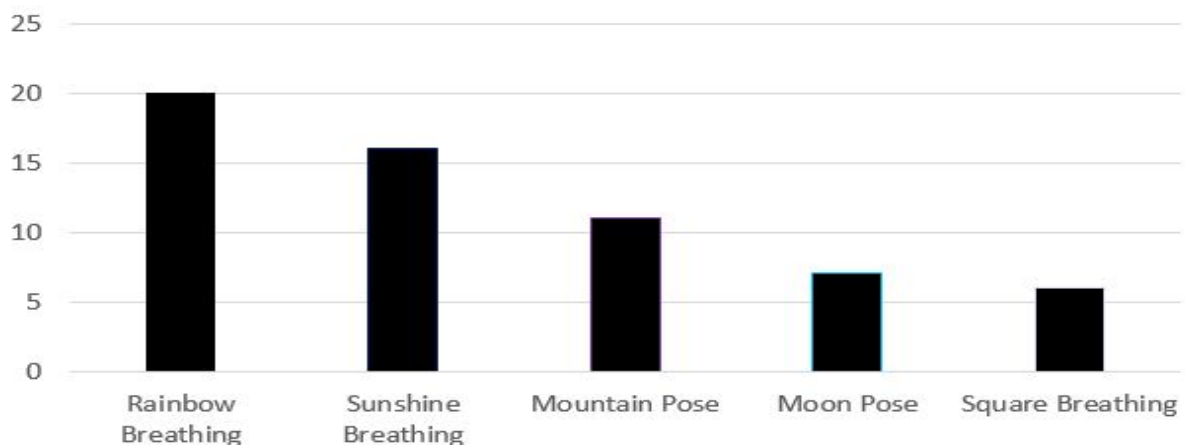


Figure 3: Students' preferences on deep breathing techniques

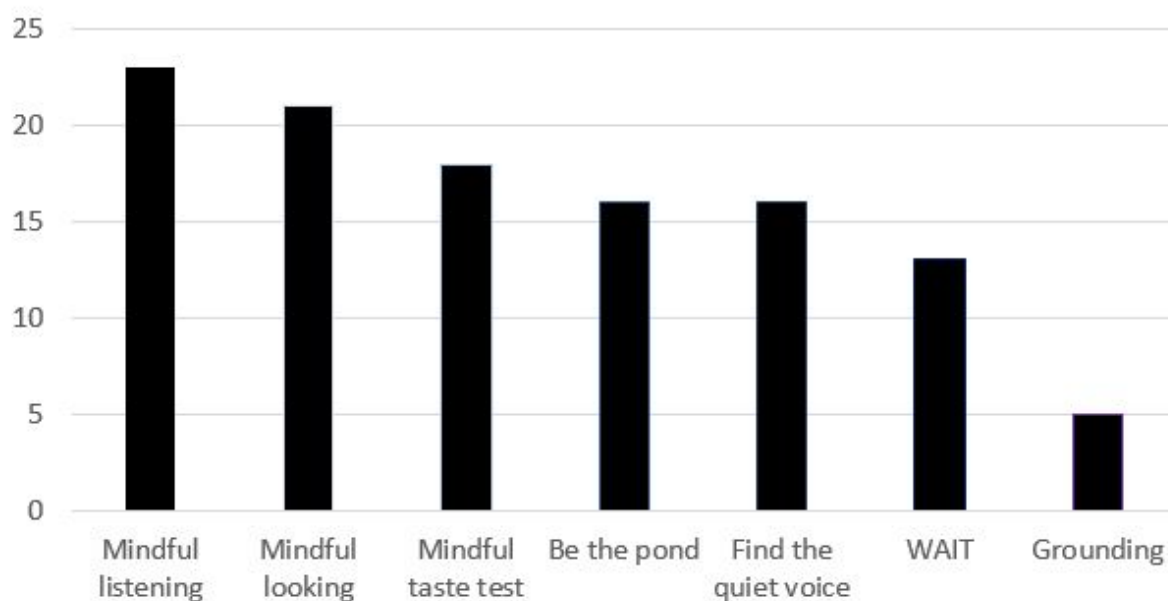


Figure 4: Students 'preferences on other mindfulness activities

The results of this study supported our hypothesis with all participants gaining improvement in all components of their phonological skills and alphabet knowledge. Specifically, their alphabet sequencing increased by more than 20%, letter sound awareness by at least 17%, phonological awareness by at least 7%, and phonemic awareness by at least 13% (see Figure 5). The effects of intervention on each of these skills were shown in Figure 5.1 to 5.4. At the maintenance phase, they were able to maintain the use of their new skills learnt, and build on those skills to acquire additional, though modest, phonological skills.

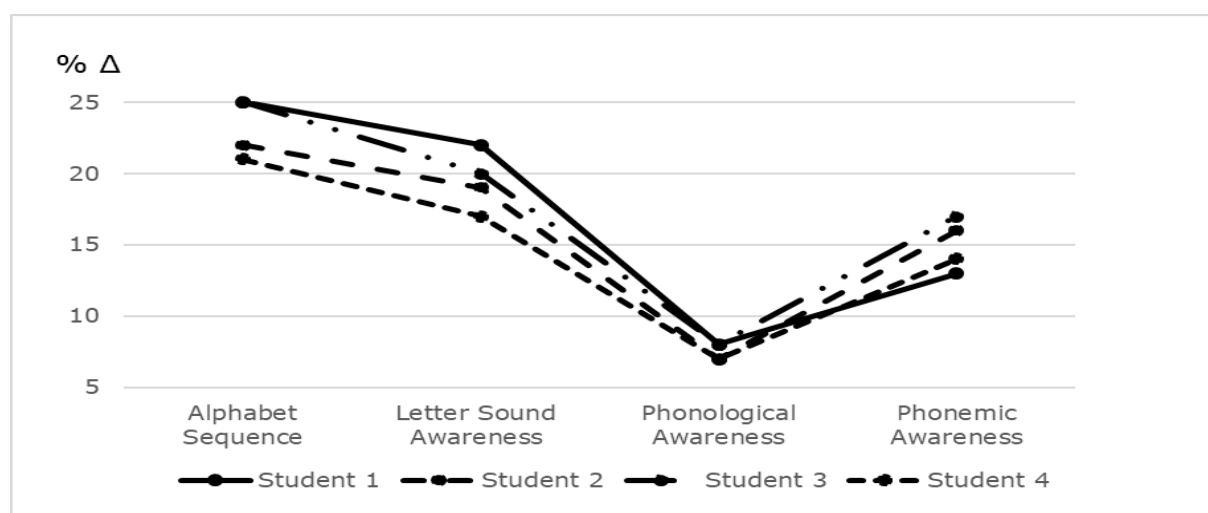


Figure 5: Percentage change of phonological skills after the programme

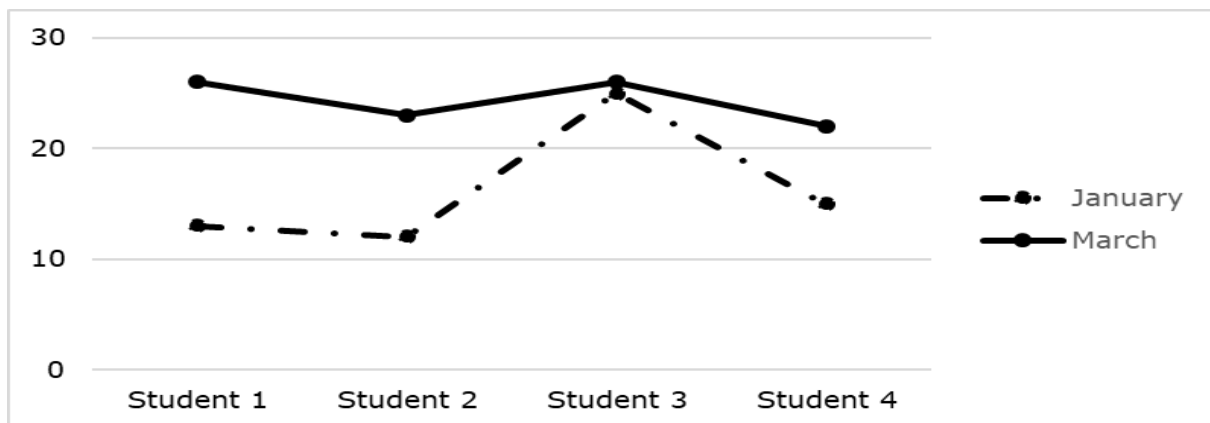


Figure 5.1: Programme effect on students' alphabet sequence skills

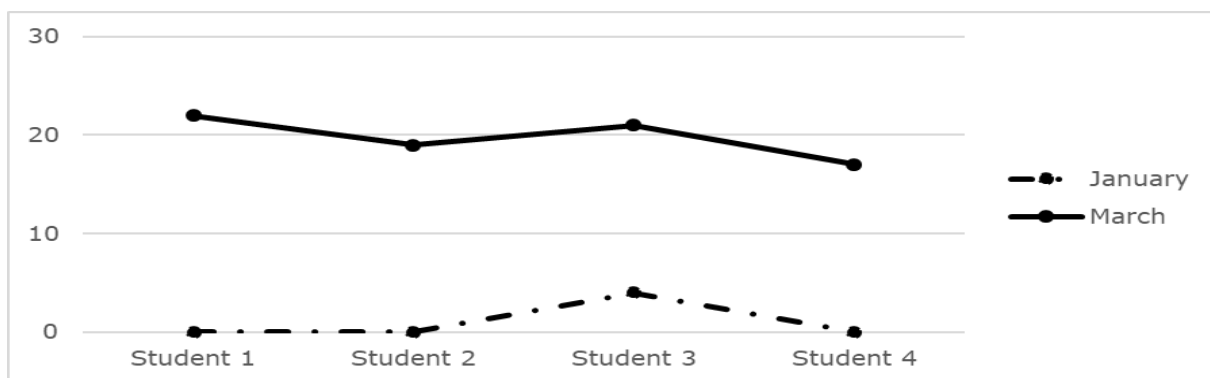


Figure 5.2: Programme effect on students' letter-sound skills

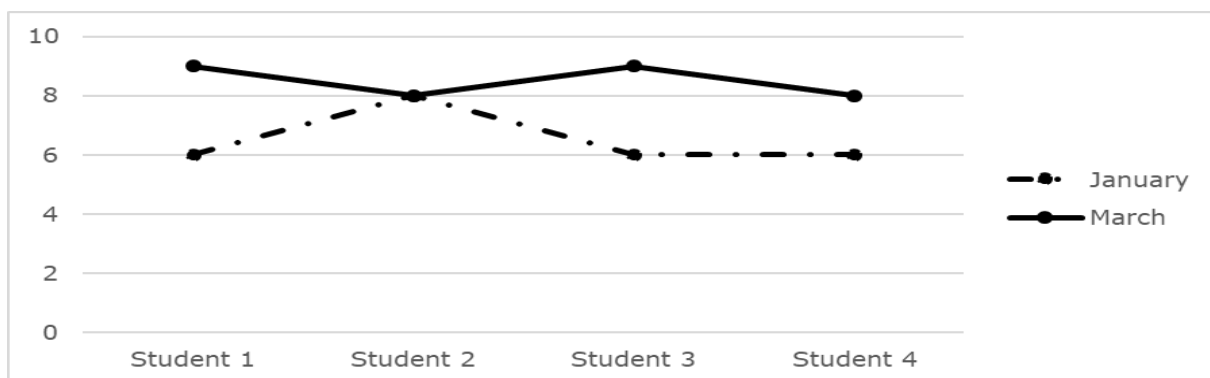


Figure 5.3: Programme effect on students' phonological awareness skills

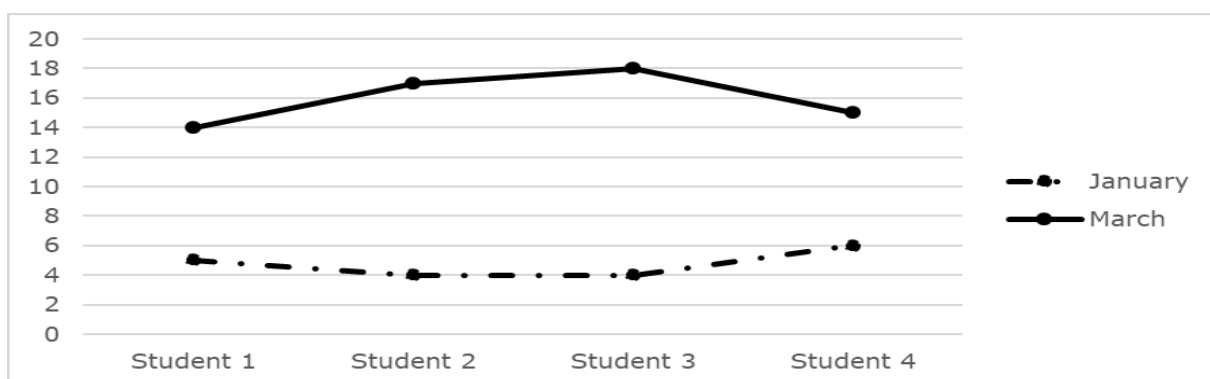


Figure 5.4: Programme effect on students' phonemic awareness skills

Discussion

These preliminary findings suggested that the incorporation of mindfulness activities can yield positive findings, specifically, positive behavioral change and readiness to learn in participants. All participants also reported positive evaluation and willingness to participate in mindfulness activities after the programme.

A possible reason for not obtaining a statistical significance result on the participants' behavioral performances may be the length of the intervention. Data collected over the course of several months to years will be more substantial to evaluate the claims of the benefits of mindfulness practice and its effect to improve their school readiness skills. This might be particularly essential as the participants have no prior experience with mindfulness activities, and participants' diagnosis of MID might require more intensive or frequent MA practices before its effect could achieve statistical significance.

The participants had not been able to acquire elementary phonological skills or fluent alphabet knowledge for the past six years of their academic learning prior to this programme. Practically, while they require more practice to improve their fluency and consistency in using their newly learnt skills, they demonstrated improved PA skills and were able to sound out simple two-letter and three-letter words.

In addition, after the programme, while they still felt challenged whenever they practiced their PA as they furthered their learning to read and spell, they were able to retain their readiness to learn skills and could persevere with their PA practices.

With a common language to prompt participants to leverage on their newly acquired mindfulness skills, the participants required less support to be guided and spent less time to ground and redirect themselves to focus their attention on their task on hand, i.e., PA activities. Such an encouraging difference in learning experience for both the facilitator and the participants could have positively contributed to the participants' ability to acquire improved phonological skills, albeit rather slowly.

Conclusions and Clinical Implications

This small study demonstrated that mindfulness training can lead to increases in social and behavioral competence that promote greater readiness skills in learning phonological awareness activities as evidenced by the improvement in participants' scores, even for adolescents with MID (with or without comorbidity of ASD).

Whether the mindfulness training component plays a direct or indirect role in fostering the readiness to learn skills, the inclusion of mindfulness activities might represent a value-added component to regular intervention programmes, as it could promote greater social and behavioral competence, as well as better well-being for both participants and their educators. The reinforcement and continuity of the use of MA by participants would be easier to sustain when the participants and their educators embraced the importance of mindfulness and were equipped with the skills to practice them.

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