

The impact of frequent, targeted one-to-one conversations on special education learning support

*PHILIP BOWMAN, EMILY FARRAR and
KATIE NOVAK*

This study investigated the impact of structured, five-to-seven-minute, one-to-one conversations every other day between the special educator and each student. Retrospective cohort analysis of six years of student grade point average data was used to measure the effect of the one-to-one conversations. Statistical analysis revealed a significant improvement (Cohen's effect +0.83) in academic outcomes in the one-to-one conversations cohort as compared to student outcomes prior to the course and versus the control cohort. These increases persisted in the after-transition period (Cohen's effect +0.99). Data from student feedback surveys revealed that students perceived one-to-one conversations as helpful and self-identified gains in self-reflection and independence. These results and their implications for future research and practice are described.

Key words: one-to-one conversations, interventions, self-directed learning, pedagogy.

Introduction

The development of effective special education interventions for secondary students is crucial in preparing them for success in the post-secondary transition. Keys to successful intervention for secondary students include promoting self-direction (Shogren *et al.*, 2020), self-regulation (Webber *et al.*, 1993), and self-awareness (Urdang, 2010) so students can access grade-level instruction. Additionally, student self-direction and self-determination predict success academically and in the post-secondary transition (Lindstrom *et al.*, 2007; Shogren and Shaw, 2016; Shogren *et al.*, 2017).

The foundation of an inclusive system is a universally designed classroom, where all learners have access to rigorous standards, including students with disabilities (Basham *et al.*, 2010). Universal Design for Learning (UDL) empowers learners with options and choices to reach rigorous standards, allowing them to personalize their learning while also developing as informed, reflective, and expert learners (Dalton, 2017). UDL's emphasis is on understanding that all learners, regardless of their complexity or severity of support needs, can become expert learners in inclusive classrooms (Hartmann, 2015).

Expert learners are purposeful and motivated, knowledgeable and resourceful, and strategic and goal-directed. A necessary prerequisite for developing expert learners is fostering students' self-awareness of how they learn best (Meyer *et al.*, 2014). Academic strengths and needs change over time, but self-awareness informs self-direction and provides a stable foundation for future learning.

Research has shown that achieving self-direction requires an individualized approach, which can be challenging to achieve in a group setting (Shogren *et al.*, 2020). While special education in reading and autism support has had success utilizing one-to-one instruction (Frey, 2006), the one-to-one approach has not been widely utilized in tiered systems of support in part due to financial and logistical concerns (Kamps *et al.*, 1990; Balanskat *et al.*, 2013; Bocconi *et al.*, 2013).

This study examines one-to-one support defined as five-to-seven-minute, one-to-one conversations delivered every other day between a special educator and a student with the goal of improving student self-awareness and empowering expert learning. There is strong evidence that a one-to-one conversational approach could facilitate success in students who benefit from the highest tier of intervention (Treisman, 1992; Lepper and Woolverton, 2002).

Previous literature on one-to-one conversations suggests that this strategy may offer substantial benefits to students receiving special education services (Treisman, 1992; Lepper and Woolverton, 2002). However, the application of this strategy, in the context of a one-to-one, special education intervention, has not been investigated.

This study's aim was to conduct a preliminary investigation into the effect of one-to-one conversations on student outcomes. Specifically, the authors sought to compare a learning support course that utilized one-to-one conversations versus one that did not. Retrospective cohort analysis was used to examine student grade point averages in core courses (math, science, English, social studies) before, during, and after the intervention as the dependent variable of interest.

The research question was, 'What is the impact of one-to-one conversations happening every other day in a learning support course on the academic performance of secondary students with learning disabilities?'

Methodological approach

The International School Bangkok (ISB) is the oldest international school in Thailand. ISB enrolls 1700 students from grades preK-12. At the high school level, ISB offers an accredited and challenging international curriculum incorporated into North American and International Baccalaureate (IB) frameworks. Learning support classes, which are called Intensive Studies in high school, are available for all grade levels. This study specifically examined Intensive Studies courses. Students are enrolled in Intensive Studies at admission to ISB if indicated by their academic record or as the result of a child study process. Students transition out of Intensive Studies upon the recommendation of their Intensive Studies teacher, in consultation with the team of educators involved in that student's education, based upon the student's own self-evaluation, and with the input of their parents.

Intensive Studies classes at ISB are designed to promote holistic student success and typically have small class sizes of between two to five students. All students have an individualized education plan (IEP). Students also work from a personalized learning plan (Clarke, 2013) that they use to self-identify goals. They work toward their goals during the 85-minute Intensive Studies class period every other day.

Between 2014 and 2020, this study examined two different types of Intensive Studies courses: the control intervention and the MARIO intervention. Each was led by a certified special educator with at least five years of experience as of 2014. In both Intensive Studies courses, educators had one-to-one conferences with students periodically, every two to four weeks, for 15 to 25 minutes. The interventions differed in that the MARIO intervention also conducted five-to-seven-minute, one-to-one conversations with each student during each class period, described in detail below. The control group did not have these regularly scheduled one-to-one conversations.

One-to-one conferences

Both courses implemented the use of one-to-one conferences of 15 to 25 minutes in length occurring every two to four weeks. Prior to the one-to-one conference, students self-assessed their performance using a competency-based rubric that was co-created by both Intensive Studies educators. This rubric was based on a ‘Habits and Attitudes towards Learning (HAL)’ rubric that is widely used in the high school at ISB. During the one-to-one conference, the educator asked questions that required the student to provide evidence of their level of performance as reported on the rubric. Based on this dialogue, the student would adjust the levels of performance they had recorded on the rubric to more accurately reflect their performance. The student would also record notes related to their learning directly on their rubric. At the end of the conference, the student would share the two most important actions they intended to sustain or change moving forward.

The control and MARIO intervention differed in that only the MARIO intervention utilized five-to-seven-minute, one-to-one conversations that occurred every class period with every student. The educator who implemented the MARIO intervention chose one of five conversational session types to use with each student each class period, depending on the student’s needs. The five types were: academics, habits and approaches toward learning, goal monitoring and adjustment, four minutes of the student talking about anything meaningful to them followed by educator feedback, or an open-ended, back-and-forth dialogue.

MARIO intervention

The MARIO intervention was so named because it is Measured, Ambitious, Research-informed, Innovative, and One-to-One learning-centered. Each

component of the MARIO intervention is both learner-driven and evidence-informed. Each of the five components are outlined below.

Measured

Providing time for students to focus on metacognition has a positive impact on academic success, lifelong learning, self-motivation, and self-regulation (Panadero *et al.*, 2017; Siegesmund, 2017). As part of every class period, students reflected on, and measured, the efficacy of recent interventions and the impact of those interventions on their learning and their habits of mind. Insights from these self-assessments informed the adjustment of future instructional practices and interventions, both on an individual student level and on a class-wide structural level. Establishing these structured feedback loops created a shared responsibility for reflecting on the efficacy of instruction as well as its impact on student learning.

Ambitious

Research has shown that students with disabilities achieve greater academic success and increased autonomy (Rubie-Davies *et al.*, 2007) when educators share high expectations for their achievement and couple those expectations with access to the general education curriculum (Turnbull *et al.*, 2010). In the conversations in the MARIO intervention, students were encouraged to reflect on their progress toward high expectations and grade-level standards and set specific, challenging, and attainable goals which research suggests leads to increased academic and performance outcomes (Travers *et al.*, 2015).

Research-informed

The MARIO intervention was intentionally designed to implement high-impact learning strategies as identified in Hattie's (2009) synthesis of evidence-based research, which examined the outcomes of more than 52,000 individual studies regarding raising student achievement. We recognize that Hattie's work is not without criticism. His synthesis does not examine qualitative research and does not address methodological problems in the studies (Terhart, 2011). Despite these limitations, the high-impact strategies embedded in the MARIO intervention are also supported by Marzano's (2007) *The Art and Science of Teaching* as well as considerable research including the importance of student reflection and

self-assessment (Panadero *et al.*, 2017; Siegesmund, 2017), setting and maintaining high expectations (Turnbull *et al.*, 2010), building and working toward learning goals (Travers *et al.*, 2015), and providing mastery-oriented feedback (Baliram and Youde, 2018).

Innovative

In order to prepare our learners for success in school and beyond, it is critical that we put students at the center of the educational process. The goal of the one-to-one conversations is to foster creative and critical learners who can take control of their own learning, monitor their own progress, and co-create innovative pathways that will lead them to success. Innovation, as defined in educational research, is how practitioners implement alternative ways of increasing outcomes for learners if/when the current way (teaching method/learning approach, etc.) is not effective (Findikoglu and Ilhan, 2016). Extending this definition to both educators and students provides opportunities for flexible instructional decision-making that is evidence-informed.

One-to-one learning-centered

The structure of every one-to-one conversation, using the MARIO intervention, was focused on students driving the dialogue and the educator listening, reflecting, and providing feedback. Each conversation included four stages that formed a unique teaching pedagogy: connection, identification, activation, and empowerment. Each step is designed to increase student motivation (Patall, 2013) and support student self-determination and autonomy. Research suggests both motivation and self-determination can be fostered by providing choice, encouraging self-initiation, and acknowledging student perspective and feelings (Assor *et al.*, 2002). The connection stage re-establishes a relationship with a student by asking them to reflect on their feelings, identify their emotions, and share their perspectives. During the identification stage, the educator acknowledges students' perceptions and feelings and asks follow-up questions. In the activation stage, the educator selects an evidence-based intervention, practice, or question and provides specific feedback targeting the insights and feelings previously identified (Baliram and Youde, 2018). Identification and activation stages can occur multiple times during the conversation if time allows. Each conversation ends with the empowerment stage where students take ownership of their learning by self-identifying and recording specific goals and next steps (Travers *et al.*, 2015). Supporting students to determine goals and next steps

is critical to increase motivation (Patall, 2013) and empower learners to build self-efficacy (Bandura, 1977). While students were encouraged to do this independently, scaffolding and guiding questions were provided by the educator as necessary.

Experimental design

The independent variable was the type of Intensive Studies course in which each student was enrolled, called here ‘the intervention’. The independent variable had one of three values in each semester for each student: not enrolled, enrolled in control intervention, or enrolled in MARIO intervention.

The dependent variable was the average weighted GPA in core courses. Core courses were defined as courses taken in science, math, English, or social studies. This was chosen as the dependent variable for three reasons. First, core courses are more consistent learning experiences across students, as compared to electives. Second, the difficulty of the core courses could be accounted for using a weighted GPA system (Cognard, 1996). An additional 0.5 GPA points were added to each grade in a course with the designation of International Baccalaureate (IB) standard-level, and a full GPA point was added to the grade in each IB course that was designated as higher-level. Third, a student’s GPA in their core courses is a reasonable estimate of the academic success of a student (Grigorenko *et al.*, 2009; Mould and DeLoach, 2017), despite the multitude of other factors that also affect student outcomes.

Data collection

Between August 2014 and June 2020, 98 secondary students were enrolled in an Intensive Studies course for at least one semester. For each of these 98 students, grades in core courses were anonymized and retrospectively reviewed for all semesters in which they were enrolled at International School Bangkok. Grades in each course were assigned based on a seven-point scale (Table 1). Student responses to an end-of-semester feedback survey were also anonymized and reviewed.

Description of the cohort

The data from the 98 high school students, primarily with diagnosed mild and moderate learning disabilities, were split into three periods for comparison: Phase I, prior to intervention (Figure 1, I); Phase II, during the intervention (Figure 1, II); and Phase III, after transition (Figure 1, III). The sample size for each of these

Table 1. GPA scale used in the study

<i>Letter grade</i>	<i>GPA points</i>
A+	7
A	6
A-	5.5
B+	5
B	4.66
B-	4.33
C+	4
C	3.66
C-	3.33
D+	3
D	2.66
D-	2.33
NC	2
NC	1

phases is shown in [Figure 1](#). The black lines follow students through each phase, indicating how many students were able to be tracked through all phases (top line), Phase I and II (second line), Phase II and Phase III (third line), and only Phase II (fourth line). This information was important in the analysis of comparisons between the three phases.

Significant differences between groups were detected using ANOVA with student's unpaired t-tests. Effect size was calculated using Cohen's statistical analysis (Cohen, 1969).

Results

The MARIO intervention led to a statistically significant increase in average GPA in core courses as compared to prior to intervention and as compared to the students enrolled in control intervention or limited intervention ([Figure 2](#)). The control intervention and the limited intervention groups did not show a significant increase in GPA as compared to prior to intervention. Cohen's effect size of MARIO intervention student GPA compared to control intervention student GPA was +0.83.

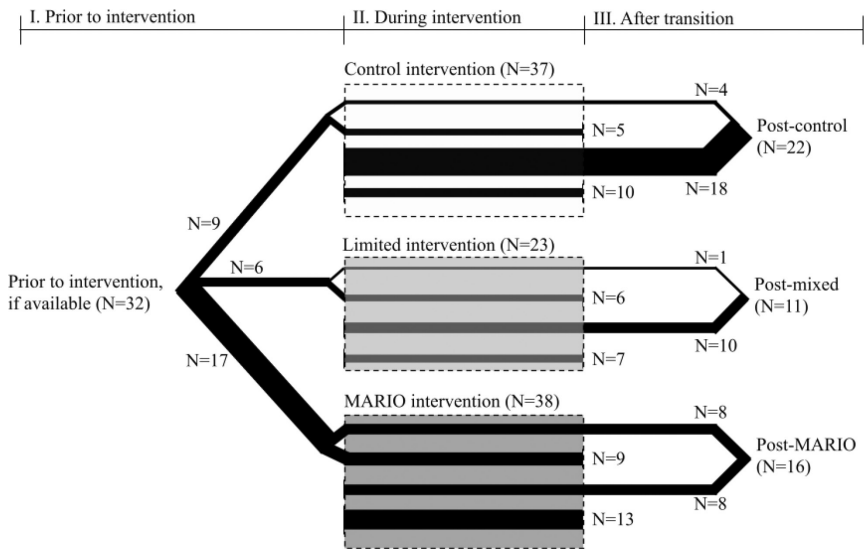


Figure 1. Description of the cohort used in the analysis

After transition, all students showed a significantly higher GPA than prior to intervention. Comparison of intervention types in the after-transition period showed that students who had been enrolled in the MARIO intervention had significantly higher average GPA after transition than those who had been enrolled in the control or limited intervention (Figure 2). Cohen’s effect size of MARIO intervention student GPA versus control intervention student GPA after transition was +0.99.

MARIO student feedback

In order to understand the effect of the one-to-one conversations in the MARIO intervention, results from a feedback survey administered to MARIO intervention students were analysed. This survey was administered at the end of each semester starting in December 2017 and continuing until June 2020. A total of 75 students responded to the survey across the six semesters it was administered. The authors identified six questions on the survey that helped to elucidate the findings presented here (Table 2).

Seventy-eight percent of students responded that the one-to-one sessions helped a ‘significant amount.’ The one-to-one sessions in this statement included both the

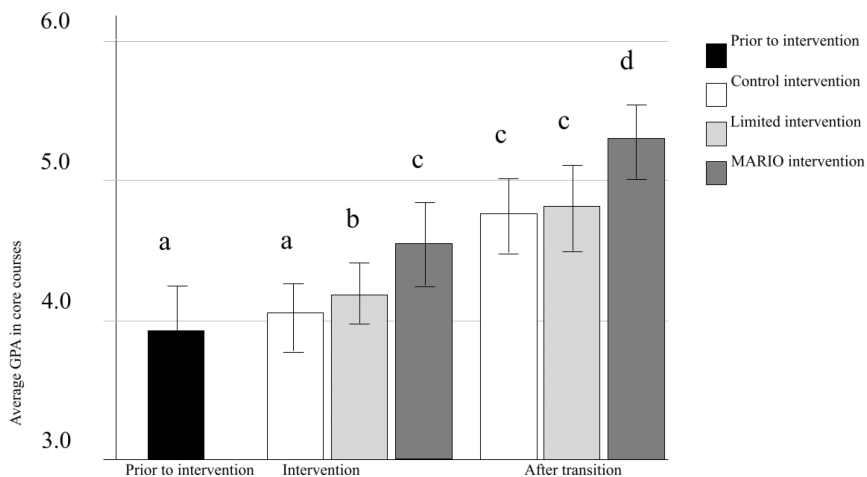


Figure 2. Effect of intervention on student GPA. Letters indicate statistical difference. Groups with different letters are statistically different ($p < .05$)

brief, five-to-seven-minute conversations and the longer 15-to-25-minute conferences. In an optional open-ended follow-up question, students were able to explain how they felt about the one-to-one sessions. One student explained, ‘[In the short one-to-one sessions], I get to talk about how I am feeling and how we can solve my problems. This helps me reduce my stress and anxiety by a lot.’ The other questions presented in [Table 2](#) elucidate features of the MARIO intervention related to student perception of their teacher, learning strategies, reflecting on their learning, and becoming an independent learner. The majority of students responded that they ‘almost always’ experienced these things positively in the MARIO intervention.

Discussion

The results of this study suggest that brief and targeted one-to-one conversations occurring every class period result in statistically significant gains in student academic outcomes as measured by GPA. Specifically, students who were in the Intensive Studies course that included the brief, one-to-one conversations, called the MARIO intervention, showed higher GPA in core courses than students in the control Intensive Studies course. The effect size on student GPA in their core

Table 2. MARIO intervention student feedback data

<i>Question</i>	<i>Zero</i>	<i>A little</i>	<i>Average amount</i>	<i>Significant amount</i>
How much did you learn/benefit from One-on-One Sessions with your teacher this semester?	0 (0%)	1 (1%)	14 (21%)	53 (78%)
<i>Statement</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Usually</i>	<i>Almost always</i>
My teacher pushes me to do my best and holds me accountable	0 (0%)	0 (0%)	11 (16%)	57 (84%)
I have a good relationship with my teacher	0 (0%)	1 (2%)	7 (10%)	60 (88%)
In class I learn strategies to help me learn	0 (0%)	2 (3%)	17 (25%)	49 (72%)
I am given opportunities to reflect on my learning	0 (0%)	2 (3%)	21 (31%)	45 (66%)
In class we focus on becoming independent learners and taking responsibility for our learning	0 (0%)	0 (0%)	20 (29%)	48 (71%)

Note: Data are presented as mean (percentage). Percentages are based on the number of students responding to each item.

courses of the MARIO intervention compared to control was +0.83 during the intervention and +0.99 after transition. In addition, the length of exposure to the MARIO intervention showed a significant, positive correlation with student GPA after transition; the control intervention showed no correlation.

With respect to differences in average GPA during the intervention period, it was surprising that many students in the control intervention did not show an increase in average GPA. However, these same students showed a statistically significant increase after the transition period. It is possible that the effect of the control intervention takes longer to develop, resulting in a delay in benefits to student academic outcomes. The MARIO intervention resulted in gains in average student GPA during both the intervention and after the transition period.

In considering the effect sizes of the MARIO intervention on GPA, the effect of the MARIO intervention is large according to criteria by Cohen and Hattie (Cohen, 1969; Hattie, 2009) and represents substantial evidence supporting the effect of the MARIO intervention (Forness *et al.*, 1997).

The data from the student feedback survey provided further insight into the effect of the MARIO intervention. Student responses indicated that they found the one-to-one sessions very helpful. MARIO intervention students further identified their teacher as someone who pushed them to do their best, held them accountable, and with whom they had a good relationship. An array of research identifies the teacher-student relationship as key to promoting the success of students in special education (Andersen, 1979; Urdang, 2010; Wehmeyer *et al.*, 2012). The feedback survey data also indicated that the MARIO intervention promotes students' awareness of their own development of strategies for learning. Strategies for learning have been identified as a key feature of Paul Pintrich's Motivated Strategies for Learning (Pintrich *et al.*, 1993) that help students to be motivated and dynamic in their academic and lifelong learning journeys (Dunn *et al.*, 2012). Finally, the student feedback survey provides preliminary insight into the promotion of self-reflection and self-direction that may underpin the success of the one-to-one conversations within the MARIO intervention. The results indicated that the majority of students were reflecting on their own learning and felt they were taking responsibility for their learning. Self-reflection and self-direction are the focus of much recent research such as the Self-Determined Learning Model (Wehmeyer *et al.*, 2012, 2013; Shogren *et al.*, 2020) that suggests that engaging students in leadership of their goal setting and attainment is efficacious in promoting their long-term success.

Limitations and future research

In interpreting the findings of this study, there are limitations that must be considered. First, the interventions were tested within a single setting, that of the International School Bangkok. Second, it was not possible to establish a baseline for every student prior to the intervention as only secondary school GPA data was available and some students began the intervention in grade nine. Lastly, the study only collected student feedback data from the MARIO intervention cohort so it was not possible to compare self-reported data to the limited intervention or control group.

Moving forward, the MARIO intervention should be tested in a wider variety of school settings, including elementary and middle school settings, and a baseline metric should be established and utilized prior to intervention. Additionally prospective, randomized assignment of students to intervention type should be employed (Odom *et al.*, 2005). In this way, the effect of

one-to-one conversations on student outcomes can be more rigorously assessed. Findings from such work will address whether one-to-one conversation-based interventions such as the MARIO approach could be an important feature in successful learning interventions.

In conclusion, there are several promising outcomes of this study that future research can continue to explore. The results of this study suggest that educators can promote increased student independence, self-direction, and self-awareness in students with disabilities by focusing efforts on training staff on how to have short conversations through the MARIO Framework. Creating time for these targeted conversations, may ensure that learners with disabilities can access universally-designed, inclusive, challenging learning environments while building their skills as expert learners.

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Correspondence

Philip Bowman
International School Bangkok
Nonthaburi
Thailand
Email: philipbowman@marioframework.com