Teachers as Researchers: Using Evidence-Based Practice in the Singapore Classroom

By

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EXECUTIVE SUMMARY

Purpose / Research Question
The primary purpose of this study is to evaluate the extent to which teachers can implement evidence-based strategies in their classrooms and the effects of these strategies on student outcomes. Using a consultative problem-solving model, the study aimed to understand the level and nature of support needed to train teachers, and the degree of change observed in students as a result of receiving instruction with evidence-based strategies.

Background
School-based consultation, in which teachers work closely with researchers (i.e., the consultants) to implement evidence-based instruction (Feldman & Kratochwill, 2003; Kratochwill, Elliott, & Stoiber, 2002) can be used to address an array of academic and behaviour problems in the classroom. In such an approach, the teacher has primary responsibility for delivering instruction and intervention to students, and the consultant is responsible for facilitating the teacher’s acquisition and implementation of evidence-based practice to address the problem at hand.

A related concern when conducting classroom-based evaluation of interventions is the level and type of rigor needed in evaluating program and student outcomes. What is required at the practitioner-level is to determine whether or not these interventions work in a specific classroom setting. There is strong support for the use of quasi-experiments (Kazdin, 2011) or Level I research (Hawkins & Mathews, 1999) for the purpose of accountable service delivery. Accountability designs (Barnett et al., 1999; Barnett, Daly, Jones, & Lentz, 2004) allow practitioners to bring empirically-based interventions into education practice by using continuous assessment over time to study the immediacy and magnitude of change in students’ behavior.

Participants
Three teachers, two teachers from a primary school and two teachers from a secondary school, participated in classroom-based research during the first semester. One teacher continued on with the project during the second semester, while one new teacher came on board during the second semester. The class sizes ranged from 36-39 students in the primary school, and the secondary school class size ranged from 10-20 students.

Research Methodology / Design
Repeated measurement procedures, common in single-subject research methodology, were used to evaluate the effects of the intervention on students’ outcomes. Consistent with research conducted to evaluate interventions in the applied settings, an accountability design was used in the various studies (Barnett et al., 1999; Barnett, Daly, Jones, & Lentz, 2004). At the basic level, an accountability design consists of a baseline condition (A) followed by an intervention (B). Based on the immediate and substantial changes in behavior following implementation of an intervention, modest inferences can be made about the relationship between the intervention and the dependent measures (Barnett et al.). Data were analyzed using the visual analysis method (Kazdin, 2011) along with mean and standard deviation comparisons.
Findings / Results
Findings from the studies conducted in the classrooms suggest that with coaching and performance feedback, teachers can implement evidence-based strategies with a high-degree of fidelity. Once teachers reach 100% implementation levels, then they are able to carry out these interventions independent of the consultant’s presence. Students in this study showed significant improvement in their literacy skills as a result of these interventions. Both teachers and students favoured the use of these strategies in the classroom over more traditional methods used by teachers, thus providing strong social validation.

Conclusion
Some teachers may be more resistant to change than other teachers and hence may need more guidance and practice with use of interventions. Allocating time for carrying out the interventions and for assessing students seems to have been a challenge across the board. With strong administrative support and teacher willingness to use evidence-based strategies, we are bound to witness effective instruction in the classroom that result in better learning for all students.

Keywords
Performance feedback; treatment integrity; evidence-based practice
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INTRODUCTION

More recent discourse in education, particularly on the topic of educating students with diverse learning needs, centers on the need for teachers to use evidence-based practices (EBP) in their classrooms to maximize the learning potential of all students. The discussion often includes a conceptual framework that has been instructive in providing practitioners with a systematic approach to evaluating the effectiveness of interventions aimed to improve the behavioral and academic outcomes of all students (Lewis, Jones, Horner, & Sugai, 2010). The response to intervention (RtI) framework focuses on a preventive approach to teaching academic and social behavior using evidence-based interventions that are carried out with fidelity (Sandomierski, Kincaid, & Algozzine, 2007). The emphasis is placed on continuous progress monitoring and using data to make key decisions on how best to match the interventions to students' needs. Commonly agreed upon features of an RtI model include: (a) universal screening procedures and periodic progress monitoring; (b) data-based decision making and problem solving to determine optimal level of supports; (c) a continuum of evidence-based practices; (d) team-based support to ensure fidelity of implementation (Myers, Simonsen, & Sugai, 2011). These critical features hold great promise in enhancing a school's ability to improve the academic and behavioral outcomes of all students (Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007).
RESEARCH BACKGROUND

School-based consultation, in which teachers work closely with researchers (i.e., the consultants) to implement evidence-based instruction (Feldman & Kratochwill, 2003; Kratochwill, Elliott, & Stoiber, 2002) can be used to address an array of academic and behaviour problems in the classroom. In such an approach, the teacher has primary responsibility for delivering instruction and intervention to students, and the consultant is responsible for facilitating the teacher’s acquisition and implementation of evidence-based practice to address the problem at hand.

A related concern when conducting classroom-based evaluation of interventions is the level and type of rigor needed in evaluating program and student outcomes. What is required at the practitioner-level is to determine whether or not these interventions work in a specific classroom setting. There is strong support for the use of quasi-experiments (Kazdin, 2011) or Level I research (Hawkins & Mathews, 1999) for the purpose of accountable service delivery. Accountability designs (Barnett et al., 1999; Barnett, Daly, Jones, & Lentz, 2004) allow practitioners to bring empirically-based interventions into education practice by using continuous assessment over time to study the immediacy and magnitude of change in students’ behavior.

The current research report includes four independent studies that were conducted in an effort to train mainstream teachers to use evidence-based practice in their classrooms to improve student outcomes. Three of the studies were conducted in two Primary Four classrooms, and one study was conducted in a Secondary One classroom. The method and results section describes each of the four studies followed by a general discussion of findings and implications for practice.
**METHODOLOGY**

**STUDY 1: SPELLING AND VOCABULARY INSTRUCTION**

**Participants & Setting**

The teacher participant was a 30-year-old female in her fourth year of teaching. She holds a Bachelor’s degree majoring in English and Literature. The study took place in her Primary Four classroom. Thirty-eight fourth-grade students enrolled in a public school in Singapore participated in this study, including 22 boys and 16 girls ($N = 38$) ranging in age from 9 years to 9 years and 11 months (mean age = 9 years and 5 months).

**Study Design and Dependent Measures**

In this study, repeated measurement procedures were used to evaluate the effects of a classwide instructional package on students’ performance on spelling and vocabulary tests. The instructional package consisted of explicit vocabulary instruction (VI) and an evidence-based spelling strategy referred to as cover, copy, and compare (CCC). Specifically, students’ performance on dependent variables with VI+CCC instruction was compared to their performance during weeks when no explicit instruction was provided on weekly words. Similar to an adapted alternating treatments design (Sindelar, Rosenberg, & Wilson, 1985), the effectiveness of the intervention and experimental control is determined by the vertical distance between the data paths representing the two conditions (i.e., intervention and no-intervention). Total percentage correct on weekly spelling and vocabulary tests were the dependent variables for this study.

**Study Procedures**

The teacher was trained to implement the vocabulary and spelling instruction package (i.e., VI+CCC). The researchers provided ongoing coaching and feedback to the teacher on fidelity of implementation using a checklist of essential steps that needed to be completed during each session. The study was carried out over a 11-week period where 5
spelling and 5 vocabulary tests were analyzed during the VI+CCC condition and 6 spelling and 5 vocabulary tests were analyzed during the no-instruction condition. The teacher and students completed a social validity questionnaire at the end of the study indicating their preference for use of the strategy.

Results

**Spelling.** The classwide data for spelling shown in Table 1 (see Appendix A) indicate that students scored a mean of 83.4% \((SD = 5.6)\) during the VI+CCC condition in comparison to a mean of 78.2% \((SD = 6.9)\) during the no-instruction condition. With the exception of Session 7, class means indicate that students performed better on their spelling tests when VI+CCC was in effect. The spelling scores for the low-achieving students indicate a mean of 72.7% \((SD = 6.1)\) when VI+CCC was in effect and 58.2% \((SD = 10.9)\) when there was no-instruction provided for learning the weekly words.

**Vocabulary.** Mean scores on vocabulary tests were consistently higher \((M = 95.8; SD = 2.5)\) during VI+CCC weeks in comparison to weeks when no-instruction was provided \((M = 83.9; SD = 6.4)\). For the low-achieving group, the VI+CCC condition resulted in higher scores on vocabulary tests \((M = 92.8%; SD = 4.0)\) than during the no-instruction condition when students scored a mean of 72.7% \((SD = 6.0)\).

Results from the maintenance test for both spelling and vocabulary administered three months after the completion of the study indicated that students were able to retain much of the information learned during the VI+CCC sessions. The classwide mean on the spelling test was 81%, which is higher than the mean scores for no-instruction condition but slightly lower than the mean scores for VI+CCC condition (i.e., 83.4%). The maintenance scores for the group of low-achievers indicate a mean of 78%, higher than their mean performance during both study conditions. On the vocabulary test, classwide and group mean scores were 92.5% and 90% respectively. Teacher and student responses on the social validity questionnaire resulted in favorable responses for the use of VI+CCC as a classwide strategy to learn spelling and vocabulary words.
STUDY 2: READING FLUENCY AND COMPREHENSION

Participants & Setting

This study involved a fourth-grade general education teacher and her class of 38 students from a primary school in Singapore. Ms J, a 34-year old female with four years of teaching experience, worked in consultation with the researchers, using a response to intervention (RtI) framework to carry out evidence-based instruction in her classroom. The fourth grade students comprised 27 boys and 11 girls, aged between 9 years and 9 years 11 months. Eighteen students were selected for progress monitoring during the study. These target students were assessed to be “at risk” or to have “some risk” in reading on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2007).

Study Design and Dependent Measures

An accountability design was used for the study, with two evidence-based strategies used for intervention, namely repeated readings (RR) and read-ask-paraphrase or RAP (Schumaker, Denton & Deshler, 1984). Repeated readings strategy has been shown to be effective in improving reading fluency and comprehension (Meyer & Felton, 1999, Therrien, 2004). The RAP strategy is a self-regulating strategy that facilitates reading comprehension (Hagaman, Luschen & Reid, 2010). This combined intervention (RRR) was implemented using a peer-mediated approach.

The primary dependent variable was oral reading fluency, measured as correct words per minute (CWPM). Benchmark reading assessments were administered to all student participants from the DIBELS Oral Reading Fluency (DORF; Good & Kamininki, 2007) at the beginning, middle and end of the year. Additionally, the 18 target students were assessed every week using the DIBELS progress monitoring booklet. Reading comprehension was a second dependent variable. Maze assessments were administered to all students once a month to assess their reading comprehension.
**Study Procedures**

This study used a consultative framework, which meant that the teacher was provided with coaching and structured support throughout the study, thus maintaining treatment integrity. Support included regular performance feedback as well as a Powerpoint presentation incorporating an instructional script. The teacher carried out the RRR intervention twice a week for the first semester. In each session, students did 10 minutes of repeated readings of selected texts, followed by 10 minutes of RAP. Students then tested each other for one minute of timed reading. Finally they recorded the test results (as CWPM) in their reading logs. In the second semester, the teacher intensified the intervention by implementing RRR sessions three times per week.

**Results**

Students made gains in reading fluency, reaching a mean of 103 cwpm in the final progress monitoring evaluation. Fourteen out of the 18 target students showed an improvement in oral reading fluency (see Appendix A, Table 2). There was no change in the students’ comprehension, however, as measured through the use of maze assessments. One possible explanation is that maze assessments may not be sensitive enough for use with less skilled students (Faykus & McCurdy, 1998; Jenkins & Jewell, 1993). The teacher reported that she felt competent in using research-based strategies in her classroom. She also noted that her students showed improvement in the open-ended (comprehension and vocabulary) component of the language arts school examination. Students also gave positive feedback on the RRR intervention, saying that the peer-mediated approach fostered friendship and teamwork, and helped them improve their oral language and listening skills.

**STUDY 3: PERFORMANCE FEEDBACK AND TEACHER PRAISE**

**Participants & Setting**

This study was conducted in a Singapore primary school involving 27 boys and 11 girls and one teacher, Ms. J. The study took place in a Primary Four classroom during two
instructional settings, a peer mediated reading session and a teacher directed Mathematics session. The students age ranged from 9 years to 9 years 11 months (mean age = 9 years 5 months).

**Study Design and Dependent Measures**

Dependent measures in this study were the teacher’s rate of praise and reprimand. Data was also collected on teacher directed instruction and student on task behaviour. The study employed a multiple baseline across settings design, in which intervention was introduced in the peer mediated reading setting and when evidence showed that the intervention was effective, i.e., there was a change in behaviour, and it was introduced in the next setting which was a teacher-directed, whole-class instruction.

Three tiered interventions were introduced: i) “good listener” cards; ii) the Motivaider™, a device which gave the teacher a vibratory cue at three-minute intervals plus performance feedback via email and graphs, depicting the trends in praise and reprimands; and iii) the Motivaider™ device plus response dependent performance feedback via a transceiver. A tiered intervention was used to provide the teacher with varying levels of support to increase her behaviour of using praise.

**Study Procedures**

During the baseline condition, data was collected twice weekly in the peer-mediated setting and once weekly in the teacher-directed instructional setting. Subsequent to establishing baseline, the teacher was provided feedback on the rate of praise and reprimands observed in her class during baseline and also provided training on how to give students behaviour-specific praise. She was also trained on the use of the Motivaider™ as a cue to increase the rate of behaviour-specific praise. The teacher was provided with continuous and on-going feedback weekly during the course of the study.
Results

In general, results indicate that there was an increase in the use of praise across both conditions. While in the initial phase, Ms J used more of general praise; over the period of the study there was increase in the use of behaviour-specific praise. Students’ on-task behaviour was relatively high from the beginning of the study. However, when the rate of teacher-directed instructions increased, collateral effects were observed on students’ on-task behaviour as it peaked. A summary of the results can be seen in Appendix A, Table 1.

STUDY 4: STORY MAPPING AND COMPREHENSION INSTRUCTION

Participants & Setting

Twenty students and their Secondary One teacher participated in this study. The students comprised 18 males and two females with ages ranging from 13 to 17 years (mean = 13.6). All participants were from the same class in one secondary school which focused on vocational education for low achievers as most had failed their Primary School Leaving Examination at the Primary Six level. The participants in this study were from families of low socioeconomic status. The participating teacher was a female English language educator with 11 years of teaching experience in upper primary level and one year in secondary school.

The current study was conducted in a regular classroom during the English period and was scheduled for 45 minutes per session, twice a week. The classroom was equipped with a laptop and a visualizer which the teacher used in conjunction with the LCD projector to project images on the whiteboard.

Study Design and Dependent Measures

Repeated measurement procedures were used to evaluate the effects of the intervention on students’ outcomes. Consistent with research conducted to evaluate interventions in the applied settings, an accountability design was used in the various studies (Barnett et al., 1999; Barnett, Daly, Jones, & Lentz, 2004). Data were analyzed using the
visual analysis method (Kazdin, 2009) along with mean and standard deviation comparisons. The dependent measure was the number of correct responses to 10 comprehension questions, comprising five factual and five inferential questions, which were administered at the end of each session.

**Study Procedures**

Prior to intervention, the Gray Oral Reading Tests (GORT-4; Wiederhold & Bryant, 2001) were administered to evaluate the students’ reading fluency and reading comprehension. The study was implemented across four phases: (a) baseline, (b) model, (c) lead, and (d) independent phases. In this study, we examined the effects of story mapping strategy on the reading comprehension skills of low achieving students. In the Baseline phase, the teacher discussed the reading passage without the use of a story map. In the Model phase, the teacher thought aloud the different elements of a story and modelled the use of a story map for recording the elements. In the Lead phase, the teacher elicited responses from the students on the different elements of a story and recorded the agreed responses on the story map. In the Independent phase, the teacher elicited responses from the students but the students completed the story map independently. A story map organisser, as used in the study, can be seen in Appendix C, Figure 1.

The teacher followed a four-step procedure in these three phases. In Step One, the teacher conducted pre-reading activities to direct students’ focus to the theme of the story for the session. In Step Two, the teacher read the story to the class followed by choral reading. In Step Three the teacher displayed the story map on the visualizer and modelled the use of story map. Depending on the phase of the study, she thought aloud the different components of the story map by asking herself what each element of the story map meant, then she summed up her own responses, and wrote them on the story map. The students then copied the information on their story maps. In the lead phase, the teacher elicited the responses from the students on the different elements of the story map. When group consensus was reached, the teacher recorded on the story map while the students wrote on
their own story maps. In the independent phase, the teacher did not write responses on the story map or use the visualizer. Upon independent completion of the story map, students completed the comprehension probes (Step Four). The teacher’s procedural integrity data across the different phases were recorded to measure the extent to which the teacher implemented the story mapping strategy with high level of integrity.

Results

The study was conducted across 16 sessions. The mean scores for the class were 6.3, 7.08, 7.15, and 7.02 for the baseline, model, lead, and independent phases, respectively. Participants performed at low levels on the comprehension questions during the baseline phase as compared to the intervention phases. The mean number of correct responses was highest during the lead phase (see Appendix C, Figure 2). In addition, as shown in Appendix C, Figure 3, the results revealed that students scored higher on factual than inferential questions across all phases.

With regards to the procedural integrity data, the mean percentage of steps implemented correctly by the teacher during the intervention phases was 98.3% (range = 90%-100%). Overall, the teacher was able to implement story mapping strategy with high level of integrity.
DISCUSSION

The common feature in all four studies is the training and performance feedback provided to teachers to implement an evidence-based strategy, with the sole aim of improving students' outcomes. A consultation problem-solving model was employed where the intervention was selected to match the specific needs of the students. The participating teachers were not using these strategies in their teaching, but were willing to learn and implement the strategies in their classrooms. The emphasis was placed on continuous progress monitoring and using data to make key decisions on how best to match the interventions to students' needs. Critical to proper implementation of any intervention is the measurement of treatment integrity, otherwise known as procedural integrity or procedural adherence (Gresham, 2004). Treatment integrity is also the central element linking the acceptability and future use of intervention by teachers. Positive outcomes cannot be attributed to the intervention without evidence of strong treatment integrity. By the same token, important decisions about whether or not to continue with an intervention, to increase or decrease the intensity cannot be made in the absence of integrity data (Hawkins, Morrison, Musti-Rao, & Hawkins, 2008). It is probable that the ineffectiveness of an intervention could be attributed to the poor or inconsistent implementation by the teacher (Gresham, MacMillan, Beebe-Frankenberger, & Bocian, 2000). Treatment integrity data, collected in these studies, revealed that with proper coaching and feedback, all participating teachers were able to implement these strategies independently with fidelity in their classrooms.

Evidence-based interventions, when applied with strong integrity, are bound to reap positive outcomes for most students. There will always be a small group of students who may not respond to the intervention, but the data collected will help teachers make decisions on whether to modify, change, or intensity the interventions. In Study 1, the teacher experienced, first hand, the benefits of CCC+VI instruction with their students. The teacher “bought into” the effectiveness of the strategy so that she trained all teachers in her level to
implement these procedures for spelling instruction. The improvements were most significant among the low-achieving group of students who did not have a strategy to learn their spelling words, but with CCC performed better on their spelling tests. Most importantly, the students now have a self-regulated study strategy that can be applied in other subjects as well. In Study 2 the teacher saw that students were improving in their oral reading fluency scores when the RRR intervention was applied two times a week. In order to intensify the intervention, the teacher decided to increase the frequency of these sessions to occur three times a week. In Study 3, varying levels of performance feedback and teacher support were provided to increase the teacher's use of behaviour-specific praise statements. The teacher understood the relationship between providing students with more opportunities to respond in class and then providing affirmation to their responses – thus creating a positive learning environment. Finally, in Study 4 the teacher was able to model the use of story map to increase the comprehension among students with low reading abilities. While there wasn't drastic improvement in students' comprehension scores, the teacher reported that the story map was helpful in presenting the information in a systematic manner and for students to break information down into more understandable, smaller components.

In an effort to address the growing diversity in classrooms, in 2004, the Ministry of Education (MOE) launched an initiative that requires 10% of primary school and 20% of secondary school teachers to become building-based experts in working with children with special needs by the year 2012. The teachers are required to complete a 3-course sequence over a period of one academic year, offered by the only teacher training institute in Singapore. Upon successful completion of the 3-course sequence, teachers receive a certificate as Teachers Trained in Special Needs (TSN). The goals of this initiative are for teachers to serve as resource personnel in their school building to (a) provide individual or small group support for students with special education needs, (b) share strategies and resources with their colleagues, (c) assist with the transition of students from one grade level to the next and also from primary to secondary school, and (d) assist in tracking the progress of students with special needs (Ministry of Education, 2010). Questions about the extent to
which the TSNs are able to fulfill the responsibilities envisioned for them are yet to be answered. None of the teachers who participated in this study were TSN-trained teachers. Even if they were trained in TSN, whether or not they would be using these strategies on their own accord remains unknown. The professional development model to build teacher capacity in schools is a topic that needs to be revisited if we want teachers to be better equipped to reach out to diverse learners.

**Limitations**

Several limitations and methodological issues warrant noting. Due to the applied nature of this research, a repeated measures design or single-subject designs were used to study the effects of intervention on dependent variables (i.e., correct words per minute, on-task, comprehension questions correct). All students were introduced to the intervention at the same time, and withdrawal of an intervention shown to be effective was not an option in the applied setting. Modest inferences about the relationship between the intervention and independent variables can be made based on the simultaneous increase in dependent measures across all studies during intervention condition in comparison to baseline or pre-study performance.

**Challenges**

We faced several challenges during the course of this project. Firstly, all students undergo rigorous testing in schools. A repeated measured design requires that students be tested on a regular basis to monitor progress and evaluate intervention effects. Although the research team assisted teachers in test administration and scoring, the entire process took up considerable time and resources. Secondly, time is a scarce commodity in schools today. Although teachers were willing to improve their teaching skills and see their students improve, many teachers couldn’t afford to spend more time in implementing these strategies and complete the curriculum concurrently. For example, three students in Study 3 clearly needed more intensive and systematic reading instruction. These students were receiving
remedial help and assistance from the Dyslexia Association of Singapore (DAS); however, all these efforts are isolated without one joint and concerted effort to help these students with their literacy difficulties. Simple logistic issues were preventing the students from receiving the help they needed to succeed. In the case of the secondary school, the students were performing below grade level – some in need of special education services to acquire basic literacy skills. The time spent in literacy instruction is not commensurate with the amount of time and resources needed to remediate students’ skill deficits at the secondary level. Another real-life challenge in such a setting is the poor attitude and lack of motivation on the part of students to want to improve their skills. This problem and the low ratio of trained teachers in the school are some debilitating factors in students’ learning.

**Implications for Practice**

Results from this project have several implications for practice listed as follows:

1. **Administration support**: In an academic institution, Principals and administrators need to be committed to supporting teachers’ use of evidence-based practice in the classroom. This would require the Principals to be knowledgeable about such practices and encourage teachers to build on their own capacities. As in one of the Primary School involved in this project, the teachers can be encouraged to take on the role of researchers and engage in action research projects giving teachers a platform to present their results to their colleagues.

2. **Teacher training**: Many of the mainstream teachers do not receive sufficient training or information on how to teach students with disabilities. Several of them rely on the expertise of the allied educator to do the job. The three-module training received by some teachers trained in special needs (TSN) may not be sufficient enough for teachers to take the initiative and serve as school-based consultants and problem-solvers when it comes to the academic and behavioural needs of students. Our classrooms today comprise students characterized with diverse learning needs. While the provision of allied educators (teaching and learning; and learning and
behavioural support) being deployed to schools helps somewhat, the needs of these students are so specific and intensive that these professionals will require more specialized training to make a difference in students’ learning.

3. **Performance feedback as part of professional development**: While in-service workshops and courses are a regular feature of professional development for teachers, follow-up and support in a practice-oriented context are often missing. Evidence from studies in this project support the use of multiple levels of in-classroom support and performance feedback to change teacher behavior; and this is something that may not have been accomplished by the teacher attending a one-day workshop or one-time consultation meeting (Myers, Simonsen, & Sugai, 2011; Noell et al., 2000; Reinke, Lewis-Palmer, & Martin 2007). This type of support can be particularly helpful to teachers who want to improve their teaching practice but may not know where to begin. Different teachers will need different levels of intervention support. Developing a system to provide teachers with meaningful feedback to ensure proper implementation of intervention will not only build on teachers’ skill and capacity, but will also increase the likelihood that teachers will independently use these interventions in their classrooms.

**CONCLUSION**

This project consists of four independent studies in which teachers were provided with training and support in implementing evidence-based strategies in their classrooms, using a school-based consultative approach. Teachers were able to use research-based strategies effectively, resulting in improved literacy skills for their students. These positive outcomes indicate that the school-based consultative model can fit different school settings, and is effective in improving teachers’ knowledge, skills, attitudes and practices.
ACKNOWLEDGEMENTS

We would like to sincerely thank the Principal, teachers and students of the two Primary Schools for opening up their classrooms and collaborating on the various research studies. Without their support and cooperation none of this would have been possible. Collaboration between practitioners and researchers in improving teacher and learning is what will bridge the much talked about research to practice gap in education. Our sincere gratitude is extended towards our research assistant, Ms. Sharmistha Banerjee, for learning the different data-collection systems in such short-time and managing the daily tasks of the project during the active stage.
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