Evaluation of the Revised Road Safety Education Modules for Primary Schools

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This integrated report highlights the study conducted as part of the Project of Review and Redevelopment of RSE Modules for primary schools lead by MIROS. This study is cooperation between UPM and MIROS. A grant awarded by MIROS to UPM is for a study on the Context, Input and Process components of the model. Meanwhile, the Road User Behavioural Change Research Center (RUBC) of MIROS is responsible for the study on the product component of the model. Research Management and Compliance (RMC) of MIROS play a role in monitoring the process of the study and the integrated report. Both UPM and MIROS contributed their inputs and contents for the integrated report and submitted the final report to MIROS for approval before publication.

The authors hope that this integrated report can provide inputs on the effectiveness of the Revised Road Safety Education Module for Primary School 2017 through Context, Input, Process and Product (CIPP) Model evaluation.

Executive Summary

Road Safety Education (RSE) embedded in the Bahasa Melayu (BM) subject has been implemented in stages in all primary and secondary schools in Malaysia since 2007. In 2015, a project of Review and Redevelopment of RSE Modules for Primary and Secondary schools was conducted by the Malaysian Institute of Road Safety Research (MIROS), and the revised RSE modules for primary schools was produced. Before the revised RSE modules are implemented to replace the existing RSE modules in primary schools nationwide, it is essential to evaluate the effectiveness of this revised RSE modules. This study used the Context, Input, Process and Knowledge (CIPP) evaluation model on 24 selected primary schools representing six (6) districts in Malaysia. These pilot schools had implemented the revised RSE modules since March 2017. The baseline study for the revised RSE modules on pilot primary schools was conducted at the end of 2016. The Research Report MRR No. 214 (2017) describes the baseline in terms of the readiness of schools and teachers, the students' road safety knowledge and behaviour, and the spillover effects from students to their parents. The baseline results reflected the current status of the existing RSE modules in primary schools used nationwide since 2007. The post-study conducted on the same respondents of the 24 pilot primary schools at the end of 2017 enables comparison with the baseline results to be done. It is used to elicit information on the effectiveness of the revised RSE modules.

The support and cooperation from the school administrations is an important feature of the contextual component for effective implementation of the modules. Some schools had initiatives in creating road safety features within the school compound. Even though some schools are adequately equipped with audio-video facilities for RSE activities, there are also schools facing a shortage of ICT facilities. Efforts should be put to enhance the electronic and ICT facilities in schools because

it is a feature that is not only relevant for the implementation of the RSE modules but also the 21st-century education.

Most teachers agreed that the revised RSE teaching aids are useful for the delivery of the RSE activities. Some thought that the real teaching aids, such as helmet, safety vest, traffic signboards, etc. would attract student's attention better and enhance the teaching-learning process of the RSE modules. Only 25% of the schools have road safety clubs, but most clubs are not very active because of lack of ideas in activities. The agencies may support and encourage primary schools to set up an active school road safety club since this school environment is relevant to the RSE modules. Less than half of the schools have a Road Safety Corner within their school compounds. The school needs materials from agencies to display them at road safety corners. Less than 5% of schools organised road safety programs or activities throughout 2017. Agencies may draw out plans in organising road safety programs in primary schools. Only 17% of the pilot schools have traffic wardens. The relevant agencies may attempt to formulate a system to provide a traffic warden in every primary school even though it does not strongly influence the effective delivery of the RSE modules. Schools in rural areas may have lesser safety features. However, the road safety features around school compound generally exhibit an environment that is relatable to the revised RSE modules.

The input component of the modules involved the available resources in the school to achieve the objectives of the modules. The core resource towards the effectiveness of the RSE modules are the BM teachers. Taking into account that all the BM teachers had experienced teaching the existing RSE modules, their perceptions on issues pertaining to the implementation of the revised RSE modules reflects their comparison to the existing RSE modules. As for the teachers' knowledge related the revised RSE modules, generally, the BM teachers have good knowledge to deliver the revised RSE modules. This is expected since the BM teachers have been embedding RSE in BM subjects using the existing RSE modules which were implemented since 2007. As for the Buku Panduan Guru (BPG), teachers find it helpful to teach the revised RSE modules. The instructions given to teachers in the BPG should be made clearer for better understanding. The teachers rated

themselves as near skilful in implementing the PdPc related to the revised RSE modules. Some teachers claimed that they do not have sufficient guidelines. In all, 87% of the teachers stated that they understand the revised RSE modules well.

Teachers rated their confidence in teaching the revised RSE modules at an average score of 7.1 out of 10 (very confident) showing that the revised RSE modules blended with the teachers' previous experience in teaching the existing RSE modules in BM subjects. On their perception of the school facilities' supports in their teachings of the revised RSE modules, teachers quite agree that the teaching facilities such as computers, LCD, audio-visual systems do support the PnP of modules. On the matter, if the teaching aids are helpful in implementing the revised RSE modules, the teachers rated a mean score of 7.0 out of 10.0 (very helpful) inferring that the teaching aids are helpful but can be improved. In general, teachers' felt strongly that there should be RSE module training, and the support and assistance by MIROS/JKJR/PPD towards the implementation of the revised RSE modules are helpful.

Overall, the BM teachers perceived that the revised RSE modules are better than the existing RSE modules. The increased in the mean score from 7.19/10 (pre) to 7.79/10 (post) infers that after implementing the revised RSE module, the teacher's perception on the need and usefulness of the RSE program in primary schools has been enhanced.

As with process component of the revised RSE modules, in general, the teachers agreed that 30 minutes per week of the revised RSE module teaching is suitable for good implementation. There were also suggestions for RSE to be taught 1 hour every two (2) weeks to increase the contact time for more effective delivery of RSE modules. Most schools reported that all revised RSE module activities were completed on time for Year 1 to 5 only but not Year 6 due to focus on UPSR. The constraints in Year 6 may be addressed by reducing the module activities accordingly.

The product component consists of three (3) aspects, namely the road safety knowledge, the road safety behaviour, and the spillover effect from students to parents. As for the behaviour, the findings revealed that there is an increment on most of the positive road safety behaviour item during the post study. This result had proved the effectiveness of this module in strengthening the positive road safety behaviour among the students. Furthermore, the result reported that most of the students from Year 1 to Year 6 have good skills and basic knowledge on how to cross the road safely. These shown by the highest percentage for road safety behaviour recorded within the range of 70% to 80% which is related to road crossing behaviour.

It is apparent that there has been a steep increase in the score on road safety knowledge among Year 1 to Year 6 students. Considering the implementation of Revised RSE Modules in the school, it helps in contributing the increment score of road safety knowledge among students. Revised RSE Modules are equipped with teaching aids that help students to learn better and gain proper understanding on RSE. Apart from that, during the development of Revised RSE Modules, the crucial element of BM teaching is considered. Content in students' activity book is integrated with Dokumen Standard Kurikulum dan Pentaksiran (DSKP) to ease the process of teaching and learning. It also motivates teachers to use Revised RSE Modules during BM period.

Besides that, the study used Willingness to Pay (WTP) as the indication of the spillover effect from students on parents. These findings highlight that the highest increment of WTP mean are from pluralistic and consensual families. It can be seen that the boost of WTP mean for Year 1 to Year 6. As for Year 1, 2, 3, 5 and 6 students, the highest increment for WTP mean recorded by pluralistic families. The highest increment of WTP mean for Year 4 student comes from consensual families. However, the WTP mean for laissez-faire family were decreased for in Year 1 and Year 2 students in the post study. The WTP mean for the protective family were also decreased in Year 1 and Year 4 over the same periods.

Apart from that, the result also indicated that there is an increment in the percentage of parent-child road safety initiations discussion among Year 1 to Year 6 students compared to pre-study. The parent-child initiation discussion which includes the topic of safety equipment, road safety regulations were more extensive during post study compared to pre study. Spillover effect also increases by increasing the mean of WTP due to a broader scope of content in parent-child initiation discussion.

A positive change for all the components in the post study is expected as the modules have been revised due to the change of curriculum from the New Primary School Curriculum (KBSR) to Standard Based Curriculum for Primary Schools (KSSR). Besides that, the modules also have been amended in a few aspects, namely the themes, contents, activities, teaching aids and parents' involvement.

1. Introduction

Road traffic injuries are the second-leading cause of death worldwide among children aged 5–14 years and young people aged 15–29 years (WHO, 2004). Various strategies and initiatives have been taken to reduce road traffic fatalities with countries worldwide committed to a decade of action in reducing these fatalities. The Malaysian government is also committed to reducing road traffic fatalities. The Malaysian Road Safety Plan 2006–2010 was developed to achieve this target with one of its strategies being road safety education for students.

Road Safety Education (RSE) programs are meant to inculcate road safety practices in students. RSE is a life-long learning process and should begin as early as primary school level (Road Safety Department 2006), hence the importance of integrating it into Malaysia's education system. It teaches road safety topics and practices throughout the entire school life of a child from primary school level until the end of secondary school so that it can become part of the habitual practices in every child. Furthermore, it also aims to inculcate understanding not only among the children, but also among parents about the danger of being on the road, and to become better road users by practising good road safety behaviours.

The historical footsteps of RSE in the Malaysian school system began when the Road Safety Department (RSD) under the purview of Ministry of Transport, and with the cooperation of the Ministry of Education agreed for RSE pilot project in primary students of Pasir Mas, Kelantan. The programme was implemented in stages at every school and at that time was only aimed at students in Years 1, 2 and 3. The Road Safety Research Center (RSRC) of Universiti Putra Malaysia (UPM), as a pioneer in road safety research conducted the pilot project. Based on the success of the pilot project, the Ministry of Education fully implemented RSE in all national-type primary and vernacular primary schools from 2008 to 2010. In this first phase, a group of

researchers had conducted an evaluation of the effectiveness of this intervention from the perspectives of:

i. Knowledge, attitude and practice of children
ii. Observational study on safe practices
iii. Health outcomes

In the second phase of RSE intervention, road safety education was introduced to secondary students in 2012. The RSE was embedded in the Bahasa Melayu subject. Consequently, as the subject is classroom oriented, the teaching and learning of RSE were conducted only in the classroom with the intention to provide knowledge, instil awareness and possibly inculcate positive attitudes towards road safety practices. A team of researchers from MIROS and UPM evaluated this phase.

Both teams evaluated the effectiveness of the secondary school modules through Context, Input, Process and Product (CIPP) evaluation model. Context, Input and Process evaluations were done by MIROS. Meanwhile, the Product evaluation was carried out by UPM. The effectiveness of the Product elements was evaluated from three (3) perspectives, which are:

i. Knowledge, attitude and perceived behaviour
ii. Observational study on safe practices
iii. Children's influence on parents' road use behaviour

In 2014, the technical committee for the implementation of road safety education convened for a meeting and agreed to launch a review of RSE modules for primary and secondary schools. This evaluation was a timely endeavour as the modules have been running over a period of seven years in primary schools. Moreover, this review was an essential restructuring exercise to address the change in the Malaysian education curriculum. The Integrated Curriculum for Primary Schools and Integrated Curriculum for Secondary Schools were being revamped to the new Primary School Standard Curriculum and Secondary School Standard Curriculum. The evaluation study was implemented since February 2015 by MIROS. The findings of the study suggest that the RSE modules and activity books that have been in use since 2007 in

primary and secondary schools need some revision in terms of the content of the activity books and skills on road safety.

1.1 Review and Development of Revised RSE Modules 2016 in Malaysia

Taking into account the findings from the study done by MIROS in 2015, RSD proposed for an allocation to revise and revamp the RSE modules. Hence, the implementation of RSE received a boost during the tabling of the 11th Malaysia Parliament (MP). Through the allocation channelled to RSD in 2016, MIROS was given the honour to carry out the project of Review and Redevelopment of RSE modules for Primary and Secondary schools besides developing the teachers' guide on RSE for the nursery and pre-schools.

In 2016, MIROS has conducted series of workshops by involving a team of Bahasa Melayu teachers, language officers, School Improvement Specialist Coaches, Department Officers under Ministry of Education, road safety technical input panel and subject matter experts from local universities to revise and redevelop the existing RSE modules for primary, secondary, pre-school and nursery students. The final revised RSE modules for primary students was produced in 2016 and used in the 24 primary schools selected for the pilot study.

1.2 Evaluation of Pilot Implementation of the Revised RSE Modules in Malaysia

As of 2017, revised RSE modules for primary students have been used in 24-selected primary school in Malaysia. In sequence with the implementation of revised RSE modules, a committee was formed involving a representative from RSD, Department Officers under Ministry of Education and MIROS. The establishment of committee aims to monitor teaching and learning of revised RSE modules from March to September 2017 in three phases. After each phase, a meeting was held

among committee members to report on the progress of implementation of revised RSE modules. Apart from monitoring visit, teachers are required to submit a report on feedback and feasibility of each activity, which had been conducted. Furthermore, MIROS also took an initiative to guide the teachers to improve the teaching of RSE in pilot schools and sharing road safety input with teachers and students. At the end of guidance visit, technical committee and school administrator sit down for a session to discuss mainly on improving the teaching of RSE.

1.2.1 Responsibility of MIROS

The evaluation of the revised RSE modules for primary schools is in cooperation between MIROS and UPM. A grant awarded by MIROS to RSRC UPM is for a study on Context, Input and Process component of CIPP model. On the other hand, MIROS is responsible for the study on the product component of the model. MIROS plays a role in presenting research proposal and plans to Research Management and Compliance Unit (RMC) MIROS for approval to conduct this study. After getting the approval, MIROS conduct the product study, which consists of knowledge, behaviour and spillover effect of road safety from students on parents. Besides, MIROS also monitor the data collection process to make sure all the study components (Context, Input, Process and Product) are executed accordingly. After data collection and analysing phase ended, the progress of the study and the findings were presented to RSD by MIROS and UPM. MIROS is also responsible for the monitoring of the expenditures and the contributions to ensure that the final integrated report is in accordance with the required format.

1.2.2 Responsibility of RSRC UPM

RSRC UPM was appointed by MIROS to conduct a study on Context, Input and Process components of CIPP model. Upon this appointment, RSRC needs to prepare for research proposal and presented to RMC MIROS for approval. After approval process is done, RSRC conducts the data collection and analysis. Next, RSRC UPM reported the findings of the study to MIROS. Then, RSRC UPM organises writing

workshop and meeting with MIROS to produce this integrated report. Draft of the integrated report was then submitted to MIROS management for review. RSRC UPM is responsible for amending the report based on the comments given. The process is completed when MIROS management approved and consented to the publishing of this integrated report.

1.3 Design of the Evaluation Framework

After a study of establishing the baseline for the revised RRSE modules for primary school through Context, Input and Process and Product (CIPP) model, a post study is crucial to compare the level of knowledge, skills and behaviour on road safety among primary school students in pilot schools before-and-after the implementation of revised RSE modules. Apart from that, the teacher's readiness, schools' administrators' readiness, teaching facilities and environment of the schools are also measured six (6) months after the implementation of revised RSE. This evaluation study of the effectiveness of revised RSE modules is a collaborative study between MIROS and RSRC UPM. The study designs used in the baseline study are repeated on the same respondents for this evaluation study. Each party hold a specific role in collecting data as this study involved the school administrators, teachers and students.

1.4 Needs of Study

Before the revised RSE modules are implemented in all primary schools nationwide, it is essential to understand the feasibility and to evaluate the effectiveness of the revised RSE modules in 2017. This study used CIPP model because it is an improvement-oriented approach that aims to provide knowledge and value base for making and defending decisions, which lead to improving programs.

Through this post study, the effectiveness of the revised RSE modules on the students' knowledge and comprehension about road safety and how to practice

good and positive road safety behaviours in their daily life can be assessed. In addition, the extent of children's influence on their parents' road behaviour (the spillover effect) can also be evaluated. Besides that, via the survey and focus group discussion with the teachers and schools' administration, input and content of the revised RSE module can also be gauged based on the suggestions and comments from the teachers who have been using the RSE modules in teaching the students. As such, the weaknesses and limitations of the revised RSE modules can be addressed and improved. The aim is to produce a more effective and user-friendly RSE modules. Further, the study will benefit the school administrators to identify the best methods and ways of providing the students with the best facilities and conducive school environment for their learning process.

1.5 Objectives of Study

The main aim of this study is to evaluate the effectiveness of the revised RSE modules embedded in the Bahasa Melayu subject through the Contextual, Input, Process and Product model in 24 selected primary schools in Malaysia after eight (8) months implementation of the modules.

The specific objectives are:

i. to measure the contextual readiness in terms of school facilities, existing supporting programme, and school community perception on the implementation of revised RSE modules.
ii. to identify the important prerequisite conditions that will ensure the effectiveness of revised RSE modules implementation.
iii. to determine the factors that influence Primary School revised RSE modules implementation, and their association with the teachers' confidence, training and skills including the teaching constraints, which could affect the implementation of the modules.
iv. to identify factors that result to the incompletion of all activities in the revised RSE modules.

v. to evaluate the short-term effectiveness of the revised RSE modules among primary students in terms of road safety knowledge and behaviours.
vi. to measure dimensions that lead to the increase of spillover from children to parents on safe road use behaviour using the Family Communication Pattern.

1.6 Scope of Study

This study is designed to evaluate the effectiveness of the revised RSE modules in 24 selected primary schools. The target students involved in this study are pre-school, Year 1 to Year 5 students, Bahasa Melayu teachers Year 1 to Year 6, Ketua Panitia Bahasa Melayu, Road Safety Club advisors/teachers. The 24 primary schools have been selected from six districts namely; Kota Bharu, Petaling Jaya, Alor Gajah, Kuala Muda, Miri and Kota Kinabalu. Four schools for each district have been chosen randomly. For the purpose of comparisons in outcomes and other variables, the same respondents will be involved in both the pre and post-study.

1.7 Limitations of Study

Several limitations of the present study should be noted and deserve consideration. First, the study was limited by small sample size, in which only involved 24 schools. The use of a larger sample size would improve future studies. Second, the study lacked a control group suitable to establish whether the relevant behavioural and perception changes could be ascribed to the implementation of the revised RSE modules.

2. Literature Review

In the perspective of education, the "modules" is an instructional unit that focuses on a particular topic, for instance; road safety. The details and activities may vary according to the specific context such as the course and student levels. However, most educational modules include information about the topic, focus on student-centred learning activities and projects to demonstrate students understanding.

Meanwhile, evaluation refers to all the methods used to find out what happens as a result of a specific intervention or practice. The knowledge gain from evaluating a practice through assessment helps to understand the effects of the intervention, make appropriate changes to current practice, or plan new interventions if needed. It should be noted that the most important purpose of program evaluation is not to prove but to improve.

2.1 CIPP Model for RSE

There are many models available for curriculum development and curriculum evaluation. In the area of curriculum theory and development, the work of Ralph Tyler (1949) is often cited. Meanwhile, among the many models for curriculum evaluation, the CIPP (Context, Input, Process, and Product) model is one of the most widely used. The Phi Kappa Delta National Study Committee on Evaluation, chaired by Daniel L. Stufflebeam (1969) developed the CIPP model of curriculum evaluation.

Context, Input, Process and Product (CIPP) technique has been formulated to facilitate managers' decision-making process and it can assess the program from the earliest stages of initiation, execution and termination comprehensively and systematically (Stufflebeam & Shinkfield, 2007). The CIPP model is an improvement-oriented approach that aims to provide knowledge and value base for making and

defending decisions, which lead to improving programs. This model has been applied for various educational programs evaluation in higher education (Alimohammadi, Rezaeian, Bakhshi & VaziriNejad, 2013; Allahvirdiyani, K., 2011; Mohebbi et al., 2011; Pakdaman, Soleimani Shayesteh, Kharazi Fard & Kabosi, 2011).

The Context evaluation defines the school environment relevant to the program, describing the actual and intended conditions for the implementation of the program, identifying unmet needs, and diagnosing barriers that prevent needs from being met. The Input evaluation determines the levels of available resources used to achieve the program objectives. The Process evaluation identifies the deficiencies in the implementation of the program, and what took place during the implementation. It is also to provide information necessary for modification of the implementation strategies or to maintain the procedural design of the program. The Products evaluation compares the outcomes related to the objectives of the program. It provides input to make judgments on the modifications or refocusing of the program.

2.2 Focus Group Discussion

Generally, a focus group can be defined as a small gathering of individuals who have a common interest or discipline. They are grouped by a moderator, who uses the group and its interactions as a way to elicit information about a particular issue. As reported by Kruger and Casey (2000), the purpose of focus groups is to promote a comfortable atmosphere of disclosure in which people can share their ideas, experiences, and attitudes about a topic. Participants "influence and are influenced," while researchers play various roles, including that of moderator, listener, observer, and eventually inductive analyst. It is also highlighted that focus groups are not designed to provide statistical projections, to help participants reach a consensus on a given issue, or to change people's attitudes (Glitz, 1998; Krueger & Casey, 2000).

Analyses of the focus group discussions are not much different from analyses of one-to-one person interviews. Based on the questions posed by the moderators, all of the group discussions comments are transcribed. Then the transcribed comments are rearranged so that main ideas that occur in the answers are together with each interview protocol question. The main ideas are reviewed to identify the ones, which occur repeatedly. It should be noted that sometimes the same basic idea occurs in answers to multiple questions. Perform critical thinking about these recurring main ideas to identify themes. Sometimes a theme may include more than one main idea or even identified earlier by the researcher. Identify the quotations that illustrate each theme. Write the "findings" in an engaging narrative or verbatim to describe the themes and include the quotations. On the "discussion" section, show how the themes in the study are similar to, or different from, related previous studies and use the literature to explain the "why" behind the themes.

2.3 Road Safety Knowledge and Behaviour

Previous researches showed that RSE proved to be an effective measure to reduce the crashes and increase awareness and knowledge, especially among children and youth. One of the researches was Health Outcome based study, which conducted for two years (2008-2009) for different targets groups. Results from injury surveillance study showed a significant reduction in number of crashes in intervention districts with RSE program compared to control districts without RSE program for both year 2 (age 8) and 4 (age 10) students after following up for two years.

In addition, using experimental and comparison group of 6 to 9 years old children, Cross and colleagues (2000) have conducted The Child Pedestrian Injury Prevention Project (CPIPP) for three (3) years in row that consisted of school- and home-based pedestrian skills training in a real road environment that comprised nine 40-minutes safety lessons and nine home activities. The evaluation criteria are knowledge, road-crossing behaviour and road playing behaviour. The finding exposed that there was a significant improvement in children’s knowledge in the first two years. However,

for the long-term effects, at post-test 2, one year after post-test 1, and two years after the programme, the knowledge had disappeared. The result also revealed that the experimental group reported safer road crossing and road playing behaviour than the comparison group.

2.4 Family Communication Pattern

Communication traits are subsets of personality traits concerned with human symbolic behaviour. It transmits mental content and likewise creates understanding among people and their relationship with each other (Zajonc & Adelmann, 1987). People bring about ideas, values, and identities through communicating that affect who they are and how they operate in relation to one another (Wood, 1995). Parents play an important role in shaping the child's perception of the world through the way they communicate with their children. Family Communication Patterns (FCP) reflects how parents communicate with their children. McLeod et al. (1973) first developed two (2) major dimensions of family communication patterns: social-oriented and concept-oriented. The social-oriented families are authoritative and controlling families. Children in this type of families should defer to parental authority, maintain harmonious relationships and avoid any conflict with their parents or others.

Socio-oriented families tend to emphasise on the avoidance of controversy in the family and on obedience to parents. In this type of families, child's is taught to avoid controversial issues in order to prevent unhappiness among others. Hence, children are discouraged from challenging parental views, and consequently, they are less likely to share road safety information that they learnt in school with their parent. Conversely, concept-oriented communication emphasised individual ideas, beliefs and feelings. This type of families encourages children to express ideas openly and to challenge the views of others. In this context, FCP plays an important role in promoting good road safety behaviour's and attitudes among child from the parent. Open communication between parent and child in respect to road safety and risk-

taking indicates parents' tendency to educate the child on the consequence of risky driving, the potential hazards on the road and the importance of safe driving.

There are four (4) types of FCP, which are laissez-faire, protective, consensual and pluralistic. The laissez-faire families are concerned about neither conversation nor conformity. This communication pattern encourages neither the challenge of other's opinion nor harmonious relationships. Meanwhile, protective communication shows little concern about conceptual matters. In protective families, children are discouraged from expressing different opinions and encouraged to keep harmonious relationships. Otherwise, in pluralistic families, children are not only exposed to controversial issues, but they are also encouraged to develop strong and different opinions without fear of punishment. On the other hand, consensual families stress both relational harmony and open communication between parents and children.

2.5 Willingness-To-Pay

According to Food and Agriculture Organization of the United Nations Willingness to pay (WTP) is a method that is part of contingent valuation used to estimate the value that an individual would pay to obtain a specific good (FAO, 2000). Contingent valuation is commonly used to deal with public goods such as water or air quality and related to non-market commodities. In related to the current study, the study is measuring the amount of money that an individual willing to pay in order to buy safety equipment that can aid in the reduction of the risk of death of their children.

3. Methodology

The description of the methodology for this study covers the sampling locations, which is representative of primary schools in Malaysia. The duration of the study for the results of the baseline and post study evident enough for inference. The implementation of the study, the sample size, the instruments used in data collections and statistical analyses employed for the respective studies through CIPP model evaluation.

3.1 Study Design

The research design used for this study is a quasi-experimental design, which comprised of pre and post study. It is very useful when random sampling is impossible. This is because pre and post study often assess the overall effectiveness of a treatment that has many components and follow-up research may then determine which components are critical for achieving the treatment effect. Based on this design, if the study groups behave differently during post-survey, the researcher may conclude that it was the effect of the influential cause received by the study group. The study group was divided into two sub-groups: students and Bahasa Melayu teachers. Qualitative (Focus Group Discussion) and quantitative methods were used to measure teacher's perception and acceptance on RSE, while structured survey method was used to assess the effect of the revised RSE modules among primary students in terms of road safety knowledge and behaviours.

3.2 Sampling Locations

The study was carried out in five (5) zones consisting of six (6) states in Malaysia. The selection of zones was made based on statistics from Royal Malaysian Police.

The highest number of crash cases involving those aged six to twelve years old at respective districts was shortlisted before finalising the locations. Six districts were identified as listed in Table 1. Four schools in each district were randomly selected. Selections of schools are representative of national and vernacular schools in selected districts.

Table 1 Selected districts for the study

No.	Location	Zone	State	District	Type
1	Peninsular Malaysia	Northern	Kedah	Kuala Muda	Rural
2		Central	Selangor	Petaling Jaya	Urban
3		East coast	Kelantan	Kota Bharu	Urban
4		Southern	Melaka	Alor Gajah	Rural
5	East Malaysia		Sabah	Kota Kinabalu	Urban
6			Sarawak	Miri	Rural

3.3 Sample Size Selection

The study conducts measurements encompassing the school and administration, students, Bahasa Melayu teachers, and parents from a total of 24 primary schools in six districts. Each district is represented by four (4) primary schools. Table 2 shows the sample size for all studies, namely Context, Input & Process, Knowledge & Behaviour (Product 1), and Spillover effects from children to parents (Product 2). The Contextual, Input and Process study involved the BM teachers, Knowledge and Behaviour study involved interactions with the students. Meanwhile, the Spillover effect study involved parents of the students.

Table 2 Sample size of the research

	Post CIPP implementation			
	Context	Input & Process	Product 1	Product 2
	Research 1	Research 2	Research 3	Research 4
No. of schools	24	24	24	24
No. of teachers	206	206	-	-

No. of students	-	-	Year 1: 283 Year 2: 342 Year 3: 343 Year 4: 335 Year 5: 342 Year 6: 326 Total: 1,971	
No. of parents	-	-	-	Year 1: 283 Year 2: 340 Year 3: 342 Year 4: 333 Year 5: 342 Year 6: 329 Total: 1,969

3.4 Study Duration

The baseline study was carried out in October 2016 before the pilot schools received the revised RSE modules in 2017. In addition, the post study was conducted on the same schools, teachers and students in October-November 2017.

3.5 Data Collection Instruments

A survey conducted through questionnaires is used for all these studies. To supplement the Context, Input and Process in the post study, the focus group discussion with the teachers were carried out. The details of survey and instruments used are listed in Table 3 below:

Table 3 Methods and instruments used in these studies

Method	Instrument	Study involved
Survey	Questionnaire, Off-beat field survey Focus Group Discussion	Context

Survey	Questionnaire Focus Group Discussion	Input & Process
Survey	Questionnaire	Knowledge & Behaviour
Survey	Questionnaire	Spillover Effect

3.5.1 Context-Input-Process

All respondents involved in the context-input-process components are BM teachers and administrations. To measure the contextual needs for the RSE modules, off-beat observation survey using forms and digital photographs are conducted to record the road safety features outside and also within the school compound. In addition, structured questionnaires are also used to extract further information regarding school road safety clubs, road safety activities, etc. from the teachers and school administrations.

As for the Input-Process components, structured questionnaires are used to elicit information from BM teachers pertaining to their knowledge, skills, understanding, confidence and need for training in delivering the revised RSE modules. The structured questionnaires also seek teachers' perception pertaining to the teaching facilities in school, RSE teaching aids, school and agencies supports, and also their overall perception of the revised RSE modules as compared to the existing one. The questionnaire also seeks teachers report on the process of delivery and implementation of the revised RSE modules.

To support the quantitative study to evaluate context-input-process components, a qualitative approach to the Focus Group Discussion (FGD) was conducted with all BM teachers. The questions posed by moderators to the group of BM teachers are specifically related to the context, input and process themes. All comments recorded from the FGD are transcribed verbatim as spoken by the teachers. All identities are confidential and not mentioned in any report. Comments are rearranged into themes as defined in the context, input and process study. The FGD statements are used as qualitative evidence for the quantitative results obtained from the structured questionnaires.

3.5.2 Product

One of the significant common types of instruments used for the quantitative research survey is questionnaire because it provides efficiency in collecting data and allows data collection from a large sample, requires less time, and less cost. The collection data for the students was done through a set of structure questionnaire in which all the items were administered individually through a face-to-face interview. The questionnaire was specially developed by the researchers based on the literature review and the content of the module for the purpose of this study. Furthermore, all items were developed according to taxonomy bloom and considering the psychological development of the students. All items in the questionnaire have been examined for face and content validities by road safety experts. The questionnaire was administered to individuals in order to elicit information regarding their road safety knowledge and behaviour.

Parents' questionnaire aims to measure the spillover effect of RSE modules from students to parents on their road safety values. The questionnaire encompasses the student-parent interaction time and Family Communication Pattern in relation to road safety. Besides, it also includes the students' initiation discussion on road safety topic with their parents. Parents' willingness to pay on road safety equipment also measured in this study.

3.6 Statistical Analyses

The statistical tests employed for data analysis used the software SPSS (Statistical Package for the Social Sciences). Table 4 indicates the CIPP study and its respective analyses.

Table 4 Statistical analyses used in CIPP evaluation study

Software	Type of analyses	Context	Input & process	Knowledge & behaviour	Spillover effect
SPSS	Descriptive	√	√	√	√
	Odds ratio			√	
	Logistic regression				√
	Factor analysis				√

4. Results and Discussions

The CIPP model of curriculum evaluation (Stufflebeam, 1969) is employed in this study. It seeks to evaluate the effectiveness of the revised RSE modules that was implemented in 24 pilot primary schools throughout the year 2017. The Context (C) evaluation defines the school environment features relevant to the revised RSE modules. The Input (I) evaluation determines the levels of available resources used to achieve the objectives of the revised RSE modules. The Process (P) evaluation identifies the deficiencies in the implementation of the revised RSE modules, and its reasons. The Product (P) evaluation is used to measure the outcomes of the RSE modules such as the student's road safety knowledge, behaviours and influence on parents' road safety behaviour. The comparison is made between the outcomes of the baseline and the revised RSE modules.

4.1 School Environment and Facilities

Overall, the total number of respondents in all the 24 pilot primary schools comprise of 2,460 primary school students, and 206 Bahasa Melayu teachers (77% are females). The teachers are aged between 24 and 59 years old, while the average age is 42 years old (standard deviation of 8 years). All 24 pilot primary schools received the revised RSE modules from February to March 2017 and implemented it right away.

The school administrations are generally supportive towards the implementation of the revised RSE modules. A few schools took the initiatives to create road safety features within the school compound. As mentioned in FGD by Guru 1: *"…dengan sokongan pihak sekolah, kami guru BM semua bergotong-royong mengecat lantai sekolah untuk jadikan contoh jalan raya. Kami buat pada hari Sabtu dan Ahad. Semua seronok ambil bahagian."* Considering that supports and cooperation from

the school administrations is an important feature in the contextual component of the RSE implementation, it is recommended that a standard operation procedure is established to ensure the sustainability of the implementation of RSE modules in primary schools.

As for the electronic and ICT facilities, even though some schools are adequately equipped with audio-video facilities for RSE activities, there are also schools facing a shortage of ICT facilities in which a few classes need to use the audio-visual room at the same time. In this case, there are high chances that the audio-visual activities could not be conducted. However, some teachers would use their own initiatives as stated from FGD by Guru 2: "*…ada masa clash dengan kelas lain nak gunakan bilik tayangan, jadi untuk tidak buang masa saya gunakan laptop di dalam bilik darjah saja. Masih boleh ajar PKJR walaupun audio agak kurang jelas."* In all, efforts should be put to enhance the electronic and ICT facilities in schools. This is because it is a feature that is not only relevant for the implementation of the RSE modules but also the 21st century education. Table 5 shows the percentage of availability of electronic and ICT facilities to aid teaching RSE modules in 24 pilot primary schools during the baseline and post study. There is not much increment in the availability of electronics and ICT facilities in these schools. Perhaps this study is less than 12 months, and it is understood that procedures in buying assets in primary schools may require a longer process in the school administrations. However, the revised RSE modules were still able to be implemented.

Table 5 School availability of electronic and ICT facilities within six (6) districts (pre and post)

Item	Teaching aid facility	Availability (%) (Pre)	Availability (%) (Post)
1	Computer laboratory	83	84
2	LCD screen	83	85
3	Internet access	79	80
4	LCD projector	71	72
5	Portable CD player	67	67
6	VCD player	63	63

7	Audio visual room	58	59
8	DVD player	54	54

Most teachers agreed that the revised RSE teaching aids are useful for the delivery of the RSE activities. As recommended by Guru 3: *"…lebih baik kalau peralatan keselamatan sebenar seperti safety vest, helmet, dan sebagainya diberikan kepada guru seperti kami di luar bandar sebab murid di sini kurang pendedahan."* The real teaching aids for example helmet, safety vest, traffic signboards, etc. will attract student's attention and enhance the teaching-learning process of the RSE modules. Relevant road safety games, miniature models and props that can be touched are also effective tools for the delivery of the RSE modules.

Of all 24 pilot primary schools, about 25% have road safety clubs, and the club members comprised of students from Year 4, 5 and 6. Even then, most clubs are not very active because of lack of ideas in activities. According to Guru 4: *"…sekolah ini pernah ada kelab keselamatan jalan raya tapi cuma setahun saja sebab tak tahu apa aktiviti menyeronokkan yang nak dibuat."* In addition, some are due to a limited number of students, and other existing clubs already have a sufficient number of students. As commented by Guru 5: *"…kelab keselamatan jalan raya tidak ada sebab sekolah kecil saja."* Clubs that are established in schools generally keep up with what is the current focus, for instance, entrepreneurship, green technology, etc. Thus, in order to sustain the issue of road safety in primary schools, the agencies should support and encourage primary schools to set up an active school road safety club. This school environment is relevant to the RSE modules.

About 45% of the schools have a Road Safety Corner within their school compounds located in the co-curriculum activities notice boards. There are schools that decorated the corner with road elements such as highway lane, traffic light signs, yellow box etc. Teachers also painted the corridor of the schools to become 'road' so that they could bring the students to do simulation when teaching RSE modules. Teachers also prepared road furniture and placed them in the columns of the school building to enhance the environment towards RSE modules. However, schools need more road safety materials for display to attract the students to the RSE corner. This

is also as suggested by Guru 6: *"…pihak sekolah perlukan bahan yang baru dan menarik dari pihak JKJR untuk menarik minat dan menambah ilmu PKJR murid di sudut keselamatan jalan raya. "*The road safety characters as well as other related posters will help enforce the RSE knowledge learnt in the classroom. As stated by Guru 7: "*…bahan-bahan keselamatan jalan raya di sudut KJR membantu murid untuk lebih faham. Kalau boleh dapatkan lagi bahan baru dari JKJR lebih baik."*

Less than 5% of schools organised road safety programs or activities throughout 2017. The FGD noted Guru 8: *"…sekolah bercadang nak jemput JKJR negeri untuk anjurkan kempen keselamatan jalan raya di sini. Kami pasti ia dapat meningkatkan pengetahuan murid dan juga guru."* There are schools that gave road safety talks during the school assembly, and even invited the representative from JPJ to give a special talk related to road safety. A suggestion by Guru 9*:"…saya cadangkan ada program yang dianjurkan oleh agensi luar di dalam sekolah kerana pihak sekolah ada kekangan kewangan untuk program semua ni."* Agencies are to draw out a plan on the organisation of road safety programs in primary schools since it is an essential feature as defined in the school environment relevant to the RSE modules.

With regard to the presence of the School Traffic Warden, about 17% of the pilot schools have one. As stated by Guru 10: *"…selalunya guard sekolah yang akan bantu murid melintas depan sekolah masa murid datang dan balik."* The relevant agencies may attempt to formulate a system to provide a traffic warden in every primary school. However, it is also appreciated that even though the presence of traffic warden is essential, it does not strongly influence the effective delivery of the RSE modules.

Even though schools in rural areas may have lesser safety features, in general the road safety features around school compound exhibit an environment that is relatable to the revised RSE modules. About 90% of the pilot schools have traffic calming facilities such as speed humps and rumble strips on the roads outside the school compound. Meanwhile, about 70% has pedestrian zebra crossings on the roads, and 13% has pedestrian walkways. In most schools, special parking facility for bicycles is provided within the school compound. Among other traffic signs that are

available around the school compound is speed humps (67%), one-way street (13%), pedestrian crossing (4%), speed limit 30 km/h (4%). Further, outside the school areas, 71% of them have bus bays, 79% pick-up zone, 21% waiting area for students and 8% with entrance/exit in the back of school away from traffic. Overall, the road features should be maintained and agencies may assist to enhance and sustain the road safety environment features.

4.2 School Teachers and Administration

The Input component of a curriculum is important because they involved the available resources that are used to achieve the curriculum objectives. In the aspect of this study, the major available resources towards the effectiveness of the RSE modules are the Bahasa Melayu teachers. It is well appreciated that the Bahasa Melayu teachers in all 24 pilot primary schools had experienced teaching the existing RSE modules. It is embedded in the Bahasa Melayu subject and implemented nationwide since the year 2007. Thus, the teacher's perceptions on matters pertaining to the implementation of the revised RSE modules reflect their comparison to the existing RSE modules.

As for the teachers' knowledge related the revised RSE modules, on average, the Bahasa Melayu teachers rated their level of knowledge as good (mean score = 3.04) compared to very good (score = 4.00). This is because some of the teacher's do not have enough knowledge and ability to merge the revised RSE modules themes with the themes in the Bahasa Melayu textbook. As stated by Guru 11: *"…ada masalah nak sisipkan tema PKJR dengan tema buku teks Bahasa Melayu dan juga tema kemahiran.*" In addition, Guru 12 stated *"…kalau Buku Panduan Guru dapat sediakan Rancangan Pengajaran yang sudah disisip tema PKJR tu lagi baik dan setiap guru dapat satu BPG. "*

On the other hand, focus group discussion also found that some Bahasa Melayu teachers do not find the merging of themes a problem. As commented by Guru 13: "*…BM ada banyak tema yang boleh disisipkan dengan tema PKJR. Pada pandangan*

saya la... guru perlu lebih cekap dan kreatif." Meanwhile, Guru 14 added that *"…kami ada Whatsapp Group PKJR untuk bincangkan macam mana nak ajar PKJR sebelum nak masuk kelas. Kami bincang pasal macam mana nak sisipkan tema PKJR dengan tema buku teks untuk minggu itu... juga berkenaan alat bantu mengajar.*" This is also evident from the knowledge quantitative data, where the 75th percentile score is 3.29 (good = 3.00) as compared 4.00 (very good). Meanwhile, the 25th percentile score of 2.71 (quite good = 2.00) is closer to good (3.00). This infers that generally, the BM teachers have good knowledge to deliver the revised RSE modules. This is expected since the BM teachers have been embedding RSE in BM subjects using the existing RSE modules since 2007. The extract from FGD by Guru 15: *"…rasanya kami tidak ada masalah nak ajar PKJR dalam subjek BM ni sebab dah memang kerjaya guru."* does reflect teacher's knowledge and capability. As for the BPG, teachers find it helpful to teach the revised RSE modules. However, there are rooms for improvement. The instructions given to teachers in the BPG should be made clearer so that they have more confident when they explain to students. The glossary needs to be improved and enhanced. The list of references for RSE modules should be comprehensive so that teachers and students would have other references instead of the RSE modules only.

With regard to teacher's skills in implementing the PdPc related to the revised RSE modules, teachers rated themselves as near skilful (mean score = 2.63), where quite skilful = 2.00, skilful = 3.00, and very skilful = 4.00. Some teachers claimed that they do not have sufficient guidelines. As commented by Guru 16: *"…ada yang tidak berapa faham istilah PKJR macam perabot jalan, contohnya. Saya rasa elok berikan contoh jawapan yang cukup untuk setiap aktiviti."* Further, the 25th percentile score of 2.33, and the 75th percentile score of 2.83 infers that the teachers are quite skilful in implementing the PdPc. As reported from FGD, the teachers also have initiatives to collaborate with other teachers, such as combining group of students from different classes to ease the PdPc of the revised RSE modules. As mentioned by Guru 17: *"…kami kerap ada mesyuarat untuk bincang dan download bahan dari internet untuk kegunaan pengajaran PKJR."* In all, about 76% of the teachers stated that they understand the revised RSE modules. Another 11% understand well, while the other 13% of teachers quite understand the revised RSE modules as a whole.

The teachers training or the contents of BPG should highlight on measures to improve knowledge, skills and understanding for teaching and facilitating the RSE modules.

Teachers rated their confidence in teaching the revised RSE modules at an average score of 7.1 out of 10 (very confident). The 25h percentile score is 6.0 while the 75th percentile score is 8.0. It shows that the revised RSE modules blended with the teachers' previous experience in teaching the existing RSE modules in BM subjects. Teachers are also pro-active and have good confidence in teaching the revised RSE modules. As mentioned by Guru 18: *"…guru boleh ajar sebab memang tugas hakiki kami."* It was added by Guru 19: *"…cikgu yang tak berapa pasti nak guna topik yang sesuai untuk PKJR, buku teks BM dan Pendidikan Abad ke-21 boleh saja bincang dengan cik gu yang lain. Boleh guna whatsapp saja.*" Some may also browse for information on the Internet.

Teachers rated a mean score of 2.79 (where: disagree = 2.00, agree = 3.00, and strongly disagree = 4.00) on their perception of the school facilities' supports in their teachings of the revised RSE modules. The 25th percentile score is 2.31, and the 75th percentile score of 3.00 indicated that the teaching facilities such as computers, LCD, audio-visual system does support the PnP of the revised RSE modules. Even though several schools in the rural areas may lack internet or computer laboratory, the revised RSE modules can still be implemented in their own way. Some of these issues were also extracted from the FGD. With regard to inadequate audio-video facilities, it was mentioned by Guru 20: *"…bilik tayangan tidak cukup. Selalunya pengunaan bilik tayang bertembung dengan kelas yang lain. Kami terpaksa beralah dengan Tahun 6.*" In addition, as stated by Guru 21: *"…video PKJR tarik minat pelajar tapi pendek sangat. Saya cadangkan durasi yang lebih lama sebab waktu untuk bawa pelajar ke bilik tayang lebih lama dari waktu tayangan."* Agencies should look to improve the teaching facilities such as computer laboratory and internet in schools. Perhaps the effort to facilitate all schools is ongoing with the 21st century education goals.

Apart from the school facilities, teachers also used the revised RSE teaching aids. On the matter if the teaching aids are helpful in implementing the revised RSE modules, the teachers rated a mean score of 7.0 out of 10.0 (very helpful). The 25h percentile score is 6.0 while the 75th percentile score is 8.0. Even though it shows that the teaching aids are helpful, there are rooms for improvements as stated by Guru 22: *"… perlu beri peralatan asas PKJR sebenar seperti topi keledar, tali pinggang keledar, baju pantul cahaya dan sebagainya sebagai alat bantu mengajar kepada guru untuk murid lebih jelas."* While Guru 18 commented *"…BBM PKJR ni cukup untuk mengajar PKJR cuma perlu lebih banyak video kerana murid lebih tertarik."* There is also a suggestion by Guru 23: *"…saya cadang JKJR boleh maklumkan pada guru link website untuk download bahan pengajaran PKJR.*" In all, the opinion of Guru 24: *"…pendapat saya BBM terutama video untuk rintis ni lebih menarik perhatian murid berbanding dengan yang sedia ada."*

Of all teachers in the 24 pilot schools, only 68% of them had attended one RSE modules teaching training organised by MIROS and JKJR. With respect to teachers' perception on the need for training to enhance their knowledge and skills, the teachers rate a mean score of 3.47 (disagree = 2.00, agree = 3.00, strongly agree = 4.00). Meanwhile, the 25th percentile score is 3.00 (agree), and the 75th percentile score is 4.00 (strongly agree). This shows that in general, teachers felt strongly that there should be RSE module training. This is supported by Guru 25: *"…saya cadangkan setiap guru BM dapat menjalani latihan mengajar PKJR untuk menambah ilmu PKJR dan keyakinan bila mengajar murid.*" As commented by Guru 26: *"…bagi saya latihan guru oleh dari Jurulatih Utama yang dapat latihan dari MIROS macam tak berapa berkesan sebab JU pun kurang kefahaman."* Suggested by Guru 27: *"…saya cadangkan semua guru BM menjalani latihan khusus contohnya, Latihan Dalam Perkhidmatan untuk tingkatkan pengetahuan dah kemahiran sebelum mengajar PKJR."*

Overall, the teachers perceived that the revised RSE modules are better than the existing RSE modules. Table 6 shows the perception scores with respect of positive and negative statements on RSE modules for both the pre and post studies. As for the positive statements (1 to 9), all scores are higher indicating the better

perception by BM teachers on the implementation of the revised RSE modules. Their perceptions are even more significant from the comparison of the scores to the *negative statements (10-12)* between pre and post study. All three (3) negative statements showing more than 50% improvements in teachers' perceptions after implementing the revised RSE modules.

Table 6 Agree/disagree ratio on 12 statements of RSE modules (pre and post)

Item	Statement	Agree/disagree (pre)	Agree/disagree (post)
1	RSE program is important for primary students	0.94	0.98
2	RSE program should be continued to improve road safety	0.94	0.97
3	RSE program is effective in influencing students behaviour	0.90	0.98
4	RSE program also exposes road safety to teachers	0.92	0.98
5	Everyone should support RSE	0.84	0.97
6	RSE program can produce road users of positive behaviour	0.82	0.97
7	RSE program is a platform towards reducing road accidents	0.76	0.96
8	Embedment of RSE in BM subject is appropriate	0.75	0.71
9	RSE program can improve the understanding of BM subject	0.68	0.89
10	*RSE program interferes with the teaching-learning of BM*	*0.62*	*0.31*
11	*RSE program is a burden to teachers*	*0.61*	*0.22*
12	*RSE program should be discontinued because it fails to produce outcome*	*0.45*	*0.16*

Comparisons in overall teacher's perception on the need of RSE in primary schools between the pre and the post study are shown in Table 7. The increment in the

mean score from 7.19/10 (pre) to 7.79/10 (post) indicated that after implementing the revised RSE module, the BM teachers' perception on the need and usefulness of the RSE program in primary schools has been enhanced. Similarly, the 25th percentile score has also increased from 6/10 (pre) to 7/10 (post), while the 85th percentile score rose from 9/10 (pre) to 10/10 (post).

Table 7 Descriptive analysis on teacher's overall perception on RSE modules (pre and post)

Descriptions	Overall score (1-10) (pre)	Overall score (1-10) (post)
Mean	7.19	7.79
Median	7	8
Mode	8	8
Standard deviation	1.77	1.54
Minimum	2	3
Maximum	10	10
Count	194	206
25 percentile	6	7
85 percentile	9	10

These quantitative results are also supported by extracts from the FGD; such as Guru 28: *"…PKJR rintis ni ada topik yang cukup dan lebih mudah kalau nak dibandingkan dengan PKJR yang digunakan sebelum ini."* Also commented by Guru 29: *"…modul baru ini ada banyak penambahbaikan dan lebih mudah. Minat murid meningkat dengan simulasi.*" Another Guru 30 added *"…modul rintis ni ada lebih banyak aktiviti menarik berkait dengan keadaan sebenar, contohnya aktiviti bagaimana untuk melintas jalan dengan selamat kerana murid melakukannya setiap hari."* The teachers claimed that the RSE module is important to create the awareness for the young generation, and believed that RSE has a spillover effects on parents. Students will give feedback to teachers if their parents are not using safety devices such as motorcycle helmet or seatbelt or even using mobile phone when driving that may endanger their life.

With respect to teachers' perception on the supports and assistance by MIROS/JKJR/PPD towards the implementation of the revised RSE modules, their mean score is 7.96 out of 10.00 (very supportive). The 25th percentile score is 7.00, and the 75th percentile score is 9.00 indicating that the supports are helpful. The FGD reported a statement by Guru 31: *"…pemantauan MIROS dan perbincangan tentang masalah pengajaran modul PKJR banyak membantu. Minta semua guru BM dapat latihan."* However, there also comments that teachers are confused between the needs of JPN/PPD on the implementation of RSE modules. It is reported by Guru 32: *"….saya jadi stress bila pegawai PPD/JPN datang memantau kerap sangat."* Meanwhile another teacher stated, Guru 33: *"…saya ada masalah nak imbangkan keperluan BM dan PKJR bila mengajar sebab PKJR lebih ditekankan di dalam penilaian dari pemantauan PPD/JPN."* As such, there is a need to streamline the RSE implementation monitoring procedures among MIROS/JKJR/JPN/PPD and to make clear to the teachers the aims of the monitoring by the relevant agencies.

As with process component of the revised RSE modules, in general, the teachers agreed that 30 minutes per week of the revised RSE module teaching is suitable for good implementation. Teachers gave a mean score of 3.07 (agree = 3.00, strongly agree = 4.00). Even though some teachers preferred RSE taught 1 hour every 2 weeks because the contact time in increased for the road safety modules to be delivered more effectively. Most schools reported that all revised RSE module activities were completed on time for Year 1 to 5 only. As reported by Guru 34: "*…tahun 6 ada masalah untuk habiskan semua modul sebab guru perlu lebih fokus untuk UPSR dari PKJR ini. Tapi kalau selepas UPSR, kami ada masa untuk sambung balik modul."* The deficiencies in Year 6 need special attention to be addressed. With regard to the progress of completion of the revised RSE modules, perhaps the modules can be reduced to 60% as reported by Guru 35: *"….Tahun 1 hingga Tahun 5 semua dah habiskan modul. Cuma Tahun 6 dapat habiskan 60% sahaja kerana perlu fokus lebih kepada UPSR."*

4.3 Knowledge and Behaviour among Students

The comparisons of scores on the same students in pre and post study are shown in Table 8. Students of each year show the different cut-off score for road safety knowledge. This is because the questions were designed for each year based on Bloom Taxonomy hierarchical along with six (6) themes found in Revised RSE modules. As shown in table 8, 64.7% of Year 1 students obtain a score of 6 compare to 9.7% in the pre study. None of the Year 1 students the score 0 in the post study. The cut of score for Year 1 increase from score of 4 in pre study to the score of 5 in post study. Year 2 students' cut off score remains at a score of 5 with a slight drop of percentage. This can be explained by the steep rise in percentage for Year 2 students with the score of 6 that contributed 79.5% compared to only 47.1% in the pre study.

As for Year 3 students, the cut off score is at the score of 10 which increase by 1 score compare to pre study. The percentage of Year 3 students gained full score rise from 12.8% in pre study to 38.5% in post study. Meanwhile, Year 4 students show a sharp increase in the percentage of students getting a score of 14 with the percentage of 77.2%. Whereas the cut off score for Year 5 students is 8, 19.4% of them hold this score. Percentage of Year 5 students with a total score of 13 increased from 9.1% to 20.8%. Lastly, the cut off score for Year 6 students remain at a score of 13. The percentage of Year 6 students obtained a total score of 15 increased from 33.6% to 39.9%.

It is apparent that there has been a steep increase in the score on road safety knowledge among Year 1 to Year 6 students. Considering the implementation of Revised RSE modules in the school, it helps in contributing the increment score of road safety knowledge among students. Revised RSE modules are equipped with teaching aids that help students to learn better and gain proper understanding on RSE. Apart from that, during the development of Revised RSE modules, the crucial element of BM teaching is considered. Content in students' activity book is integrated with *Dokumen Standard Kurikulum dan Pentaksiran* (DSKP) to ease the

process of teaching and learning. It also motivates teachers to use Revised RSE modules during BM period.

Table 8 Road safety score among Year 1 to Year 6 students (pre and post)

Score	Percentage											
	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
0	57.9								1.2			
1	0.5		0.2						4.2	0.3	0.7	
2	3.2		0.7	0.3					1	0.3	0.2	0.6
3	4.2	1.1	1.2		2.2				1.7			
4	13	8.8	11.7	2.6	0.7		0.8		4.9	2.6	0.2	
5	11.5	25.4	39	17.5	5.2	0.6	0.8		4.4	2.3	0.9	0.3
6	9.7	64.7	47.1	79.5	3.9	1.7	0.5	0.3	2.2	0.6	2.1	0.6
7					4.9	1.5	6.3	0.9	10.1	3.8	1.4	0.9
8					2.2	1.7	3.5	0.6	18.5	19.4		
9					13	2.6	4.3	1.2	6.7	16.1	2.4	0.6
10					22.4	12.8	21	6.6	3.5	0.9	7.1	3.7
11					12	14.3	12.8	6.6	8.4	4.1	4.9	2.8
12					20.6	26.2	4.3	1.2	24	28.7	1.6	0.3
13					12.8	38.5	6.3	5.4	9.1	20.8	12	10.1
14							39.8	77.2			32.7	40.2
15											33.6	39.9

Table 9 shows the percentage of road safety behaviour among Year 1 to Year 4 students during pre and post study. Overall, 10 items have been utilised to examine the road safety behaviour among the students. Based on the Table, item 1 to item 6 were positive road safety behaviour, while item 7 to item 10 were negative road safety behaviour.

As for the positive road safety behaviour, the finding shows that all of the items had increased in the post study except for item 1 (wearing bright clothes when walking at dusk) and item 3 (walking down the street facing the traffic) in Year 1 students and item 6 (wave at the drivers before crossing the street) in Year 3 students. This can be seen in the percentage recorded on "always" scale. Nevertheless, the reduction of the three items was not significant. The highest increment across Year 1 to year 4 students was reported by item 4 and item 5, which is related to the basic road crossing behaviour. The percentage recorded by the two items in the post study is more than 70%. This result suggests that the students having good skills and basic knowledge on how to cross the road and the percentage had increased during the post study.

Considering the percentage of negative road safety behaviour recorded on the "never" scale, the result for Year 1 students shows that all the four (4) items had increased during the post study. Meanwhile, as for Year 2 (item 8 and item 10) and Year 3 (item 7 and item 10) students, only two (2) items had increased. The increment for Year 4 students can only be seen in item 10. The increment of the percentage on the "never" scale indicates that the number of students engages in the negative road safety behaviour has been reduced. Although not all of the items had increased in the post study, the highest percentage for all the items was recorded on the "never" scale compared to another scale in the range of 40% to 80%.

Table 9 Percentage of road safety behaviour among Year 1 to Year 4 students (pre and post)

Item	Behaviour	Year	1		2		3		4	
		Study	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	Wear bright or white clothes when walk at dusk	Never	43.4	27.2	29.8	26.6	28.4	28.6	32.6	15.8
		Seldom	30.7	47	47.5	41.5	43.6	45.5	48.4	48.4
		Always	25.9	25.8	22.8	31.9	24	25.9	19	35.8
2	Cross the street when the green man signal is on	Never	34.5	18.4	16.5	14	24	17.2	18.5	15.2
		Seldom	28.8	43.5	24.7	24.3	31.9	32.4	26.7	23.3
		Always	36.4	38.2	58.6	61.7	44.1	50.4	54.8	61.5
3	Walk down the street, facing the cars and traffic	Never	58.2	62.9	39	40.1	36.8	36.2	38.3	28.4
		Seldom	24.3	21.6	38.3	35.1	41.7	35.6	41	43.6
		Always	17.5	15.5	22.5	24.9	21.6	28.3	20.7	28.1
4	Hold adult's hand when crossing the street	Never	6.5	3.9	4.4	1.2	14	2	4.2	3.3
		Seldom	20.5	18.4	11.1	12.3	18.1	15.7	19	14
		Always	73	77.7	84.3	86.5	67.9	82.2	76.8	82.7
5	Looking left, then right, and then left again before crossing the street	Never	19.7	6.4	4.8	3.8	9.1	3.2	5.4	0.6
		Seldom	23.5	22.3	19.9	13.7	25.7	21.6	18.5	12.8
		Always	56.9	71.4	75.3	82.5	65.2	75.2	76	86.3
6	Wave at the drivers before crossing the street	Never	55.3	42.8	50.4	43	32.6	37.6	47.2	33.4
		Seldom	21.6	27.9	27.4	33.6	31.1	37.9	30.1	36.7
		Always	23.2	29.3	22.3	23.1	36.3	24.5	22.7	29.9
7	Crossing the street between parked cars	Never	77.4	82.7	75.1	72.5	56.6	61.8	63	49.6
		Seldom	11.6	13.1	16.7	23.7	29.2	32.9	28.6	41.5
		Always	11.1	4.2	8.2	3.8	14.2	5.2	8.1	8.7

8	Run when crossing a street to get to the other side fast	Never	65.8	74.6	62.7	73.7	67.6	61.8	58.8	57.9
		Seldom	21	15.9	24.9	22.5	25.5	26.8	30.9	31
		Always	13.2	9.5	12.3	3.8	6.9	11.4	10.4	11
9	Ride bicycle in the street	Never	74.4	78.4	80.1	74.9	74.5	71.7	69.1	65.7
		Seldom	15.4	12.4	14.5	20.5	18.9	19.8	20.7	22.7
		Always	10.2	9.2	5.3	4.7	6.6	8.5	10.1	11.6
10	Wear dark clothes when walking at night	Never	62.8	68.6	60	68.1	28.7	67.3	42.7	58.5
		Seldom	24.8	24	30.5	26	43.4	28.6	51.9	35.8
		Always	12.4	7.4	9.4	5.8	27.9	4.1	5.4	5.4

Table 10 shows the percentage of road safety behaviour in Year 5 and Year 6 students during pre and post study. There are 23 items used for Year 5 and Year 6 student in which six item (item 1 to item 6) are positive road safety behaviour, while 17 items (item 7 to item 23) are negative road safety behaviour.

As for positive road safety behaviour among Year 5 students, five out of six items (item 1, 2, 3, 5 and 6) had increased in the post study which only item 4 (walking facing the traffic) did not show an increment. This finding suggests that the students are still not aware of the importance of walking against the traffic. Similarly, there is an increment in five out of six item (item 2, 3, 4, 5 and 6) in Year 6 students and only one item (item 1, using lollipop man/lady) reported to decrease in the post study. Similar to Year 1 to Year 4 students, the highest percentage for Year 5 and Year 6 students in item 3 which related to road crossing behaviour. The percentage accounted for the item is more than 65%. Although there was a reduction in the two items for Year 5 and Year 6, the decline of percentage is relatively small.

Based on the percentage recorded on the 'never' scale, the result of Year 5 and Year 6 students reveal that more than half of the negative road safety behaviour item increased during the post study. As for Year 5 students, 12 of 17 items had increased to more than 70%. Meanwhile, for Year 6 students, 8 of 17 items show an increment of more than 60%. This finding indicates that there is a reduction in the students'

engagement in negative road safety behaviour. The highest percentage of negative road safety behaviour recorded on the 'never' scale.

As expected, the road safety behaviour among Year 1 to Year 6 students had improved after the implementation of revised RSE modules. This is parallel to the result gained on road safety knowledge in which there is a significant improvement in students' road safety knowledge. The 8 months implementation of revised RSE module to the students had enhanced their knowledge on road safety and the knowledge gained through the learning process had influenced their behaviour on the road. Therefore, they adopt more behaviour that is positive and engage less negative behaviour compared to the pre study. According to Fabrigar et al. (2006), the increases in knowledge are associated with greater influence on behaviour. Furthermore, the study had proved that Year 1 to Year 6 students having a good skill on road crossing behaviour. Research suggests that 7 to 11 years of age are the most formative ages for the development of road crossing skills (Foot et al., 2006).

Table 10 Percentage of road safety behaviour among Year 5 and Year 6 students (pre and post)

Item	Behaviour	Year	5		6	
		Study	Pre	Post	Pre	Post
1	Use a lollipop man/lady when there is one available	Never	40	34.2	33.2	31
		Seldom	37.5	37.7	37.2	43.9
		Always	22.5	28.1	29.6	25.2
2	Check to make sure the traffic has completely stop before crossing at a pedestrian crossing	Never	25.7	14.3	7.8	3.1
		Seldom	31.4	29.2	36.5	30.1
		Always	42.9	56.4	55.8	66.9
3	Keep looking and listening for traffic until you get all the way across the road	Never	8.8	4.4	5.6	8.6
		Seldom	25.2	18.7	29.9	22.4
		Always	65.9	76.9	64.5	69
4	Walk in the road facing the traffic	Never	48.8	36.5	33.4	23.6
		Seldom	37.3	50.9	50.6	52.1
		Always	13.5	12.6	15.8	24.2

5	Wear bright or reflective clothing when out on foot in the dark	Never	69.4	60.2	70.1	56.4
		Seldom	18.9	25.1	19.5	28.2
		Always	11.3	14.6	10.4	15.3
6	Wear a helmet while riding a bicycle	Never	70.6	62	73.2	64.4
		Seldom	16.7	19.3	14.6	16.6
		Always	12.5	18.7	12.2	19
7	Forget to look properly because you are using a mobile phone	Never	85.5	90.6	89.2	89.3
		Seldom	12.7	9.1	7.8	9.2
		Always	1.7	0.3	3.1	1.5
8	Forget to look properly because you are thinking about something else	Never	69.4	75.1	70.8	64.7
		Seldom	26.5	22.5	25.6	31.3
		Always	4.2	2.3	3.5	4
9	Forget to look properly because you are talking to friends who are with you	Never	80.9	84.2	74.1	71.8
		Seldom	15.7	14.6	23.8	25.5
		Always	3.4	1.2	2.1	2.8
10	Cross whether traffic is coming or not, thinking that the traffic should stop for you	Never	73	81	74.8	77.3
		Seldom	22.1	17.5	22.6	21.2
		Always	4.9	1.5	2.6	1.5
11	Not look because you can't hear any traffic around	Never	80.1	80.7	74.6	78.2
		Seldom	15.2	18.1	22.4	19.3
		Always	3.9	1.2	3.1	2.5
12	Think you have enough time to cross safely, but a car is coming faster than you thought	Never	69.1	41.8	64.5	62
		Seldom	23.8	30.7	29.2	31.3
		Always	7.1	27.5	6.4	6.7
13	Climb over barriers or railings that separate the road from the pavement	Never	84.3	92.1	84.5	86.8
		Seldom	13	6.4	12.7	9.8
		Always	2.2	1.5	2.8	3.4
14	Not use pedestrian crossing nearby to cross the road	Never	59.8	70.2	64.9	65.6
		Seldom	25.2	4.9	26.6	20.9
		Always	15	7.9	8.5	13.5

15	Have to stop quickly or turn back to avoid traffic	Never	72.1	73.4	66.6	61.3
		Seldom	24.8	24	26.6	34
		Always	3.2	2.6	6.8	4.6
16	Get half way across a road and then have to run the rest of the way to avoid traffic	Never	91.2	91.8	91.1	88.7
		Seldom	6.4	6.1	6.1	10.7
		Always	2.5	2	2.8	0..6
17	Cross the road behind parked vehicles	Never	52	29.5	30.4	25.2
		Seldom	38	55	52.5	53.7
		Always	10	15.5	17.2	21.2
18	Cross without waiting for green man signal at a pedestrian crossing	Never	70.3	82.2	84	77.3
		Seldom	19.9	13.2	11.5	17.8
		Always	9.8	4.7	4.5	4.9
19	Make traffic stop or slow down the traffic to let you cross the street	Never	39	33	33.2	28.2
		Seldom	37.7	41.5	47.5	41.7
		Always	23.3	25.1	19.3	30.1
20	See a small gap in the traffic and go for it	Never	63.2	58.2	55.5	55.5
		Seldom	27.7	37.1	35.8	38.3
		Always	8.8	4.4	8.7	6.1
21	Playing around on the road	Never	82.8	80.4	77.2	77.3
		Seldom	14	14.9	15.5	18.7
		Always	2.9	4.7	7.3	4
22	Play at the street and unaware of vehicle's approaching	Never	85.5	88	85.6	86.2
		Seldom	12	11.4	12.7	13.2
		Always	2.2	0.6	1.6	0.6
23	Hang around on the road talking to friends	Never	73.5	86.8	80.7	78.8
		Seldom	18.4	11.4	15.3	16.9
		Always	7.8	1.8	4	4.3

4.4 Spillover Effect from Student to Parent

Table 11 indicates the Willingness to Pay (WTP) for parents according to four (4) types of Family Communication Pattern (FCP) group. The finding provides evidence that the mean of WTP increase from the pre to post study period. These findings also highlight that the highest increment of WTP mean are from pluralistic and consensual families. It can be clearly seen that the boost of WTP mean for each student level which is from Year 1 to Year 6. Out of six level group of student, five level group with the highest increment for WTP mean come from pluralistic families (Year 1, 2, 3, 5, and 6) and only one level group with the highest increment for WTP mean from consensual families (Year 4). One potential explanation for this finding is that road safety matters learnt in school by the student are freely communicated to their parents. Open mind parents' characteristics in pluralistic and consensual families encourage the road safety matters discussion initiated by their children. The increase WTP among parents during post study showed the positive effect of revised RSE module. Among the plausible explanations for these findings is that the student who received the RSE discussed the road safety matters they learnt in school with their parents and enhancing the road safety awareness among their parents, which increase WTP towards road safety. This is the reason for the Revised RSE spillover effect in this families' type.

However, the WTP mean for laissez-faire family decreased by two (2) level groups, which are Year 1 and Year 2 from the pre to post study. Meanwhile, the WTP mean for protective family also decreased by two (2) level groups, which are Year 1 and Year 4 over the same period. These findings are about the communication style for this group, which is laissez-faire family. They often tend to pursue their individual opinion without concern for others' opinion. These families are characterised by little communication between children and parents. Besides, in the protective family, parents strongly emphasise children's obedient, downplay interaction and exhibit social conflict avoidance. Hence, this contributing factor can be the reason for decreasing mean WTP during post study. Little communication between children and parents means a little discussion on road safety matters between them, in turn, decreasing mean WTP.

Table 11 Parent's mean WTP (in RM) for pre and post study

Student level	FCP	WTP (RM)		Difference
		Pre	Post	
Year 1	Laissez-faire	207.33	200.67	-6.67
	Protective	494.00	278.00	-216.00
	Pluralistic	190.50	398.69	208.19
	Consensual	282.17	330.43	48.26
Year 2	Laissez-faire	484.56	422.78	-61.78
	Protective	321.67	673.50	351.83
	Pluralistic	286.50	375.50	89.00
	Consensual	512.18	531.73	19.55
Year 3	Laissez-faire	476.92	842.31	365.38
	Protective	345.83	377.08	31.25
	Pluralistic	972.88	2648.85	1675.98
	Consensual	693.55	1765.40	1071.85
Year 4	Laissez-faire	403.65	611.61	207.96
	Protective	598.39	298.83	-299.56
	Pluralistic	448.89	624.07	175.19
	Consensual	494.84	689.10	194.26
Year 5	Laissez-faire	598.88	674.51	75.63
	Protective	353.68	341.32	-12.37
	Pluralistic	314.00	529.73	215.73
	Consensual	227.06	345.88	118.82
Year 6	Laissez-faire	382.17	648.67	266.50
	Protective	366.10	1035.00	668.90
	Pluralistic	888.25	1325.00	436.75
	Consensual	703.49	765.76	62.27

There is a significant association between students in different student level and revised RSE implementation in the children's initiations of road safety equipment, regulation discussion and sharing road safety experience with their parents resulted in Chi-square analysis. The results are shown in Table 12 highlight that there is an

increment in the percentage of stated "Yes" during post study for Parent-child Road safety initiations discussion among Year 1 to Year 6 students compared to pre study. As expected during baseline, parent-child initiation discussion that includes the topic of safety equipment, road safety regulations were more extensive during post study compared to pre study. Spillover effect also increases by increasing the mean of WTP due to a broader scope of content in parent-child initiation discussion.

Table 12 Parent-child road safety initiations discussion among Year 1 to Year 6 students (pre and post)

Student level		Safety equipment		Road safety regulations		Sharing with parent on road safety experience/views	
		No	Yes	No	Yes	No	Yes
Year 1	Pre	43.60%	56.10%	41.60%	58.40%	30.10%	69.90%
	Post	37.10%	62.90%	36.40%	63.60%	26.50%	73.50%
Year 2	Pre	58.30%	46.20%	40.40%	59.60%	25.30%	74.50%
	Post	41.80%	58.20%	39.70%	60.30%	24.30%	74.70%
Year 3	Pre	42.60%	57.40%	45.80%	54.20%	36.10%	63.90%
	Post	37.70%	62.30%	34.50%	65.50%	26.30%	73.70%
Year 4	Pre	49.90%	50.10%	41.20%	58.80%	28.20%	71.80%
	Post	28.80%	71.20%	23.70%	76.30%	14.70%	85.30%
Year 5	Pre	50.20%	49.80%	43.90%	56.1%	31.10%	68.90%
	Post	26.30%	73.70%	30.10%	69.90%	13.70%	86.40%
Year 6	Pre	38.80%	61.20%	45.90%	54.10%	32.00%	68.00%
	Post	17.60%	82.40%	19.10%	80.90%	14.60%	85.40%

Significance at 5%

4.5 Effectiveness of the Revised RSE Modules

After the implementation of the revised RSE modules over a period of 8 months, the effectiveness of the modules is observed by comparing pre and post study results of

the CIPP components. Many factors have contributed to the effectiveness of the Revised RSE modules.

The support from school administrations and agencies does ensure the implementation of the revised RSE modules is effective. The cooperation among school administrations and teachers in creating school environments conducive to road safety is also helpful. The engagement of JKJR with the schools in providing road safety talks and campaigns also instil the road safety awareness. In addition, it helps to enhance road safety knowledge among the students and teachers. It makes the learning of the RSE modules more effective. Road safety corners in the schools help students gain more information on road safety based on posters, and road safety equipment provided by JKJR. Even though a few schools have road safety clubs, most of the schools do not have such club. The presence of road safety club will increase student awareness of the importance of good road safety behaviour. The initiation from JKJR to introduce and assist schools in establishing road safety club will enhance the road safety culture in schools.

The teaching aids such as video, animation, audio, poster and flash cards are helpful and useful for effective delivery of the revised RSE modules. The development of the teaching aids relates to the norms of Malaysian culture and the themes on road safety. Furthermore, the attractive teaching aids trigger the curiosity among the students and make the learning process more interesting. The use of teaching aid has been proven being able to boost the understanding of the content in the student activity book. The video and animation can develop the critical thinking of the students and enhanced student's understanding of the scenario related to road safety. The design and content of the module are colourful and attractive. Besides, the activities provided in the BAM are simple and related to the DSPK document. Teachers can use the modules as a supplementary workbook in the teaching and learning of Bahasa Melayu. Apart from that, BPG provided to the teachers are very helpful to ensure the effectiveness of teaching and learning process of the objectives of the revised RSE modules.

As teacher's role is essential to make the teaching of RSE a success, MIROS and JKJR took the initiative to help to improve the quality of RSE teaching. Teachers' training organised by MIROS and JKJR help teachers to have a clear understanding on how to use RSE Module and incorporated it with BM teaching. In addition to teachers' training, the guidance visit from project members of MIROS was done to support teachers in giving and sharing information on road safety. Overall, the good support exhibited by school administrations and agencies create a positive impact towards the effectiveness of RSE modules.

The product component, which is the knowledge, behaviour and spillover effects reported positive impacts. There is significant increment from the score of knowledge in six themes namely Land Transport, Road Environment, Road Rules and Laws, Pedestrians Behaviour, Cyclist's Behaviour and Passenger's Behaviour. From Year 1 to Year 6, all the minimum score increased at least 1 score. The highest increment reported in Year 1 with 3 score increment from 0 score to 3 scores. Apart from that, the behaviour aspect of road safety among student has shown a positive impact in most of the items which the highest increment was recorded by positive road safety for item 4 and item 5 from Year 1 to Year 4. As for Year 5 and Year 6, the biggest increment reported by positive road safety behaviour is on item 3. The effectiveness of the revised RSE module has proven via spillover effect from students to parents. The result of spillover effect from students to parents suggests that the highest mean of WTP reported among parents who adopt form pluralistic and consensual families. Students in these families communicate and discuss the road safety matters they learnt from revised RSE module more liberally with their parents, while the parents listen with an open mind and accept their children's opinion. This is the reason for the RSE spillover effect in this type of family.

In all, the findings indicated that the implementation of the revised RSE modules in the 24 pilot primary schools in the six districts is effective and acceptable.

5. Conclusion and Recommendations

Overall, the present features of the contextual, input, process components in schools do contribute to the improvement of the product components. It indicates that the revised RSE modules are effective for implementation in primary schools in Malaysia.

Among the defined school environment relevant to the implementation of the revised RSE modules, generally, the school administration and agencies support the RSE program in primary schools. The procedure should be maintained if not enhanced. The basic ICT and Electronic facilities in some schools especially the rural areas need some attention from the authority. It is also in the spirit of 21st-century education in Malaysian schools. The RSE Teaching Aids are useful for the delivery of revised RSE modules. There are rooms of improvement for the RSE teaching aids. The agencies should draw out a plan for the establishment of the road safety club in primary schools as it boosts the road safety awareness and the environment in schools. The school club assisted with the road safety related activities deemed interesting and fun to the primary school students. The road safety corner in schools may be enhanced and made more interesting by the road safety club members. In addition, support from agencies in terms of road safety materials for the road safety corners, and also road safety talks/campaign organised in the school would improve the contextual component of the RSE modules. Even though the availability of a school traffic warden is not very influential towards the implementation of the revised RSE modules, effort should be taken by the relevant authorities to provide a school traffic warden. It will enhance the road safety environment around the school compound. Similarly, the road safety features around school compound are relatable to the revised RSE modules. Schools in rural areas may have fewer features, but authority should continue to maintain and improve on the road safety features outside the school compound.

As for the levels of available resources used to achieve the revised RSE modules objectives, the BM teachers have good knowledge, skills, and understanding of revised RSE modules. Except for some who have difficulties in merging the RSE modules topics with the themes in BM textbook. The training of RSE modules to teachers should include the methods to overcome this problem. Teachers have confidence in teaching the revised RSE modules because it is their expertise to teach. Their perception of the school facilities to implement revised RSE modules is that it can be improved. Most teachers felt that every BM teachers in primary schools should undergo training to teach revised RSE modules. This is to ensure the delivery of the RSE modules is effective. Compared to the existing RSE modules, all BM teachers agreed that the revised RSE modules are much better. The Buku Panduan Guru (BPG) is useful and helpful to teach the revised RSE modules, but they need to be more comprehensive and resourceful. The teaching aid for revised RSE is adequate for the delivery of teaching the RSE modules. However, it would be better to include more kits that are more fun and interesting for primary school students. The monitoring and support from the school, PPD, JKJR, MIROS are helpful in the teaching of revised RSE. However, there is need to streamline the scope among agencies so as not to confuse the teachers on their respective function in the implementation of the RSE program in schools.

In the process component, it was found that the revised RSE modules could be completed within the school term for all Year 1 to Year 5. However, most schools faced problems to complete the revised RSE modules in Year 6 due to their focus on the syllabus for UPSR. Maintaining only 60% of the RSE modules for Year 6 may be one option to ensure the continuity of RSE in primary schools before they move on to the secondary schools. However, the revised RSE modules were conducted for 30 minutes per week, the options of teaching 1 hour of RSE modules once every two (2) weeks to ensure better delivery of the RSE modules should be taken into account.

From the product study, the findings suggest that there is an improvement in students' road safety knowledge and behaviour after 8-months implementation of revised RSE modules. In order to maintain and strengthen the positive impact of the

module, several courses of actions need considerations by all the parties. As for JKJR, instead of giving training to the teacher, they should develop a RSE's website to assist teachers and students in their learning process. This integrated learning will be more exciting and enjoyable for the students.

Furthermore, online games related to road safety can help the student to familiarise with the road environment. These games should relate to the development of the children. With the presence of a website and online games, learning of RSE will be more effective. Thus, it can directly enhance students' road safety knowledge and increase the possibilities of adopting positive road safety behaviour. Besides that, road safety facilities like flyover, pedestrian walk way, zebra crossing with and without traffic light and others should be provided. These available facilities will practically assist the student with what they had learned in the class.

Apart from that, parents should be aware of their role model to their children since they have a regular presence in their lives. Children will see parent example as a pattern for the way life is to be lived. Setting a positive example of road user for children is simply a fantastic way to draw the best out of them. The consistency between what they had learned in class and what they observed from their parents will influence their acceptance of the knowledge and information. Parents should also reinforce their children's positive road safety attitude in order to retain their behaviour. In order to enhance the parents' awareness on their role in ensuring the safety of their children, JKJR should regularly organised road safety programs such as campaign and talk, which can help to improve their knowledge on road safety.

In addition, more research on RSE should be conducted intensively with the main focus is on the children. Future researches should take serious considerations on the student's practices on positive road safety behaviour since most of the Malaysians use roads to school and other places on a daily basis. The focus of research should emphasise on the importance of wearing reflective or bright clothes and walking against the traffic since the finding of the study showed that children have a lack of knowledge on that aspect of road safety. In addition, future studies on road safety education are also suggested to consider the gender difference, types of school and

the variety of race in Malaysia in order to generalise the finding to the whole population. Besides that, the FCP and child-parent initiation discussion on topics about road safety is appropriate.

As a conclusion, the implementation of the revised RSE modules has successfully improved the level of road safety knowledge and behaviour among the student. Road safety education should not only be the responsibility of RSD and MIROS. Other agencies must work together to strengthen RSE for our future generations. To reduce the number of fatalities in road traffic accidents, education is an effective medium to change the behaviour of road users. Therefore, the earlier children are exposed to road safety education, the more opportunities created for them to interact with the real environment. The role of teachers is important in order to inculcate road safety behaviour among the children because they are the force that nurtures and convey the knowledge to the students. The responsibility of parents in shaping the attitudes of their children as road users is essential. Children normally learned from their role models rather than following instructions. Thus, parents should show positive road safety behaviours in order to create children who will be a better road user.

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