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# PRELIMINARY FINDINGS ON IMPLEMENTING THE PRIMARY SCHOOL FLIPPED CLASSROOM VIA FC CARD

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***Abstract:*** *Primary school education is a crucial phase whereby learners would have learned vast fundamental knowledge before entering the secondary and tertiary education level. Teachers should conduct more student-centered learning activities to enrich the learning sessions. Nevertheless, learning should not only take place inside the classroom. To promote the learning outside the classroom, learning via the flipped classroom approach could nurture the learners' active learning activities. In this preliminary finding, the FC-Card was developed and tested in four selected schools. Four researchers involved as a participant to conduct the FC-Card in each school. Sixteen learners had participated in the focus groups interview and non-formal observation sessions. The purpose of this study is to explore the learners' perception of their experience using the FC-Card in a flipped classroom-based learning. Findings indicate three themes, which is the activity fluency, learner's positive experience, and simplicity design. In the future, it is hoped that learners' experience could improve the implementation of the flipped classroom approach in primary school via the use of FC-Card.*

***Keyword:*** *Effective lecturer; Effective teaching; Students' achievement Flipped classroom, Primary school education, 21st-Century Learning, Active learning, FC-Card*

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## Introduction

This paper aims to explore the learner's perception based on their experience of learning in a flipped classroom approach using the FC-Card. The FC-card was innovatively developed by four teachers from four schools, within the urban and rural area. The flipped classroom approach is the basis for the development of the FC-card. In the FC approach, learners would benefit the learning outside the classroom to allow more student-centered based activities done inside the classroom. The teachers had collaboratively discussed to overcome the teaching and learning problems of the learners, as summarized in Table 1.

**Table 1: The Teaching and Learning Problems in Four Schools**

| No. | Teaching and learning problems |
|---|---|
| 1. | Insufficient learning time at school. |
| 2. | Low of pupils' learning engagement. |
| 3. | Lack of pupils' learning collaboration. |
| 4. | Insufficient time to conduct the learners in class assessment. |
| 5. | Limited time for active learning activities at class. |

Based on the common problem faced by the teachers, they had come out with a research question, which is what are the learners' perceptions of the flipped classroom learning using the FC-card. Developing the teaching and learning aids, the teachers had suggested some fundamental aspects to allow a successful FC teaching and learning session. The FC-card functions as a learning template to facilitate active learning activities outside and inside the classroom to take place simultaneously. The learning template emphasized the three cycles of pre, while and post FC session, which is stated in the FC card development section.

## Literature Review

This paper uses the flipped classroom model as the basis for the development of the FC card. More related kinds of literature were reviewed to study new approach and activities that could integrate with the FC card. By adopting the flipped classroom strategies implemented by the other scholar, this study has had piloted the FC card that discussed in the results section. Noticing that the FC card was conducted in four different schools in an urban and rural area, all researchers have had adapted the suitable scholars' flipped classroom strategies and activities to this study setting.

### Introduction to Flipped Classroom

A flipped classroom is an educational approach whereby the learning process takes place outside the school hour. Some of the activities involved in the flipped classroom are video lectures and problem-solving practices as homework, and active group-based problem-solving activities in the classroom (Lowell Bishop & Verleger, 2013). The student will also learn some basic or conceptual content knowledge (Milman, 2014). Most of the flipped learning activity involves integrating of the online learning such as getting access to recorded lectures, instructional videos and other interactive teaching and learning materials from the Khan Academy, Coursera, TED talk, YouTube (Arnold-Garza, 2014) and other online resources such as Edmodo, Google Apps, Dropbox, Educreation, GlogsterEdu Screencast, Socrative, Teaching Channel, Twitter (Ahmed, 2016). Most of the flipped classroom practitioners are using the interactive teaching medium such as video (Sinouvassane & Nalini, 2016).

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### Models of Flipped Classroom

In general, the flipped classroom can be related to the theory and models of student-centred learning, learning styles theory, peer-assist, collaborative and cooperative learning, problem-based learning, active learning (Lowell Bishop & Verleger, 2013). These theory and models promote the students to be exposed and learn the basic concept effectively (Sinouvassane & Nalini, 2016). Understanding the basic concept could assist learners to master the higher level of learning.

Based on Bloom taxonomy, students should be undergoing the first and the second level, which are remembering and understanding at home before proceeding to higher level of thinking activities at school (Zainuddin & Halili, 2016). Flipped classroom seemed to be the solution to the struggles implementing higher thinking order in Bloom taxonomy (Ahmed, 2016). Also, flipped classroom word's acronyms are summarized in six pillars model as in Figure 1. This was the model as referred from (Jamaludin, Osman, Yusoff, & Jasni, 2016).

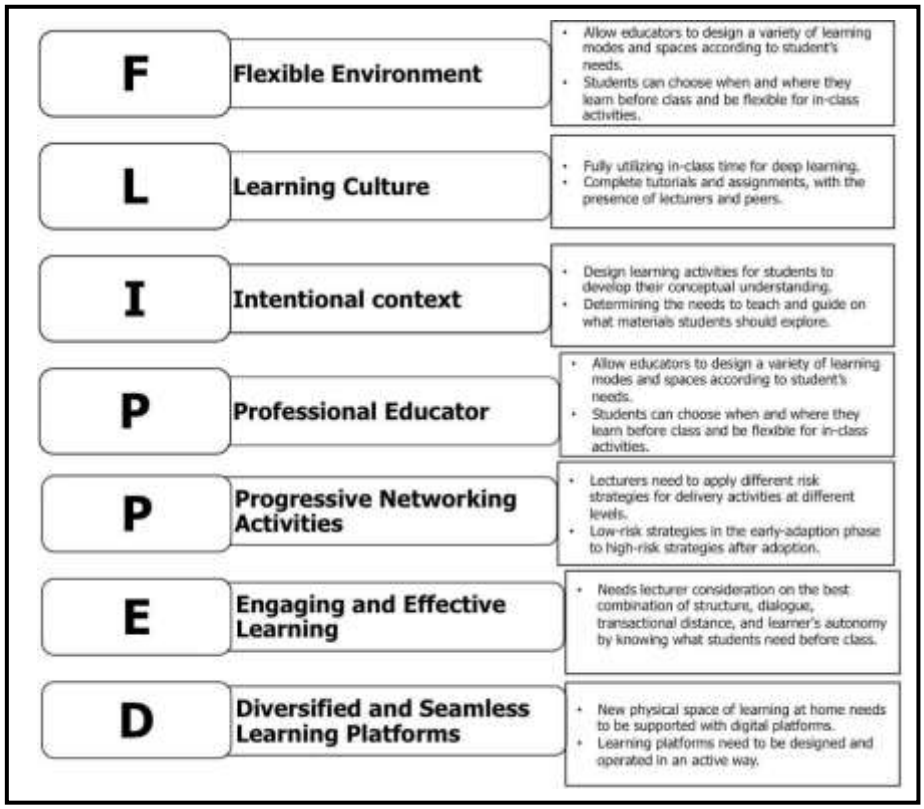


**Figure 1: The Flipped Pillars Elaborations**

An online classroom may provide three learning goals such as ample opportunities for an active learning session, online learning engagement through abundant information resources, and reflective learning session (Thompson & Vogler, 2000). This interactive and engaging activity was due to the increase in meaningful learning at school (Milman, 2014).

Meaningful learning could benefit the learner to master the content knowledge effectively, based on their potentials and pace of learning. As such, it allows the students to have the flexibility of time, learning at their own pace (Sinouvassane & Nalini, 2016). As observed from the same author, the student had a relaxing learning experience.

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In the 1970s, an "open classroom" was started to be a phenomenon in the west education before the one student-one laptop in the next decade (Fulton, 2012). The terminology and the idea of blended learning, inverted classroom, and flip classroom were next. Indeed, the flipped classroom has been trending in a recent study. Learning outside the classroom means learning through the use of the Internet and the social platform such as Facebook (Li, Lou, Tseng, & Huang, 2013) and YouTube (See & Conry, 2014), which focused on active learning and students' explorations. Videotape lecture was not compulsory as it is only to facilitate students' comprehension on what they are learning (See & Conry, 2014).

Figure 2 shows that the implementation of a flipped classroom can be successful in two parts in both inside and outside the classroom. It is the peer-interactive learning inside the class, and the use of computer technology outside the class (Bishop & Verleger, 2013). The flipped classroom is also closely related to the inverted classroom, which promotes learning outside the classroom (Lage, Platt, & Treglia, 2000). Learning outside the classroom allows the learning process to happen based on the varieties of 'learner's learning style. From data of a study, a learner is more motivated in the inverted classroom rather than in the traditional classroom (Lage et al., 2000).

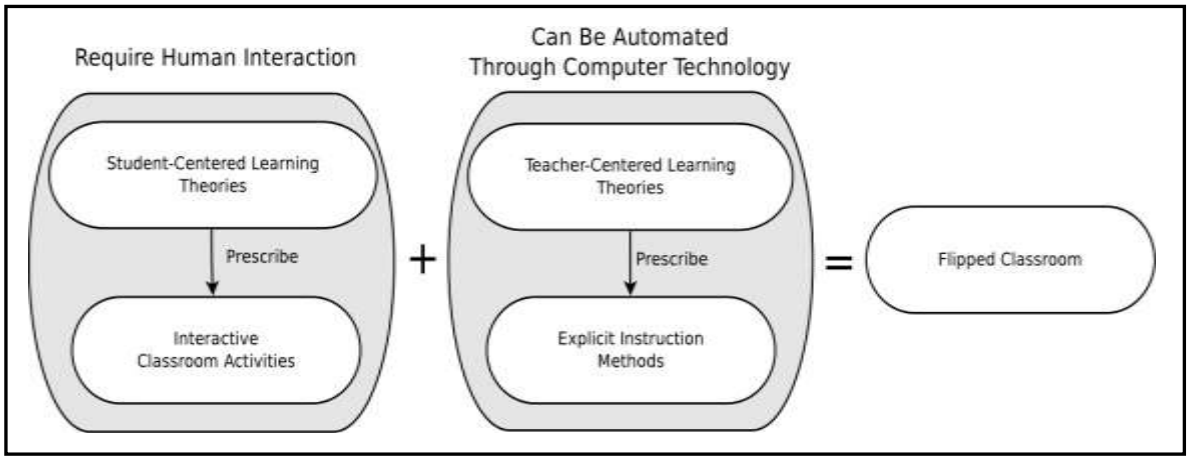


**Figure 2: Flipped Classroom Learning Model**

An increase in participation (Li et al., 2013) and student's perceptions over the conventional classroom also can be seen (Prashar, 2015). They had worked collaboratively in different ways of learning to complete the learning activity. A study of a flipped classroom in a large class setting has received positive feedback from the students, and even 40% from them stated that they had an increase in workloads (Linga & Wang, 2014).

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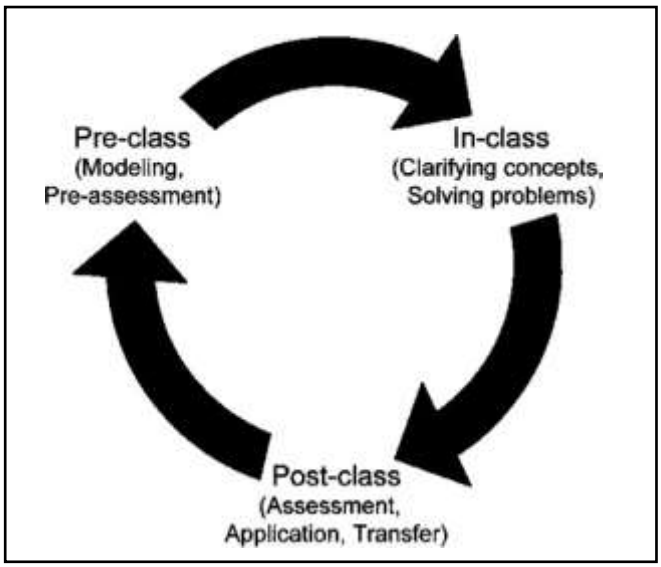


**Figure 3: Stages in a flipped classroom**

Figure 3 shows the stages in a flip classroom (Estes, Ingram, & Liu, 2014). During the pre-class, the teacher will provide learning material to access outside the classroom. Learning material such as video recording will help the student to have a first input of content knowledge for the next class (Stone, 2012). The first content knowledge will be the student's prior knowledge so that they can easily understand the learning in the real classroom. From here, the teacher may either be able to precede the enrichment or remedial teaching and learning session to the students based on the in-class activities such as quiz, evaluation, student's feedback, individual and group reflection (See & Conry, 2014).

## Research Methodology

### Sampling

This study involved four schools purposively. It was selected based on the similarities of teaching and learning problems faced by two urban school's teachers and two rural school's teachers. Resulting from the professional learning community (PLC) session discussion, all teachers had listed out the common problems the learners are facing. To mitigate the problems, the teachers also agree on developing teaching and learning aids, namely the FC-card as a solution to the problems. The four cases were explored qualitatively by observing and interviewing three learners randomly from each school. In total, 12 learners had participated in the interview and observation sessions after experiencing flipped learning via the FC-card. Each teacher from the different schools had conducted a pre- semi-structured interview, on-going non-formal observation, and a post- semi-structured interview. Three months of primary school science subject was involved in this study.

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**The Development of the FC-Card**

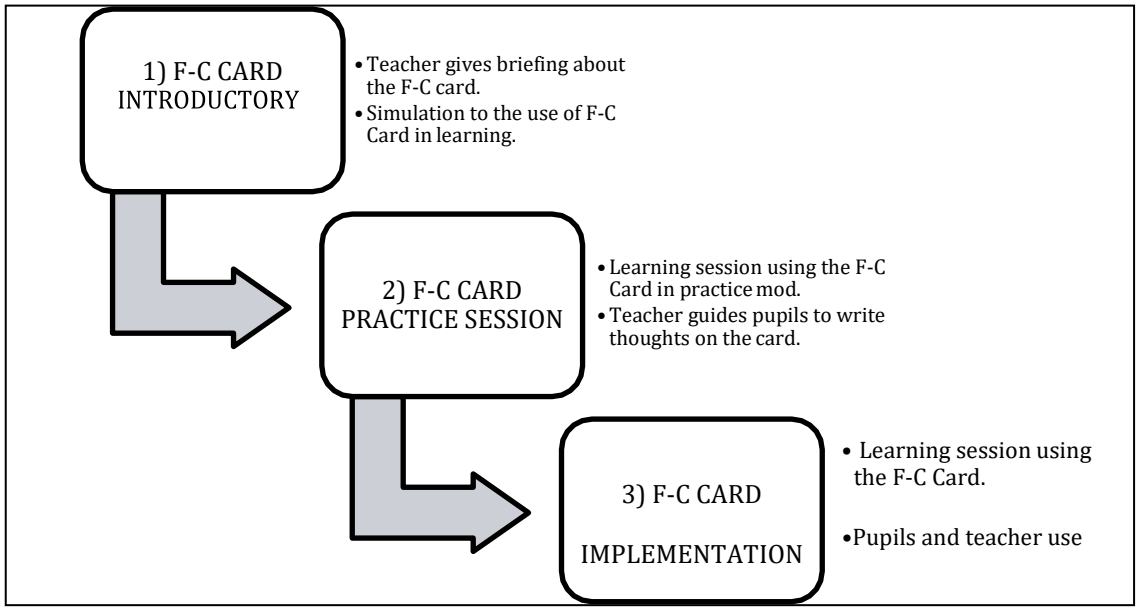


**Figure 5: Steps in testing the use of the F-C card**

All teachers involved in this work had conducted some teaching and learning steps, as recorded in figure 5. Before the introductory class, all teachers have had to participate in a professional learning community (PLC) session. The teachers share their challenges to promote active learning during the teaching and learning session. Based on the problems, the teachers realized that they could try to implement the flipped classroom approach through developing the related teaching aids. The flipped classroom approach is to promote active learning among learners.

In a lesson, the F-C card is either used for individual or group activity. For a group activity, the teacher distributes the cards to the group leaders. A Card contains some simple instructions. It could be in the form of Internet links, a short text, problem-based story, and triggering questions. Figure 6 and 7 shows the FC card displaying the related columns on the front and back page, respectively. The front page is for the learner to note their learning, and the back page is for the teacher to complete with the learning evaluation.

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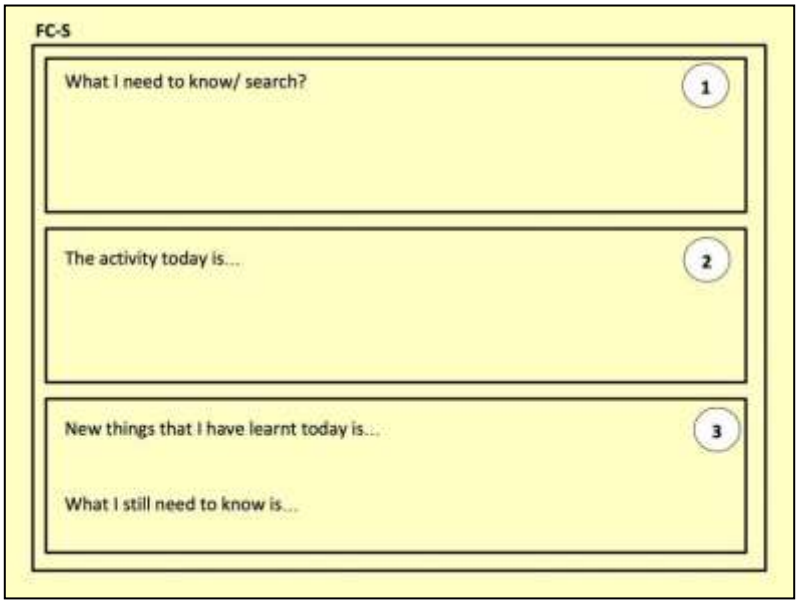


**Figure: 6 Front page of the card**

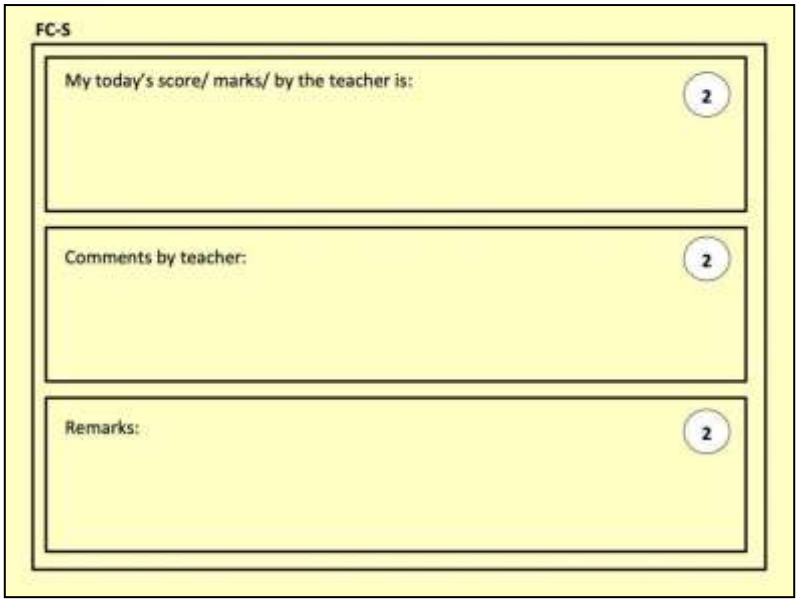


**Figure: 7 Back page of the card**

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### The Application of the FC-Card

The application of FC card comprises of three cycles, which is the pre, while, and post-session. The cycles are based on the teachers' discussion. The plan in these cycles was improved during the three months of implementation.

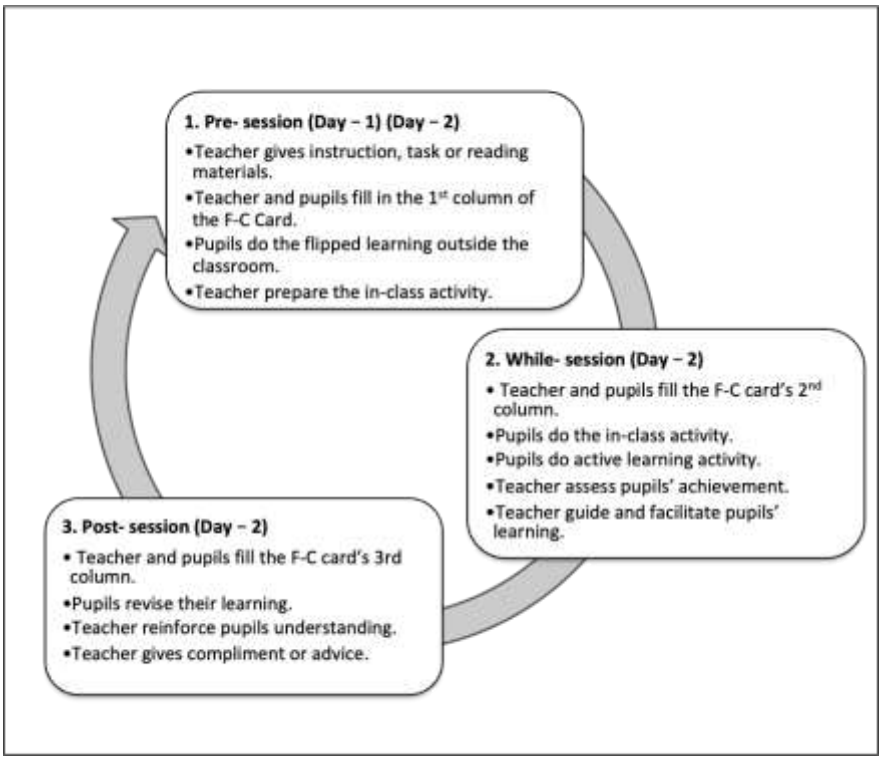


**Figure 8: The F-C Card cycle**

Figure 8 shows the cycle that illustrates three steps to use the F-C card. The steps in using the F-C card included the pre, while, and post sessions. For the first step, which is learning outside the classroom session, the teacher will assign some learning task for individual or group activity. The learners will do a learning activity, such as a project's preparations and discussions. This learning activity acts as a preparation for the upcoming class. Whereas, for the second step, the learners continue to do active learning activities such as completing problem-based learning projects. This cycle followed by the third cycle, which is the post-learning session. During the post-learning session, teachers and learners have evaluated the learning outcomes. The teachers had done the remedial and enrichment activities and give the learners another corresponding FC learning tasks using another FC card. The learners have kept all FC cards in their group activity folder.

### Data Collection

Researchers have collected the data from a focus group interview, field notes, and participant observation. Within four different schools, every researcher has implemented the FC card in their primary school science subject. The collected data were compiled and organized using the ATLAS.ti qualitative software. Researchers had conducted the cross-case data analysis to make the data comparison between the four cases. This study used multiple sources of data and member check during the data analysis to triangulate the data.

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## Findings

Findings indicate three emerging issues, which contribute to the implementation of the flipped classroom approach via the FC card in primary school science learning. The issues are regarding the activity fluency, simplicity design, and learners' positive learning.

### Simplicity Design

Planning the design of teaching and learning aids is essential to ensure that it is accessible, applicable, and friendly usability. A simple layout of the FC-card is to make sure that the learners could understand the instructions so that they could follow the three phases of the pre, while, and post procedures. Learners gave their perception of using the FC-card in a pre, while and post learning based on the three columns of the card. Some learners share their thoughts regarding the FC-card simplicity design as the following excerpt.

"We just write what we feel about the learning, and write" "its anything we learned, we jotted it there" "there are columns to write our note," Most learners said that they like the card because it is simple, portable and easy to complete. Learners could flexibly apply the card for individual or group work activities. The learner writes down the question that she wanted to know before the next class, she had jotted down the related information that she thought essential to her (Figure 9). After every learning session, the teacher collected the card and made some evaluation on the learners' learning (Figure 10).

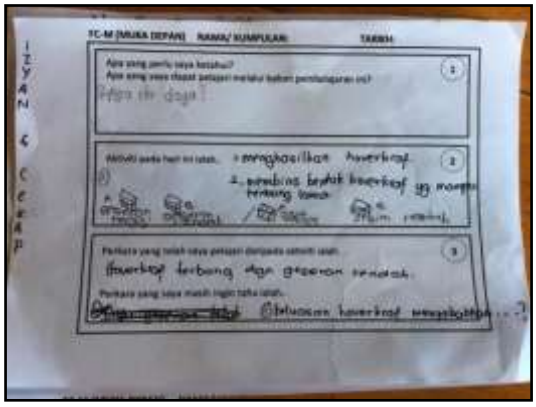

**Figure 9: Learner's learning notes**

**Figure 10 Teacher's remarks**

The three columns in the card have numbering that stands for the three phases of before, while and after FC activity. The teachers could make a simultaneous teaching and learning evaluation based on the note on the card, whereas the learners could also reflect on their learning. For a primary school level, it is crucial to train the learners to have reflective thinking and to become self-regulated learners. The autonomous learning competencies could allow the learners to discover the related information that they might think meaningful for learning.

### Activity Fluency

Using the FC card, learners are guided by the teacher to learn in a flipped way. From observation, the learners had completed the learning tasks smoothly while following the FC-card cycles and instructions. Most learners mentioned that they could complete the learning activity efficiently because they had learned it at home. The following excerpt highlights on the learners experience while undergoing learning activities using the card.

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"he (the teacher) liked it... he like the way my note on the card" "FC card, its not hard, only at the beginning" Learners felt that they had become familiar with the card and the FC card become more comfortable to use as they use it throughout the three months of learning session. Learners mentioned that they have their friends and family members, helping them study at home. Group members are studying and try to build a mini hovercraft (Figure 11). Group members were having fun testing out their project of making a less friction vehicle (Figure 12).

**Figure 11 Learners' groups activity**

**Figure 12 Making a mini hovercraft project**

Peers and family members help crucial in FC learning. The external supports could assist the self- regulated learning process in terms of tracking and checking so that learners always be in the right learning track. Although the learners trained for independent learning, a teacher's role as a facilitator is never be less relevant. Learning using the FC card could integrate learners' prior knowledge and schemata, with the active learning activity at the classroom, thus allowing the continuity of the FC learning process. Following the FC card's pre, while, and post phases, the priory classes would always be connected to the next classes.

**Positive Learning Experience**

A positive learning experience is observable during the use of the FC card. Learners also mentioned about their positive perceptions after using the FC card. Learners expressed their experience of learning a lot of fun activity using the FC card.

"This card helps me because it helps me to think while I am learning" "I could remember what I learned" "I can know what to learn tomorrow." Most learners mentioned that their family member also helps them do learning activities at home. Besides, they also help each other when they discuss before entering the class. The learners had requested to use the ICT room to search for information (Figure 13). The learners said that they already know how to do the respiratory model from the video they had watched on YouTube (Figure 14).

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**Figure 13 Learners access additional information**

**Figure 14 Learners do modelling activity**

Some factors such as meaningful learning, active learning, and the group work activity could result in a positive learning experience. Flipped learning using the FC card has triggered the inquiry, cooperative learning, and assist the self-regulated learning. A positive learning experience could promote learners' intrinsic motivation to learn independently. Furthermore, the teachers, peers, and family members also play an essential catalyst for learners' extrinsic motivation.

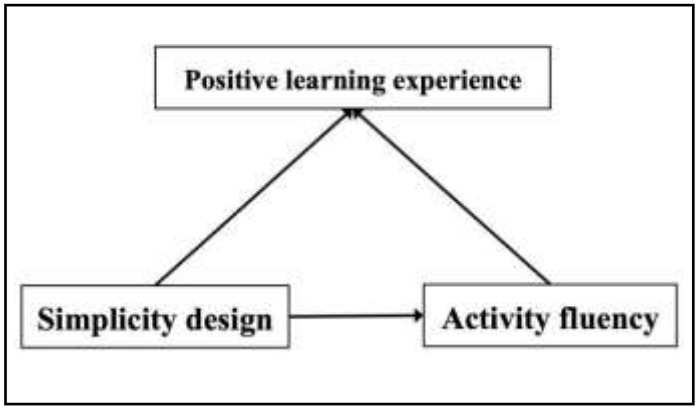


**Figure 15: The relationship between issues**

Based on the overall findings, a positive learning experience in a flipped learning session using the FC card was led by the simple design of the card and the easy-going learning experience while using the card. The small size of the FC card had also contributed to learner's positive learning experience. Every column has some reflective questions that are guiding the learners to use the FC card in the pre, while and post sessions. When the learners had mastered to use the column on the card, they could use the card or without the card for any learning activity. The learning template inside the card could become guidance for any science activities for learners to learn individually or group activity.

The teachers, as researchers in this study, represent as a facilitator helping the learners constructing their understanding. Teachers also guide learners to organize their learning cards in systematic folders and displaying the learning materials on the gallery walk center in the classroom. In the same time, peers and family members could assist learning in a more relaxed

in a non-formal setting, thus promoting a more open learning setting. The information had become accessible, allowing learning at any time for the learners. Learners could revise their cards and add additional information anytime they need to do so. Learners had become more responsible with their learning and have a positive attitude towards inquiry in science exploration.

## Conclusion

In conclusion, based on the findings, learners show positive learning experience learning the primary school science in a flipped way using the FC card. The FC card is highly potential to enhance the implementation of the flipped classroom learning style among the four primary schools in Sabah. Therefore, in the future, introducing a flipped classroom approach to primary school education could benefit the learners' learning. Promoting a well-rounded education in primary school is a root that will finally support the tertiary and high education level. Learners should be skilled with the 21st-century learning skills, becoming a more self-regulated learner, a STEM thinker, and a young inventor.

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