The Implementation of Cambridge Curriculum on Biological Learning in Gandhi Memorial Intercontinental School (GMIS) Semarang

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**Info Artikel**

Received : June 2019
Accepted : August 2019
Published : August 2019

**Abstrak**

The aim to describe the implementation of biology learning and analyze the positive aspects of the curriculum in Gandhi Memorial Intercontinental School (GMIS) Semarang. The evaluation of this CIPP model used descriptive-qualitative approach. The variables were the Cambridge Curriculum with context, input, process, and product aspects. The data collection techniques used documentation, observation, and interviews. The data analysis method used triangulation. The research results showed that in context, the profile of GMIS Semarang has a background as an international school in accordance with government regulations. The input consists of students, curriculum, teachers, facilities and infrastructure, and teaching materials that fulfill the standards. The process consists of the implementation of biology learning had a very good criteria which is 90% in the classroom and 92% practicum, the media was used as a support for learning, laboratories and library was used well. The assignments and teacher administration had been given well. The product in the form of student learning outcomes were good but it needed to be improved and the achievements that had been achieved by students at national and international levels were good. And there were positive aspects that can be applied to the national schools in improving the education quality.

**Kata Kunci:**

international curriculum; biology learning; cipp model

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p-ISSN 2252-6579
e-ISSN 2540-833X
INTRODUCTION

Entering the 21st century, the national education system faces a very complex challenge in preparing the of human resources quality that are able to compete in the global era. One of the government's efforts to overcome this problem is to improve the quality of the national education system through the curriculum (Ahmad, 2014). The current curriculum in Indonesia is the 2013 Curriculum.

The purpose of the 2013 curriculum is to improve the students ability in cognitive, affective, and psychomotor aspects (Ministry of National Education, 2013). These aspects already existed in the Cambridge International Curriculum. The Cambridge curriculum aims to develop students' knowledge, understanding, and skills (CAIE, 2018).

The 2013 curriculum is intended to adapt and adopt the educational quality from one of the OECD Countries (Organization for Economic Co-operatives and Development) or other developed countries. The graduates competency standards and content standards that are used by OECD countries and developed countries widely are by using the Cambridge Curriculum. The Cambridge curriculum is part of the University of Cambridge Local Examination Syndicate (UCLES) which is used in more than 150 countries. The Cambridge curriculum has one of advantages, namely Cambridge qualification graduates are accepted and appreciated by universities around the world (CAIE, 2018).

Based on the results of the Trends International Mathematics and Science Study (TIMSS) in 2015, Indonesia was ranked 45th in 48 countries in the Science field (Ministry of Education and Culture, 2016). The survey results confirmed that Indonesia's position is relatively low if it is compared to other countries that also participate in TIMSS. So that there needs to be a fundamental improvement from the curriculum to the implementation in the classroom so that it can improve Indonesia's achievements at the international level.

Gandhi Memorial Intercontinental School (GMIS) Semarang is an international school in Semarang which is still relatively new and it has not been accredited nationally, it still in the preparation stage towards accreditation at the national level. But, even though it has not been accredited nationally, the alumni of GMIS Semarang have so far joined with the world's leading universities. Based on this, a study was conducted on evaluating the implementation of the Cambridge International Curriculum at the school.

The curriculum evaluation was conducted to find out the curriculum implementation quality in the school, as well as to find out the smoothness of the learning process that is held (Sangadji, 2014). To find out the quality of curriculum implementation in the school, it can be done by using the CIPP model from Stufflebeam (1986). The CIPP model is an evaluation model that is observed from the context, input, process, product. Based on the above background, then an evaluation study was conducted on the Cambridge Curriculum implementation on biology learning in GMIS Semarang at IGCSE level (International Certificate in Secondary Education).

RESEARCH METHOD

This study was conducted in Gandhi Memorial Intercontinental School (GMIS) Semarang at the IGCSE level in the even semester of the 2018/2019 school year. This study included the CIPP model evaluation study by using a descriptive-qualitative approach. The
variables in this study was the curriculum that is used by GMIS Semarang in IGCSE level with Context, Input, Process, and Product components.

This study is divided into three phases, including: data preparation, implementation, and analysis. The preparation phase of this study was divided into managing permits by making a research permit letter from Universitas Negeri Semarang, determining the respondents that were deciding from people who were directly involved in biology learning with the Cambridge Curriculum and compiling the research instruments with interview and observation sheets guidelines. The implementation phase was done by collecting that data that was checked for validity through source triangulation and method. The data sources were from the principal, curriculum coordinator, biology teacher, and IGCSE level students. The method was used includes open structured interviews, observation, and documentation. And the data analysis was carried out descriptively.

RESULTS AND DISCUSSION

The Cambridge curriculum implementation on biology learning at GMIS Semarang is an evaluation research with the CIPP model that can be observed from the Context, Input, Process and Product components.

Context Component

Context indicators could be observed from the data aspect indicators, including school profiles and government regulations.

a. School profile

School profiles aspects can be observed from the school background indicators, target, vision, mission, and school goals. The data was taken by interviewing the principal who was represented by the curriculum coordinator and documentation.

Gandhi Memorial Intercontinental School (GMIS) Semarang is an international concept school that was established at the end of 2015 and officially began operating on April 7, 2016. GMIS Semarang is a school under the Gandhi Memorial School foundation which is open to foreign and local students. GMIS Semarang is located in a strategic location, which is built with an area of ± 1.5 HA in Jangli Village, Tembalang District, Semarang, in the Graha Candi Golf Housing complex.

GMIS Semarang was established and designed as a superior school that prioritizes the environmental care value and competitive at the global level while keep maintaining the noble values of the national culture. Based on these characteristics, Vision, Mission, and Objectives are designed to be a capable school for creating generations that are committed to continuing to learn and explore the potential that can be useful to develop a multicultural understanding. The objective of the school is also in line with the national education goals in Indonesia.

b. Government regulation

The data on government regulation aspects were taken by using the interview method with the principal who is represented by the curriculum coordinator and it was proven by documentation. The data was in the form of a decision letter from the collaborative education unit of the Gandhi Memorial Intercontinental School Semarang branch of the Semarang education authorities with the number of SK 264 / MPK.D / KL / 2016, on April 7, 2016, it has officially operated as an international school in Semarang.
Input component

Input indicator could be observed from data aspects indicators, including students, curriculum, teachers, facilities and infrastructure, and teaching materials.

a. Student

Based on the interview and documentation results, it was found that the number of students in GMIS Semarang was 56 students consisting of 15 Pre-school students, 18 Primary students, 23 Middle and Senior students. All GMIS Semarang students were accepted through placement test. Placement tests are not included in the decisions of students accepted or not at GMIS Semarang. However, it is a process of gathering information that was obtained through measurement results that can be used in making decisions. The purpose of the placement test is to categorize students at certain levels/classes in accordance with their competencies and abilities (Iskandar, 2016). This is a positive thing that can be applied in the national curriculum. Through the placement test, the teacher can carry out learning in accordance with the level and ability of students. So, that the learning process can be held as what it is expected.

b. Curriculum

Based on the interview result with the IGCSE curriculum coordinator at GMIS Semarang, the curriculum used at GMIS Semarang consisted of 80% of the international curriculum and 20% uses the national curriculum. The international curriculum includes Indian board in class 10 (Matriculation) and class 12 (Higher Secondary, and Cambridge Curriculum that will change by using the Oxford Curriculum. And the national curriculum is the 2013 Curriculum. This is in accordance with Minister of Education and Culture Regulation No. 31 of 2014 concerning partnership management and education management by Foreign Education Institutions and Educational Institutions in Indonesia to establish curriculum that refers to National Education Standards, Basic Frameworks, Curriculum Structures, and curriculum implementation guideline that can be combined by curriculum in other countries that have excellence in education or it can use curriculum in other countries after obtaining ministerial licenses or other appointed officials. The purpose of the curriculum implementation is to direct students to have national-minded besides that they can also take certain advantages from developed countries in the education sector so that they can have competitiveness in international forums (Widyastono, 2010). This can be an example for the national schools to be able to adapt and adopt an international curriculum and national curriculum.

c. Teacher

Based on the interview result with the curriculum coordinator and documentation, it was obtained regarding the total number of teachers and staff at GMIS Semarang of 38 people, with a staff of 16 people, and a total of 22 teachers. With the stages of requirements, namely through selecting at the beginning to look for teachers who are linear in accordance with their graduation, Middle to Senior prioritizes S2 graduates, while Pre-school to Primary is S1 graduates. Then interview with the principal uses English. And the last one is held 2x microteaching, the first with the coordinator and the second with students in one class who will be taught by the teacher. Meanwhile, for expatriate teachers, microteaching is also done but it uses Skype because it does not allow the teacher to attend the school. Teachers at GMIS Semarang consist of local and foreign teachers. This is in accordance with the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 31 of 2014 concerning the standard of education staff can be enriched by the standards of education staff of foreign education units. The teachers who are dominated by the presence of foreign teachers
in a school will provide good contributions for quality-compatible education (Mbuthi, 2014), and also the quality and professionalism that are brought by each teacher increasingly diverse. By looking at this, a positive aspect for national schools can be taken by adding more competent teachers from both local and foreign to be able to advance the schools quality.

d. Facilities and infrastructure
Based on the observations and documentation results about the facilities and infrastructure, GMIS Semarang was categorized very well, with a score of 94%. Scoring is adjusted to the Permendiknas indicator No. 24 of 2007 concerning standards for facilities and infrastructure, which include: classrooms, libraries, science laboratories (Physics, Chemistry and Biology), computer laboratories, leadership rooms, administrative rooms, places of worship, school medical rooms, toilets, warehouse, counseling room, playground, gym, circulation room. But, GMIS Semarang does not have a language laboratory specifically, on learning that requires a language laboratory conference rooms are used, because in that room the ingredients support such as the presence of audio, microphone, and so on. The conditions of the facilities and infrastructure in GMIS Semarang are still new because GMIS Semarang has not moved to a new building for one year.

The facilities and infrastructure in GMIS Semarang utilize as facilities to support teaching and learning activities. With the quality of learning facilities that are complete and adequate, it will facilitate the learning process which then directs to the achievement of the learning objectives (Ayeni, 2012). It can also be an evaluation material for national schools in order to be able to complement and utilize the existing facilities and infrastructure optimally so that the learning facilities can support the learning process that supports the achievement of learning objectives.

e. Teaching materials
Based on the interviews results with biology teachers and students as well as documentation of the results, teaching materials that used is a textbook from Oxford and Cambridge as well as textbooks from other English-speaking foreign countries related to the topic discussed. The textbook contains material that emphasizes deepening, application of examples in daily life. It can train students to think critically about the material obtained and then be linked/ connected directly to the problems of the life around them. This is in accordance with Jannah's (2017) who stated that through events or phenomena that are often encountered by students in the surrounding environment is one of the learning resources that can be used by teachers in order to activate critical thinking skill. In addition, the development of critical thinking skill is seen as something very important and not enough to be used as an educational goal only, but also as a fundamental process to equip students to overcome uncertainty condition in the future (Nugraha, 2013).

Process Component
Process indicator was observed from the implementation aspects of biology learning in the classroom and practicum, the use of learning media, laboratory and library utilization, assignment of tasks, and teacher administration.

a. Implementation of biology learning
The implementation of biology learning was observed from the process of learning biology in the classroom and also practicum learning. Based on the observations and
documentation results of biology learning that was carried out in the class, it is categorized very well with a score of 90%. The process of learning implementation by the teacher in the classroom started from the preparation phase, including preparing students to learn, performing apperception activities, and explaining learning objectives. Then the core activities phase, including mastery of material, learning approaches/strategies, utilization of learning resources and learning media, involvement of students in learning, conducting assessment and use of language. The last is the closing phase, including making conclusions, evaluations, reflections/feedback to students, and notifying the next learning plan. While the process of practical learning activities carried out by the teacher includes the preparation stage (designing practicum, preparing tools and materials, explaining work procedures), the implementation phase (guiding, supervising the practicum and the use of material tools), and closing stages (making conclusions and assigning to make lab report). Based on the observation result and supported by practical learning documentation that was available at GMIS Semarang, it is categorized as very good with a score of 92%.

Besides uses learning in the classroom and practicum, the learning process in GMIS Semarang is also carried out in outside of the class. For example, Field trip learning and Science competition that was conducted so that the learning objectives can be achieved optimally. Learning Field trip is conducted once a year by students at all levels aimed at getting students to gain first-hand experience of certain places such as mountainous environments, museums, zoos, farms, and so on. It is in line with Nusi (2016) who stated that the field trip method is a method of learning that is carried out outside the classroom by visiting a place to help students get a concrete picture of the object being studied. Meanwhile, Science Competition is held once every semester, with the provisions of the opposing team according to their respective levels. Science competition aims to develop the ability of students in the field of science and the competitive spirit of students. In addition, character learning is obtained by students regarding cooperation, caring, independence, and so on. This is important for the psychological psyche of the students who will later become provisions and useful as human beings who have a high social life. This is in line with Citra's (2012) who stated that character education is a system of planting character values for each school citizen which includes the components of knowledge, awareness or willingness, and actions to implement values and norms for God, self, other people, environment, and nationality. So that, they become better human.

In addition to these characters learning, in GMIS Semarang there are character development learning and the exploration of potential talents of students, including Assembly that is conducted every morning before class learning begins, the activities include dancing, drama, singing, drawing, music, etc. Other academic support programs such as Debate, Quiz, Essay Writing, Presentation and cultural, and religious learning such as Diwali, Commemoration of Islamic Holidays, Isra Mi'raj, Christmas, Halloween, Silence day, commemoration of the independence day of each student country and so on, and also to be taught nationalism such as Kartini Day, the commemoration of the Indonesian Independence Day, the commemoration of the Youth Oath. Through various kinds of learning that are carried out in GMIS Semarang, it is expected that positive aspects for the 2013 curriculum can be taken because learning is not only about academic learning that is done in the classroom, but also cultural learning from various countries and religions, as well as implementing characters that are important for each students in the future.

b. The use of learning media
Based on the observation and documentation result, the use of media such as video, audio, projectors and presentation media mean of supporting the learning process. The use of learning media in the classroom is only used if the learning requires media supporters. In addition, media use is needed for the outside classroom learning, for example during activities in Assembly, Science competition, Debate, and others. Learning media in GMIS Semarang utilizes as a support or support tool for the continuity of the success of the curriculum/ teaching and learning activities so that it will facilitate various parties in achieving the learning objectives. By utilizing learning media in class and outside the classroom optimally, it will make students enthusiastic and more interested in the learning process. So that it will improve the quality of learning. The use of media in learning is based on the concept that learning can be achieved through various ways, including experiencing directly, by observing others, and by reading and listening (Mustika, 2015). Observing this, it also expected that other schools be able to optimize the use of instructional media to support the learning process both inside and outside of the classroom.

c. The use of laboratories and libraries

Based on the observation result and the supported documentation, it was found that the existence of laboratories and libraries in GMIS Semarang had been used by the school community by observing the use of tools and materials in the laboratory, inventory list of laboratory equipment and materials, library visitor lists, and the collection of books in library. The use of laboratories and libraries are used for teaching and learning activities or other activities such as working on assignments, finding inspiration, and so on.

The use of laboratories in GMIS Semarang is to support practical learning activities that help the students to conduct experiments in the field of Science, especially Biology. Practical activities in GMIS Semarang are supported by practical books from Cambridge. With optimal use of the laboratory, it can help to achieve the learning objectives that have been applied. This is in accordance with the opinion of the Ministry of Education and Culture (2017) The Science Laboratory has a function to support the achievement of the objectives of the Teaching and Learning Process in school. So that the quality of learning outcomes increases and provides reinforcement in order to enrich and deepen students' understanding of the basic concepts of science. In addition to the use of laboratories to support the learning, library use can also support improving the quality of learning for students. Every student in GMIS Semarang has a library membership card, which can be used to be able to visit and utilize the library facilities. The library is also an effort to maintain and improve the activities of the teaching and learning process. Libraries that are well organized and systematic can directly or indirectly provide convenience for the teaching and learning process in schools (Febriani, 2014).

The positive aspects that can be taken for the national curriculum are by utilizing the laboratorium and library optimally. It aims to support the learning process. By organizing and utilizing libraries and laboratories properly and optimally, it will make it easier for school citizens to achieve the learning goals.

d. Giving assignments

Based on the of interview result with Biology teacher and students and supported by documentation, the assignment at was given to students includes independent assignments in the form of writing essays on biological topics, projects, and so on. Group assignments were
given at the time of practicum. While independent training in the form of a review/ quiz was given at the time after the topic had been finished. And the test was given in one semester in 3 times named CA (Cumulative Assessment) 1, CA 2, and TEE (Term End Examination).

All the assignments that had been given to students would be written in the Student Planner book. All students in GMIS Semarang should have a Student Planner book. The book is a diary book that contains activities or agenda while studying in school, such as the type of assignment given, date of submission, then initial parents, and teachers concerned. After the assignment was submitted by the teacher, then if something was unclear by the students, the teacher would explain it again. The Student Planner does not only contain assignments but also notes the progress of students' achievement and ability to learn in all subjects reported by all teachers who teach students, then reported by the Class teacher to parents of the students concerned. The purpose of the Student Planner book is to be able to train disciplinary attitudes and responsibilities of students through the tasks that had been given. It forces students to work on the obligations that had been given so that it will make students accustomed to discipline to these obligations. Basically, discipline must be sought and provided consciously, so that students are able to comply through existing practices and apply it especially in schools (Mariyani, 2018).

The positive aspects that can be taken for the 2013 Curriculum are to get used to a disciplined attitude to the obligations as students. For example discipline towards duties and other obligations. In addition, it can also be a special note for students regarding the plan and implementation of learning activities that is carried out in schools.

e. Teacher administration

Based on the observation result and supported by documentation, it was found that the administrative completeness of the teacher from the syllabus, lesson plan, correcting assignments and repetitions, the repetition schedule, the list of grades, and data on the semester and annual program agenda had been fulfilled and were made completely. Every teacher in GMIS Semarang is obliged to complete and fulfill assignments in the field of administration. Administrative teachers have a function to facilitate and archive in planning, implementing, and evaluating learning, so that the learning objectives will be easily achieved. The teacher administration also serves as a record of evidence that the teacher is implementing as a teacher. This is in accordance with Nisa (2017) who said that the teacher's task in planning, implementing, and evaluating learning are component in learning administration. This is also an example for other teachers, especially in national schools, to make and complete teacher administration because this is the main task of a teacher. Thus, it will facilitate the teacher in achieving learning objectives easily.

Product component

Product indicators could be observed from student learning outcomes aspects and student achievement both in academic and non-academic fields.

a. Students learning outcomes

Based on the interview and documentation results, it was found that the assessment of student learning outcomes in biology learning in GMIS Semarang was carried out during the process, including assessment of attitude, homework, project, notebook, behavior. Assessment of the learning process at each step would provide learner learning outcomes that are far better than the teaching and learning process which is rarely held by assessments (Fitrianti, 2018). In addition, cognitive assessment was also carried out at the end of CA1, CA2, and TEE. Every
time the CA is finished, a PTC (Parent Teacher Conference) would be held, namely a meeting of parents of students with a Class teacher to report CA values/results obtained by students which would then be given a direction so that the next CA until TEE results will improve even better. It was intended that parents know the ability of their children, so parents can participate in guiding and directing students at home to study harder. When the CA was held again even TEE was expected the results would increase even more. This is in line with Sabeuleleu (2016) that the involvement of parents in helping learners at home can support students in educational endeavors and motivate students to learn. This can be taken a positive aspect for the national school so that it involves parents to motivate students at home so that students are more enthusiastic about learning. In addition, the teacher should also make an assessment not only at the end because the assessment carried out by including the assessment of the learning process will be far better than the assessment conducted at the end of the course.

b. Student achievement

Based on the interview result with principals who represented by curriculum coordinators, that the achievements achieved by GMIS Semarang students, namely, getting scholarships to continue their studies to the best universities in the world and taking part in math and science competitions. All students in GMIS Semarang are directed according to their talents and interests as well as the abilities possessed by students so that the potential within students can be explored and developed optimally. Students with high learning interest in a particular subject encourage themselves to know in depth the material obtained (Pratiwi, 2015). This method can develop student achievement which aims to prepare students to go to the next level domestically or abroad in achieving their goals. This is in line with Siagian (2017) that in the learning context there are several benchmarks, one of which is the achievement of educational taxonomy that can be used to determine student learning achievement. The positive thing that can be taken for national schools is by opening the widest network with universities in the country and abroad or about info on competitions in various competitions, especially abroad. This is useful for the future development of students.

CONCLUSION

The implementation of the Cambridge international curriculum on Biology learning in GMIS Semarang can be described as follows, Context which includes profiles of schools and government licensing is in accordance with international standard schools. From the Input component that covers students, the curriculum used, the teacher, the facilities and infrastructure, as well as the teaching materials used are well available and very adequate. From the Process component that covers the implementation of biology learning, the use of learning media, the use of laboratories and libraries, and teacher administration has been running and is used quite well in accordance with the objectives, but needs to be improved to make it better. And from the product component includes the learning outcomes that were obtained by students are quite good and the achievements achieved by students have also been both at the national and international level.

The positive aspects of the Implementation of Cambridge Curriculum in GMIS Semarang that was observed from the context, input, process, product. Input: the application of placement tests used to place students according to ability, using multicurriculum that can add insight and knowledge to students, the diversity of cultures taught by local teachers and foreign teachers, the quality of facilities and infrastructure that can support teaching and
learning activities, materials teaching that applies the surrounding phenomena to learning can improve students' critical thinking skills. Process: the implementation of Field trip learning and the existence of outdoor and indoor Science competition, aiming for students to gain academic knowledge and also character building which is an important provision for students in their lives, the use of media in GMIS Semarang which has been used optimally as a learning support tool, library and laboratory utilization by all school members who have been used in accordance with their functions, the existence of a student planner or task record aims to have more responsibility and discipline, the teacher administration task has been carried out by the GMIS teacher Semarang as the teacher's main task. Whereas Product: assessment is carried out during the learning process and GMIS Semarang also facilitates and bridges students to continue their study abroad and also engages and guides students in participating in competitions held at the country and other country.

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