

Learning Innovation in Strengthening Higher Order Thinking Skill in the Laboratory Elementary School

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Abstract: This study aims to: (1) describe the roles played by principals and teachers in conducting learning innovations to strengthen higher-order thinking skills; (2) describe learning innovations that have been successfully developed by Laboratory Elementary Schools of Universitas Negeri Malang (LES-UM) to strengthen higher-order thinking skills; and (3) describe the strategies of principals and teachers in conducting learning innovations to strengthen higher-order thinking skills. This study uses qualitative research with a phenomenological approach. This study also uses a case study design that attempts to analyze learning innovations in strengthening higher-order thinking skills at the LES-UM. Research findings, among others: (1) principals act as planners, implementers, and evaluating superior programs in the context of the successful implementation of facilitation of higher-order thinking skills of students; (2) three innovations developed by LES-UM, including: group acceleration, ICP, and Bilingual. Group acceleration program is the most dominant innovation; (3) the principal's strategy in facilitating the implementation of high-thinking skills-based learning innovations, including: (1) involving all teachers and staff in empowerment activities, especially in learning clinics that are fostered by the school development team; (2) intensification of supervision activities; (3) developing of bilingual textbooks independently; (4) establish intensive communication with parents of students, especially those related to the innovation of group acceleration programs; (5) conduct regular meetings in the beginning of the semester in preparing the semester program; (6) strengthen exemplary programs, both in the form of school attendance and the creation of a bilingual interaction climate; and (7) organizing a picket teacher program (co-teacher).

Keywords: learning innovation, HOTS, laboratory school

I. INTRODUCTION

Over the past several decades there have been educational policy reforms throughout the world. Government and legislative countries around the world have actively institutionalized new policies in the world of education [1]. But in reality, Indonesia still faces problems and issues of education implementation. These problems are basically related to problems, one of which is the factor of educational resources that are not capable enough to support the achievement of goals and targets of education effectively [2]. Therefore, an effort is needed to improve the education quality by making improvements in the learning process. Improvement of teaching skills throughout Indonesia can be done through participation in training activities, seminars, workshops related to education so that the activities can be created uniformity of teaching quality in accordance with the demands of the era. There are many components that influence student learning outcomes, they are: (1) learning objectives; (2) studied materials; (3) learning strategies; (4) students and teachers as subjects of learning; (4) learning media; and (5) the learning process support [3], [4].

Demands for change have forced the educational paradigm to gradually shift towards a more openly, professional and democratic. Therefore, to make learning process to run well, the development of students potency must be facilitated and directed at emphasizing the activities of students as well as shifting

learning responsibilities towards students so that students can develop their potential as maximum as possible [5], [6]. Through more sophisticated access, students are required to play a greater role in the process of acquiring their own knowledge and teachers in learning only serve as facilitators. Students who have a myriad of potentials are required to have certain skills after completing education unit, which will be expected to be used to compete in the world of work that currently demands productive young people. Therefore, the future young generation needs contributions from educators and education policy makers. This can be done through debriefing students with certain skills in order to respond the needs of modern society as a better thinker generation.

Evaluation activities that aim to determine the academic competitiveness of Indonesian students globally are carried out through international scoring activities such as the Program for International Student Assessment (PISA) and Trends in the International Mathematics and Science Study (TIMSS). The results of this activity are used as basis for considering students based on their needs and dynamics of life changes. The Program for International Student Assessment (PISA) as a program implemented by OECD in 2009 has conducted research to look at students' reading, math and science literacy skills aged 15 years in 65 countries.

The results of this study indicate that Indonesian children's mathematics literacy skills are

ranked 55 with a score of 371 from 65 countries, where almost all Indonesian students only master subject matter up to level 3 from 6 levels, while students in both developed and developing countries master the lesson up to level 4, 5 even 6.8 The same study was carried out by Trends in the International Mathematics and Science Study (TIMSS) which showed the mathematics and science skills of students in grade VIII SMP / MTs in 2007 Indonesia ranked 35th out of 49 countries. For science, the average score of Indonesian students is 427 while Thailand and Malaysia are 471 while Singapore is ranked first 567 (Kemendikbud, 2015). This shows that the ability of Indonesian students in science is still far behind the average ability of students in other countries in the world. Therefore, serious efforts are needed to improve the education process with the hope that the national students can compete with other countries in PISA and TIMSS in the future.

Natural Sciences (IPA) is related to how to systematically find out about nature, so that science is not only about mastering a collection of knowledge in the form of facts, concepts or principles, but also an invention process (Kemendikbud, 2006). In learning science, students are directed to compare the results of the predictions of students with theory through experiments using scientific methods. Therefore, learning science should be carried out in scientific inquiry to foster the ability to think and work scientifically and communicate it as an important aspect of life skills. Indicators of high-level thinking skills in students are also often missed by the teacher's attention. High-level thinking skills are one of the main skill for students in learning science, especially Biology. Learners need certain thinking skills to solve problems / phenomena contained in problems found in Biology subjects.

This is because Biological concepts are closely related to various complex living systems and environments. Biology are developed through the ability to think analytically, inductively, and deductively to solve problems related to natural events around. By involving students to develop these skills, indicates that the teacher empowers students to think reflectively, critically, and analytically [4], [7]. As a result, the result, students can make an appropriate, accurate, systematic and logical decision and consider various points of view. Conversely, if students are dominant in aspects of low-level thinking will lead to the emergence of the habit of doing various activities without knowing the purpose and reason for doing things. The curriculum 2013 learning pattern emphasizes high order thinking skills (Kemendikbud, 2013). Students' high-level thinking skills can be developed with learning techniques that encourage students to actively and independently explore their knowledge. Learning models that are appropriate and right on target to achieve these goals are through the application of guided inquiry-based learning models and free inquiry [4], [7].

Based on research conducted by Jefta Hendryarto and Amaria regarding inquiry in general states that the inquiry learning model influences students' high-level thinking ability as evidenced by the

average increase in the pretest and posttest scores with high category N-Gain ie 0.71 and 0.72 [8]. Furthermore, guided inquiry method is better in improving student learning outcomes and higher-order thinking skills [9], [10]. Based on the explanation above, it can be concluded that there is no research comparing the guided inquiry learning model and free inquiry to measure students' high-level thinking skills. Therefore, researchers are interested in conducting research by comparing the two types of inquiry learning to measure students' high-level thinking skills. Inquiry model is an alternative innovative learning model developed based on constructivist paradigm. This certainly can provide opportunities for empowering students' thinking potential in problem solving and decision-making activities in complex real-life contexts.

As stated above, education is an effort to pass on values, which will be a helper and guide in living a life, as well as to improve human destiny and civilization that can be done since in the womb. In the field of school conception education is one of the important elements of the sustainability of the national education system. The failure of the education system in Indonesia stimulates the growth of alternative schools that are believed to have better education quality than ordinary schools. One alternative school that is now in demand is a laboratory elementary school which is generally under the guidance of certain universities, one of which is the LES-UM.

From various information obtained, it is known that LES-UM is a pioneer of international standard schools for elementary school level. Long before the Government Amendment No 19/2005 on National Education Standards and Law No. 14/2005 concerning Teachers and Lecturers were ratified, LES-UM began to pioneer international education by opening international classes. Until July 5, 2007, LES-UM received a coronation as an International Center from the University of Cambridge International Examination of (CIE). Cambridge University, London itself is ranked the world's three best universities. This coronation also gave recognition and license for the implementation of international classes for three maples (English, Mathematics and Science) at the primary school (SD) level and lower secondary school (SMP). With this function also, LES-UM can be a one-stop school that provides 9-year education services (SD-SMP) in one location.

Recognition as a center for international education is not without effort at all. The media of learning and infrastructures support LES-UM to meet the standardization of international education services at Cambridge University. At LES-UM, acceleration education models, individual learning services, and mastery learning have been developed through unit modules. This kind of learning and education model has pedagogical implications to foster students' independence, stimulates interest in reading and mastering learning materials, and motivate to find as many references as possible. Because of that, at LES-UM developed a continuous student learning system with the helps of 2 teachers in each class.

While the learning facilities that must be fulfilled at LES-UM are full multimedia that is connected online in each class. The mandatory teaching materials used are all references to Cambridge University or other English-speaking countries. Standardization of educators is not spared from the attention of elementary schools that have environmentally conscious groups of members of this world NGO. All teachers in the international class of the LES-UM must be certified by Cambridge University. In this regard all teachers must be able to create teaching portfolios and make learning modules and be creative in teaching.

II. METHODS

This study uses qualitative research with a phenomenological approach. Qualitative research is often referred to as naturalistic research. This research belongs to a phenomenological approach. Researchers aim to understand phenomena that occur empirically in research subjects, where researchers will describe the results of research in the form of words obtained during observations and interviews with a number of informants. Research data collection was conducted for four months, starting in March to May 2017. At the end of each month, the researchers gathered to discuss the results of data collection, as data analysis during the field as recommended by Miles and Huberman (1986), and at the same time planning data collection the following month, until April 2017, and data ready to be analyzed in May 2017.

Three techniques were used in collecting data for this study, namely: (1) in-depth interviews; (2) observation participates; and (3) documentation study. These three techniques are indeed basic techniques that are always used by qualitative researchers in their research (Marshall, 1989). The use of un-structured in-depth interview techniques begins with the preparation of common questions by Spradley, includes:

1. The roles of school principals in learning innovations in strengthening higher-order thinking skills.
2. The learning innovations have been successfully developed in natural schools in order to strengthen higher-order thinking skills.
3. The principal's strategy in conducting learning innovations in strengthening higher-order thinking skills.

In accordance with the type of interview used, as stated above, in each interview there was no standardized interview instrument. Prior to the interview, the outlines of the questions that will be asked to the informants are outlined. The outline of the question is prepared based on the focus and formulation of the research problem [11], [12]. Furthermore, while the interview process takes place, sometimes probing questions are inserted. The aim is to dig deeper about the things that are being interviewed. These deepening questions were developed spontaneously during the interview process, with the funnel sequence, starting from general matters leading to specific things.

As a key informant who was first interviewed, each primary school principal was determined as the background of this study. The principal, as the highest leader in his school, certainly has a lot of information about, and knows the situation, the school, so that it can be used as the first informant. Furthermore, once interviewed sufficiently, the principal was asked to show one, two, or more teachers or supervisors who he considered were also able to provide the information needed and could be used as the next informant. Then combined with snowball sampling technique, which is asking the previous informant to show other people who can be used as the next informant (Bogdan & Biklen, 1982). In short, the determination of the informant here is not based on the idea that the informants must represent the population, but the informant must be able to provide the necessary information.

The second data collection technique used in this study is participatory observation techniques. The technique is used in a way where the researcher attends, observes, and simultaneously participates in a particular setting or atmosphere. There are 9 situations that is entered and observed during this research process. These situations, especially the learning process, as well as the physical conditions of schools and school parks. The aim is to observe events as they occur naturally. With these observations it was found that there were many findings related to the focus of this research. By observing the teaching-learning process in the classroom for example, the findings about learning innovations that actually occur in elementary schools are used as the background of this study. Participation is carried out in observing more in the form of passive attendance and limited interaction.

The third data collection technique used in this research is documentation study technique. During this research process there were several documents collected and analyzed, learning program plans prepared by the teachers and several minutes of meetings at the beginning of the semester. This study also uses the case study design through the pre-field stages, the actual stage of field activities and research. This study attempts to analyze the innovation of learning in strengthening higher-order thinking skills at the LES-UM.

III. RESULTS AND DISCUSSION

A. Roles Played by the LES-UM Principal in Strengthening the Learning Innovation Based on Higher Level Thinking Skills

1. Planning the Learning in the Acceleration Program of LES-UM

The components of the Learning Implementation Plan (RPP) are an important part that must be considered in the implementation of the acceleration program. If faced with the choice "the teacher may not make the curriculum, may also not make teaching aids even in certain cases do not make an assessment, but no reason to not to prepare plans [13]. The same thing was done by LES-UM teachers that always aware of the importance of making planning. They assume that good learning must be planned and a good plan must be implemented.

Given the importance of RPP in the implementation of Curriculum 2013 which will determine the success or failure of learning. Ideally students are involved in their development, to identify competencies, establish standard material, develop indicators of learning outcomes, and conduct assessments [4], [14], [15]. In this case the teacher is given the authority to analyze the Standards of Competency and Basic Competence (SK-KD) in accordance with the characteristics of the school and the ability of the teacher itself, in describing it into a syllabus and RPP which is ready to be used as guidelines for the formation of students' competencies.

a. Principles of Development of RPP in the Acceleration Program at LES-UM

In developing RPP, teachers must pay attention to the interest and attention of students towards the material of basic standards and competencies that are used as study material. In this case it must be noted that the teacher should not only act as a transformer, but must also act as a motivator that can arouse passion and passion for learning, encourage students to learn by using various variations of media and appropriate learning resources, and uphold the formation of competencies. The ability to plan teaching and learning programs for teachers in LES-UM is as follows:

- 1) The ability to design buildings for an architect. He not only can make good pictures and have aesthetic value, but also must know the meaning and purpose of the building he made. Likewise, the teacher in making plans or teaching and learning programs. Before making a teaching and learning plan, the LES-UM teacher must first know the meaning and purpose of the plan, and master theoretically and practically the elements contained in the planning of teaching and learning. The ability to plan teaching and learning programs is the origin of all theoretical knowledge, basic skills, and a deep understanding of learning objects and teaching situations.
- 2) Teachers at LES-UM are not only tasked with transferring knowledge, but as a source of inspiration in terms of thinking, speaking and behaving. The purpose of teaching and learning planning is as a teacher's guide in carrying out teaching practices. Thus what the teacher does when teaching comes from teaching and learning planning that has been made previously.

b. RPP Functions in the Acceleration Program at LES-UM

There are at least two functions of RPP, they are:

1) Planning function

RPP should be able to encourage teachers to be readier to do learning activities with careful planning [4], [14], [15]. Therefore, every LES-UM teacher will do teacher learning must have preparation, both written and unwritten preparation. The components of RPP must be understood by the teacher in the success of the KTSP implementation, including basic competencies, standard materials, learning procedures, learning

outcomes, indicators of learning outcomes and Evaluation.

2) Implementation function

To succeed the implementation of KTSP, RPP must be arranged systematically and systematically, intact or comprehensively with several possible adjustments in the actual learning situation. Thus, RPP serves to streamline the learning process in accordance with what is planned. In this case the standard material developed and used as study material by educators must be tailored to the needs and abilities of students. So that, it is expected to facilitate students' understanding of study material or the material being taught. Students' understanding, especially related to psychiatric aspects, is one of the keys to the success of education [4], [14], [15]. Therefore, in the learning activities, the LES-UM teacher learning activities must be organized through a series of specific activities with the right strategy.

2. The Implementation of Learning for the Acceleration Program at LES-UM

Learning is an effort to teach students to learn. In this definition there is a meaning that in learning there is an activity of choosing, establishing, and developing methods or strategies that are optimal for achieving desired learning outcomes under certain conditions [16], [17]. Learning related to how (how to) teach students or how to make students can learn easily and motivated by their own willingness to learn what (what to) actualized in the curriculum as needs (needs). Therefore, learning seeks to describe the values contained in the curriculum by analyzing learning objectives and the characteristics of the content of the study fields contained in the curriculum [9].

Furthermore, activities are carried out to have, determine, and develop, appropriate learning strategies or methods to achieve the learning objectives set according to the existing conditions, so that the curriculum can be actualized in the learning process so that learning outcomes are realized in students [18], [19]. The elaboration of the learning model applied is as follows:

a) Contextual learning

Contextual learning or contextual teaching and learning (CTL) is a concept that helps teachers associate the material they teach with real-world situations and encourage students to make connections between the knowledge they have and their application in their lives as family members and society [20].

At the LES-UM, the teacher applies the contextual learning model to the role-playing method, students understand the concept and students live at the same time feel the direct role they play. Learning will be more perfect after students learn to share with classmates playing the role they agree on.

b) Role playing

Through role-playing, students try to explore relationships between humans by demonstrating them and discussing them so that together students can explore feelings, attitudes, values and problem-solving strategies. As a learning model, role playing is rooted in

the personal and social dimensions. From the personal dimension of this model, students are invited to learn to solve personal problems they are facing with the help of social groups consisting of classmates. From the social dimension, this model provides an opportunity for students to work together in analyzing social situations, especially issues concerning the interpersonal relationships of students and this is also carried out democratically so that through this model participants are trained to uphold democratic values [20], [21].

There are three things that determine the quality and effectiveness of role playing as a learning model, namely (1) the quality of play, (2) analysis in the discussion, (3) the views of students on the role displayed compared to real life situations. The role-playing learning model applied in learning at LES-UM is a practice that makes students learn independently. Students will try to appreciate their role. With the role-playing learning model, students will experience real learning.

c) Participatory learning

Understanding participatory learning. Participatory learning is defined as the involvement of students in planning, implementing and evaluating learning [22]. In planning the learning at LES-UM students are included in preparing the learning objectives. The teacher provides solutions for students who have difficulty managing learning patterns and the teacher facilitates students who want to conduct self-evaluation of learning processes and outcomes. By involving the participation of students in planning, implementing and evaluating learning, makes students character disciplined, independent, creative and responsible for themselves and their time during study at school and at home. So that he is better prepared for his future.

d) Module

Modules can be formulated as a complete unit that stands alone and consists of a series of learning activities arranged to help students achieve a number of goals that are formulated specifically and clearly [23], [24]. From the definition above, in accordance with the implementation of learning at LES-UM where the teacher makes his own learning module to facilitate students to learn independently. The module also provides various learning activities, such as reading textbooks, library books, magazines, essays, pictures, photos, diagrams, films, slides, listening to audio tape, learning demonstration tools, participating in projects or experiments and participating in extra-curricular activities [23], [24]. In addition, the module can provide choices and a large number of topics in the framework of a learning, and provide an opportunity to recognize the advantages and disadvantages and improve weaknesses.

The module is a complete learning unit that stands alone and consists of a series of learning activities that are arranged to help the learner achieve a number of goals that have been formulated specifically and clearly. The next stage, if the LKS (students' worksheet) reaches the minimum standard (KKM) 80, it

may request an evaluation. However, if the LKS value and / or evaluation value is below the KKM, students automatically make improvements (PB), while for students whose LKS and evaluation have reached the KKM, they get enrichment. So on.

- e) Learning is complete (mastery learning), Continuing progress (continuous progress), and Program Acceleration (acceleration).

Complete learning is a learning process that is carried out systematically and structurally, aims to adapt learning to large group students (classical teaching) and is useful for the speed of learning (rate of program). Complete implementation of learning is carried out in the form of individual and classical learning systems. Complete learning can be done if supported by a number of media, both hardware and software, including the use of computers (internet) to streamline the learning process. Service to students in learning is complete at LES-UM:

- (1) In learning activities, students are served individually and not classically. The pattern of individual learning activities requires students to learn individually by reading material texts, solving problems, making written reports / papers, using the library, working in the laboratory, and so on.
- (2) The teacher functions as a tutor, motivator, and facilitator. Each class / field of study is guided by two teachers in team teaching, not by taking turns between one another. Both teachers are equally active and help each other in serving student learning both the learning process is fast and students whose learning process is slow or having difficulties in learning. In this case students must be proactive in relation to:
- (3) Learning Strategies and Learning Approaches. First, the individual approach, namely the individual differences of students, provides insight to the teacher that the teaching strategy must pay attention to the differences in students in this individual aspect. Second, the group approach is that in teaching and learning activities sometimes there are also teachers who use other approaches, namely group approaches. The group approach is indeed a time needed and needs to be used to foster and develop students' social attitudes. Third, the approach to practice, which provides opportunities for students to practice and feel the results of the practice of worship and morals in the face of tasks and problems in daily life. Fourth, habituation approach, which provides opportunities for students to get used to practicing the teachings in the fifth lesson, emotional approach, which is to arouse students' feelings and emotions in believing, understanding and living the lessons that have been taught in accordance with Islamic teachings and national culture. Sixth, the rational approach is the effort to give the role of the students' understanding in understanding and differentiating teaching materials in material standards in relation to good behavior with bad behavior in daily life. Seventh, functional

approach, which emphasizes the benefits of material for students in daily life. And the eighth exemplary approach, making religious and non-religious teacher figures as well as school officers become a mirror of human personality [4].

Learning strategies and approaches at LES-UM have been in accordance with the above approach, while the most dominant approach is carried out by LES-UM teachers, as follows: (1) Individual Approach: Individual approach (independent study) run in learning at LES-UM has changed the paradigm of students about the nature of learning. With this approach it has inspired teachers that teaching strategies must pay attention to differences in students in their individual aspects. This kind of approach proved to be successful in fostering the learning spirit of students. With our individual approach, students will feel he is being cared for. Conscious or not, sometimes students feel the teacher is not paying attention to his sluggish learning style so that he is hopelessly eventually left behind. With this individual approach such things can be minimized and even overcome. Because teachers will be more aware of the ease and learning difficulties experienced by their students and think hard to enter the world of students (their learning styles) while providing appropriate and correct solutions; (2) Group Approach: It feels so selfish that it only fosters individual students and overrides students' social feelings. Because students are part of the community and will later return to the community where they were born. Grouping students occasionally needs to be done in the learning process, because that's where our students will learn from each other, communicate, tolerate, care for each other; and (3) Hasanah Uswah Approach. Uswah hasanah (exemplary) uses examples or examples as the best models to be easily absorbed and applied to humans. In the world of education, the role models must be all school communities, teachers and school staff, both in words and deeds.

3. Evaluation of Learning in the Acceleration Program at LES-UM

Evaluation of learning is an evaluation of the teaching and learning process. Systematically, evaluation of learning is directed at the components of the learning system, which includes input components, namely the initial behavior of students, components of instrumental input namely professional ability of teachers / education personnel, curriculum components (study programs, methods, media) administrative components (tools, time, funds) the process component is the procedure for implementing learning; output component is learning outcomes that mark the achievement of learning goals [25].

The evaluation conducted by the teacher at LES-UM aims to find out how far the students' understanding of the subjects has been taught and to motivate students to be more active in learning. Students who are late or have not succeeded then they will ask for repetition or remedies and remedies can be done with a written test or oral test looking at the condition of students. The time for doing remedies is in

accordance with the school's predetermined schedule. The assessment or evaluation includes results assessment and process assessment which consists of three domains, namely: cognitive, psychomotor and effective.

B. Successful Learning Innovation was Developed by LES-UM in Order to Strengthen Higher-Order Thinking Skills

As explained in the presentation of research data in this chapter, there are three innovations developed by LES-UM, including: group acceleration programs, ICP (International Class Program) programs, and Bilingual programs. The acceleration program is carried out in groups in the classroom, which is carried out naturally through the achievement of the achievements and considerations of the homeroom teacher and parents as well as the interest of the students concerned. The acceleration program was built in order to foster thinking and acting skills quickly, with special treatment, and giving appropriate rewards. The acceleration program is one of the most possible programs in facilitating high-level thinking skills [23], [26]. Acceleration program related to the maximum growth effort of students' learning can be done through various things, especially those related to fast and precise learning independence and quality [23], [26].

The ICP program is an innovative flagship program carried out in cooperation with various parties, including Cambridge, through the Cambridge Examination program and direct guidance from Malang State University, especially the English Department. Through the ICP program, students will get a complete report on the mastery of the material in three subjects, namely Science, Mathematics, and Language in the form of complex reports on the entire domain of students. The ICP program, through facilitation from Cambridge Program from the State University of Malang, did various things which were not only related to the indication of mastery of the three subject matter pressures, but rather aimed at information on the totality of individual student assessments [27], [28].

The information also relates to the weaknesses and strengths of potential students, where the information plays a very important role for the learning progress of the next learners [15]. Furthermore, the innovative bilingual flagship program. This program has been implemented since the early grades, where learning communication is carried out in two languages, namely Indonesian and English. To create English-speaking habits, an atmosphere of interaction with everyday English communication is created, both among fellow teachers, teachers and students, and among all employees involved in SD Lab activities. One of the main objectives of the program is to support the success of the ICP program implemented since the beginning of high class. In future-oriented schools, the implementation of bilingual programs in learning becomes very important [29], [30]. The bilingual program is a fast transformation strategy towards changes that will occur in the future [29], [30]. Thus, the bilingual program is an anticipatory program in

preparing students to conduct successful competitions in the global era [29], [30].

C. The Principal's Strategy in Innovating Learning Based on High-Level Thinking Skills

Principals implement various strategies, including: (1) involving all teachers and staff in empowerment activities, both in the form of workshops, seminars, training, both conducted by internal schools, through the P2LP (LES-UM Foundation) program in the form of learning clinics fostered by the development team school; (2) intensification of supervision activities; (3) strengthening learning in the form of preparing bilingual textbooks independently; (4) intensive communication with parents of students, especially for the innovation of superior acceleration programs; (5) conduct regular meetings in the beginning of the semester in preparing the semester program; (6) strengthen exemplary programs, both in the form of school attendance and the creation of a two-language interaction climate; and (7) organizing picket teacher programs (co-teachers) to apply the principle there should be no empty and untreated classes.

Aside from being part of the principal's leadership approach, empowering all components of the school system is a key prerequisite for improving the quality of schools, especially in order to facilitate students' high-thinking skills ([31], [33]). The ability of all school components is believed to have a positive impact on their involvement in improving school quality [34]. These abilities can take the form of many things related to improving the competence of teachers and staff as a whole.

IV. CONCLUSION

The roles played by natural school principals in innovating learning based on high-level thinking skills, among others: as a planner, implementer, and evaluating excellent programs in the context of the successful implementation of facilitation of higher-order thinking skills of students. There are three innovations developed by LES-UM, including: group acceleration programs, ICP programs, and Bilingual programs. Of the three innovations, the most dominant innovation and maximum contribution in facilitation of students 'high-level thinking skills is group acceleration program, which is carried out naturally, in accordance with the development of progress and achievement as well as students' natural interests.

There are several strategies carried out by the principal in facilitating the implementation of students' high thinking skills based learning innovations, including: (1) involving all teachers and staff in empowerment activities, both in the form of workshops, seminars, training, both conducted by internal schools , through the P2LP program in the form of a learning clinic fostered by a school development team; (2) intensification of supervision activities; (3) strengthening learning in the form of preparing bilingual textbooks independently; (4) intensive communication with parents of students, especially for the innovation of superior acceleration programs; (5) conduct regular meetings in the beginning of the semester in preparing

the semester program; (6) strengthen exemplary programs, both in the form of school attendance and the creation of a two-language interaction climate; and (7) organizing a picket teacher program (co-teacher).

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