

Teacher competence in implementing higher-order thinking skills oriented learning in elementary schools

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Abstract: Information and technology development in the last decade has been caused the fundamental changes in all of the life aspects, including in educational aspect. Learning in the school was demanded being an agent of instilling the ability of higher-order thinking (HoTS) so that the students were able to deal with life challenging in future life. The teachers also must have competence in implementing HoTS oriented learning. A qualitative study with a case study approach aimed to explore teachers' competencies and the effort to implement HoTS oriented learning in the public elementary school 2 of Ketaon, Boyolali Regency. Data was collected through interviews, observation, and documentation. The data that had been collected further were analyzed by using data analysis technique of interactive inductive model of Miles and Huberman. The results of the research showed that 1) there are 4 competencies used by the teachers in implementing HoTS oriented learning to consist of Educational Competence, Competence for Technological Commercialization, Competence in Globalization, Competence In Future Strategies dan Counsellor Competence. 2) Efforts made by teachers are to improve competence in implementing HoTS oriented learning by following the training and education program, participating in the empowerment of professional teacher development organizations such as teachers' cluster working groups (KKG), teacher working group (MGMP), webinar, technical guidance, and workshop. In addition, the role of colleagues was also positively contributed to increasing teachers' competencies.

Keywords: Teachers' competencies, HOTS learning, 21st-century skills, Elementary school

Abstrak: Perkembangan teknologi dan informasi dekade terakhir ini telah menyebabkan perubahan mendasar dalam berbagai aspek kehidupan, termasuk pendidikan. Pembelajaran diolah dituntut menjadi agen penanaman kemampuan berpikir tingkat tinggi (HoTS) agar siswa mampu menghadapi tantangan hidup di masa yang akan datang. Guru dituntut memiliki kompetensi dalam melaksanakan pembelajaran yang berorientasi HoTS. Penelitian kualitatif dengan pendekatan studi kasus ini bertujuan untuk mengeksplorasi kompetensi guru dan upaya-upaya yang dilakukan dalam menerapkan pembelajaran berorientasi HoTS di sekolah dasar negeri 2 Ketaon, Kabupaten Boyolali. Data dikumpulkan melalui wawancara, observasi, dan dokumentasi. Data yang terkumpul dianalisis dengan menggunakan teknik analisis data induktif interaktif model Miles dan Huberman. Hasil penelitian menunjukkan bahwa: 1) terdapat lima kompetensi yang digunakan guru dalam menerapkan pembelajaran yang berorientasi pada HOTS meliputi Educational Competence, Competence For Technological Commercialization, Competence In Globalization, Competence In Future Strategies dan Conselor Competence; 2) Upaya yang dilakukan guru untuk meningkatkan kompetensi dalam menerapkan pembelajaran yang berorientasi pada HOTS yaitu dengan mengikuti diklat-diklat atau pelatihan, mengikuti pemberdayaan organisasi pembinaan guru profesional seperti KKG, MGMP, webinar, bimtek dan workshop. Selain itu peran teman sejawat juga sangat berkontribusi dalam meningkatkan kompetensi guru.

Kata kunci: Kompetensi guru, Pembelajaran HOTS, Kecakapan abad 21, sekolah dasar

Received; Accepted; Published

Citation:



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INTRODUCTION

In the development¹⁴ of the 21st century, there are various changes in all aspects of life, marked by the development of science, technology, information and communication systems that are increasingly advanced, including in educational aspect. Teachers and educators are demanded having good instructional ability so that they can equip² their students to have 21st-century skills. The teachers have to face the challenges in order to be able to survive in the current educational reform era. Hidayah dan Satrianawati (2015) stated that the teachers have a massive challenge since in Indonesia, currently, is facing science and technology advances. It gives the teachers a task to prepare their students who can compete in the current development.

21st-century learning has a challenge. Preparing 21st-century students for a global society identifies that, in 21st-century skills, there are four essential skills known as “4C” or in Indonesia known as “four K” consisting of communication, critical thinking, creativity, and collaboration. Critical thinking is that students must be able to response the knowledge critically; communication refers to student’s communication ability like receiving dan conveying the information; collaboration is that students can cooperate with other parties. Creativity means to develop the ability according to each individual’s talent and interest. Pertiwi, Atanti, & Ismawati (2018) explained that 21st-century skills are student-centred learning and demand the student to participate actively during the learning process. Teachers and students have to synergize each other to face¹¹ 21st-century challenges. Saepudin (2018) stated that by having the ability of higher-order thinking (HoTS), the students are expected to face the 21st-century challenges, in which someone is not only able to think and understand, but also is capable of analyzing, evaluating and creating.

HoTS is a process of thinking used higher cognitive level from taxonomy bloom. It is suitable with Ariyana, Bestary, & Zamroni (2018) stated that HoTS is a unity of cognitive, affective, and psychomotor domain that becomes the aspects of competence achievement of the learning process in the class. Teachers are demanded improving HoTS oriented learning competence according to the subjects they taught. According to the research result of Fitriyah (2019), the teachers in 21st-century have different challenge compared to the teachers in the previous era. In the current era, the teachers are demanded having an excellent soft skill, mastering technological developments, and having HoTS learning-oriented learning a skill so that the skills mentioned equip the students to have 21st-century skills. Furthermore, the teachers have to improve their competence by continuously learning, either through education and training, self-learning, colleagues-learning, pursuing a higher degree, or other relevant ways to improve their competencies.

HoTS oriented learning in Indonesia has just applied massively since three years ago (starting 2017). This program is considered urgent by the Indonesian government since from the aspect of thinking ability the majority of Indonesian human resources still does not have higher-order thinking that is caused by the learning process in the class, which is mostly implemented through memorizing the lesson, or slightly higher, in the level of understanding. The research result of Ichsan et al. (2019) mentioned that learning media, learning materials, students' worksheet, and learning evaluation in the various education level are only a few that are HoTS oriented.

This study was conducted in public elementary school 2 of Ketaon in Banyudono sub-district, Boyolali regency, that has been implemented HoTS oriented learning. It was known from the results of interviews with the school principal, in which public elementary school 2 of Ketaon has been implemented HoTS learning in the school year of 2012/2013 thus it brings many achievements in academic and non-academic fields. Since 2013, In the academic field, every national examination held, some students gained a score of 100 in a particular subject, particularly mathematics subject. In 2018, public elementary school 2 of Ketaon was included in the top 2 scores for the highest national examination at the Boyolali Regency level. The success of public elementary school 2 of Ketaon in implementing HoTS oriented learning because teachers' competencies supported it in conducting HoTS oriented learning. According to the abovementioned background, the researcher wants to reveal teacher competencies in implementing HoTS oriented learning in public elementary school 2 of Ketaon. The result of this research is expected can help teacher competencies in implementing HoTS oriented learning; thus, it can be a scientific reference for teachers, school principal, and other educational stakeholders.

METHOD

Research Design

The research design used by the researcher was qualitative research with a case study approach, understanding a problem by collecting various kinds of information further processed to find the solutions. This research subject is school principal, teachers, and students grade 1, 4, 5 and 6 of public elementary school 2 of Ketaon. This study conducted in public elementary school 2 of Ketaon located at Ketaon village, Banyudono sub-district, Boyolali regency, Middle Java. The activities held was to analyze teacher competencies in implementing HoTS oriented learning. The execution time was in odd semester of 2020/2021.

Data Collection and Instrument Techniques

Data collection consisted of 1) Researchers conducted in-depth interviews through question and answer with the school principal and classroom teachers to obtain the information related to teacher competencies in implementing HoTS oriented learning in public elementary school 2 of Ketaon; 2) Observation conducted is to obtain field data regarding teacher competencies in public elementary school 2 of Ketaon with the research data resources are school principal and classroom teachers who are influential in implementing HoTS oriented learning; 3) Documentation is in the form of teaching administrations consisting of the learning

lesson plan, syllabus, learning materials, evaluation questions, and learning media used by the teachers. In collecting data, the researcher is guided by research guidelines in the form of interviews, observation guidelines, and document analysis guidelines. Before used, research guidelines were consulted to the expert. Thus, after a revision, a new guideline is used to collect the data in the field.

Data Analysis Technique

Data collected further was analyzed by using interactive inductive data analysis technique of Miles and Huberman (1994) encompassing data reduction, data presentation, and concluding. The figure 1 below explains the stages of data analysis.

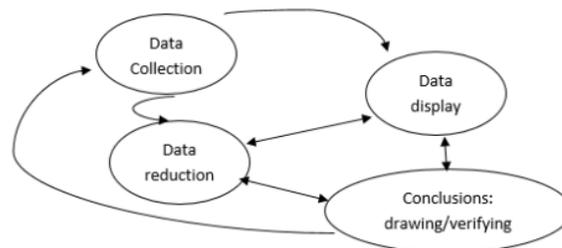


Figure 1. Components in Interactive model data analysis
Source: (Sugiyono, 2015:338)

Research Results

The research data was analyzed by using data analysis stages: data reduction, data display, and concluding. The relevant data to answer the research question was done by coding. The same codes are then made into specific categories, and several categories that have similarities are then made into themes.

Teacher competence in implementing HoTS oriented learning

Of the 5th analysis, it was found four themes to answer the first problem formulation: 1) educational competence; 2) Competence for technological commercialization; 3) Competence in globalization; 4) Competence In Future Strategies; dan 5) Counsellor Competence.

1. Educational Competence

The teachers in public elementary school 2 of Ketaon implements educational competence on the internet of thing based learning as a fundamental skill. In Covid-19 pandemic period, the teachers are demanded implementing internet-based online learning during one semester. Through the interview, the school principal mentioned that:

“In this period, the students must have higher-order thinking. For students, the parents who support their children with appropriate facilities and infrastructure in their home, the learning runs well. However, for the students who come from low economic class, they have less appropriate facilities and infrastructure so that there is much complaint about study-at-home. Therefore, the learning is held at school with a one-week shift twice, in which the school system is by taking and collecting a task also discussing a

task with learning duration of 2 hours.” (Interview by S, school principal of public elementary school 2 of Ketaon; August 4, 2020)

Abovementioned interview result is enforced by the interview result of grade VI teachers:

“Currently, all of the learning use the internet. While at this time, using the internet is essential to access all of the things. In this village, there are many obstacles, especially in accessing the internet, because just a few people who have access to the internet are, thus accessing internet eases to search learning difficulties, for example, what is not discussed in the book. Especially, now the learning is being held at home. When the students carry out face-to-face learning, they can directly ask the questions to their teacher; while at home, they can access the internet when they meet the difficulties. The school have taught their students to access the internet, but it is still limited, if all of the activities use the internet, the teacher can not monitor their activities one by one.” (Interview by W, a grade VI teacher of public elementary school 2 of Ketaon; August 5, 2020).

The results of the observations also corroborate the data. According to the result of observation in the class of grade IV, it showed that the teacher use *ms. Teams* for online learning and use google form to provide a task. The teacher makes the questions first; then the link is shared to the students via WhatsApp (Observation of W, a grade IV teacher; August 10, 2020).

2. Competence for technological commercialization

Students’ entrepreneurial attitude obtained from teacher competence through an innovative process that is expected to produce a new creation and can be able to support student’s success is teacher competence of public elementary school 2 of Ketaon. The result of the interview below shows competence for technological commercialization in public elementary school 2 of Ketaon. Grade 1 teacher mentioned that:

“...Teacher competence which influences the student to have an entrepreneurial attitude is highly essential to have by the teacher, because the teacher must be multitalented (interview by D, grade 1 teacher of public elementary school 2 of Ketaon; August 5, 2020).

It is confirmed by the grade IV teacher that:

“Having an entrepreneurial attitude is highly essential to build student skill. Students who are educated with an entrepreneurial attitude, it helps the student to develop their skill and produce a creation which is useful for their future life.” (Interview by W, a grade VI teacher of Ketaon public elementary school 2; August 5, 2020).

Confirmed by grade IV teacher:

“...Entrepreneurship skill is for future student life. Before the pandemic period, the students sell their product in front of the class; the concept is a market. In addition, when they are at home and whose parents usually trade on Sunday, the students voluntarily will help their parents. (Interview by W, grade IV teacher of Ketaon public elementary school 2; August 10, 2020).

Based on documentation result from research activity in of Ketaon public elementary school 2, the semester program showed that in the learning content of SBDP of KD 3.4 encompasses fundamental competencies which form entrepreneurial attitude: providing various creative creation in the showcase and exhibition (Documentation of W, grade VI's semester program of Ketaon public elementary school 2; August 5, 2020).

3. Competence in globalization

To face the globalization era with many various cultures, the teacher must be able and strive to instil culture, ethical value, and social norm existed in the community regarding teacher experience and full of responsibility. In facing the globalization era, the teachers in Ketaon public elementary school 2 have a global competence. In the interview, the school principal explained:

“With the existed technology, the school requires to enhance more. Furthermore, by school enhancement, it can improve student achievement, and they are better able to keep up with new educational developments.” (Interview by S, school principal of Ketaon public elementary school 2; August 4, 2020).

The abovementioned explanation supported by teachers explained that:

“Global competence is an ability that teachers have as a whole, not only in one area but as a whole. Now, globalization is globally in enormous scope; it is not only in a narrow scope. In learning, books are a source of guidance, but teachers are given the authority to explore more widely. The teacher is only one of many learning resources. Therefore, the teacher must have broad insight. With a global perspective, teachers must be able to follow the developments, especially when delivering lesson materials, in which they can use either book as sources or internet, which it can explore widely. (Interview by S, grade V teacher of Ketaon public elementary school 2; August 6, 2020).

The results of the interview of grade 1 teacher also corroborated similar data. D (grade 1 teacher) stated that:

“It is vital for the teacher to master a global competence. Currently, IT has a significant impact so that it is essential for the teacher to master IT skills in this modern era. Otherwise, the teacher will be left behind (Interview by D, a grade 1 teacher of Ketaon public elementary school 2; August 5, 2020).

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Based on the result of documentation and observation, to determine the goals to be achieved, the school uphold to the view that education must be able to translate and answer every global problem, it means that educational quality must always be improved so that it is in line with current development. In addition, in the school, there are a lot of Indonesian cultural images posted on the school walls that aimed to strengthen character education values (Documentation of school principal S, Document-1 of Ketaon public elementary school 2; August 4, 2020).

4. Competence In Future Strategies

In developing networks through academic activities, teachers of Ketaon public elementary school 2 participates in implementing the activities held by the governmental office, regional coordinator, and other institutions. School principal stated that:

“...The school hold and collaborating to other institutions and governmental offices to hold workshop or training both for students and teachers, e.g. classroom action research, teachers’ cluster working groups, curriculum creation of KTSP, K-13, and others (Interview by S, school principal of Ketaon public elementary school 2; August 4, 2020).

School principal data is corroborated with the interview result of grade VI teacher. Through the interview, W explained that:

“...Regarding on collaborating to other parties, we have a health program namely “dokter kecil”. We collaborate to the public health centre of Banyudono 1 to provide counselling related to health, also we provide an immunization, in which the teachers help to coordinate the students. There is also training for “dokter kecil” that is usually held for three consecutive days, in which the participants of this program are all of the elementary school in one of regional coordinator but only one representative with one companion teacher who attends on this training (Interview by W, a grade VI teacher of Ketaon public elementary school 2; August 5, 2020).

The similarity is corroborated by the interview result of grade 1 teacher. It is stated that:

“... Usually school representative attends the training held by governmental offices or group. However, at this time, because of the pandemic, we take webinars to gain knowledge, to know more about our educational world in this pandemic era (Interview by D, grade 1 teacher of Ketaon public elementary school 2; August 5, 2020).

Based on the result of documentation, in document-1 there is an invitation that invited supervisor of Kindergarten and elementary school of Banyudono sub-district, teachers in Ketaon public elementary school 2 to review curriculum 2013 (K-13) jointly. In every meeting held in Ketaon public elementary school 2, it is provided with the list of attendees and the recorder of minutes of the meeting that comes of from teacher (Documentation of school principal, Document-1 of Ketaon public elementary school 2; August 4, 2020).

5. Counsellor competence

The teachers of Ketaon public elementary school 2 have the competence as a supervisor, supervise not only the lesson but also supervise student potential related to the emotional, social, moral, and spiritual aspects. Through the interview, grade VI teachers explained that:

“Developing students’ potentials is by providing some training and focusing on mapping the students’ potentials. For now, we control students’ learning by monitoring their activities and asking them to send their photos while learning. When in the class, we usually can guide them directly (Interview by W, grade VI teachers of Ketaon public elementary school 2; August 5, 2020).

S, as grade V teacher, stated to corroborate the previous argument. Through the interview, S stated that:

“...Giving motivation to the students is so that they are active and want to work hard, the important is they want to read not only lesson book but also a magazine or newspaper. In addition, it is expected that the students want to use social media, watch the educative program on television; for example, a public television channel called TVRI provides the program for students aired every morning. Besides motivation, the teacher also makes observations every day and looking for the information to students’ parents as well (Interview by W, a grade VI teacher of Ketaon public elementary school 2; August 5, 2020).

Grade IV teacher revealed the reinforced argument. Through the interview, W stated that:

“...Through learning in the class, usually teacher are going to understand students’ characteristic and talents, but in this online learning, the teacher meet the difficulties. Students’ potential is mapped according to their talents, for instance, if there is a student who is good at dance also the dance movement is flexible; furthermore, dance teacher and I will discuss to map this student’s skill. Besides, if there are students who are good at academic aspect like English, they will be directed to extracurricular focused on English. In mapping the students’ talents and interest, the teacher arranges the lists of students who have some talents, then is proposed to the school principal to get the agreement (Interview by W, grade IV teacher of Ketaon public elementary school 2; August 10, 2020).

Based on the researcher’s documentation: the lists of extracurricular book, the teacher make the lists of extracurricular activities such as scout, dance, reading Tajwid Al-Qur’an (BTA), skills, mini volley, and basketball as well as the lists of execution time and the information about extracurricular known by the school principal and homeroom teacher (Documentation of S, extracurricular list of Ketaon public elementary school 2; August 5, 2020).

The teacher’s efforts to improve competence in implementing HOTS-oriented learning in public elementary school 2 of Ketaon

The teachers of public elementary school 2 of Ketaon increase HOTS oriented learning competence by implementing and attending the events held by the governmental office, regional coordinator, and other related institutions such as workshop and training. In Covid-19 pandemic, most of the events are held online up to an unspecified time limit. Through the interview, the school principal stated that:

“...Carry out the program such as teachers’ cluster working groups (*KKG*), Principal Working Group Activities (*K3S*), then is carried out webinar during Covid-19 pandemic, the teachers attend webinar held by DIKBUD respectively, in which at the end of events all of the participants are given an award in the form of a charter (Interview by S, school principal of Ketaon public elementary school 2; August 4, 2020).

The results of the teacher's interview reinforce the principal school argument. Grade VI teacher said that:

"...To enhance teacher competence, the teachers participated in seminars, workshop, and KKG. Twice a week, school principal, teachers, and educator staff discussions about the advancement of competence enhancement, also conduct a discussion with teachers who master HOTS learning and technology (Interview by W, grade IV teacher of Ketaon public elementary school 2; August 5, 2020).

Grade 1 teacher stated that:

"...I practice often, read an e-book about HOTS learning and searching many sources from the internet that usually I use to study, also participated in KKG, while now there are many webinars that I can participate in (Interview by D, grade 1 teacher of Ketaon public elementary school 2; August 5, 2020).

While grade V teacher said that:

"...Teachers participate in technical guidance, seminars, and workshop held through DIKPORA, DIKBUD, and several programs held outside school that increase teacher competence, also KKG, the program that facilitates teachers to share mutually with their other colleagues (Interview by S, a grade V teacher of Ketaon public elementary school 2; August 6, 2020).

Grade IV teacher said that:

"...Recently, the teacher participated in the training of arranging K-13 (curriculum 2013) of HOTS development, KKG, school meeting also encourage to study together, and attempt to increase the effectivity (Interview by W, a grade IV teacher of Ketaon public elementary school 2; August 10, 2020).

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Based on the data described above, it can be concluded that to increase competence in implementing HOTS oriented learning, the teachers of Ketaon public elementary school 2 have been enhanced their competence through many ways like training and Education, KKG, self-study, webinar, and other activities.

DISCUSSION

Based on data analysis, there are two significant findings:

Teacher competence in learning becomes the primary factor in the success of HOTS learning

Teachers have five essential competencies in implementing HOTS oriented learning that is required to be supported by 21st-century learning ability in facing industrial revolution 4.0 encompassing *Educational Competence, Competence for Technological Commercialization, Competence in Globalization, Competence in Future Strategies dan Counsellor Competence*. By implementing five competencies, the teachers can answer the 21st-century challenge in implementing HOTS oriented learning in industrial revolution 4.0.

Hilda (2018) stated that HOTS is highly required by the students to have the competencies to existed in the 21st century. The characteristics of HOTS oriented learning

consist of starting with a challenging question, analyzing data, defining the concept, drawing conclusions, analyzing data logically, processing the information, and using the information to solve the problem faced by the students (Ariesta, 2018). In line with the previous argument, Conklin (2012) said that the ability of higher-order thinking encompassing critical thinking and creative thinking demanded the students be actively involved. HoTS involves complex thinking in describing the material, concluding, building the representation, analyzing, and building relationships by involving the most basic mental activity (Resnick in Ariyana et al., 2018:5).

The finding reinforces the previous research which stated that five competencies required by teachers as the impacts of information and technology consist of; a) internet of things based on learning competence as necessary skills; b) Competence For Technological Commercialization is a competence that forms the students to have an entrepreneurial attitude with student's creation; c) global competence is the competence that demands the teachers to have knowledge and skill globally; d) the ability to predict the demands and challenges in the future; and e) teacher competence to be a counsellor (Qusthalani, 2018; Rahayuningrum & Sari, 2018; Fitriyah, 2019). In facing the 21st century, the students are demanded building critical thinking, knowledge and the ability of digital literacy, information, media as well as mastering the technology of information and communication (Frydenberg & Andone, 2011). HOTS oriented learning consists of four conditions: a) in a particular learning situation, it is required a specific learning strategy; b) an intelligence is seen as a unity of knowledge that is influenced by learning factor, strategy, and unity in learning; c) interactive and multidimensional views; d) by HOTS, the students are supposed to have analytical thinking, reasoning, critical thinking so that eventually the students can solve the problem creatively (Kemendikbud, 2017).

To support the implementation of HOTS learning in this era, the teacher requires to adapt to communication and information development well either in class management or learning based on the advancement of communication and information development. In line with the research of Sonia (2019), the 21st-century teacher requires to have the ability to facilitate the student to have competencies that are suitable with the educational need of the industrial revolution 4.0 era. Therefore, the teacher is demanded taking the advantages of communication and information development in order to support the learning.

Teacher creativity in implementing innovative learning is one of the determining factors in the success of HOTS oriented learning implementation. Sukartono (2018) stated that HOTS oriented learning development is an attempt of educational quality enhancement and graduate quality improvement. That learning is expected to equip the students to have many essential skills existed in 21st century.

The importance of the support from government and institution toward teachers regarding improving HOTS oriented learning competencies

The role of government in holding workshop or training also professional teacher development organization empowerment such as KKG and MGMP supports the enhancement of teacher competence well. The support of government toward teacher competence enhancement that is suitable with the need learning in 21st-century can improve teacher competence in order to support the learning success

of students. Teacher competence enhancement also is related to the role of other educational institutions to hold a webinar, technical guidance, and workshop.

This research reinforces the research of Royani (2020) which stated that to improve teacher competence the government also plays the vital role to support teacher competence enhancement by organizing the training in some regions, empowerment supervision, KKG, and MGMP. On the other hand, it is also needed Teacher competence enhancement sustainably that organized through the Sustainable Professional Development program (PKB). PKB aims to improve knowledge, skills, social and personal competencies (2022) fit the future need (Kementrian Pendidikan dan Kebudayaan, 2012). As research conducted by Fadhillah et al., (2019), the effort of teacher competence enhancement has always been conducted by educational stakeholders such as central government, regional government, education authorities, school principal and the community who care about education.

In line with the research of Rahayuningrum & Sari (2019), enhancing teacher competence aimed to face the 21st learning of industrial revolution 4.0 era is by participating in forums organized by the government and related educational institutions such as scientific forums, MGMP, training and other activities that can develop teachers' skills. The purpose of teacher training is to develop and improve skills, knowledge, and attitude improvement. The training is organized adequately adjusted to the development of this era so that the teacher to more professional and competent (Fitriyah, 2019).

The development of teacher professional competence is carried out by arranging the program of human resources development that includes supervision program, MGMP, training, workshop, teacher participation in scientific activities, collaborating with school supervisor, Ministry of Religion, education authorities, and others various human resources coaching programs (Azhary, 2014). Furthermore, Muis (2019) explained that workshop, training, technical guidance, and other programs are expected to enhance teacher competence. Apart from those organizations, the role of colleagues is positively contributed to enhancing teacher competence since the colleague activities help each other to exchange the information, share the inspiration, also bear the innovation and teacher creativity.

This research concurs with the research of Junaidi (2015) that stated that teacher competence enhancement is carried out to develop teachers' quality through 1) training and education; 2) formal education; 3) supervision from senior; 4) workshop, seminar, program socialization; 5) colleague supervision; 6) exchanging educators in the form of collaboration; 7) comparative study, training and education are one of the fast ways in fulfilling in industrial revolution 4.0. Wahyuni (2018) explained that to achieve teacher competence in this era consist of six ways: 1) technology mastery is one of the teacher recruitment standards; 2) teacher competence enhancement is bottom-up so that the problems and obstacles met by teachers can be discussed together; 3) PKB is one of the programs to accommodate teaching profession enhancement; 4) lesson study is used to enhance teacher competence; 5) e-literacy; 6) adjustments to learning and best practices through integrated learning or blended learning. The research conducted by Ibda (2018) stated that building the teacher literacy competence is not only held by educational program organized by universities, but other parties also must be synergized to this program like UPTD Education, Education Quality Assurance

Institution, teachers' cluster working for groups (KKG), education authorities, and all of the other related parties.

CONCLUSION

To implement HOTS oriented learning must be supported by teacher competence corresponding to the need for 21st-century learning. To achieve HOTS oriented learning, teachers in public elementary school 2 of Ketaon have been implemented five essential competence supported by skill 7 21st-century learning skill encompassing *educational competence*, the use of internet of thing as a basic skill for teacher competence in instruction; *competence for technological commercialization*, teacher competence to form the entrepreneurial skill; *competence in globalization*, teachers' global competence as problem-solving skills; *competence in future strategies*, competence to predict the future; and counsellor competence, teacher competence as counsellor and psychologist. Implementing that five teacher competence in the learning activities 5 becomes the main factor for the success of 21st-century HOTS oriented learning the industrial revolution 4.0 era.

The effort of the teachers to enhance teacher competence in implementing HOTS oriented learning is by following the order of the government, participating in professional teacher development organization empowerment like KKG and MGMP. In this case, the support from government and other related institutions that are webinar, technical guidance, and workshop is highly influential for teacher competence enhancement corresponding to the educational need of 21st-century in industrial revolution 4.0; therefore, it enhances teacher competence that encourages the success of student learning. In addition, the role of collages also contributes to teacher competencies.

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