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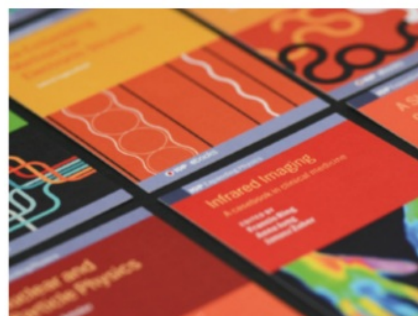
Implementation of innovative learning of culinary productive towards mastery competency 21st century

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Abstract. 21st century competence becomes an integral part of learning and teaching process. This study aimed to describe teachers' understanding about 4K, implementation learning 4 K, and teachers' obstacles in managing learning. The subject of this study was teachers of SMK tourism in catering field who are member of MGMP in Sleman Regency. Data were collected by closed questionnaire and FGD. Data were analysed with quantitative descriptive.This study found 1) some teachers (70%) understood the implementation concept 4 K into learning; 2) learning experiences that teachers trained for each 4 K was quite varied and partly lead to mastery 4 K; 3) teachers faced obstacles in developing learning 4 K on integration 4 K and implementation in learning.

1. Introduction

SMK especially tourism have some issues, especially learning problems. Most of the teachers face difficulty in developing learning approach and learning method that oriented in active students. This situation is still found today. Based on result of guidance on Pendidikan dan Pelatihan Profesi Guru (PLPG) was found teachers faced difficulty to make syntax for each learning method that was requirement of the curriculum 2013. The syntax is learning and teaching guidance for the teacher in order to learning management reach target study. Therefore the syntax reflecting active learning accordance with a method that will have an impact on strengthening students' competencies.

The competence requirements of the 21st century are integral to the curriculum 2013. The Ministry of Education and Culture Republik Indonesia has adopted education of the 21st century as effort to prepare creative generation in 2045. The generation who adopt learning skills and innovation, skills of using technology and media, also can work and stand with their skills to survive [1]. The competency is important to prepare future generations to become world citizens who have competitive advantage.

The competencies of the 21st century that is known as 4K or HTOS become an integral part of learning. Teacher should have sufficient teaching skills to support potency of learning subject so they master competencies of the 21st century. Learning subjects are expected to have creative and critical thinking, communication skills, collaborative learning skills, and life-long learning skills [2].

Teachers should change. Teachers are not solely as source of information, but they should have various roles so students can progress optimally. The roles of teachers are broad enough to be adjusted to students during learning process. There are various roles of teachers, such as, appreciator, partner, patron, guide, questioner, tutor, counsellor, moulder, instructor and exemplar. These roles will influence learning subject: self-determination, responsibility, creativeness, adventurousness, investigation skill, understanding, insight, habits, possession of information, and skills. Detail of these roles can be seen in the following table 1 [3]:

Table 1. The roles of teacher

Teacher's roles	Teaching/learning process	Student's roles	Likely student quality as outcomes
Appreciator	As determined by students	Searcher	Self-determination
Partner	Participation	Partner	Responsibility
Partron	Making	Designer	Creativeness
Guide	Searching	Explorer	Adventurousness
Questioner	Experimentation	Searcher	Investigation skill
Tutor	Reflection	Thinker	Understanding
Counsellor	Expression of feeling	Client	Insight
Moulder	Conditioning	Subject	Habit
Instructor	Transfer of information	Memorizer	Possession of information
Exemplar	Imitation	Trainee	Skills

The development of teachers' abilities to implement 4 K through learning is necessary. Teachers should have correct understanding and be able to translate into learning. They should be monitored and evaluated through mechanism that established by schools and education service institution. In the end learning subjects are expected have critical thinking and problem solving skills, ability to master communication tools correctly to the world level, and building collaboration with various cultures.

Critical thinking is reasoning ability to build a concept and develop thinking logic [4]. Critical thinking is closed to problem solving and decision making skills. This ability is related to the preparation of gen Y that faces rapid change of the world. Gen Y must live in the situation that new, face paced and challenging. Preparing Gen Y students to be critical thinkers and effective communicators is more essential in today's complex education environment [5].

Communication and collaboration refer to building effective communication, speech fluency, adequate reading and writing clearly and concisely, ability to utilize digital tools properly and widely and develop collaborative skills as part of self-promotion to broadly study together. Although technology often viewed as counterproductive, but utilization technology and social media can stimulate learning subject to rule the world. Technology and social media, often seen as counterproductive to student learning, can provide intriguing new ways to extend and enhance learning across international borders [6]. Collaboration by teamwork is challenge of subject learning so when working later they can solve problems at work. Team-based learning emerged to enhance active learning and critical thinking by engaging students with the kinds of problems they will encounter in the workplace [7].

Creativity is a mental process to generate broad and open ideas and full of lucks. Ideas can come from combination of mastering ideas or old ideas that reformulated or generated new ideas [4]. In line with the digital literacy era, teacher should utilize information technology in learning process as an effort to generate creative ideas that support productive learning. Digital technology and its many uses form an emerging domain of creative expression for adolescents and young adults [8].

Innovation refers to production of new idea and implementation these new ideas into new products, processes, and useful procedures [9]. This ability is important for the teacher. This is related to preparation of subject learning as workers in culinary sector. Learning subject should be developed positive behaviour expectations that support innovation in the workplace. Study [10] support the importance of innovation behaviour developed in learning. These outcome expectations, as intermediate psychological processes, were shaped by contextual and individual difference factors, including perceived organization support for innovation, supervisor relationship quality, job requirement for innovativeness, employee reputation as innovative and individual dissatisfaction with the status quo.

Learning towards mastering the competences of the 21st century known as 4 K or HOTS has to be an integral part or integrated in every learning event. Critical thinking and problem solving skills are expert thinking. Communication and collaboration as complex communicating and creativity and

innovation as applied imagination and invention [11]. This study will describe teachers efforts to integrate 4 K in learning productive in culinary.

2. Method

This study was a survey. It took in SMK Tourism Culinary in Sleman Regency. The subjects of the study are teachers who are member of MGMP culinary productive. The questionnaires were developed to measure concept 4 K, its implementation in learning and difficulties during learning. Data were analysed descriptively.

3. Result and Discussion

3.1. Understanding 4 K concept

It is important to understand 4 K concept that consists of skills of critical thinking, collaborative, communication, and creativity and innovation. Teachers should understand what and how the learning process. Through questionnaires (one correct answer) found description of understanding 4 K concept as follows:

Table 2. Teachers' Understanding of 4 K concept in Sleman Regency

No	Konsep	Persen
1	Critical thinking	60%
2	Collaboration	50%
3	Communication	70%
4	Creativity and innovation	60%

Table 1 explained that not all respondents had mastered the learning concept to develop each 4 K. There are 70% teachers who mastered learning to develop communication skills, 60% teachers who mastered learning to develop critical thinking and creativity and innovation, and 50% teachers who mastered learning to develop collaboration. This situation indicated that there are still many teachers who had not understood how to implement each point of 4K in the learning process. Can this situation become problem for SMK regarding demands curriculum 2013 that emphasized the strengthening of 4 K in every learning process? The government has determined to make generation in 2045 as golden generation who ready to face change of the world, such as the development of industry 4.0 or disruption era. Graduates will face changes in the industry and competition of non-linear job. Therefore, teachers should understand what and how implementation 4 K turns into learning. They must change and play various roles in order to create learning experiences that supports mastery the competence of the 21st century [12].

3.2. Implementation of critical thinking skills in learning

Critical thinking skills that implemented in learning emerged as learning experiences such as concept development; making a summary of thought; training the learning subjects to express their opinions with confidence; using systematic mind-set; evaluating opinion in good, coherent and logical [4]. This study showed that some teachers (60%) were able to apply learning innovation to develop critical thinking. They tried to support the potency of learning subject towards the mind-set of the 21st century. By making summary, at least teachers had trained learning subjects to think systematically. Teachers trained them to express their opinions based on fact that associated with standard results by comparing

processed product between friends and processing data from the test. Teachers trained them to evaluate their opinions in an organized manner and justified assumption by solving problems. Details were shown in table 3:

Table 3. Implementation of critical thinking learning by teachers of SMK Culinary in Sleman Regency

No	Learning implementation that selected
1	Reading diverse books, then making summary to find understanding and scope
2	Comparing food processed products between friends, then founding the advantages and disadvantages of each processed product
3	Issuing problems in accordance with material, then finding solutions based on literature
4	Discussing to find the best solution
5	Presentation criticizes
6	Processing data from test

3.3.Implementation of communication skills in learning

Communication skills that implemented in learning emerged as skills in: writing report that followed the rules of writing; summarizing literature with own words; interpreting literature and presenting with own words; designing activities or assigned programs; promoting a product with impressive words; and global communication with various media. This study showed that most teachers (75%) could apply learning innovation to improve communication. Teachers might practice communication, both oral and written from literature or practice. But, they had not practiced some communication skills, such as: global communication with various cultures through media communication; and training writing with correct grammatical to prevent plagiarism. This study explained that teachers had not developed learning subject skills to face industry era 4.0 and disruption. The teachers should have the skills to develop online-based learning. They might use learning blended pattern, or flipped classroom, downloadable learning media, and various learning media that develop learning subject skills in utilizing information, media, and technology skills [13]. Teachers' duties were "teach less, learn more" [13]. It described in table 4:

Tabel 4. Implementation of communication learning by teachers of SMK Culinary in Sleman Regency

No	Learning implementation that selected
1	Giving tasks to write a written report from literature study using standard format
2	Giving presentation tasks from re-reading literature
3	Giving presentation tasks about creating recipe and its practice result
4	Giving presentation tasks about evaluation of practice result another group
5	Marketing products to school residents

3.4.Implementation of collaboration skills in learning

Implementation of collaboration skills in innovative learning were found as: building togetherness in teamwork; using group strength to parse the tasks; parsing issues that were still debated; working with goal oriented; sharing information with group members or between groups. This study found that

some teachers (40%) developed collaborative learning. Teachers still strengthened culinary practices with PJBL approach. Therefore, if this learning managed properly, collaborative learning will provide reinforcement of communication skills [13]. The details are shown in table 5:

Tabel 5. Implementation of collaboration learning by teachers of SMK Culinary in Sleman Regency

No	Learning implementation that selected
1	Providing opportunities to study subjects in groups to plan, implement, and evaluate activities. For example planning recipe and practicing it.
2	Giving task to be completed in groups, but each member has a different task.
3	Assigning a task that allows students to share knowledge and information so they jointly can learn to construct their understanding

3.5.Implementation of creativity and innovation skills in learning

Implementation of creativity and innovation skills is two interrelated things. Creative learning includes: creative thinking and creative work [14]. Creative thinking refers to using broad and varied creative ideas; producing new ideas; and parsing, analysing, evaluating the ideas. Creative work refers to developing, implementing, communicating creative ideas; open to feedback; demonstrating originality and creativity [4]. Innovation is implementation of creative ideas in the form of processes and products [15]. This study found that most of the teachers (80%) had developed creative and innovative skills in learning. Teachers motivated and coached new ideas in recipe creation, new menu or presentation. They gave learning experiences to students. The students produced innovative products that developed from existing products or completely new products, or produced unusual products. As SMK culinary, products that produced were part of self-promotion. The description is shown in Table 6:

Table 6. Implementation of creativity and innovation learning by teachers of SMK Culinary in Sleman Regency

No	Learning implementation that selected
1	Coaching the learning subject to express ideas of product development or presentation
2	Giving the learning subjects to produce new products with different presentations
3	Giving training to learning subjects to develop new products from analysis of existing products

3.6.Obstacles in Innovative Learning Management

The FGD showed teachers experienced some main obstacles when managed innovative learning towards competence of 21st century, such as: 1) translating 4 K concept into learning; 2) developing 4 K syntax according to guidance; 3) integrating 4 K concept into learning; 4) selecting material which fit with each 4 K; 5) developing innovative method for each 4 K. Thus, it can be stated that more intensive programs are still required so the implementation 4 K in learning can have impacts on strengthening the capability of 4 K.

4. Conclusion

Implementation of innovation learning by SMK Tourism Culinary teacher showed: 1) not all teachers had good understanding about 4 K; 2) 70% teachers could implement 4 K in learning; 4) obstacles were found when teachers implemented 4 K in chosen learning, such as: a) translating 4 K concept into learning; b) developing 4 K syntax according to guidance; c) integrating 4 K concept into learning; d) selecting material which fit with each 4 K; e) developing innovative method for each 4 K. Therefore, training on 4 K learning is still required in productive learning.

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