

Implementation of Youtube’s E-Learning Substances to Support the Learning of Food Technology

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Abstract — Discovered that youtube site contains learning substances in various fields of science. Based on preliminary research note, youtube site contains about 1500000 audio-visual learning substances in the food sector. It is believed by the quantity of more than 1.5 million audiovisual substances, e-learning substances from the site youtube in the field of food, when implemented in practice learning of Food Technology could provide better condition. Aims of the research were to reviewed e-learning substances from the youtube site, viewed of the learning standards of food technology practice covering aspects of clarity of the method of practice, clarity of method of selection of raw substances and equipment, clarity of procedures of the practice, and clarity of the quality of the analysis procedure.

This research study was consisted of three stages: The first stage, sampling the learning substances from the site youtube. The second stage, reviewing of learning substances of food technology practice that have been obtained from the site youtube. The third stage, the applicating practice of of food technology’s learning substances obtained from the site youtube and comparated with derived substances from the official job sheet of practice of food technology course. Taken 6 theme of food technology practice, namely: manufacturing of carbonated beverages, manufacturing of syrup, manufacturing of vegetal milk, making chips with vacuum frying, manufacturing of instant soy sauce, and manufacturing of ice cream. The results showed that: the variety of learning substances from the youtube site for manufacturing carbonated beverages and manufacturing of instant soy sauce is still quite limited (less than 50% of total sampling). Variety of the learning substances of the manufacturing of : beverage syrup, vegetal milk and ice cream, was available enough (more than 50% of total substances sampling). Variety of substances of vacuum frying of chips, widely available (up to 75% of total sampling). Based on the reviewing stage, was known that the manufacturing of carbonated beverages, the manufacturing of beverage syrup, and the manufacturing of vegetal milk were substances of learning from youtube site the most easily understood and practiced although the variety of the substances is still quite limited. From 6 theme of the practice, 4 theme of the practice with support of the the youtube site’s substances was declared successfully implemented (as big as 60%).

Key words: e-learning, youtube, implementation, technology, food

I. INTRODUCTION

Food technology evolved over the times. Basic of teaching substances of food technology have to evolved, adjusting with development of food technology in the society. The development of basic learning of food technology include: change in teaching methods, change in media / learning equipment (maintain the side of practicality), change in teaching substances (approach in actualization aspects and in conformity with the need of the community) that lead to changes in the level of learning competencies

Based on the references, known e-learning substances from the youtube site contains learning substances in various scientific fields (Caroline Heldman, 2007). In the field of nursing has been proven that the substances of youtube can support the learning (Hansen et al., 2009). Based on preliminary research note, youtube site contains approximately 1500000 audio-visual learning substances in the sector of food. The substances include: 11200 audio-visual substances on fermented foods, 5950 audio-visual substances on food innovation, 35200 audio-visual substances about the safety of food, 218,000 audio-visual substances on food nutrition, 63500 audio-visual substances about the quality of food and the remainings are unidentified. It is believed by the quantity of more than 1.5 million audio-visual substances, e-learning substances from the site youtube in field of food, when implemented in practice learning of Food Technology will provide positive enhancement. These conditions can be achieved if refer the characteristic of learning substances of youtube : changing the learning methods by simplifying the learning equipments (only LCD projectors, speakers, and computer), actualize and

adapt the substances to the recent condition (continued uploading per day) and is more interactive and communicative (the majority of audio-visual substances is multi color) (Burke et al., 2009).

Problems of implementation of e-learning substances of youtube to support practice learning of food technology is no standard yet in there or no clear criteria on youtube substances which one the qualified and worthy substance that can be implemented, what percentage, and how does the user know whether the e-learning substance is qualified or not (Xu Cheng et al., 2009). Therefore, the aims of research are to review e-learning substances from youtube site viewed by learning standards of food technology practice, covering aspects of clarity of practice method, clarity of selection method of raw substances and equipment, clarity of practice procedures, and clarity of analysis procedure of food quality.

II. METHODS

This research consists of three stages: The first stage, sampling of the learning substances from youtube site in order to be used in food technology practice, the students of the course as panelist instrument of the research. The second stage, a review and presentation of the food technology practice learning substances that have been obtained from the youtube site based on competency standard of food technology practice, the reviewing provides description of structure of e-learning substances : procedure of practice, the ingredients and recipes, analytical assay for the product. The third stage, implementation of youtube's e-learning substances in food technology practice, and assessed by official standard of job sheet of food technology practice course, and compared by official practices.

Sample of the research is e-learning substances in food technology, collected from the Youtube site. The research sample is taken by purposive random sampling. The sampling consider on 6 categories of substances food technology practice (6 themes of food technology practice, namely: manufacture of carbonated beverages, syrup-making, manufacture of vito milk, making chips with vacuum frying, making flash soy sauce, and making of ice cream). The approaches of the research are included of : evaluative (revealing the quality of e-learning substances from the youtube site and the percentage of available e-learning substances based on panelist opinions).

The research instrument used in this study was consisted of two kinds instruments, the panelists and evaluation forms. Trained panelists were used in this study, there were Technology of Production and Services department students who have taken prerequisite courses for Food Technology course. The research used 24 groups of students divided into 2 classes of food technology practice, which consists of 49 students.

III. RESULTS AND DISCUSSION

Based on the sampling results from the youtube site by 24 group of students, have been discovered 24 e-learning substances of food technology for each theme of practice, refer to the job sheet of food technology practice. Based on the calculation, is known that the theme of practice "manufacture of carbonated beverages" obtained 24 learning substances, 9 items of that e-learning substances have variant on content. While the remaining 15 items have same content. This indicates that the variant of content in e-learning substances from the youtube site for manufacturing of carbonated beverages is still quite limited (less than 50% of the total sampling substances) (Table 1).

Table 1. Recapitulation of sample of the e-learning substances from youtube site in 6 theme of food technology.

Six theme of food technology that is sampled in youtube site	Total substances that have variant content
manufacture of carbonated beverages	9
making flash soy sauce	7
syrup-making	13
manufacture of vito milk	13
making chips with vacuum frying	18
making of ice cream	13

On the theme of practice "making flash soy sauce" 24 items of e-learning substances have obtained from the youtube site, where 7 items have variant in the video content, while 17 other substances items is same in the content. These conditions indicate the tutorials or learning substances from youtube for making flash soy sauce

is still very limited based on sampling of 24 groups of students participating in the practice of food technology courses (less than 50%). While on theme of practice: "syrup-making", "manufacture of vito milk" and "making of ice cream", 13 items of youtube's e-learning substances is known having variant in content, while the remaining 11 items of e-learning substances is same in content of learning. These conditions suggest that e-learning substances by theme of food technology practice: "syrup-making", "manufacture of vito milk" and "making of ice cream", can be obtained from youtube site in available quantity (over 50%). By sampling of 24 groups of student, e-learning substances : "making chips with vacuum frying", can be obtained from youtube site in freely available condition (have variant more than 75%).

Based on the reviewing stage, e-learning substances obtained from youtube conducted by 24 groups of students. Six groups of students believe there is no problem if they use the substances from youtube to do food technology practice because the substances provide comprehensive content : provide a systematic procedure for the practice, dose of recipe is clear, contains clear examples of handling tools and criteria of quality analysis of the product (data not shown). Substance samples from the youtube site with theme: manufacture of carbonated beverages, syrup-making, manufacture of vitomilk, have clarity in 100%, for the method of practice, for the method of selection of raw ingredients and tools, and for the procedure of quality analysis (Table 2.)

Table 2. Student response in the reviewing stage about youtube's e-learning substances for food technology practice.

No.	Theme of Food Tech. Practice	Clear	Less clear	Unclear	Panelist (Student) Respond
1	manufacture of carbonated beverages	100%			Method for making the drinks is relatively short and simple just by involving injection of CO ₂ from reaction between acid and soda.
2	making flash soy sauce	10%	65%	25%	Making ketchup/soy sauce involves many substances that often can not be described for all recipes by the e-learning substances.
3	syrup-making	100%			Making syrup has a simple and practical method based on learning substances came from youtube videos.
4	manufacture of vitomilk	100%			Method for making vitomilk is simple enough only extraction of vegetable juice, heating and sugarization.
5	making chips with vacuum frying		80%	20%	Never handling before to operating the vacuum frying equipment.
6	making of ice cream	25%	75%		There is already have imagine of the obtained product, but the handling operation of the ice cream equipment is less clear.

The practice of food technology for making carbonated beverage using basic procedures taken from youtube's e-learning substances, can be carried out success in 100%. The practice of food technology for making flash soy sauce can be carried out only 75% of success, when the product quality is assessed with official standard of job sheets of food technology courses. Practice of making syrup also has a 83% of success. Meanwhile the practice for making vitomilk is obtained 100% of success. Practice for making chips with vacuum frying and practice for making ice cream, result level of success in beyond expectations that are higher than estimation at the reviewing stage with a success rate of 85% and 96%. Can be seen from several of themes of food technology practice, if the practice has short stages and use simple ingredient, mastering the e-learning substances from youtube by the student would be excellent (100%). While the substances of practices tend to be long stages and used various ingredient, this condition usually obscure the understanding of students in control the critical control point stage, so the results of practice tend to be bad (Table 3).

Table 3. The report of the practices of food technology by instruction of youtube's e-learning substances.

No.	Theme of Practice of Food Technology	Success Rate (by 24 repeated practices)	Compared With The Official Standard Of Food Technology's Job Sheet	Conclusion	The Student Response Based On Practice Reports
1	manufacture of carbonated beverages	100.00%	Provide improved methods in the manufacture of carbonated beverages with CO2 injection.	substances from youtube can provide improvements in learning of the manufacture of carbonated beverages	The practice can run smoothly considering the raw substances acid and baking soda are easy to obtain and the process of CO2 injection into the juice can be done with a simple plastic bottle
2	making flash soy sauce	75.00%	In general, the content of learning substances from youtube does not vary much with the content of the job sheet of food technology practice, less substances from youtube can't explain comprehensively because of the short duration of the video	substances from youtube is failing to provide improvements for the learning	The difficulty in determining the dosing substances in the manufacture of soy sauce, youtube's learning substances do not explain detail the composition of the substances used. Consequently color and flavor of soy sauces product are accordance with standard practice in food technology job sheet.
3	syrup-making	83.00%	substances from youtube able to provide more alternative beverage syrup manufacturing variations than the substances of the job sheet, but based on the results, the quality of products using the practical methods of youtube's e-learning substances was poor in quality.	Learning substances from youtube failed to improve the quality of learning, especially in terms of improving the quality of appearance and composition of the sweetness of the fruit-flavored syrup	Technically manufacture of syrup is quite easy based on youtube's learning substances, however the practices is deemed failure because it does not involve the extraction real fruit juice (just use artificial flavor of fruit) which do not conform to the standard job sheets food technology practice.
4	manufacture of vitomilk	100.00%	Providing more variation on making vitomilk and also provide a better understanding for removal of unpleasant taste in vitomilk	Learning substances from youtube successfully deliver improved quality of the practice	Practical procedures in the learning substances from youtube site are easy to follow.
5	making chips with vacuum frying	85.00%	substances from youtube gives better description to explain the principles of vacuum frying method and how to handling the tools (in audio visual) and choosing the ingredient in well preparation.	substances from youtube successfully deliver improved learning, especially about the principle of the use of tools and substances/ingredient preparation.	Basically, the using of vacuum frying is tedious because the vacuum tube must be completely airtight. The selection of ingredient should be right meant should not be too unripe also should not be too ripe. The process of preparation of substances such as fermentation is sometimes necessary to

No.	Theme of Practice of Food Technology	Success Rate (by 24 repeated practices)	Compared With The Official Standard Of Food Technology's Job Sheet	Conclusion	The Student Response Based On Practice Reports
					change the texture of food.
6	making of ice cream	96.00%	Give a better description how to use of local substances/ingredient and manufacture of variation ice cream.	Substances from youtube successfully gives variations of ice cream manufacturing and how to apply local substances for manufacturing of ice cream. Nevertheless, the substances from youtube still has drawbacks because it can not show how the tool handling ice cream in right	Making ice cream is quite simple, form aeration and cooling mechanisms. Students can improvise by use of the local substances for ice cream manufacture such as using purple sweet potato ingredients.

IV. CONCLUSION

The variety of learning substances from the youtube site for manufacturing of carbonated beverages and manufacturing of flash soy sauce is still quite limited (less than 50% of total sampling substances). Variety of e-learning substances for making syrup, vitomilk and ice cream available enough (more than 50% of total sampling substances). Variety of e-learning substances for making chips with vacuum frying, widely available (up to 75% of total substances sampling). Based on the panelist students, is known that the manufacture of carbonated beverages, vitomilk and syrup are e-learning substances from youtube that most easily to be understood and practiced although the substances is still fairly limited. From 6 theme of practice of food technology, 4 theme of practice by the substances from the youtube site has been accomplished (60% of success).

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