# THE IMPACT OF A TRAINING PROGRAM BASED ON AN INTEGRATIVE APPROACH ON IMPROVING TEACHING PRACTICES AND METACOGNITIVE THINKING SKILLS AMONG PRACTICAL STUDIES' TEACHERS IN THE STATE OF KUWAIT

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**ABSTRACT:** This study aimed to investigate the impact of a training program based on an integrative approach on improving teaching practices and metacognitive thinking skills among practical studies' teachers in the State of Kuwait. The study followed the pre-experimental approach, and in order to achieve the objectives of the study, a training program was built based on the approach of integrative teaching, and a observation card was developed according to the classroom practices survey questionnaire prepared by the regional educational laboratory of the central continent of America for the year 1994, to measure the teaching practices of the study individuals. From (25) teaching practices, a test was also created to measure metacognitive thinking skills, which consisted of (10) essay questions. The study was applied on a sample of (8) teachers of practical studies teachers in the middle school stage. The study found that there was a statistically significant effect of using the training program based on the integrated teaching approach in improving teaching practices and metacognitive thinking among the study individuals.

**KEYWORDS:** training program, integrative teaching approach, teaching practices, metacognitive thinking.

# INTRODUCTION

The reform and development of education begins with the teacher and ends with him, so those involved in educational systems have realized the importance of the teacher and his role, so they have taken care to meet all the possibilities for preparing and qualifying him educationally, professionally and behaviorally before and during service. This is on the basis that the teacher and his quality are the basis for achieving the desired goals, so it was necessary to pay attention to the teaching profession according to the pedagogical rules and principles. The performance of teachers in general, and practical studies teachers in particular, can be developed through their continuous training on everything new. Training according to strategies based on specific standards may be important for developing teachers' skills, especially improving their teaching practices, and their thinking skills.

Practice is having the necessary knowledge, skills and attitudes needed to reach an acceptable level of performance, or is the ability to do a business. As for the teaching practice, it is the teacher's ability to behave in an educational situation in which a clear influence occurs, or it is the set of

skills, methods, knowledge and patterns of behavior that the teacher performs continuously, or it is the behavior of the teacher that he practices in educational situations, or the mastery of information, judgments, skills and the necessary change in student behavior. Thus, the practice can be latent in the person who can move it whenever he wants to do the work he intends to do. It can be a phenomenon that a person actually performs (Gamel, 2001).

# **Theoretical Review**

Teaching practices defined as the actual practices that the teacher demonstrates in the form of observable behavior. They are two types: First are the practices that the teacher implements outside the classroom from planning, preparing educational aids and computer programs, preparing records, etc. Second, practices are implemented in the classroom, such as preparing the lesson, attracting students' attention, implementing educational outcomes, using educational tools and reinforcement. techniques, classroom management, evaluation, and others (Alvunger, 2018). Ying (2011) defined it as the practices that are represented in three aspects: the personality of the teacher, the classroom teaching practices, and the administrative practices of the teacher. Badawi (2009) believes that there are four foundations for defining teaching practices as follows:

- The philosophical basis: It is represented in the goals and outcomes that are consistent with society and its philosophy.

- The empirical basis: It is represented by the results of psychological and social research, in which the educational competencies are derived from the results.

- The specialized basis: related to the academic subjects, and their cognitive building.

- The teaching basis: represented by what teachers do in teaching, such as: managing learning sessions and the class, implementing activities and experiences, evaluation, reinforcement, etc.

Teaching practices are derived from multiple sources, the most important of them are: educational theories that defined the function of both the teacher and the student in learning and teaching, the findings of studies and research, interest in the goals of education that take place in light of the prevailing educational philosophy, the practices identified by the literature, and the use of teaching practices lists prepared by specialized authorities. In addition to observing teachers 'performance in light of tools for observation and evaluation forms, analyzing teacher work, and benefiting from teachers' experience in this field (Archiliblad, 2010; Attia, 2008).

There are teaching practices that include multiple educational activities. These practices include: informing teacher of his roles and how to prepare for the lesson, planning and implementing it, familiarity with evaluation processes, classroom management and control, and participation in curriculum development. In preparing for the lesson, the teacher must be familiar with his subject, familiar with the objectives, familiar with the learning theories, and familiar with the teaching methods. As for planning, he (the teacher) must define behavioral goals, analyze lesson material, choose activities and experiences, choose teaching aids, choose evaluation methods, and determine what raises motivation. In the field of implementation, which is putting what was planned for him into practice, in other words, implementing the plan set by the teacher and that is: organizing the classroom environment, preparing the student's mind, raising his motivation and presenting the

subject of the lesson, provoking verbal interaction, raising questions, managing discussion and interacting with students 'answers and dealing with educational aids, by determining the situation and the duration of the method presentation. How to directing it to serve the educational situation, and providing security in its use, in addition to the need to take into account the time and the participation of students in the lesson and the link between the parts of the material. There is a field of classroom management and control, and that is by: the necessity of spreading respect among all parties in the class, spreading an atmosphere of love and understanding, maintaining communication, giving students opportunities for active participation, addressing the student in his name, controlling the rhythm of movement in the classroom, and the teacher's personality traits appear clearly (Fleet and Al-Zayyan; 2014; Fraihat, 2016; Wagiran, et. Al, 2019).

It is also important to develop different thinking skills, especially the skills of metacognitive thinking. Thinking is supra-cognitive or metacognitive, as Costa and Kalick (2004) pointed out as thinking about thinking, which expresses the ability to know what we know and what we do not know. The ability to plan a specific strategy to produce the necessary information to meet the situation we are in, as well as awareness of the strategies used during the problem-solving process. Metacognitive thinking skills are taught and learned, as Matthew (2017) points out, by following multiple stages; First: The stage of having an internal motivation to learn skills, and that is when the individual is convinced to provide greater opportunities for success in solving problems, because the motivation leads to serious work to acquire knowledge. Second: Teaching through modeling, which is the best way to teach skills, and here the model must be influencing the individual. Third: Bilateral participation, in which one of the individuals is asked to initiate solving the problem out loud, and others are asked to listen and follow closely what the colleague says, as this leads to learning the required skill. Fourth: Understanding cognitive processes and employing them with a high level of perfection, and in this step, the process of analyzing the processes enters and follows them in an unmistakable way (Jabri and Al-Amiri, 2013).

Metacognitive thinking can be developed in three ways: the self-awareness method, the self-organization method, and the self-observation method. In self-awareness, the individual realizes his learning method and style, and the trainer here must employ a set of activities that enable teachers to know themselves and the degree of awareness they have. As for self-organization, where teachers here find out how to organizing, planning and programming actions, based on themselves, their ideas and their cognitive construction, and not under the guidance of the trainer. Self-knowledge is important, as it helps to define tendencies, abilities, preparations, aspirations, preferences and future plans. There is the method of self-observation, which is a component of metacognitive thinking, in which training is conducted on this type of thinking, through procedures: planning, setting goals, determining implementation steps, the impact of difficulties, using alternative methods, verifying the steps of the plan, monitoring and orientation to complete the implementation process (Abu Jadu and Nouvel, 2010; Brookfield, 1997).

Among the trends that the reform movements have focused on in curricula and teaching is what known as the integrative approach, which is mainly based on providing knowledge in an integrated manner, without fragmenting knowledge, and removing boundaries between the same branches of knowledge. The integrative approach is based on several educational theories; the most prominent

of them is the Gestalt theory, which considers that the individual perceives the whole before the part, and that the nature of the educational situation is determined by the relationships that exist between the parts. The most comprehensive concepts are at the top, and the more specialized are at the base (Kattami, 2005).

Cameron (2005) defines the integrative approach as the integration of topics from different branches of knowledge through the focus of integration on a specific topic in which the knowledge branches are involved. The integrative approach, as indicated by (Kaveci, Atalay, 2015; Abu Harb and Al-Ghazzawi, 2010) is to research the relationship between curriculum experiences and content components. Its goal is to helping build a more unified view towards life problems, and that connects differences, topics, or multiple materials, for the purpose of their integration in one axis. It is also a system that presents knowledge in a functional pattern, and in the form of interrelated concepts covering different topics, in order to facilitate understanding and application of knowledge.

The importance of the integrative approach comes from: aiding in conscious understanding, linking topics with life skills, determining the teacher's and student's responsibility towards knowledge, helping students in group education, finding balance between students and their community, highlighting the unity of science, gaining the ability to connect, avoiding repetition, developing thinking skills, acquiring deeper concepts, making educational outcomes more stable, increasing student achievement and integrating his personality, and activating the role of educational activities (Abu Harb, 2007; Kaveci&Atalay, 2015).

Integration in teaching can be in two axes: Horizontal integration, which takes place by finding links and relationships between academic subjects at the same level or grade, and vertical integration that takes place by expanding knowledge in one knowledge branch during successive levels of education. Integration according to Kharousi (2014) is based on four axes:

1. Designing an integrated curriculum that includes a solution to the life problems facing the student in reality.

2. Teaching knowledge as one unit without separating life topics.

3. Paying attention to educational experiences needed to solve a problem without paying attention to the achievement aspect.

4. Focusing on experiences, projects and activities that reinforce ideas and principles of integration.

Schwartz (2017) stated that the success of education in general depends on the teacher's practices, by permanently diagnosing everything he does, and determining the professional development he needs to improve those practices. Training teachers in light of all that is new in curricula and teaching is inevitable, and training does not achieve its objectives effectively unless it is conducted in a planned and thoughtful manner. This begins with identifying training needs and ends with verifying the effectiveness of training, so this study came as an attempt to investigate the impact of the program of an integrative-based training course in improving teaching practices and metacognitive thinking skills of practical studies teachers in the State of Kuwait.

#### Study problem and its questions

The study problem comes from the usual practices that practical studies teachers use to teach their students; it focuses on the cognitive aspect of the behavioral method, which breaks down knowledge into separate parts from one another, and does not take into account its integrity. On the other hand, he noticed that they did not take into account the complementarily between the knowledge contained in the books of practical studies and other branches of knowledge, such as the integration between practical studies and environmental science when talking about environmental laws and the preservation of the environment and its materials, or the integration between the subjects of measurements, mathematical knowledge, or integration with health sciences when dealing with safety and security issues. The researcher believes that one of the reasons for the traditional practices of practical studies teachers in teaching is their poor possession of the skills of supra-cognitive thinking, and therefore the need to conduct the current study arose, whose problem is determined in answering the following questions:

- What is the effect of a training program based on an integrated approach on improving the teaching practices of practical studies teachers in the State of Kuwait?

- What is the effect of a training program based on an integrative approach on improving the metacognitive thinking skills of practical studies teachers in the State of Kuwait?

#### **Study importance:**

The importance of the study is represented by providing a training program for practical studies teachers based on the integrative approach to teaching carpentry and decoration. The study also provides some metrics that can be used to find out the teaching skills of teachers, and their metacognitive thinking. It also benefits those responsible for writing carpentry and decoration books, by providing them with feedback on the existing books and how to improve them with modern teaching strategies.

## **Conceptual and procedural definitions:**

The Integrated Teaching Curriculum: Alghamdi (2017) defines it as an attempt to link the different academic subjects, which are presented to students in a coherent manner, and are organized in such a way that overcoming the barriers between the different academic subjects. Teaching skills: It is procedurally defined as every intended and planned work carried out by teachers of practical studies to achieve educational goals, and it is measured by the degree obtained by study members on the observation card specially prepared for this purpose. Metacognitive thinking skills: These are skills directed at problem solving, using cognitive capabilities, facing the requirements of the thinking task, organizing, supervising and issuing instructions on how to proceed in solving the problem, raising the level of independence of thinking, and practicing self-directed thinking. It is measured procedurally by the degree that the teacher gets on the test of metacognitive thinking skills that was prepared for the purposes of the current study.

## **Study limits:**

- Human limits: represented by teachers of carpentry and decoration for middle grades. Spatial limits: Mubarak Al-Kabeer Governorate in the State of Kuwait. Time limits: the first semester of the 2019/2020 academic year. The results of the study are determined by the validity and stability of the study tools, and the objectivity of the respondents.

# METHOD AND PROCEDURES

## **Study Approach:**

The study used the pre-experimental one-group approach, in order to suit this approach to achieve the objectives of the study.

# Sample of the Study

The researcher chose the individuals of the study from Issa Al-Loughani School by intentional method, since the researcher supervises this school and the experiment can be easily applied. (8) Teachers were chosen by a simple random method from among the practical studies teachers, who are (18) teachers, and by two teachers together with teachers of intermediate grades (6-7-8-9 class). **The study tools:** 

The present study requires the preparation of two tools: First: Teaching Practices Observation Card

In order to achieve the aim of the study, a observation card developed according to the questionnaire of the Teaching Practices Survey prepared by the Mid-continent Regional Educational Laboratory (McREL) for the year 1994 was prepared which consists of (25) items according to the Likert quadruple scale, and the total score ranges from (25-100). The scale is used as an evaluation tool, which was used in the current study, and as a self-report tool. In the current study, the same items of the scale were used, but as a observation card that includes (25) teaching practices, and scores (1-25) were approved in the current study. One score is assigned to each practice. The scale has indications of validity and stability , as the value of the Cronbach Alpha index was (0.92), and indications of apparent validity were extracted, and stability reached (0.76) using Pearson's equation.

In order to verify the validity indications of the observation card developed according to the scale prepared by McREL, it was presented to a group of specialized arbitrators. The arbitrators approved the tool as it is. Thus, the tool took its final form. As for the stability of the observation card, an exploratory sample was observed from outside the study members, and the method of analysis and re-analysis was used after a period of two weeks. It was analyzed by another party (teacher) and compared both analyzes, and according to the Holsti equation, the total stability factor was (0.81), confirming the stability of this instrument.

Second: Examining the skills of metacognitive thinking

A test was built to measure metacognitive thinking skills after referring to the theoretical literature related to the topic. One of the carpentries and decoration topics was selected, which is (problems in design, assembly and final finishing), and one essay question was developed about each skill of this thinking, according to the following:

- The ability to set remote targets.
- Develop mental notes that help in a deep understanding of the situation.
- Think about what is known to achieve something unknown.
- Thinking out loud to benefit from other people's thinking.
- Reflect on the information by summarizing the ideas presented.
- Check the results to discuss with others.
- The ability to return to the flow of thoughts in the event of distraction.
- Ask questions to test the ability of answering them.
- Being fully aware of what is being contemplated.
- The ability to deal with similar situations.

Two scores were assigned to each skill, bringing the total score to the test (20) points.

In order to verify the validity of the metacognitive thinking test, it was presented to a group of university professors, who put some notes on some of the test dimensions. The researcher took them all, and the test took its final picture.

To verify the stability of the test, an exploratory sample was chosen from outside the study members, consisting of (8) teachers and the two tests were applied twice with an interval of two weeks. By using the Pearson correlation coefficient, the test stability factor was extracted which reached (0.85). These stability coefficients are acceptable for the purposes of the current study. As for the stability of the correction, (6) papers chosen randomly from the papers of the survey sample members were corrected, and a teacher of practical studies was asked to correct the papers themselves. The stability of the correction between the researcher and the teacher was extracted by applying the Pearson correlation coefficient, so the stability coefficient was (0.81).

## **Training program**

To achieve the goal of the study, a training program was built for middle school practical studies teachers based on an integrative teaching approach. The process of building the program went through the following steps:

- Determining the philosophy of the program: It is derived from the philosophy of integrative teaching.

- Defining the program's objectives: which were mainly represented in identifying the integrative approach philosophy in teaching, how to employ the integrative approach between academic subjects in a single grade (horizontal integration), and how to employ the integrative approach within the one subject matter across the grades (vertical integration), and identify on the most prominent teaching methods and strategies that are consistent with the integrated teaching approach as a problem-solving strategy.

-The content of the program: which was prepared after reviewing the theoretical literature related to the topic of the integrative approach in teaching, and several dimensions were taken into account in building the content, such as: the target group of the program, the goal of the current study, and the distribution of the content on the training days.

-Training methods: The reliance was mainly on the link between the theoretical issues represented by the integrative approach issues, and the practical application of how to employ the integrative approach in selected subjects from the intermediate school curricula, and methods of discussion

and dialogue, brainstorming, and cooperative learning were employed. In addition, a lesson was prepared according to the complementary approach in the form of a model to serve as a guide for female teachers. Emphasis was placed on how to integrate between knowledge branches and linking knowledge to its life applications.

- The means and tools used: In addition to textbooks for carpentry and decoration for middle grades, worksheets, smart boards, and some available educational aids were used.

- Target group: teachers of practical studies for the middle school stage.

- Duration: The implementation of the training program took a period of six weeks, with three training sessions per week, in the first semester of the academic year 2019/2020.

- Validity of the program: The training program was arbitrated by presenting it to a group of specialists in curricula and teaching, and all the minor notes that they commented on were taken.

# **Study variables**

The study dealt with the following variables:

1- The independent variable: the training program based on the integrated teaching approach.

2- dependent variables: It included teaching practices and metacognitive thinking skills.

Study design

The study took the following design:

EG: O1 O2 X O1 O2

As:

EG: the experimental group

O1: Teaching Practices Observation Card (pre and post)

O<sub>2</sub>: Metacognitive Thinking Test (Pre and Post)

X: The experimental variable (training program).

# **Statistical process**

To answer the study questions, the arithmetic average and standard deviations were extracted, and (T) test for two correlated samples.

# STUDY RESULTS AND DISCUSSION

**The first question**: "What is the effect of a training program based on an integrated approach on improving the teaching practices of practical studies teachers in the State of Kuwait?"To answer the study's first question, pre, post, and modified arithmetic averages and standard deviations of the study members were extracted on the observation card, and to verify the statistical significance of the differences between the arithmetic averages of the study individuals, use the T-test for two correlated samples, as shown in Table (1).

	Fable (1)	). The res	ults of the	e T-test for the	difference be	etwee	n the n	nean sco	res of the	study
i	ndividua	als in the	two appli	cations, pre and	d post, on the	teacl	hing pr	actice ol	oservation	card
	(2)	C!	Т	CD	М	6.1	CD	М	<b>C</b>	<b>1</b> .

	(η <sup>2</sup> )	Sig.e	Т	SD	Μ	fd	SD	Μ	Source of
				differences	differences				variation
ſ	0.34	0.000	10.214	1.86	12.90	7	2.28	10.34	Pre
							2.74	19.50	Post

\* Statistically significant at  $\alpha = 0.05$ 

Table (1) shows the existence of a statistically significant difference between the average scores of the study individuals in the pre- and post-applications of teaching practices, as the value of (T) was (10.214), which is a significant value at the level of significance ( $\alpha = 0.05$ ), and the difference was in favor of the post application. The arithmetic average in the pre-application reached (10.43), while in the post application it reached (19.50). The value of the effect size was reached using the ETA square (0.34), which is a significant value, and indicates that the differences are attributable to the training program.

This result can be explained by reference to the integrative-oriented teaching philosophy. It is based on theories of learning, most notably the work of Gestalt and Constructivism, in addition to the theories based on brain research, which focus mainly on the relationships between the student and the content, the relationships between the student and the teacher, the relationships between the students themselves, as well as the relationships which links the branches of knowledge. Therefore, it can be said that the philosophy of the integrative approach focuses heavily on the role of the student in the process of learning and teaching, and since the training program is based on this philosophy, perhaps this contributed to improving the teaching practices of the participants in this study. This result can be explained by the focus of the training program on linking knowledge branches with life issues and topics. As this link is one of the foundations on which I built the program according to the complementary approach, and perhaps this contributed to the understanding and awareness of teachers to the importance of linking knowledge with the lived reality. Perhaps the training program highlighted the unity of science and urged teachers to think about knowledge and gain more knowledge, and allowed them to acquire knowledge in a deeper way, and perhaps this reflected positively on their teaching practices. In addition to the above, it can be said that the training program based on an integrated teaching approach has contributed to the development of teachers' understanding of the nature and needs of students, and how to rely on their knowledge and previous experiences in teaching. As the integrative approach aims to find individuals who are able to use their past experiences to build learning, they are holistically aware of things. Perhaps this had a positive impact on teachers' teaching practices.

**Second question**: What is the effect of a training program based on an integrative approach on improving the metacognitive thinking skills of practical studies teachers in the State of Kuwait? To answer the study's second question, pre, post, and modified arithmetic averages and standard deviations, were extracted among the study subjects on the meta-cognitive thinking test, and to verify the statistical significance of the differences between the arithmetic averages among the study subjects, the T-test was used for two correlated samples, as shown in Table (2)

Table (2). The results of the t-test for the difference between the average scores of the study
individuals in the pre- and post-applications on the scale of achievement motivation

٦	Source o	Μ	SD	fd	M differences	SD	Т	Sig.	(η <sup>2</sup> )
	variation					differences	-		
_	Pro	11.03	1.05	7	12.11	1.43	13.14	0.000	0.22
	Pos	17.70	1.13						

\* Statistically significant at  $\alpha = 0.05$ 

Table (2) shows the existence of a statistically significant difference between the average scores of the study individuals in the pre and post applications on the metacognitive thinking test, as the value of (t) reached (13.14), which is a significant value at the level of significance ( $\alpha = 0.05$ ), and the difference was in favor of the post application, as the arithmetic average reached (03.11) in the pre application, while it reached (17.70) in the post application. The value of the effect size was reached using the ETA square (0.22), which is a significant value, indicating that the differences are attributable to the training program.

Perhaps this is due to the procedures followed by the method of training according to an integrative approach, represented by asking teachers to plan and organize what they want to learn, and perhaps this contributed to the development of their metacognitive thinking skills, as it trained teachers to monitor their performance by setting goals for learning activities, and how to implement them. Those goals, and what are the difficulties they faced in those experiences, and how those difficulties could be avoided, and perhaps all of this contributed positively to the development of their skills with regard to self-monitoring, which reflected positively on their metacognitive thinking skills.

## **Recommendations:**

In light of the studyresults, the researcher recommends training practical studies teachers, and encouraging them with rewards and motivation, to use the integrative approach in teaching, because of its positive impact on improving teaching practices and developing their supreme cognitive thinking. He recommends building curricula for practical studies and books for the integrative approach, to help teachers use the integrative approach in teaching.

## **References:**

Abu Harb, Y. (2007). The integrative approach. Education Message Magazine, Issue 16, 8-17.

- Abu Jadu, S. and Nofal, M. (2010). Teaching thinking. Amman: Almasirah for Publishing and Distribution.
- Alghamdi, A. (2017). The Effects of an Integrated Curriculum on Student Achievement in Saudi Arabia. Journal of Mathematics Science and Technology Education, 2017 13(9):6079-6100.
- AlKharousi, A. (2014). Integration in school education: curriculum, teacher training, educational evaluation, students' achievements. Amman: Almasirah for Publishing and Distribution.
- Alvunger, D. (2018). Teachers' curriculum agency in teaching a standards-based curriculum. The Curriculum Journal, DOI: 10.1080/09585176.2018.1486721

- Archiliblad, D. (2010). Global Education: An Alternative program of study for Progressive Learning. Dissertation Abstracts International. 39 (2), 324 -331.
- Attia, M. (2008). Modern curricula and teaching methods. Amman: Dar Almanahij for Publishing and Distribution.
- Badawi, M. (2009). Using Blended Learning for Enhancing EFL Prospective Teachers' Pedagogical Knowledge and Performance. Paper presented at Learning & Language--The Spirit of the Age Conference.
- Brookfield, D. (1997). Developing critical thinkers. Jossy–Bass publishers, London.
- Cameron, L. (2005). Teaching languages to young learners. (7th Ed.). United Kingdom: Cambridge University Press.
- Costa, A., Kallick, B. (2004). What are Habits of mind?, Retrieved 16 Nov 2020 From: http://www.Habits of mind net \whatare.htm.
- Fleet, J. and Zayyan, M. (2014). The necessary language competencies for student teachers, majoring in basic learning, in light of the approach to language communication. Al-Azhar University Journal, 2 (16), 347-332.
- Freihat, I. (2016). Building a training program based on the emerging educational needs and applying it in both direct and electronic methods and its impact on improving teaching skills and pedagogical thinking among Islamic education teachers in Jordan. Unpublished PhD thesis, World Islamic Sciences University.
- Jabri, K. and Al-Amiri, M. (2013). Thinking: An Interpretive Psychological Study. Amman: Al-Shorouk Publishing and Distribution.
- Jamal, A. (2001). Educational competencies in measurement and evaluation, and their acquisition by self-learning. Amman: Dar Almanahij for Publishing and Distribution.
- Kattami, Y. (2005). Learning and teaching theories. Amman: Dar Alfiker.
- Kaveci N., Atalay, O. (2015). An experimental study on effectiveness of Integrated Curriculum Model (ICM) in Social Studies education for gifted and talented learners. Gifted and Talented Education, Turkey, 10 (8): 1049- 1062.
- Matthew, P. (2017). Metacognition, Cambridge Professional Development Qualifications, Retrieved 16 Nov 2020 from: https://www.cambridgeinternational.org/Images/272307metacognition.pdf
- Schwartz, M. (2017). Best practice in experimental learning. Research report, learning& teaching office. Retrieved Nov 10, 2020 from: https://www.ryerson.ca/content/dam/lt/resources/handouts/ExperientialLe arningReport.pdf
- Wagiran, P., Wardan, S., Herminarto, S., Sunaryo, S., Afri, Y. (2019). Competencies of future vocational teachers: perspective of in-service teachers and educational experts. Cakrawala Pendidikan, 38(2), 387- 398.
- Ying, L. (2011). The Valuation of Knowledge and Normative Reflection in Teacher Qualification: A Comparison of Teacher Educators, Novice and Experienced Teachers. Journal of Teacher Education, 24(1), 17-20.