The use of learning station method according to competency development for elementary students in Vietnam

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Abstract: Teaching and learning according to competency development focus on differentiated instruction and organizing activities for students to discover new information, practice skills and then apply knowledge to reality. Using active teaching method, in which enhancing experiences in learning is the significant trend of modern education. The article mentioned to the use of learning station method in elementary education in Vietnam. Based on the literature reviews of learning station method and competencies of elementary students, evaluation of the reality, and results of experiments, the author stated some proposals so that teachers and administrators can use learning station method in elementary schools in Vietnam effectively.

Subjects: Primary/Elementary Education; Childhood; Classroom Practice; Continuing Professional Development

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PUBLIC INTEREST STATEMENT
The research reports the effectiveness of using Learning station method to improve students’ competencies at elementary schools in Vietnam. This method is used to develop students’ competencies such as self-study and autonomy competencies, communication and cooperation competencies, problem-solving and creativity competencies, etc. The research reveals that the model can be utilized in all subjects at the primary level; nevertheless, teachers need to be trained properly to use it effectively. When teachers apply Learning station methods for their classes, students are more proactive and independent when solving problems, enhancing their competencies of working in group, being more confident and enhancing specific competencies when they study different subjects.
Keywords: active learning; differentiated instruction; learning station method; competency development; elementary education

1. Introduction
Innovating teaching methods according to competency development is not only a rule but also the needs of both teachers and learners. Teaching methods are important factors and greatly affect the quality of teaching and training. An appropriate teaching method will create great conditions for the teacher to develop his or her fullest ability in the communication and the learners will develop the capacity to acquire knowledge and develop thinking. A suitable teaching method is applied will change the role of the teacher by creating interest, passion and creativity of the learners. Magdy and Sara (Aqel & Haboush, 2017) stated that developing educational strategies is very significant for modern learning because they focus on both learners and educators. The importance of educational strategies and instruction in learning management was discussed and identified the roles of both students and teachers in motivating students in learning. Therefore, the modern curriculum is designed to support active learning which ensures student interaction, and it has many different teaching strategies depending on the different of academic levels. Active learning is an educational environment dealing with many changes and a lot of information because it meets requirements based on the needs of learners and educators (Ali, 2011). It also requires more clarification about the students because they will define their educational process. The active learning philosophy emphasizes that learning is related to students’ lives, interests, reality, needs, and concerns because students will learn through the interaction between them and their peers.

One of the basic orientations of educational innovation is to move from an academic education that is far from practical to an education that focuses on the formation of action competency, promoting initiative, and creation of learners. An important orientation in renovating teaching methods generally and innovating teaching methods in elementary schools particularly is promoting positive, self-reliant and creative, developing action competency and collaborative competency of learners. These are also the inevitable trends in reforming teaching methods in each school. Innovating teaching methods is making a transition from the content-based education program to approach the competency-based learning of students, that is, from being interested in what students are learning to being interested in using something through learning. To ensure that, it is necessary to move from a “one-way” teaching method to teaching how students use their knowledge to apply, how they practice their skills, develop competencies and qualities so that they will be successful in their life. Strengthening group-learning, renovating teacher–student relations in the direction of meaningful collaboration to develop social capacity. Besides learning the specific knowledge and skills of professional subjects, it is necessary to supplement interdisciplinary-integrated learning topics to develop the capacity to solve complex problems. Silberman (Silberman, 2006) pointed out that with active learning, students will use their skills effectively, and they will study their ideas better and solve problems when they are subject of the learning process. This is because active learning includes a system of exercises that are appropriate for many new and different issues about what is happening around each student from daily events, motivating students to be responsible for making choices when they participate in the discussion.

According to Tomlinson (Tomlinson, 2000), differentiated instruction consists of efforts of educators to respond to different levels of learning among their students in the classroom. Whenever a teacher reaches out to an individual or small group to vary his or her teaching to create the best learning experience possible, that teacher is differentiating instruction. Teachers can differentiate at least four elements based on student readiness, interest, or learning profile (Tomlinson, 2000):

- Content—what the student needs to learn or how the student will get access to the information;
- Process—activities in which the student engages to make sense of or master the content;

- Products—culminating projects that ask the student to rehearse, apply, and extend what he or she has learned in a unit; and

- Learning environment—the way the classroom works and feels.

In this article, the authors focused on an active method which was described as a type of differentiated instruction that promotes students' competency development—Learning station method. This method represents the diversity and differentiation in teaching methods as well as strategies where students need to move to each station, and educators rotate around according to specific system. Each station is equipped with teacher-developed learning materials and activities which are designed to teach or reinforce a specific skill or concept. The teacher designed materials and activities can be of various formats such as experiments, games, journals, or self-working on papers, etc. This method is used to develop students' competencies such as self-study and autonomy competencies, communication and cooperation competencies, problem-solving and creativity competencies, etc. Students can move to different stations independently, solve issues or complete the tasks at stations by themselves; or they can collaborate with their peers/group members to communicate, discuss about the problems stated at stations; or students can also improve their creativity competency by drawing mind maps, making products, etc.

Learning stations method emerges from constructivist theory, which encourages students to face real-world problems that occur in their daily lives, provides them opportunities for developing new knowledge based on their experiences and what they have learned before. This is the new goal to teach students who are familiar with how and where to implement knowledge.

Constructivist curriculum has played an important role in achieving this goal, it is one of important learning theories which are used to guide towards the development of modern teaching methods in education. Ocak (Ocak, 2010) stated that learning stations is one of the new teaching methods, which are appropriate ways for the social and intellectual level of the construction of knowledge. In addition, Wright (Wrights, 2015) mentioned that Learning station method is an important method in reforming education; it helps children increase their learning time as well as receive more supports so that they will improve their competencies and get better learning achievement.

Learning station method is not a new teaching one but it can promote positive, proactive, and self-reliance for learners effectively; it also helps learners participate in learning at highest levels. However, the application of the Learning station method in teaching in elementary schools is still limited and has not achieved high efficiency due to many objective and subjective reasons.

This research focused on the following research questions:

- How are administrators and elementary teachers in Vietnam aware of using Learning station method according to competency development?

- How teachers use Learning station method according to competency development in elementary schools?

- What is the current situation of designing lesson using Learning station method of elementary teachers according to competency development in Vietnam?

- What factors affect the use of Learning station method according to competency development in elementary schools?
- What expectations do students have for organizing learning activities in the lesson?

2. Literature review

2.1. Teaching according to competency development in elementary education

2.1.1. Definitions of competency
There are many different opinions about the definition of competency. According to OECD (OECD, 2005), a competency involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a context. For example, the ability to communicate effectively is a competency that may draw on an individual’s knowledge of language, practical IT skills, and attitudes towards those with whom he or she is communicating.

Individuals need a wide range of competencies to face the complex challenges of today’s world, but it would be of limited practical value to produce very long lists of everything that they may need to be able to do in various contexts at some point in their lives. Through the DeSeCo Project, the OECD has collaborated with a wide range of scholars, experts, and institutions to identify a small set of key competencies, rooted in a theoretical understanding of how such competencies are defined. Each key competency must:

- Contribute to valued outcomes for societies and individuals;
- Help individuals meet important demands in a wide variety of contexts; and
- Be important not just for specialists but for all individuals.

Thus, according to the overall educational program of Vietnam, competency is an individual attribute formed and developed thanks to the available qualities and the process of learning and training, allowing people to mobilize a combination of knowledge and skills. and other personal attributes such as interest, belief, will, etc., successfully performing a certain type of activity, achieving desired results under specific conditions.

2.1.2. Competency development in instruction for elementary students
The concept of competency development in instruction not only pays attention to students’ intellectual activity, but it also focuses on training their ability to solve problems associated with life and career situations, and at the same time activating intellectual activities with practical activities. Strengthening group-learning, renovating teacher–student relations in the direction of meaningful collaboration to develop social competencies.

Competency development initiatives refer to how individual persons develop their competencies by actively engaging in different types of developmental activities offered by their organizations or educators (Ans et al., 2011).

For teaching competency development to be effective, teachers need the following directions:

- Promoting learners to be active, self-conscious, and formulate and develop their self-study competencies (using textbooks, listening, taking notes, seeking information from different sources), so that their thinking will be more flexible, independent, and creative.

- Flexibly choosing the general and specific method of the subject to implement. However, using any method must ensure the principle of students complete their cognitive tasks with the organization and instruction of teachers.
- The use of teaching methods needs to be closely linked to forms of teaching and learning. Depending on specific objectives, contents, subjects, and conditions, there are appropriate forms of teaching such as individual and group study; learning in class, learning outside of class … It is necessary to prepare methodologies for practice to ensure the requirements of practicing skills, applying knowledge into practice, and increasing interest for learners.

- The need to use sufficiently and effectively the prescribed minimum teaching aids. DIY teaching aids may be used if deemed necessary with the contents and appropriate for students. Actively apply information technology in teaching.

2.2. Learning station—a competency—oriented method for students

2.2.1. Definition and characteristics of learning station method

Station is a stable place where people solve or deal with an issue. Learning station is a place where a group of students themselves organize learning activities (doing experiment, taking a task, dealing with a learning problem that they need to solve, etc.). Stations give students ample opportunities to use aids and materials, assure active student participation in the learning process, and thus the learnt knowledge is made permanent (Pinar et al., 2009).

Teaching using learning station method is that teachers organize for their students to work by themselves at different stations in the classroom to complete their learning tasks. Learning stations are designed in different places organized in or outside the classroom and students’ activities at different stations are free with the instruction of teachers. Students must solve issues at different levels of learning by themselves. Thus, learning station method focuses on self-control and self-study of students.

Learning station is a method of instruction in which small groups of students move through many learning centers, or stations, allowing teachers to differentiate instruction by incorporating students' needs, interests, and learning styles. This method supports teaching abstract concepts as well as concepts that need to be repeated so that students can remember and truly understand. Learning stations can cover a single topic/lesson in a subject—with the aim of teaching new knowledge, or several independent topics such as reviewing different themes in Math, Vietnamese or Sciences. Learning station method can last one class period or several. With learning stations, students can either rotate only to stations that meet their specific learning needs or every student rotates through each station and performs all the activities. One of the greatest strengths of learning station method is that it incorporates many concepts used for differentiated instruction. Learning stations became a well-known model in the 1960's and 1970's, based on Montessori at the beginning of the 1900's, then shaped by Dewey's educational philosophy, and then influenced by Piaget and Vygotsky's constructivist views (Bulunuz & Jarret, 2010). These authors also stated that learning stations method could be used as a teaching tool that addresses individual differences and was supported by the multiple intelligence theory.

Originating from the teaching process at elementary school level, teaching by learning station method according to competency development has been widely applied thanks to the flexibility in implementation steps. Teaching by the learning station method is a way of organizing teaching with emphasis on organizing teaching contents into each independent cognitive task of different groups of students. Students can perform tasks in pairs, in groups or individually in a flexible order. Learning stations can be open-ended or they can work toward a specific outcome or they can be tasks to review the lessons. Often the objectives are process-oriented and involve modeling scientist behaviors-observing, classifying, inferring, testing, and communicating (Jarrett, 2010).

In modern education system, Learning station method is used as a teaching tool that addresses individual differences. The differentiation in teaching by learning station method is flexible and diverse. Content-based segmentation can be done by building optional tasks with varying levels of...
difficulty. It is also possible to organize station-based teaching with the differentiation of the level of specific instructions, details or generalization, general orientation through the system tasks and answer sheets. An important feature of teaching by learning station method is flexibility, tasks that are independent of each other. Therefore, in the case of teaching lessons with closely related logical units of knowledge, we can organize the lesson into many different station systems (learning circles), so that the tasks in each station system is independent of each other.

Cristina (Cristina, 2011) mentioned in her article that “the instructional process which accommodates different learning styles will lead to a development in differentiated instructional approaches for students, which might have a positive impact on selecting differentiated teaching strategies”. This is obvious that each student has his/her own learning style, and by being differentiated instruction, students will develop as far as they can, reach achievements at schools. In other article, Marilena (Marilena, 2014) gave an idea that “Differentiated approach towards instruction is meant to fill the gap between teaching and learning to push students as far as possible on their educational path” which means by differentiating instruction, teachers can clarify the levels of their students as well as help their students engage in their learnings by giving them appropriate tasks that they will be able to deal with.

Learning stations method emphasizes the active role of the students in learning through distributing them into groups roaming on different stations to conduct an experiment on the subject or read the topic in another station or watch the images of the subject matter or resolve an issue, or a meeting with an expert (Zinati, 2014). Learning station method is a versatile instructional strategy that lends itself to several practical uses. Students can review prior knowledge and skills, become aware of new information, practice skills, plan projects, study, quiz themselves or each other, and create their own performance-based presentations using what they have learned.

Learning stations is an open teaching method, which based on the requirements of the knowledge and skills of the lesson, teachers can organize self-control learning activities for their students at different classroom areas to solve academic problems. Learning station method also develop self-assessment and self-adjust learning activity skills. Through different activities at stations, teachers create conditions for learners to participate in interacting and self-assessing with each other.

In addition to the characteristics of learning stations strategy, learning station method requires more advance planning by teachers, materials and numerous possibilities for the implementation of activities which may not be available in all schools. In addition to that, the possibility of chaos and the inability to manage the class. However, if the classroom materials are limited in quantity in which it is possible for students to work in small groups roaming through the stations, which requires as little as possible of same materials.

Among the most important parts of curriculum, teachers should focus on the concepts, through providing an active learning environment suitable for the development of concepts by following different methods of teaching in which the student can be a participant to keep pace with variables and information relating to the lesson.

2.2.2. Types of learning stations
There are many types of learning stations, such as exploratory station, reading station, visual station, audio/visual station, electronic station, advisory station, acting/dramatic play station, or stations that represent for different subjects such as Math station, Art station, Sciences station, and Communication station. It is worth mentioning that the design of these stations depends on each lesson where it can combine these different types of a model design consisting of learners, concepts, and necessary skills for students.

Designing the lessons depends on the lesson time and the number of allocated stations. For example, if the teacher chooses six stations in an elementary classroom period (35 minutes), they
can customize (5–7) minutes per station, while if the teacher chooses three or four stations, they can increase the duration of the visit for these stations; teacher can also increase or decrease the stations time whenever he/she sees its appropriate for the activities, the lesson, the students and their academic achievement.

Learning station method can be classified by many different forms as following:

- Classification by forms of learning including Closed stations, Open stations, Duplicated stations, Optional stations, and Hot wheels stations.

- Classification by station locations including Fixed stations, Outside stations and Support stations.

- Classification according to the level and requirements of the tasks: Optional stations, Compulsory stations.

- Classification by means of teaching—learning: Stations that using IT, stations that using experiments.

- Classification by station roles: Stations that building new knowledge, Stations of practicing, Stations of reviewing.

2.2.3. Format of a learning station

According to Manuel (Manuel, 1974), a learning station has six components:

- It is located somewhere in space;

- It is designed to enable the student to reach a specific objective(s);

- Logical directions are provided for the student;

- Multilevel activities are available;

- Assessment procedures are clearly defined; and

- A means of recording student progress is included.

To design lesson plans that using learning stations, they should be well organized and self-directive. Manuel (Manuel, 1974) stated that the lesson plans should include some the following criteria:

- Activities should contribute to skills, knowledge, work habits, and attitudes of students.

- All activities should provide different types of evaluation such as self-evaluation, peer evaluation, or group evaluation.

- All plans should provide for individual differences through sequential steps in the lesson plan.

- All activities should be suited to the development of psychophysiological characteristics of students.

- Lessons should provide for creative and challenging experiences in different areas.
- The goals should be for a minimum of teacher involvement because students will be themselves discover knowledge through activities at their stations.

- The plans should be complete and sequential that they can be used again in the future.

2.2.4. Benefits of learning station method in elementary education

There are many benefits of learning stations when using in elementary classroom. Learning stations can be used for myriad purposes to teach concepts, integrate subject matter, build interest, and allow for inquiry (Jarret, 2010). In addition, learning station method fit well within the 5E learning cycle model of inquiry, which recommends that lessons include the following stages in order: Engagement, Exploration, Explanation, Elaboration, and Evaluation (Bybee, 2009). Station activities can be designed to engage students in a learning activity, or they can be designed as opportunities for students to explore new knowledge. Teachers also design activity that require students to explain a learning issue and then collaborate in a group work to deal with that issue. There are many topics and subjects in elementary education that teachers can design by learning stations such as Sciences (Nature, Environment, Animals, Plants, etc.), Math, or Geography, etc.

Many studies refer the effectiveness of the learning stations strategy in teaching. For example, Soliman (Soliman, 2015) showed the effectiveness of a program of activities based on learning stations to give students some scientific concepts. In addition, Schweitzer (Schweitzer, 1995) mentioned the effectiveness of learning stations strategy in enhance students’ learning and critical thinking because it creates opportunities for students to have responsibility for their learning environment. Bulunuz and Jarret (Bulunuz & Jarret, 2010) revealed the impact of the use of scientific stations strategy in enhancing the understanding of teachers in American elementary schools for four scientific concepts in Space and Earth Science. The research of Bulunuz & Jarret, 2010 (Bulunuz & Jarret, 2010) showed that after doing station activities, elementary students in their study improved their understanding of conceptions about new knowledge of earth and space sciences.

Learning stations allowed teachers to differentiate instruction by grouping students based on pretests and this allowed them to remediate certain students while accelerating others. Students weren’t required to remain at a task for too long. By rotating students through stations that varied between quiet, mental tasks to active, verbal ones, they were kept interested and off-task behaviors were reduced. Students are better able to stay quiet and focused when necessary, knowing that they would move soon to a more active station. For some students, the transitions between stations gave them a short break between stations, and by moving around the room, students could refresh and renewed energy.

According to Manuel (Manuel, 1974), using Learning station method brings many benefits for students, for example:

- Students will know how to work cooperatively in groups: Students learn themselves how to collaborate with their peers, improve their debate skills, social skills, develop critical thinking, and problem solving.

- Students will develop independent work habits: Independence in studying is very important for students because they must solve different issues without teachers’ explanation in detail. They only receive teacher’s instruction in general and students themselves will be active in dealing tasks at different stations, develop their own speed of working.

- Students will plan their time more effectively: Students can move from a station to another station after finishing a task; they do not need to sit at their seats too long to feel bored because elementary students love movement and they are more excited if they can move around stations.
The movement among stations not only brings students the excitement but also give them new challenges that they need to conquer.

- Students will discover creative ways of working: One task can bring students many ways to deal with and each student has his/her own solution or cognitive thinking to reach their targets.

- Students will know how to explore areas of interest: Student can choose the way they like to work at a station and what station they want to go first. Students can decide by themselves their own routes.

- Students have chance for additional practice in fields that they are struggled: learning stations are great places for students to focus on fields that they need to practice more. Student can spend more time at stations that they need to practice until they feel comfortable and can thoroughly apply knowledge to reality.

- Students will understand evaluating techniques and know how to use evaluating methods: Students used self-assessment scale to evaluate themselves and their peers.

Chin-wen (Chien, 2017) pointed out that learning stations offer opportunities for students to use their prior knowledge and skills to develop concrete materials and new knowledge. This might have provided learners with pleasure and making their learning more effective. The author also stated that learning stations method is more effective at the primary education level because of the developmental characteristics of this age group and helps students to develop more intimate relations with their peers by creating a comfortable atmosphere during lessons.

Based on differentiated instruction to develop students’ competencies, Learning station method responds to different learning styles so that students can learn by their strengths, interests and practical experiences, cooperate with their peers. This makes the classroom a positive eco-learning system, where each student has chance to form and develop their competencies.

The literature review helps us to have more scientific basis on the advantages of Learning station method in teaching to develop students’ competencies so that the authors have strong foundation to study the current situation of using this method in teaching in Vietnam to propose process of designing and teaching by learning station and giving notes when using this method in elementary teaching in Vietnam.

3. Propose process of designing and teaching by learning stations
Based on researching about the process of using Learning station methods in the world, the authors would like to propose two processes of designing and organizing lessons by using Learning station method. Each process will explain steps to help educators design lesson plans with learning stations and conduct those lesson plans to their classrooms.

3.1. Process of designing lessons by using learning station method

Step 1: Identifying purpose of a lesson that using learning station method

Teachers need to identify purposes of the lesson they design that ensure the competency-based orientation.

Step 2: Identifying contents that using learning stations

Teachers design stations that based on students' different learning styles, interests, and/or levels of readiness. Each station should require students to look at the concept in a different way. This can be accomplished by thinking of each station as a specific learning style.
One station would have hands-on activities where students need to make a product or do an experiment to find out a truth or a scientific issue. Another could be a visual station, where students would quietly read or watch a video clip, complete computer research, or explore concepts visually. Another station could be an auditory station, where students could have discussions, or listen to information on tape so that they can collect information to complete their tasks.

Contents in a lesson that used in different stations need to be independent so that students can choose to start at any station without compromising the outcome of their tasks.

**Step 3: Identifying the numbers of stations and activity time in each station**

There are many ways to set up stations in a lesson. Numbers of stations depend on numbers of contents that teachers organize for their class. If a teacher has four contents need to be taught in a lesson, and those contents are independent of each other, he/she should create four stations that can be completed in random order.

Two to four stations are optimum for most activities. More stations can be designed when introducing or reviewing multiple concepts or if class sizes are large. When working with large classes, or when using a small number of stations, teachers need to set up multiples of the same activities and divide their classes into two or more rotating groups (such as hot wheels stations). The number of students in a group should consist of from four to six members. Larger groups tend to become loud and disruptive to other stations, especially with elementary students, they are very easy to be distracted and hard to follow instruction if the group is too large. Divided into small group helps teachers to set roles for each member of the group so that they would be responsible for their tasks.

Station activities work best for elementary students when they are from 5 to 10 minutes. Whatever time teachers choose, make sure that the station activity pretty much fits that time span. Teachers can allow for about a minute rotation time between stations so that their students have enough time to move and settle down.

Time for the entire Learning stations process vary depending upon the time allotted for the stations and for debriefing afterwards. For example, if a teacher has four 6-min stations, one-min rotation time in between, and 5 minutes to discuss the station activities afterwards, the entire process would be around 32 minutes. The teacher needs to be careful when setting time for the entire stations process because it is very easy for the lesson to be over time and students are small as well as not self-awareness during the tasks.

**Step 4: Identifying purpose of each station**

Because of the independence of content of each station, purpose of each station must be different. Those specific purposes must toward the overall goal of the lesson.

**Step 5: Designing worksheets and learning aids**

When determining how to handle student paperwork, teachers can place copies of all worksheets and directions at each station. Depending on the type of station, teachers need require a single worksheet for the group to complete, or have each student complete his or her own worksheet. Teachers also can copy all necessary worksheets and directions in the form of a packet and hand out to students at the beginning of the activity. The benefit to this strategy is that it is neat and organized. The only problem is that if a student loses his or her packet, then all the work is gone, not just the work from a single activity.

**Step 6: Setting up rules for using stations**
Teachers need to set up a list of rules and procedures for students to follow. Teachers can post this in the front of the classroom or at each station. For example, below are some rules that teachers can create:

1. Choose station that you want to go first and complete the task in that station based on your ability
2. Do not disturb the teacher when he or she is working with other groups.
3. Do not disturb your friend if you are on individual task.
4. Do not leave your station without permission.
5. If you have a question, you can ask someone in your team or raise your hands.

### 3.2. Process of conducting lessons by using learning station method

**Step 1: Dividing students into groups**

Normally, the number of groups equals to the number of stations. If the class has a large number of students, the number of groups can be double the number of stations. For example, if there are 4 stations, teachers can divide the class into 8 groups. This will help the number of students in a group remain small and it will be easier for students to take part in activities at stations, especially elementary students are very hard to work in a big group due to their psychophysiological characteristics.

**Step 2: Choosing types of learning stations and the movement of students to stations**

There are many types of learning stations that the author mentioned in this article and teachers can choose the type of stations that they want to use in their lesson.

With small students, teachers can use Closed stations where the order of movement was fixed, and students are easy to follow instructions.

For students at higher grades, teachers can either choose Open stations or Duplicated stations or Optional stations.

If the classroom has a large group of students, teacher can use Hot wheel stations where there are two or three same wheels. The process of a wheel is a complete station-period. This way helps the number of students in each group is reduced, ensure that every student can have the best chance to do their tasks. Hot wheels stations also can be used if the lesson has only two or three stations to conducts (see Figure 1).

**Step 3: Summary of activities**

![Figure 1. Hot wheels stations.](https://doi.org/10.1080/2331186X.2020.1870799)
After station-period is done, teachers gather all students and have discussion among students to summarize what they have done in stations, what they have discovered, what they want to ask, and what they want to know more from activities.

At this step, teachers can conclude new knowledge that students need to know or summarize activities results or develop new skills to their students.

**Step 4: Assessment after conducting learning stations**

Teachers need to use formative and summative assessment. Assessment can be made using observation of teachers to their students during stations period. Teachers need to record activities and observe their students carefully to evaluate students’ works. Teachers also use students' worksheet as a result for assessment.

### 4. Research methodology

This research aimed to identify the impact of learning station method according to competency development of elementary students in Vietnam. This research was a quasi-experimental design which involved a pre-test and post-test experimental group and control group. This study used simple random sampling. In order to have an objective view of the situation of the application of Learning station method for teaching in elementary schools in Vietnam, we have conducted surveys on 1735 samples from administrators, teachers, and elementary students; in which there are 415 administrators (Hanoi: 158; Thanh Hoa: 135; Can Tho: 122), 670 teachers (Hanoi: 235; Thanh Hoa: 223; Can Tho: 212), and 650 elementary students (Hanoi: 260; Thanh Hoa: 210 and Can Tho: 180). These are 3 provinces representing the North, Central, and South of Vietnam.

The duration of the experiment was 2 months from March to April 2019. The post-test was conducted in May 2019 to see an increase in the mean score.

Through surveys and statistical data, we have the basis to evaluate the status of using Learning station method according to competency development in elementary education in Vietnam. This is an important basis for studying and proposing the process of designing electrical lectures using Learning station method in elementary schools.

In order to test the effectiveness of using Learning station method according to competency development in elementary education in Vietnam, we have chosen to build lesson plans in the subject “Vietnamese” to conduct experiments. The subject “Vietnamese language” is a compulsory and very important language for the mother language. Students can use Vietnamese fluently so that they can learn and communicate. “Practice words and sentences” is a circuit content of Vietnamese subject that helps students develop vocabulary, practice skills to use accurate and delicate words to form sentences, practice sentence formation skills and use sentences that are appropriate for communication situations. This is the main reason for the authors to choose “Practice words and sentences” in Vietnamese subject to conduct experimental lesson design.

Our experiment is divided into 2 sequences in chronological order including exploration experiment and impact experiment. Exploration experiment aims to investigate the existence of the use of Learning station method in practice of teaching at the elementary level of Vietnam, at the same time orienting and creating a basis for us to run next experiments. To do this, we designed lesson plans and conducted experimental teaching in elementary schools in all three provinces, then recording and analyzing. During observation, we have recognized the positive and limited aspects of using Learning station method in teaching. This is the basis for us to continue to adjust the lesson plans and organize teaching using the Learning station method according to competency development for the next experiments.
In order to conduct experiments as accurately as possible and achieve the best possible results, we conducted activities such as interviewing students' learning needs and learning styles, and letting students collect materials related to lessons, etc., build collaborative and creative exercises for teaching “Practice words and sentences” in Vietnamese subject at grade 4.

The choice of experimental schools and experimental classes and control classes is our main issue because this directly affects the results of the experimental process. When selecting experimental subjects, we paid attention to select students in the areas with different levels of socio-economic development, with favorable geographical areas, but also some other areas that still have difficulties. In each area, we choose classes and subjects with a variety of qualifications and academic abilities in random orders. The control classes also have basic conditions similar to the experimental classes on teaching conditions and the capacity of teachers and students. The experimental process will help us have an objective view on the effectiveness of the application of Learning station method according to competency development for teaching in elementary schools.

5. Data analysis
Descriptive and inferential statistics were used to analyze the data. Descriptive statistics was used to analyze data that related to the respondent's demographics. Mean and percentage scores obtained from the analysis were presented in tables and graphs. The results show the difference between the mean scores for the pre-test and post-test and analyze the post-test increments between both groups. All the data were analyzed using excel and SPSS.

6. Results and discussion
Reforming teaching methods with greater focus on competency-based approaches to provide high-quality human resources for the labor market has drawn considerable interest among Vietnamese educators. The question is how to apply the Learning station with the help of technology to achieve teaching objectives as well as fulfilling the potential of each student.

Experimental surveys have provided an overview on the application of the Learning station among Vietnam's elementary schools.

Findings from the survey on the awareness of elementary schools' managers and teachers in three provinces Hanoi, Thanh Hoa, Can Tho (Table 1) on the nature of station rotation method has shown the concern of managers and teachers in applying those teaching methods that help enhance elementary students' cognitive skills.

It can be seen from Table 1 that the surveyed elementary schools' managers and teachers do not have a perfect understanding about the nature of this learning model. Only 197 out of 1085 respondents (18.2%) could define the method correctly. Learning station is a method based on classroom organization and management in which teachers divide students into groups and organize activities so that students can take active role in solving given learning tasks at different places in the class and rotate the groups from station to station. It has been indicated that 455/1085 of the respondents (41.9%) don't understand fully the nature of this method. After further conversations, it came out that the majority of elementary schools' administrators and teachers interpreted this method as a way to organize students to work independently and actively at different places with separate learning tasks. Besides, there were 39.9% of the respondents who thought that Learning station means simply dividing students into groups to discuss and do the same tasks facilitated by the teacher, mistaking this method with a teamwork technique. The misconception partially originates from the fact that these teachers have neither studied this approach profoundly nor applied it regularly in their teaching. Therefore, it is essential for teachers to acquire complete knowledge about the concept and nature of this learning method to use it effectively in their teaching.
Table 1: Levels of awareness by elementary schools' managers and teachers on the nature of learning station

| No. | Level of awareness | Hanoi (393 responses) | Thanh Hoa (358 responses) | Can Tho (334 responses) | Total (1085 responses) |
|-----|--------------------|------------------------|---------------------------|-------------------------|------------------------|
| 1   | Fully aware        | 74 (18.8%)             | 62 (17.3%)                | 61 (18.3%)              | 197 (18.2%)            |
| 2   | Partly aware       | 192 (48.9%)            | 137 (38.3%)               | 126 (37.7%)             | 455 (41.9%)            |
| 3   | Not aware          | 127 (32.3%)            | 159 (44.4%)               | 147 (44%)               | 433 (39.9%)            |
In fact, it is the incomplete understanding about the Learning station method that impairs the efficiency during its implementation. Surveys about the application of teaching methods including Learning station were carried out among elementary teachers in three provinces of Hanoi, Thanh Hoa and Can Tho to give an objective assessment on the practice of this method.

The above figures have shown that positive teaching methods including group discussion, brainstorming, games, etc. are frequently used by teachers. The most frequently used are games and interviews (question-answer), and the next are group discussion and brainstorming. It is evident that there has been a shift in teachers’ mindset as well as teaching activities. Teachers have applied modern teaching methods to improve teaching quality in elementary schools. The ranking table demonstrates that station rotation method hasn’t been used much by teachers (fifth-ranked on the table). Further exchanges reveal that teachers don’t often apply this approach because they don’t understand its nature and procedures. This result is totally in line with those previously revealed about their awareness on the station rotation learning. It can be inferred that elementary schools’ administrators and teachers nationwide need adequate support to have perfect understanding of this learning approach so that they could apply it step by step in their teaching.

The table 2 and 3 shows that Learning station can be applied in all elementary subjects. However, the levels of application in each subject are not the same. Out of the six subjects, Sciences/Natural and Social Science, Math, Geography, History are evaluated as those in which the approach can be applied more effectively (Sciences/natural and social science: 76.6% in Hanoi, 78.9% in Thanh Hoa, 76.8% in Can Tho; Math: 69.8% in Hanoi, 70.8% in Thanh Hoa, 60.4% in Can Tho). For other subjects such as Vietnamese, Ethical Standards, teachers supposed that Learning station is less applicable.

The survey results in Hanoi has indicated that 56.6% of teachers think that station rotation method is less appropriate for Vietnamese; 35.3% think it is not appropriate. The percentages in Thanh Hoa are 42.1%; 46.3% and in Can Tho are 57.1%; 31.2%, respectively. It can be explained that, in terms of the content of the subject, Sciences/Natural and social science, Math, Geography are those with a wide range of experimental and practical content, with which students can be active and creative in their learning and therefore teachers can build a diversified set of activities based on their teaching objectives. In the meanwhile, Vietnamese Language and Ethical Standards require much use of role modeling and oral methods; and students need thorough support and instruction from teachers. As a result, it is difficult for teachers to build a varied set of activities.

On the other hand, to have a well-designed lecture using Learning station, it is necessary for teachers to decide whether this approach is applicable in organizing their teaching objectives. It provides teachers with a firm background to choose suitable teaching objectives and work out a teaching plan which incorporates station rotation approach with other methods in an efficient way. Accordingly, the figures in Table 4 give the answer to the question of teachers’ perception on this learning approach.

As can be seen from the table 5, from teachers’ perspectives, practice, and consolidation are highly appropriate for the implementation of the Learning station (being ranked first and second on the list). For these contents, teachers can choose various activities suitable for stations, and students work independently as well as solve problems at each station independently. The proportion of teachers who supposed that this model could be utilized in delivering new knowledge was merely ranked third on the list. It may be because the objective of this part of the lesson is to create knowledge for students and thus difficult to accomplish when the class is divided into small stations; teachers would also find classroom management challenging.
| Level of application for specific teaching methods | Hanoi (235 responses) | Thanh Hoa (223 responses) | Can Tho (212 responses) | Total (670 responses) |
|--------------------------------------------------|-----------------------|--------------------------|-------------------------|----------------------|
|                                                  | Average score | Rank | Average score | Rank | Average score | Rank | Average score | Rank |
| Interview                                        | 1.49         | 2    | 1.59         | 1    | 1.53         | 1    | 1.53         | 2    |
| Group discussion                                 | 1.44         | 3    | 1.27         | 3    | 1.26         | 3    | 1.33         | 3    |
| Brainstorming                                    | 0.68         | 4    | 0.46         | 4    | 0.46         | 4    | 0.53         | 4    |
| Games                                            | 1.76         | 1    | 1.55         | 2    | 1.42         | 2    | 1.58         | 1    |
| Learning stations                                | 0.32         | 5    | 0.13         | 5    | 0.12         | 5    | 0.19         | 5    |
| No. | Subject                          | Appropriate | Less appropriate | Not appropriate |
|-----|----------------------------------|-------------|------------------|-----------------|
| 1   | Math                             | 69.8%       | 16.7%            | 13.5%           |
|     | Vietnamese Language              | 8.1%        | 11.7%            | 15.2%           |
| 2   | Sciences/Natural and Social Science | 76.6%    | 42.1%            | 35.3%           |
|     | History                          | 57.4%       | 44.8%            | 31.2%           |
|     | Geography                        | 57.8%       | 43.8%            | 30.7%           |
|     | Ethical standards                | 37.8%       | 26.4%            | 15.1%           |

Table 3. Application level of learning station in specific subjects

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| Appropriateness | Hanoi (235 questionnaires) | Thanh Hoa (223 questionnaires) | Can Tho (212 questionnaires) | Total (670 questionnaires) |
|-----------------|---------------------------|-------------------------------|----------------------------|--------------------------|
|                 | Mean | Rank | Mean    | Rank | Mean    | Rank | Mean    | Rank |
| New knowledge   | 0.15 | 3    | 0.13    | 3    | 0.12    | 3    | 0.14    | 3    |
| Practice        | 1.21 | 1    | 1.05    | 1    | 1.07    | 2    | 1.11    | 1    |
| Consolidation   | 1.15 | 2    | 1.02    | 2    | 1.12    | 1    | 1.10    | 2    |
| No. | Survey contents | Hanoi (260 questionnaires) | Thanh Hoa (210 questionnaires) | Can Tho (180 questionnaires) | Total (650 questionnaires) |
|-----|-----------------|----------------------------|-------------------------------|-----------------------------|--------------------------|
|     |                 | Number of questionnaires   | Number of questionnaires      | Number of questionnaires    | Number of questionnaires |
|     |                 | Percen- tage               | Percen- tage                  | Percen- tage                | Percen- tage             |
| 1   | Q&A activities, presentations, etc. | 14 | 5.4% | 40 | 19% | 28 | 15.6% | 82 | 12.6% |
| 2   | Discovery learning, discussion, problem-solving activities, etc. | 204 | 78.5% | 115 | 54.7% | 106 | 58.9% | 425 | 65.4% |
| 3   | Technology-based activities | 42 | 16.1% | 55 | 26.2% | 46 | 25.5% | 143 | 22% |
Learning station method pays attention to differentiating students on the basis of their levels and learning styles with a view to assisting them in maximizing their capabilities. Therefore, in order to design lessons using this model, it is initially necessary to examine students’ learning needs.

The figures show that 425 out of 650 students surveyed in Hanoi, Thanh Hoa, and Can Tho took interest in class periods with the discussion and problem-solving approach as well as activities to discover and create knowledge. They felt comfortable and eager in these lessons. Exactly 65.4% of the respondents were interested in all technology-based class periods. The remaining 12.6% preferred class periods adopting the traditional approach such as presentations and Q&A activities. These thought that there was little difference between station rotation periods and others. As for them, conventional learning methods appeared more suitable and facilitated their understanding of the lessons.

Through face-to-face interviews and survey results, it can be seen that a class period which can arouse students’ interest, awake their passion, encourage their creativity, and make them well-rounded must possess the following qualities:

Students have opportunities to participate in plenty of different activities within a class period. For the same lesson contents, they can approach knowledge in various ways through performing learning tasks in different locations.

- They can work in groups, freely sharing their ideas and creating a learning product together. The Learning station can satisfy this need of students.

- They can work freely and discover knowledge. Some students can work independently and explore knowledge on the basis of teachers’ suggestions; consequently, they have a large number of opportunities to demonstrate their abilities.

- They are allowed to move around the classroom. As students tend to sit to learn for a long time, changing their seating and moving around occasionally can help them feel relaxed and comfortable when participating in continuous activities.

Overall, the Learning station fulfills students’ requirements of an interest-arousing lesson. Teachers can take it into consideration and choose to prepare appropriate lessons utilizing this approach, which enables students to study according to their needs.

After a period of training and testing in the implementation of the Learning station at the primary level in three provinces from the North, Central, and South of Vietnam, the following specific results were yielded.

A pilot experiment (Table 6) was conducted in three elementary schools in three provinces, namely Hanoi, Thanh Hoa, and Can Tho. A primary school satisfying Vietnam’s fundamental requirement of facilities and education quality was randomly chosen from each province. In each school, an experimental class and a control class were selected for comparison and evaluation of experimental results.

Statistical results of the pilot experiment indicate that when the Learning station was introduced in teaching Vietnamese (i.e. sentence and word drill), students from the experimental class gained more positive learning outcomes than before. The number of students who got low scores (ranging from 1 to 4) in the experimental class decreased to 9.7% from 20 to 8 out of 123 after the implementation of the model in teaching Vietnamese. The number of students who got good and excellent scores increased significantly (to 17% and 7.3%, respectively) in comparison to that before the experiment. This illustrates the effectiveness of utilizing this model in teaching. As opposed to those in the control class, students in the experimental class gained much higher scores. More importantly, learning attitudes of the experimental group underwent positive
### Table 6. Statistical results before and after the pilot experiment

| Level                  | Hanoi | Thanh Hoa | Can Tho | Total |
|------------------------|-------|-----------|---------|-------|
|                        | Excellent | Good | Fair | Poor | Excellent | Good | Fair | Poor | Excellent | Good | Fair | Poor | Poor |
| Experimental class (before) | 6/45 | 17/4 | 16/4 | 5 | 6/45 | 10/3 | 15/3 | 8 | 9/38 | 6/40 | 14/4 | 0 | 15/4 | 0 | 5/4 | 0 | 16/12 | 3 | 41/12 | 3 | 46/12 | 3 | 20/12 | 3 |
| Experimental class (after) | 15/4 | 5 | 20/4 | 5 | 9/45 | 1/45 | 10/3 | 8 | 15/3 | 8 | 9/38 | 4/38 | 12/4 | 0 | 15/4 | 0 | 10/4 | 0 | 3/4 | 0 | 37/12 | 3 | 50/12 | 3 | 28/12 | 3 | 8/123 | |
| Control class (before) | 7/43 | 16/4 | 3 | 15/4 | 3 | 5/43 | 3/40 | 13/4 | 0 | 17/4 | 0 | 7/40 | 5/41 | 17/4 | 1 | 13/4 | 1 | 6/4 | 1 | 15/12 | 4 | 46/12 | 4 | 45/12 | 4 | 18/12 | 4 |
| Control class (after) | 7/43 | 17/4 | 3 | 13/4 | 3 | 6/43 | 4/40 | 12/4 | 0 | 14/4 | 0 | 10/4 | 6/41 | 15/4 | 1 | 12/4 | 1 | 8/4 | 1 | 17/12 | 4 | 44/12 | 4 | 39/12 | 4 | 24/12 | 4 |

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changes. Instead of feeling reluctant to study literature and writing, they became more energetically and actively engaged in activities concerning effective, appropriate use of language to express their ideas and serve communicative purposes. In a station rotation lesson, they were encouraged to express their opinions and use their own expressions as well as given opportunities to participate in various activities. Thus, they showed intense interest in learning, which was an encouraging result for the subsequently conducted full-scale experiment in plenty of other elementary schools.

The full-scale experiment (Table 7) was performed in three schools from three provinces, namely Hanoi, Thanh Hoa, and Can Tho. The selection of schools and control classes was similar to that in the pilot experiment. In this experiment, the Learning station was implemented in experimental classes in a number of Vietnamese lessons, and end-of-semester evaluations of the experimental groups were later used to compare with those of control classes.

As for experimental and control classes in all the three provinces, after the experiment, more students from experimental classes were marked “excellent” and “good” than before and also than those from control classes. The proportion of students from experimental classes marked “excellent” increased by 16.7% in comparison with that before the experiment and was 14.7% higher than that of students from control classes. The proportion of students rated “poor” declined to 0% after the experiment. In general, results of the full-scale experiment confirmed the effectiveness of introducing the Learning station in teaching practice.

The utilization of the Learning station at the primary level is compatible with trends of modern teaching, ensuring differentiated instruction based on students’ ability. However, in order to implement the model efficiently, teachers need to be well aware of its nature as well as its teaching procedures so that they can select contents and prepare lesson plans in a way which is relevant to actual teaching conditions.

Results of research into Vietnam’s educational context reveal that both managerial staff and primary-school teachers paid attention to the introduction of positive teaching methods in teaching practice as well as actively explored new teaching methods and techniques to provide more vivid, engaging lessons but still ensured students’ experiences and self-discovery of knowledge. As a result, a small number of them actively explored and used the Learning station in their teaching practice (128/670 teachers have been using this method in teaching, in which 42 teachers using this method frequently). The majority of those surveyed were still inadequately aware of this approach. Therefore, it is essential to do research and provide widespread training so that primary-school teachers can gain adequate understanding of the model as well as procedures for teaching with the use of the model in elementary schools.

Through face-to-face interviews with 670 teachers, it can be seen that the implementation of this model at the primary level in Vietnam has a large number of limitations. This is partly because of teachers’ inadequate awareness of this method. There are also elements influencing the utilization of this model as following:

- The first is the relatively large number of students per class (over 40 students), especially in big cities, which leads to difficulties in grouping students and managing individual activities at each station. It is better for teachers if the range of students’ numbers is limited so teachers can organize activities more effectively.

- The second is teachers’ competencies. Teachers must be capable of organizing and managing students’ activities as they rotate among stations as well as providing necessary assistance to weaker students. Among 542 teachers that do not use Learning station method in teaching, there are 112 teachers understood the background of this method but they chose not to use this method
Table 7. Statistical results before and after the full-scale experiment

| Level                      | Hanoi          | Thanh Hoa       | Can Tho         | Total          |
|----------------------------|----------------|-----------------|-----------------|----------------|
|                            | Excellent      | Good            | Poor            | Excellent      | Good           | Poor            | Excellent      | Good            | Poor            |
| Experiment class (before)  | 19/48          | 20/48           | 9/48            | 13/36          | 17/36          | 6/36            | 18/42          | 16/42          | 8/42            |
|                            | 50/126         | 53/126          | 23/126          |
| Experiment class (after)   | 27/48          | 21/48           | 0/48            | 20/36          | 16/36          | 0/36            | 24/42          | 18/42          | 0/42            |
|                            | 71/126         | 55/126          | 0/126           |
| Control class (before)     | 16/46          | 20/46           | 10/46           | 11/38          | 17/38          | 10/38           | 16/41          | 14/41          | 11/41           |
|                            | 43/125         | 51/125          | 31/125          |
| Control class (after)      | 17/46          | 29/46           | 0/46            | 16/38          | 22/38          | 0/38            | 19/41          | 22/41          | 0/41            |
|                            | 52/125         | 73/125          | 0/125           |
because they thought that organizing activities toward learning stations might take a lot of time and students might have distraction when they moved around the classroom during the lesson.

- The third is classroom space, facilities, and teaching equipment. The Learning station method requires a spacious classroom for teachers to arrange and position stations as well as spare some space for students to move around. Moreover, facilities and learning equipment must be sufficient, satisfying learners’ learning needs. However, school facilities fail to meet the current demand for education innovation. The majority of schools have inadequate facilities with limited classroom space. Students must sit in fixed classrooms with large and bulky desks. Teachers stated that the use of this model was negatively impacted partly due to limited classroom space but large numbers of students. Grouping students and positioning stations in a way that facilitates students’ movements is one of the most challenging owing to limited classroom space, leading to their messy, disorganized movements. The authors found out that the facilities of classrooms contribute to the success of using this method in teaching because with the flexibility in moving within the classroom and interacting with objects, students have more opportunities to work independently or collaborate with their peers to use different visual aids, information, laboratory supplies, etc. to complete their tasks.

- The fourth is timing, namely duration of a class period and teachers’ preparation time. Elementary school class periods range from 35 to 40 min, which has caused a lot of difficulties for teachers in implementing the model. To complete a four- or five-station rotation (three to five minutes/station), teachers must have good timing. Moreover, teachers found preparing learning equipment time-consuming. Each station is an independent group with its own contents and consequently requires different learning equipment. Teachers would have to spend plenty of time and effort preparing worksheets as well as learning equipment relevant to each station. Unlike other approaches where teachers can prepare one single worksheet or one single activity for the whole class, this model requires more worksheets and activities. One station may require students to do exercises while another may let them conduct experiments or play games, hence increasing the amount of time to prepare worksheets and learning equipment. Although it takes a lot of time for teachers to prepare for the lesson, we cannot deny the benefits that Learning station method brings to the students to develop their competencies.

The fifth is lesson contents. Unlike other methods, this approach requires teachers to research and come up with appropriate lesson contents. Lesson contents determine teachers’ choice and division of knowledge into smaller units for students to address at each station. The main part in which the model is used is practice and consolidation with knowledge suitable for organizing activities at each station. Selecting contents of activities at each station also caused enormous trouble to teachers. Besides being relevant to the lesson objectives, the selection of activities at each station must be compatible with timing and students’ ability. Activities at each station cannot have similar contents but must have similar amounts of knowledge and arouse learners’ interest in order that the total time for performing tasks in each station is the same. The stations must not only offer writing and discussion activities but also include practice activities or role-play. Teachers need to anticipate the time for task completion at each station. Moreover, when preparing tasks for the stations, teachers must always prepare backup activities for those who can complete the tasks of each station ahead of schedule. It is obvious that teachers have to predict their students’ abilities so that they have enough information to provide for their students during learning at stations.

Based on results of research into Vietnam’s educational context, detailed procedures for teaching with the implementation of the Learning station were proposed. These helped teachers visualize the order of tasks to be fulfilled and adaptability as well as select relevant lesson contents to introduce the model efficiently.

After results of the pilot and full-scale experiments were analyzed, the initial conclusions were drawn as follows.
After the experimental period, learning outcomes of students in experimental classes were more positive and progressive than those of students in control classes and themselves before the experiment.

One of the characteristics of language competency is the ability to choose and use appropriate words in communication. With experimental classes, the word choice for communicative purposes and expressions of ideas of students were more diverse and distinct than before the experiment, which indicated that their life experience had been broadened, and their ability for self-discovery had been stimulated.

The number and times of word choices at different levels as well as appropriate use of language to express ideas have improved considerably; the number of compositions which met the quality standard as well as were marked “good” and “excellent” in experimental classes was larger than that in control classes and also than that in the experimental group before the experiment.

The introduction of the Learning station in teaching practice initially proved feasible and made contributions to boosting the quality of Vietnamese teaching.

Apart from analyzing and handling qualitative test results, it can be seen during the experimental process that students in experimental classes became more active and confident as well as felt comfortable in engaging in learning activities. Their vocabulary was also more diverse than that of students from the control classes; their writing demonstrated creative word choice and sentence formation with accurate and vivid description.

The experimental results show the similarity between the efficiency of implementing Learning station method in practice and theoretical studies in the review. Obviously, when using Learning station method in teaching, students are more proactive and independent when solving problems, enhancing their competencies of working in group, being more confident and enhancing specific competencies when they study different subjects.

7. Conclusion
To sum up, the implementation of the Learning station has enhanced the teaching quality as well as boosted students’ activeness, independence, and creativity, which gradually forms their happiness, passion, and creativity in their study.

In fact, primary-school teachers have paid attention to innovative teaching methods, and some of them were adequately aware of the objectives of the Learning station and procedures to implement it. This has created favorable conditions for the introduction of this model in elementary schools.

The research reveals that the model can be utilized in all subjects at the primary level; nevertheless, teachers need to be trained properly to use it effectively. When using the model, they must pay attention to the following:

- Teachers should select lesson contents with independent knowledge units to establish stations. They should combine this model with other teaching methods. In a lesson or a topic, teachers can choose a unit of knowledge rather than the whole lesson or topic for the implementation of this model.

- For large classes, teachers can use parallel rotation to minimize the number of stations while ensuring the number of students at each station.

- Depending on students’ level, teachers can consider the preparation of worksheets to provide certain support to ensure not only differentiation according to students’ ability but also their learning progress.

Preparing materials and learning equipment as well as designing lessons using the model is time-consuming; as a result, teachers should be well-prepared and assign specific learning tasks to students so that they can get ready for engaging in activities at the stations.
Although the use of this model can generate positive teaching outcomes, elementary teachers will encounter a range of difficulties in introducing it. Thus, for the widespread implementation of this approach, they need to be trained in terms of both theory and skills. In fact, Vietnam’s primary-school teachers have explored and used the model but merely in the beginning stage. Moreover, each region has different financial conditions and facilities, which might hinder the utilization of this model. Thus, establishing detailed procedures for lesson preparation and organizing technical training courses will help teachers acquire adequate knowledge about the model so that they can overcome hindrances as well as become active and flexible in implementing the model at the elementary level.

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References
Alli, M. (2013). Modern trends and applications in the curriculum and teaching methods (1st ed.). Dar Almasiro. Ans, D. V., Sara, D. H., & Beatrice, V. H. (2013). Competency development and career success: The mediating role of employability. Journal of Vocational Behavior, 79(2), 438–447. https://doi.org/10.1016/j.jvb.2011.05.010
Aşel, M. S., & Haboush, S. M. (2017). The impact of learning stations strategy on developing technology concepts among sixth grade female students. International Journal of Academic Research in Progressive Education and Development, 6(1), 64–65. https://doi.org/10.6007/IJARPED/v6-i1/2611
Bulunuz, N., & Jarret, O. (2010). The effect of hands-on learning stations on building American elementary teacher’s understanding about earth and space science concepts. Eurasia Journal of Mathematics, Science & Technology Education, 6(2), 85–99. https://doi.org/10.12973/ejmste/75230
Bybee, R. W. (2009). The BSCS SE instructional model and 21st century skills. The National Academies Board on Science Education.
Chien, C.-W. (2017). Undergraduates’ implementations of learning stations as their service learning among elementary school students. Education 3–13, 45(2), 209–226. https://doi.org/10.1080/03002479.2015.1074601
Cristina, T. (2011). Do different learning styles require differentiated teaching strategies? Procedia Social and Behavioral Sciences, 11, 155–159. https://doi.org/10.1016/j.sbspro.2011.01.052
Jarrett, O. (2010). “Inventive” learning stations. Science and Children, 47(5), 56–59.
Manuel, B. (1974). How to build a learning station: Everything a teacher should know. Merrimack Education Center.
Marilena, N. (2014). Teachers’ beliefs as the differentiated instruction starting point: Research basis. Procedia Social and Behavioral Sciences, 128, 426–431. https://doi.org/10.1016/j.sbspro.2014.03.182
Ocak, G. (2010). The effect of learning stations on the level of academic success and retention of elementary school students. The New Educational Review, 21(2), 146–156.
OECD. (2009). The definition and selection of key competencies: Executive summary. https://www.oecd.org/pisa/35070367.pdf
Pellegrino, A. M. (2007). How can learning centers be used to support classroom instruction and promote critical thinking in a kindergarten classroom? [Dissertations]. Rowan University.
Pinar, K., Haluk, S., & Jürgen, S. (2009). Developing learning stations for the purification of waste water, world conference on educational sciences. Procedia, Social and Behavioral Sciences, 1(1), 210–214. https://doi.org/10.1016/j.sbspro.2009.01.038
Schweitzer, J. (1995). The use of learning stations as a strategy for teaching concepts by active-learning methods. Journal of Geological Education, 43(4), 366–370. https://doi.org/10.5408/0022-1368-43.4.366
Silverman, M. (2006). Teaching actively: Eight steps and 32 strategies to spark learning in any classroom. Pearson Publications.
Tomlinson, C. A. (2000). Differentiation of instruction in the elementary grades. The Educational Resources Information Center Digests. ERIC Clearinghouse on Elementary and Early Childhood Education IL.
Wrights, S. (2015). Learning station: A holistic single-case study of an after-school program to address the achievement gap [Dissertations, Educational Policy Studies and Evaluation]. University of Kentucky, 14–23.
Zinati, F. (2014). The effect of using scientific station strategy in the development of science processes and skills of reflective thinking in science among students in ninth grade in Khan Younis [MA Thesis]. Islamic University of Gaza
