EFFECTIVE MANAGEMENT OF TEACHING EQUIPMENT IN LOWER SECONDARY SCHOOLS IN NINH GIANG DISTRICT, HAI DUONG PROVINCE IN THE TREND OF INDUSTRIAL REVOLUTION 4.0 - CURRENT SITUATION AND MEASURES

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1. Introduction

Teaching equipment is both a source of knowledge as well as a means of storing and transmitting information in order to actively optimize the cognitive process, stimulate learning excitement, intellectual development and practical skills of students to improve quality of teaching and learning. Teaching equipment also contributes to ensuring visualization in the teaching process, expanding the ability to access things and phenomena, allowing students to have conditions to self-acquire knowledge, form skills, skills and self-study ability.

Recently, the management of the equipment, preservation and use of teaching equipment in junior high schools in Ninh Giang district, Hai Duong province has been paid more attention, making an important contribution to the innovation of teaching methods. Management of equipping, preserving, and using teaching equipment has been gradually put in order. However, the management of teaching equipment at schools is still administrative and ineffective. The author of the article has outlined and deeply analyzed the current situation of teaching equipment management in junior secondary schools in Ninh Giang district, Hai Duong province in terms of strengths and limitations, then proposing a system of effective management of teaching equipment in junior secondary schools in Ninh Giang district, Hai Duong province in the current trend of industrial revolution 4.0.

Keywords: Teaching equipment; Current situation and solutions for effective management of teaching equipment; Junior secondary school; Ninh Giang district, Hai Duong province; Trend of industrial revolution 4.0.

In recent years, the management of the equipment, preservation and use of teaching equipment in junior high schools has been paid more attention, making an important contribution to the innovation of teaching methods. Management of equipping, preserving, and using teaching equipment has been gradually put in order. However, the management of teaching equipment at schools is still administrative and ineffective. The equipment has no overall and detailed plan; The purchase of teaching equipment is not guaranteed in quantity, lacks synchronization (some types are redundant, some are lacking), and the quality is limited (durability and accuracy are not guaranteed, some new ones have not been used); preservation work still has many shortcomings; lack of full-time staff; lack of storage or insufficient space; lack of...
cabinets, shelves, laboratories, subject classrooms; management of the use of teaching equipment is not yet strict; In many places, teachers have not paid attention to use it and used it ineffectively. The situation of “vegetarian teaching” is still popular, the teaching equipment used is still moving, most of it is only used in special cases such as: contest of good teachers, lectures or when there is a check delegation.

2. Problem research overview

Since the second world war (1939-1945) in the former Soviet Union (old) has implemented the slogan: “Cinemaize the learning process”. Since 1960, Japan has organized model research and produced textures for use in schools.

In 1984, Japan had 29 audio-visual centers. In 1992, the survey results on computer equipment in Japan showed that the primary level was 50%, the lower secondary level was 86.1%, the high school level was 99.4%. In the USA and European countries as well as some countries in the Asia Pacific region such as Indonesia, Thailand, the Philippines, Singapore...people gradually replaced pictures in textbooks printed on paper with the images above TV screen. Thus, the amount of information provided is richer and more attractive, the storage, transportation and use have a more favorable side. Currently, many countries around the world research and widely use video discs and initially use the Internet in education.

In the last 15-20 years, electronic devices, computers, robots, electronic clocks with high precision measurements, television, video...have been studied, designed and enhanced for high schools. Inheriting and promoting the educational theories of the world education, Vietnam also has many studies on teaching equipment and managing the use of teaching devices. In this regard, typical Vietnamese scientists who developed and spread theories about visual teaching principles. Those are the psychologists Pham Minh Hac, Ho Ngoc Dai; The educators, to Xuan Giap, Vu Trong Ry, Ngo Quang Son...These authors show us the general problems of teaching equipment such as the role of teaching equipment in teaching activities and pedagogical requirements when choosing and using teaching equipment.

In 2005, the Chairman of the project Ngo Quang Son successfully defended the ministry-level project on: “Some management measures to improve the efficiency of the use of educational equipment, application of information and communication technology at the special education centers and community learning centers ” code: B.2004-53-17; The author has affirmed the important role of teaching equipment in teaching, education and learning activities, that is: “...teaching equipment is a part, an indispensable element of the teaching and positive learning process. Teaching equipment is both a component, both a means, a direction and contains the content of the teaching process, and at the same time creates interest and awareness for students. Teaching equipment is one of the conditions that help teachers and students to implement well the teaching motto, promote students’ activeness, positive cognitive processes, students’ thinking processes ...”, at the same time the author gave a system of 8 management solutions to improve the efficiency of the equipment, use and preservation of teaching equipment.

Up to now, the research on management of teaching equipment in Ninh Giang district lower secondary schools, Hai Duong province has not been mentioned by any topic. This is the reason for the author to study some measures to manage the equipment, preservation and effective use of teaching equipment in Ning Giang district, Hai Duong province.

3. Method of research

3.1. Group of theoretical research method: In order to have a basis for proposing measures to strengthen the management of pedagogical devices in junior high schools in Ninh Giang district in the current period, the topic uses a number of theoretical research methods including: Analysis, synthesize, systematize, generalize basic theoretical issues related to the research topic.

3.2. Group of practical research methods: Observation method; Method of investigation by questionnaire; Method of getting expert opinion; Interview method; Evaluation and summary method to learn from experience

3.3. Group of support method: The topic uses statistical mathematical methods to process research results: using formulas to calculate average numbers...to compare and compare research results to draw scientific conclusions for the talent topic.

4. Research content

4.1. Current situation of management of equipping, preserving and using teaching equipment in junior high schools in Ninh Giang district, Hai Duong province

4.1.1. Managing the equipment

Principals of the schools had an interest in the work of teaching equipment, assigned a Vice Principal to manage and monitor the work of library
equipment, but had no measures to monitor.
+ Recognizing the indispensable role of teaching equipment in the teaching process is 100% in all schools.
+ 25% of schools have not preserved and used well teaching equipment
+ Most secondary schools have the following recommendations:
  - The colors and forms of pictures and pictures provided to the school need to be more beautiful in terms of visual channels, creating an attraction for students.
  - Need to train teachers in the effective use of teaching devices

Every year, the schools have plans to invest in the equipment in general and the teaching equipment in particular, but mainly the plans on building the infrastructure and the majority of the teachers are still expecting the allocation from above, there is no specific plan. equipped with teaching equipment. The purchase of additional equipment, especially modern equipment, is mainly spontaneous, meeting immediate needs. The investigation has not yet fully understood the current state of the existing equipment, the number is in good use, the number is broken, the number needs to be added, in order to make an estimate and balance the budget (the amount of funding the school can meet The amount of additional funding that needs to be mobilized can be met), on that basis, make a list of additional equipment according to the priority level: very necessary, necessary, not immediately needed, and overcome by other... to organize the shopping to meet the needs and in accordance with the reality of the school. The procurement organization also has inadequacies in the process: sourcing, surveying prices, functionalities, specifications, origin ...The organization of equipment acceptance when purchased is not. ensuring, still administrative, no qualified staff to check the technical parameters, operate, test to evaluate the quality of equipment. The amount of modern teaching equipment (teaching equipment with information technology application) has not met the needs of the majority of teachers. Although school principals have instructed the responsible staff to enter the property books of the units with additional purchased equipment, the handover of equipment to users has not been paid attention, have not updated to the desk. property delivery. At the end of the year, all schools organize an inventory and statistics of assets, including teaching equipment, but this job is mainly administrative, focusing only on quantity, not paying attention to the quality that can be used in the school year. Next, not paying attention to every broken detail...

4.1.2. Manage preservation

The management of the preservation of teaching equipment has been paid attention by schools, all interested in building subject classrooms, prioritizing subject classrooms for subjects with many equipment and experiments such as: Physics, Chemistry, Biotechnology. 85% of schools have equipment rooms and libraries. There is a system of cabinets, shelves, tables and chairs ...serving minimum needs for the arrangement and preservation of teaching equipment. However, in this work, there are still some shortcomings and limitations. There is a lack of classrooms in the subject areas, the exploitation and use are not frequent, the efficiency is not high, and the planning has not yet become a separate area. Laboratory, practice does not meet standards (still use classrooms). Equipment room not guaranteed area. The rack system is lacking, the existing number has been degraded. The hygiene and fire prevention have not been paid attention. The maintenance and maintenance of modern equipment has not ensured the technical process.

Although the schools have a system of records and books to track pedagogical equipment but only updated for the first time, in the following years only statistics on broken, unusable equipment, the quality of each device has not been assessed. The monitoring of equipment borrowed by teachers’ staff is sometimes not timely updated. Staff and teachers in charge of professional laboratory equipment are limited but have not received regular training.

4.1.3. Manage the use of teaching equipment

The status and causes of the use of teaching devices have outlined the basic features of the status of the management of using teaching devices in Ninh Giang secondary schools today. Through the survey of the actual situation of the management and use of teaching equipment in the lower secondary schools mentioned in the topic, the school survey in the whole district, the author has some additional comments as follows:

Principal of schools have paid attention to checking the use of teaching equipment through attendance, through the monitoring book of borrowing and returning teaching equipment.

However, the management and use of teaching equipment in many schools has not been paid adequate attention: lack of subject classrooms, cramped equipment rooms, unscientific equipment; equipment is not well preserved, leading to damage,
poor quality and accuracy, reducing efficiency in use, not ensuring features, effects...

The use of teaching equipment requires a lot of time, the teaching of “vegetarian” has become almost a tradition, is a path that is difficult to break, teachers are very afraid to use teaching equipment when going to class, but the manager is less interested in finding out the reasons and psychology of teachers, so teaching equipment has not been used properly with its roles and functions. On the other hand, the current use of teaching devices is only motivational, not using nor affecting the evaluation of teachers and learning results of students. Many managers have not yet proposed strong measures in professional activities to force teachers to actively use teaching equipment. In the preliminaries and summaries of the school year, the units did not pay attention to assess the status of the management, use and preservation of teaching equipment, thereby motivating and rewarding staff and teachers who are active in preserving and effective use of teaching equipment, and at the same time have appropriate solutions for staff and teachers who have not done this task well.

4.1.4. Analysis of the current situation of the management of the equipment, preservation and use of teaching equipment in junior high schools in Ninh Giang district, Hai Duong province

a. Strong face

Most managers and teachers are aware of the importance of teaching equipment in the teaching process, which is a necessary means to contribute to improving the quality of teaching, the sense of responsibility of the staff of teachers and teachers increasingly changing.

All schools managers have general plans in accordance with the reality of the school, have correct and timely decisions in the procurement; using and preserving teaching equipment is quite scientifically reasonable. The current teaching equipment in secondary schools is relatively well equipped according to the minimum requirements of the Ministry of Education and Training. The management of teaching equipment has been paid attention, step by step put into operation in order, initially achieved some certain results. Many schools have built up regulations of operation in the use and preservation of teaching equipment, apply quite synchronous management measures and have brought into play the effects of teaching and learning activities in each school.

Attaching importance to assigning capable, enthusiastic and qualified teachers to participate in teaching equipment and library work. In general, teachers are conscious of using and preserving teaching devices to improve teaching quality; a number of teachers are proactive and creative in the process of using teaching devices; do a number of teaching equipment suitable for each class period depending on economic conditions and materials available locally.

The principal has promoted the role of the manager, attended class time, visited classes, commented on, maintained a regime of inspection and inspection to evaluate the use of teaching equipment.

b. Weak face

Staff in charge of laboratory equipment is mainly part-time, training and fostering teachers in charge of libraries and equipment have not been paid adequate attention, training for teachers to use and preserve teaching equipment has not been regular, There are no effective measures to improve the effectiveness of teaching devices, not organized for teachers to visit to learn experience exploiting, using and preserving teaching devices in other schools.

Most schools have not built long-term plans, have not paid attention to the purchase of teaching equipment (especially teaching equipment with application of information technology, subject teaching software...). The management of teaching devices has not been in depth, there is no measure of regular inspection, there is still a phenomenon of vegetarian teaching. The use of teaching devices has not really become the orderly foundation, so it has not brought into play its effectiveness in renovating teaching methods.

The management and use of teaching equipment are only interested in the quantity, not paying attention to the quality of use and preservation. The inspection work of the Education and Training Department on the management, use and preservation of teaching equipment is not regular, the efficiency is not high.

5. Measures to effectively manage teaching equipment in junior high schools in Ninh Giang district, Hai Duong province in the current period

5.1. Measure 1: Raise awareness for administrators and teachers about the role and effect of teaching equipment in innovating methods and improving teaching quality

Raising awareness for administrators and teachers about the role and effects of equipment of teaching in teaching activities at lower secondary schools Ninh Giang district, Hai Duong province.

In the past time, due to many objective and
subjective reasons, the direction to use teaching devices in junior high schools still has some shortcomings. Quite a lot of managers and teachers have yet to see the importance and effects of equipment of teaching at secondary schools. Recently, awareness on this issue has changed but not thoroughly, still in formality and coping in direction and use. Thus, awareness is the primary issue to be solved and this is not only a temporary, immediate measure but a strategic, long-term, persistent job that is very important for one reason: without the contribution of equipment of teaching in the teaching process, it is difficult to innovate teaching methods to achieve the desired purpose. As is known, teaching equipment must be used and used effectively is the basic goal and end goal of all equipment work in secondary schools. However, as analyzed above, this work still has many shortcomings.

5.2. Measure 2: Develop a plan to equip, preserve and use teaching equipment before entering the new school year.

To achieve a complete teaching equipment system to meet the requirements of teaching is a costly and long-term job, the school needs to focus on the wisdom and efforts of many people to build long-term plans. The school not only depends on the allocated equipment, but needs to plan to invest in additional procurement of modern teaching equipment and means, it is necessary to build a system of teaching equipment suitable to human resources and conditions, commensurate with the school’s development and requirements of teaching in the current period. Planning must define goals, define a system of things to do in a certain time with the way, order, execution time and create a good balance between specific tasks in school.

Principals must understand the legal documents, current regulations on teaching equipment, cognitive level, expertise, awareness and attitude of the pedagogical collective; grasp the technical level, skills to use teaching devices of teachers.

It is necessary to investigate the current status of teaching and learning devices of their own units (missing, adequate, quality teaching devices, conditions of preservation, use, and status of teaching and learning).

5.3. Measure 3: Promote the professional training in preservation and use of teaching equipment

After participating in the training, the teacher has an understanding of the teaching methods: structure, usage, process of using and the higher goal is to help the teacher use proficiently and increase the ability to master the teaching devices.

Teachers who use teaching devices effectively will help innovate teaching methods better, reduce waste when teaching devices have been invested but not used.

It is necessary to foster informatics knowledge, guide the use of teaching software so that teachers can exploit and put into teaching to implement innovative teaching methods. Management managers, professional leaders must create a favorable environment for teachers to effectively apply information technology to active teaching. Among the reasons that teachers still rarely use teaching equipment, there is one reason that teachers do not know all of their features to use. Therefore, the training for teachers to use teaching equipment when receiving teaching equipment is very necessary. That job attracted teachers at first so they could master teaching equipment. If after that, teachers can continue to train and use them, they will use more and more actively, use teaching equipment more proficiently and of course the efficiency will be higher.

5.4. Measure 4: Step by step build facilities, laboratories and increase classroom-based teaching

Manage the exploitation and use of subject classrooms effectively, because in theory, subject classroom has the following advantages:

- subject classroom is a condition that increases usage frequency and increases durability of teaching equipment. Subject classroom is a condition that helps teachers’ professional qualifications to improve, practice capacity, creative capacity, logical thinking, of students are constantly being developed, creating a scientific atmosphere of the subject.

- Only subject classroom can install a specialized audio-visual system to support teaching. Subject classroom creates conditions for teachers to use teaching software…

- Subject classroom is a place to organize extracurricular activities or scientific research for teachers and students.

Thus, the above advantages show that teaching by pedagogical method is the most effective measure to innovate teaching methods in the spirit of increasing practicality, eliminating vegetarian habits and practicing teaching habits with equipment. Teaching in the direction of subject classroom has become and is becoming the indispensable need of the teaching process. Teaching according to subject classroom has maximized the effects of teaching
equipment and facilitates the preservation of teaching equipment. That affirms that the teaching policy towards subject classroom is correct and feasible in the current conditions.

5.5. Measure 5: Launch the movement to make simple and inexpensive traditional teaching equipment and collect teaching equipment in schools

Promote the intellectual potentials and initiatives of teachers and students in teaching activities. Teaching equipment self-made activities have the effect of mobilizing all their potentials, intellect and creativity, stimulating teachers’ career interests, students’ passion for learning, through this activity, understanding and Teachers’ awareness is expanded, seeing the need to use teaching equipment. Activities of self-making teaching equipment also have the effect of serving in time for the improvement, teaching teaching method.

Besides using teaching equipment provided, encouraging the teacher to do more teaching equipment is also very important. Through self-making teaching equipment, teachers see how much effort, time and money to do a simple teaching device, the provided teaching devices are many times more expensive than the self-made teaching techniques, thereby, the more valuable teachers see the value of teaching equipment provided, there is more determination to use teaching equipment effectively.

To stimulate the creativity of teachers, students every year, schools need to organize contests to do their own teaching skills, or do contests to do skillful skills... for teachers and students. Students are encouraged to participate. The contest should be held solemnly, the equipment brought to the contest is not only on display, but also has to be tested through teaching periods. After each contest, the winning products should be kept in the equipment room for later use, doing so will encourage teachers and students to actively respond and promote their creativity.

5.6. Measure 6: Strengthen the exploitation and effective use of modern teaching equipment, avoid the abuse of information technology in teaching

Along with the development of science and technology, the application of modern technologies to education in particular and life in general is indispensable. Equipment of teaching in general and modern pedagogical skills in particular have an extremely large role in teaching - especially important for pedagogical teaching - a regular and urgent task for all education. Efficient exploitation and use of modern teaching equipment with many strengths such as:

- The lesson is vivid and intuitive. Pictures, video clips, music clips make students’ hours more dynamic and interesting to learners.
- With the electronic lectures carefully prepared in advance, teachers reduce a lot of time to write the board or read to students to copy the lesson.
- In a lesson, the amount of knowledge can be conveyed more or more deeply. Instead of the time to read notes or write the board, teachers can add examples to illustrate and explain the content more carefully.
- Modern technology equipment helps students interact directly with teachers’ lectures. They will actively and actively participate in learning. Modern technology equipment helps students observe phenomena that happen quickly, difficult to observe in normal conditions or dangerous phenomena...
- The application of information technology to teaching helps teachers and students to access advanced teaching and learning facilities in the world. Both teachers and learners must study and improve their own information technology level to catch up with the times.

However, the abuse of Information Technology (IT) in teaching will lose the role of modern teaching equipment and reduce the role of teachers. Abuse of information technology will lead to the change from “read and copy” to “copy”. This is a cramming teaching method, dulling students’ ability to think creatively - Teacher will become “teachers”, and lose the role of the teacher - who provokes and leads students to find truth. The “teacher - student” interaction ceases, then the “teacher” will only make products like machines: dry, rigid and emotionless; while the “teacher” will train intelligent, dynamic and emotional people.

5.7. Measure 7: Strengthening the inspection and assessment of the equipment, preservation and use of teaching equipment in schools

Inspection is one of the important stages in management in general and educational management in particular. Leading, managing without checking is considered not leading, not managing. This is the last stage of the management cycle. Examination contributes to strengthening management effectiveness, it affects the sense, behavior and activities of teachers, enhances the sense of responsibility, encourages the good performance of tasks.

Check, review and evaluate the process of managing and using the teaching device effectively, whether it is in line with the set objectives, plans, standards and regulations; point out deviations, from which it is possible to redefine directions,
goals, adjust, rectify, help to improve the quality and effectiveness of teaching. Check to create a negative information relationship in the management of teaching equipment.

6. Discussion

Through research on the current situation, although the management of the Principal, although there have been many efforts in equipping, preserving and using teaching equipment to suit the environmental infrastructure conditions of the schools, the schools actually many limitations and confusion in the organization and administration. Through the author’s research, comparing the theoretical and practical comparison of the problem, by studying the current situation of junior high schools in Ninh Giang district, Hai Duong province, the topic proposes 7 measures to improve management efficiency. Teaching equipment in lower secondary schools in Ninh Giang district, Hai Duong province in the current period and has been confirmed through the test results are necessary and feasible.

However, for the management of teaching equipment to be effectively and sustainably, the author has some recommendations:

* For the Ministry of Education and Training.
- It is necessary to guide and direct localities to promptly supply teaching equipment so that the school has a plan to train the professional skills to use for teachers during the summer at the same time with training on program content implementation and the teaching program.
- Every year, the local funding source for teaching equipment should clearly specify a certain rate to foster and train the management of teaching equipment.

* For companies producing teaching equipment
- Need to produce standard teaching equipment, ensuring the science, accuracy, aesthetics, pedagogy, reasonable price and high durability.
- Production of teaching equipment at the same time with the release of documents (books, tapes, discs...) instructions for use, exploitation of teaching equipment.
- Regularly contact the schools to be able to grasp full feedback on teaching equipment during use to make timely adjustments and supplementation of teaching equipment if the customer needs.

* For Hai Duong Education and Training Department
- When distributing teaching materials to schools, it is not advisable to allocate all schools equally, but should be based on the use conditions and usage skills of teachers of schools to allocate accordingly.
- Strengthen the work of advising, directing and building a master plan on the contingent of teachers in the subject to ensure sufficient quantity, balance structure, and higher and higher standard qualifications.

* For lower secondary school principals
- Regularly advise and propose to the Party Committees at all levels, the authorities, the Education and Training Department to the student’s parents’ union in the construction of facilities, investing in teaching equipment under the mode “the State and the people work together”. Promote the socialization of education, closely combine family - school - society in the education of students.
- Manage the school in a comprehensive way, paying special attention to the management of the equipment, preservation and use of teaching equipment. Applying the methods of managing teaching equipment in the equipment preservation and use of teaching equipment flexibly, creatively, in accordance with the actual conditions of the unit.

7. Conclusion

In school management, management and use of teaching equipment is an important and necessary task. In order to train a contingent of teachers and students to make good use of teaching skills in innovating methods and improving the quality of teaching, it is an essential requirement of the education sector that requires school administrators to clearly define roles and positions. their functions, their duties. Mission orientation focuses on the management of teaching equipment. The research scope of the topic is based on concretizing the contents of the educational and training development strategy orientation in the period of national industrialization and modernization and the dialectical relationship between the factors. Manage education, manage schools, manage teaching activities, manage facilities to improve teaching quality. Measures to manage, equip, preserve and use teaching equipment for junior high schools, the role of the management staff, the role of the management for teachers and students, the inevitability of work in the innovation of methods, improve the teaching quality of teachers and students at secondary schools, through management measures of the Principal. The research results of this topic contribute partly to the application of scientific theories of educational management to the management of teaching equipment in junior high schools, helping the management team, first of all, the principal. Theoretical basis for measures to manage the equipment, preservation, and use of teaching equipment at secondary schools in Ninh
Giang district, Hai Duong province in the current period in order to renew methods, improve teaching quality.

In recent years, although the career of education and training in general and the lower secondary level in particular in Ninh Giang, Hai Duong has been improved, the rate of students considering graduation and passing into grade 10 at high schools is relatively stable but not keeping pace with the general development of the locality as well as the country. To meet the local education and training development requirements, it is necessary to improve the quality of teaching and innovate teaching methods in junior high schools. In which, the effective management of using teaching equipment plays a huge role.

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### QUẢN LÝ HIỆU QUẢ THIẾT BỊ DẠY HỌC Ở CÁC TRƯỜNG TRUNG HỌC CƠ SỞ HUYỆN NINH GIANG, TỈNH HẢI DƯƠNG TRONG XU THẾ CÁCH MẠNG CÔNG NGHIỆP 4.0 - THỰC TRẠNG VÀ BIỆN PHÁP

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### Tóm tắt

Trong thời gian qua, quản lý việc trang bị, bảo quản, sử dụng thiết bị dạy học ở các trường trung học cơ sở đã được quan tâm hơn, góp phần quan trọng trong việc đổi mới phương pháp dạy học. Quản lý việc trang bị, bảo quản, sử dụng thiết bị dạy học đã dần đi vào nền nếp. Tuy vậy, công tác quản lý thiết bị dạy học ở các trường còn mang tính hành chính, chưa hiệu quả. Tắc giả bài báo đã nêu và phân tích sâu sắc thực trạng quản lý thiết bị dạy học ở các trường trung học cơ sở huyện Ninh Giang, tỉnh Hải Dương về những mặt mạnh và những mặt còn hạn chế từ đó đề xuất hệ thống biện pháp quản lý hiệu quả thiết bị dạy học ở các trường trung học cơ sở huyện Ninh Giang, tỉnh Hải Dương trong xu thế cách mạng công nghiệp 4.0 hiện nay.

### Từ khóa

Thiết bị dạy học; Thực trạng và giải pháp quản lý hiệu quả thiết bị dạy học; Trường trung học cơ sở; Huyện Ninh Giang, tỉnh Hải Dương; Xu thế cách mạng công nghiệp 4.0.