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Current Situation and Management Measures for the Application of Information Technology in Teaching at Secondary Schools in Sam Son Ward, Thanh Hoa Province, according to the Model Digital School

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***Abstract*—** *The study focuses on surveying and evaluating the current state of management of information technology (IT) applications in teaching at junior high schools (JHS) in Sam Son ward, Thanh Hoa province. Following the orientation toward building digital schools, a survey was conducted with 57 management staff members at 5 public secondary schools; data were processed using descriptive statistics. The results show that the management of the application of information technology in teaching and learning is at a fairly good level; in particular, the organisation and direction of implementation activities were rated higher than those of other activities, such as assessment and evaluation. Schools have developed digital transformation plans, utilising digital learning materials and online teaching platforms. However, the development of shared digital databases and learning materials, and the innovation in assessment and evaluation using digital technology, still face certain limitations. Based on the research results, this article proposes several measures to improve the effectiveness of managing the application of information technology in teaching, assessment, and evaluation, thereby promoting digital transformation and developing a digital school model in current secondary education.*

I. PROBLEM STATEMENT

In the context of the rapid digital transformation of education, building a digital school model is becoming an inevitable trend. There is a strong need for innovation in teaching and school management. In particular, the application of information technology (IT) in teaching has become essential to reforming teaching methods, developing digital learning materials, and enhancing the digital skills of teachers and students.

In recent years, junior high schools in Sam Son ward, Thanh Hoa province, have begun implementing information technology (IT) applications for teaching, testing, evaluation, and professional management. Many junior high schools have focused on developing digital transformation plans, exploiting online learning platforms, and using digital learning materials in teaching. However, implementation across schools remains uneven; the development and exploitation of digital learning materials, testing and evaluation on digital platforms, and management according to the digital school model still face many difficulties. This situation shows the need to objectively research and evaluate the current state of IT application management in teaching at junior high schools in Sam Son ward to identify existing shortcomings, limitations, and their causes, as a basis for proposing measures to improve the effectiveness of IT application

management in teaching according to the current digital school model.

II. THEORETICAL BASIS FOR MANAGING THE APPLICATION OF INFORMATION TECHNOLOGY IN TEACHING AT JUNIOR HIGH SCHOOLS ACCORDING TO THE DIGITAL SCHOOL MODEL.

Managing the application of information technology (IT) in teaching at junior high schools under the digital school model is a purposeful and planned process by the management entity to organise, operate, and control the application of IT in all teaching activities, ensuring alignment with the goals of educational reform and the school's digital transformation. This management process not only focuses on the use of IT equipment and software in teaching but also aims to build a digital educational environment, develop digital learning materials, innovate teaching methods, improve assessment, and enhance the digital skills of teachers and students.

In the digital school model, the application of IT in teaching and learning is managed according to basic functions, including planning, organising, implementing, directing, monitoring, and evaluating.

III. MANAGING THE APPLICATION OF INFORMATION TECHNOLOGY IN TEACHING AT JUNIOR HIGH SCHOOLS ACCORDING TO THE DIGITAL SCHOOL MODEL

Managing the application of information technology in teaching at junior high schools according to the digital school model is a purposeful and planned process by the management entity to organise, operate, and control the application of information technology in teaching activities to meet the requirements of educational reform and digital transformation of the school (Government, 2022). This management process not only aims at the use of information technology equipment and software in teaching but also at developing a digital educational environment, digital databases, digital learning materials, digital competencies of teachers and students, and innovating teaching methods and assessment according to the orientation of developing learners' qualities and competencies (UNESCO, 2018).

In the digital school model, the application of information technology in teaching is managed according to basic functions, including planning, organising, implementing, directing, monitoring, and evaluating. In this model, the subject-specific team plays a central role in deploying information technology in teaching activities, connecting the school administration's management direction with teachers' professional activities.

3.1. Developing a plan for applying IT in teaching and learning according to the digital school model.

Planning is the initial function, playing a guiding role for the entire process of implementing IT applications in teaching and learning. The IT application plan needs to be developed in conjunction with the goals of digital transformation in education and the development orientation of the school's digital school model (Government, 2022).

The plan's content should be integrated into the school's educational plan and the subject departments' activity plans to ensure consistency between teaching innovation and the application of information technology. The school administration and subject departments need to define the goals, tasks, implementation roadmap, each department's responsibilities, and the conditions for deploying information technology in each subject and educational activity.

In the context of digital schools, IT application plans need to focus on developing digital databases, digital learning resource repositories, learning management software, school management systems, and online learning platforms. Building digital databases helps schools manage teaching information, learning outcomes, teacher and student records in a synchronised and objective manner, creating a foundation for data-driven school governance (OECD, 2020).

The IT application plan also needs to be flexibly adjusted to the school's actual conditions, teachers' digital skills, and students' ability to access technology to ensure feasibility and effectiveness in implementation.

3.2. Organising the implementation of IT applications in teaching and learning according to the digital school model.

Implementation is the process of concretising the plan for applying information technology to teaching and learning activities in school practice. Schools need to organise teachers to apply information technology in designing lesson plans, organising learning activities, and exploiting digital learning materials to support teaching and learning (Voogt et al., 2013).

The professional team plays a direct role in guiding teachers in implementing IT applications across subjects, developing electronic lesson plans, selecting appropriate teaching software, and organising professional development activities focused on lesson study using digital technology. This is a crucial force in ensuring uniformity

and effectiveness in professional work during the implementation of the digital school model.

Schools need to effectively utilise digital platforms, teaching software, learning management systems (LMS), question banks, digital learning materials, and shared data repositories to expand students' learning environment beyond the traditional classroom (Fullan & Langworthy, 2014).

During implementation, teachers need technical support, digital literacy training, and skills for exploiting digital data in teaching. At the same time, schools need to create conditions for students to use IT applications for learning, information exchange, collaboration, and self-study, and strengthen the use of IT in testing and evaluation to enhance the objectivity, flexibility, and individualisation of learning activities (Redecker, 2017).

3.3. Directing the application of information technology in teaching and learning according to the digital school model.

Guidance is the process by which the school administration influences, directs, and promotes the application of information technology in teaching and learning, ensuring its consistent and effective implementation throughout the school.

The school administration needs to direct subject departments to strengthen the application of information technology to innovate teaching methods, using digital learning materials and online learning platforms suited to the characteristics of each subject and student group. At the same time, the school needs to build a shared digital learning resource repository and a specialised database to support management, teaching, and resource sharing between teachers and students.

In the digital school model, management also includes managing the teaching software system and data management system, ensuring information and network security, and using IT software in accordance with regulations (UNESCO, 2023). Connecting and synchronising data across school management, professional management, and teaching activities contributes to the formation of a unified data system, helping to improve operational efficiency, reduce information duplication, and support managers in making accurate decisions based on digital data.

The school administration needs to establish mechanisms to motivate and encourage teachers and subject departments to innovate and be creative in applying information technology, and to promote the professional leadership role of subject department heads in implementing digital teaching activities and online professional development sessions.

3.4. Checking and evaluating the application of IT in teaching and learning according to the digital school model.

Monitoring and evaluation are management functions aimed at tracking implementation levels, identifying limitations, and adjusting the use of information technology in teaching and learning in line with defined objectives.

The school needs to develop criteria for checking and evaluating teachers' use of information technology in teaching, meeting the requirements of digital transformation and the characteristics of the subject department's professional activities. The school administration and subject departments should observe and inspect lessons that use information technology to assess the effectiveness of technology, digital learning materials, and teaching software in organising learning activities for students.

Assessment and evaluation should be linked to the use of data from digital platforms, learning management software, and online assessment and evaluation systems to improve the accuracy and timeliness of management. Assessment results should be used to adjust plans, support teachers, and refine the database for managing teaching and learning activities.

At the same time, schools need to organise reviews, summaries, and the sharing of experiences in applying information technology in teaching; develop digital learning materials; and build lesson plans and electronic lectures within subject departments and among schools in order to gradually perfect the digital school model in lower secondary education.

IV. CURRENT STATUS OF MANAGING INFORMATION TECHNOLOGY APPLICATIONS IN VARIOUS SECTORS. SAM SON WARD, THANH HOA PROVINCE

4.1. Sampling and data processing methods

4.1.1 . Sample Selection

The research sample was selected using a purposive sampling method combining school-based coverage. The survey was conducted in 5 public secondary schools in Sam Son ward, Thanh Hoa province, ensuring representativeness of different teaching and learning conditions and levels of IT application in the context of the current digital transformation of education.

The survey participants totalled 57 management staff members, including principals, vice-principals, and heads and deputy heads of subject departments. This group directly performs management functions related to the application of IT in teaching, such as planning, organising, implementing, directing, monitoring, evaluating, and ensuring the relevance and reliability of the survey data.

4.1.2 . Data processing methods

Data were collected using a 5-point Likert scale questionnaire. Scoring convention: Very Good = 5; Good = 4; Average = 3; Poor = 2; Very Poor = 1. Data were coded and processed using descriptive statistics in SPSS 20.0, including frequencies, means ($\bar{X}$), and standard deviations (SD). The results of data processing directly serve as the basis for analysing the current situation and proposing management measures for applying information technology in teaching and learning, oriented towards digital transformation and the digital school model, in public secondary schools in Sam Son ward, Thanh Hoa province.

4.2. Current status of managing information technology applications in junior high schools in Sam Son ward, Thanh Hoa province.

Table 1. Current status of IT application planning in teaching at junior high schools in Sam Son ward, Thanh Hoa province (n = 57 administrators)

TT	Review content	Very good	Good	Medium	Not good	Very bad	$\bar{X}$	SD	Rank
1	The school is developing a plan to apply information technology to teaching and learning, aligned with the goals of digital transformation and the digital school model.	16	24	13	4	0	3.91	0.82	1
2	The IT application plan is integrated into the school's and subject department's educational plan.	13	25	14	5	0	3.81	0.84	2
3	The plan clearly defines the tasks, roadmap, and responsibilities of each department for implementing IT applications.	10	24	17	5	1	3.65	0.90	4
4	The school is developing a plan to invest in and supplement digital learning materials, equipment, and technological infrastructure to support teaching and learning.	8	22	19	7	1	3.51	0.93	5
5	The IT application plan is adjusted to suit the school's actual conditions and the teachers' capabilities.	11	25	15	5	1	3.70	0.88	3
Average GPA							3.72	0.87	

Source: Author's survey results, 2025.

The survey results show that the planning for the application of IT in teaching at junior high schools in Sam Son ward was rated fairly good ($\bar{X}$ = 3.72). The highest-rated content was planning linked to digital transformation goals and the digital school model ($\bar{X}$ = 3.91). This reflects the schools' initial interest in orienting towards digital transformation in management and teaching. The lowest-rated content was the planning for investment in digital learning materials, equipment, and technological infrastructure ($\bar{X}$ = 3.51), indicating that physical facilities and financial resources remain challenges to implementing IT applications in some schools.

The above results show that the planning process has a relatively clear direction; however, the degree of synchronisation among professional planning, infrastructure investment, and digital learning resource development is low. This is an issue that needs continued attention to ensure the feasibility and effectiveness of the digital school model in practice.

Table 2. Current status of IT application implementation in teaching at junior high schools in Sam Son ward, Thanh Hoa province (n = 57 administrators)

TT	Review content	Very good	Good	Medium	Not good	Very bad	$\bar{X}$	SD	Rank
1	The school organises training for teachers on applying information technology to lesson design and the organisation of learning activities.	18	26	10	3	0	4.04	0.78	1
2	The school utilises digital platforms, teaching software, and electronic learning materials to support teaching and learning.	14	25	13	5	0	3.84	0.84	2
3	Teachers receive technical support and training in applying information technology in teaching.	11	23	17	5	1	3.67	0.91	4
4	The school conducts student assessments using appropriate digital tools and software.	9	22	18	7	1	3.54	0.94	5
5	Students are allowed to use information technology in their studies, communication, and self-learning.	12	24	15	5	1	3.72	0.89	3
Average GPA							**3.76**	**0.87**	

Source: Author's survey results, 2025.

The survey results show that the organisation and implementation of IT applications in teaching and learning were rated as fairly good ($\bar{X}$ = 3.76). The highest-scoring content was organising teachers to apply IT in lesson design and organising learning activities ($\bar{X}$ = 4.04). This indicates that the use of IT to innovate teaching methods has been implemented quite frequently in schools. The lowest-scoring content was organising student assessment using digital tools and software ($\bar{X}$ = 3.54), reflecting that the innovation in assessment using technology is lagging behind the innovation in teaching and learning activities.

The above results show that current IT applications are mainly focused on supporting teaching and learning, while the exploitation of technology to innovate assessment, enhance self-learning, and personalise learning for students is not yet truly uniform. This area needs further strengthening in the process of building digital schools.

Table 3. Current status of directing the application of IT in teaching and learning in junior high schools in Sam Son ward, Thanh Hoa province (n = 57 administrators)

TT	Review content	Very good	Good	Medium	Not good	Very bad	$\bar{X}$	SD	Rank
1	The school administration directs the subject departments to strengthen the use of information technology to innovate teaching methods.	19	25	10	3	0	4.05	0.79	1
2	The school directs teachers to use appropriate digital learning materials and online teaching platforms.	15	24	13	5	0	3.86	0.85	2
3	The school administration directed the creation of a shared digital learning resource library.	10	22	18	6	1	3.60	0.93	5

4	The school directs the ensuring of information security and the proper use of IT equipment in accordance with regulations.	12	24	15	5	1	3.72	0.89	4
5	The school administration encourages and motivates teachers to innovate and be creative in their use of information technology.	14	25	13	5	0	3.84	0.84	3
Average GPA							**3.81**	**0.86**	

Source: Author's survey results, 2025.

The survey results show that the guidance on applying IT in teaching was rated as fairly good ($\bar{X}$ = 3.81). The content on guiding the innovation of teaching methods through IT received the highest score ($\bar{X}$ = 4.05). Meanwhile, the content on building a shared digital learning resource repository received the lowest score ($\bar{X}$ = 3.60), reflecting that the digitisation of learning materials and the sharing of digital resources in schools have not been truly effective.

The above results show that the school administration's leadership role has been clearly demonstrated in promoting the application of IT. However, the development of shared digital learning materials, data management, and the exploitation of digital resources for teaching and learning still need more attention to meet the requirements of digital transformation in education.

Table 4. Current status of inspection and evaluation of IT application activities in teaching at junior high schools in Sam Son ward, Thanh Hoa province (n = 57 administrators)

TT	Review content	Very good	Good	Medium	Not good	Very bad	$\bar{X}$	SD	Rank
1	The school has developed criteria for assessing teachers' use of information technology in teaching.	12	24	15	5	1	3.72	0.89	2
2	The school administration conducts classroom observations and checks lessons that utilise information technology.	16	25	12	4	0	3.93	0.81	1
3	The school uses the test results to adjust plans and support teachers.	11	23	17	5	1	3.67	0.91	3
4	The use of information technology is among the criteria for teacher performance evaluation and professional assessment.	9	22	18	7	1	3.54	0.94	5
5	The school organises preliminary and final reviews and shares experiences on applying information technology in teaching.	10	23	17	6	1	3.61	0.92	4
Average GPA							**3.69**	**0.89**	

Source: Author's survey results, 2025.

The survey results show that the inspection and evaluation of IT applications in teaching was rated as fairly good ($\bar{X}$ = 3.69). The content of observing and inspecting lessons that utilise IT received the highest score ($\bar{X}$ = 3.93), reflecting that professional inspection activities have begun to pay attention to the application of technology in teaching. The content with the lowest score was the inclusion of IT

application in the criteria for teacher performance evaluation and professional assessment ($\bar{X}$ = 3.54).

The above results show that current inspection and evaluation activities still focus more on monitoring implementation than on evaluating the effectiveness of IT applications according to specific criteria of the digital school model. The use of evaluation results to adjust plans, support teachers, and build mechanisms to encourage innovation still needs further improvement.

** General assessment of the current state of IT application management in teaching at junior high schools in Sam Son ward, Thanh Hoa province*

The survey results show that the management of IT applications in teaching at junior high schools in Sam Son ward has been implemented relatively synchronously across management functions.

Of the four survey areas, the guidance and implementation were rated highest. Schools have focused on guiding digital transformation, encouraging teachers to apply IT in lesson design, utilise digital learning materials, and innovate teaching methods. The use of IT in professional activities is increasingly a regular requirement in school management and teaching.

The assessment and evaluation of IT applications in teaching have yielded lower results than those for other management functions. The development of evaluation criteria, the utilisation of assessment results to support teachers, the inclusion of IT applications in performance evaluation criteria, and the development of a shared digital learning resource library are not yet fully synchronised. This indicates that current IT application management still focuses more on organising and implementing activities than on managing the quality and effectiveness of technology applications in teaching.

The above situation indicates that the digital transformation of junior high schools in Sam Son ward has shown positive changes, but these changes are not uniform across all management aspects. Issues related to technological infrastructure, digital learning materials, teachers' capacity to utilise technology, and assessment mechanisms aligned with digital schools require continued attention in the next phase.

V. SOME MEASURES FOR MANAGING THE APPLICATION OF INFORMATION TECHNOLOGY IN TEACHING AT JUNIOR HIGH SCHOOLS IN SAM SON WARD, THANH HOA PROVINCE, ACCORDING TO THE DIGITAL SCHOOL MODEL

5.1 . Developing and implementing a plan for applying information technology in teaching and learning, linked to the digital school model.

The school needs to develop a plan for applying information technology in teaching and learning, aligned with the digital transformation orientation, ensuring it is integrated with the school's educational plan and the professional team's activity plan. The plan should clearly define the objectives, roadmap, tasks, and responsibilities of each department for implementing information technology.

The plan should focus on developing digital infrastructure, digital learning materials, shared databases, and online teaching and management platforms suitable for the specific conditions of junior high schools in Sam Son ward. Simultaneously, it is necessary to strengthen the mechanism for reviewing and adjusting the plan in light of teachers' digital skills and schools' technological capabilities.

5.2 . Strengthening digital skills and IT application skills for teachers and subject departments.

This is a crucial measure for the effective implementation of digital schools. Training content should focus on designing digital lessons, utilising digital learning materials, using online learning platforms, conducting digital assessments, and leveraging data for teaching and learning.

The school needs to promote the role of subject departments in thematic activities, lesson studies, and supporting teachers in applying IT to each subject. A core group of teachers specialising in digital transformation should be formed to provide professional support and disseminate experience in the application of IT throughout the school.

5.3 . Developing digital databases, digital learning materials, and technological infrastructure to support teaching and learning.

Secondary schools need to build a shared digital learning resource repository, a question bank, electronic lectures, and a database to support professional management. Data digitisation must ensure consistency, shareability, and efficient utilisation in teaching and management activities.

The school needs to continue investing in and upgrading its internet system, projection equipment, smart

classrooms, and software for teaching and learning. At the same time, it needs to effectively leverage resources from the social mobilisation of education and support from local authorities to improve the conditions for implementing the digital school model.

5.4 . Innovating the guidance on applying information technology in teaching and learning towards digital management.

The school administration needs to strengthen its guidance to subject departments on innovating teaching methods in conjunction with the application of information technology and the development of digital learning materials. This guidance should shift from administrative management to the management of teaching and learning activities based on digital data and performance effectiveness.

The school needs to develop mechanisms to encourage teachers to innovate and be creative in applying information technology; at the same time, it needs to strengthen the sharing of experiences and effective digital teaching models within the school and among junior high schools in Sam Son ward.

5.5 . Innovating the testing and evaluation of IT application activities in teaching and learning.

Schools need to develop specific evaluation criteria for teachers' use of information technology in teaching, aligned with the digital school model. The evaluation content should focus on the effectiveness of using information technology to organise learning activities, utilise digital learning materials, and develop students' competencies.

The results of tests and assessments should be used to adjust plans, support teachers, and serve as a basis for professional competition. At the same time, the use of digital software in student testing and assessment should be strengthened to enhance objectivity, flexibility, and the individualisation of learning activities.

VI. CONCLUSION

IT application activities in teaching at junior high schools in Sam Son ward, Thanh Hoa province, have been implemented in line with the digital transformation orientation and have initially met the requirements of the digital school model. Schools have focused on developing plans and organising the application of IT in teaching, exploiting digital learning materials, and increasing the use of technology platforms in professional activities.

The research results show that the organisation and direction of IT applications are rated fairly good; however, the activities of checking, evaluating, and developing shared digital databases and digital learning materials remain limited. The use of IT in schools is uneven, and teachers' digital competence and IT infrastructure remain factors directly affecting the effectiveness of the digital school model.

Based on the research findings, it is necessary to strengthen the development of a synchronised digital transformation plan, develop digital competencies for teachers, improve digital databases and learning materials, and innovate the testing and evaluation of IT application activities in teaching to enhance management efficiency and meet the requirements of current educational reforms.

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