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International Journal of Information Technology and Education (IJITE) 5 (1), (December 2025) 127 - 133

International Journal of Information Technology and Education (IJITE)

http://ijite.jredu.id

Utilization of the Ruang Guru LMS as a Training Platform for Coding and Artificial Intelligence: An Analysis of Ease of Use, Usefulness, and Teacher Readiness in North Sulawesi

Parabelem Tinno Dolf Rompas[1], Johan Reimon Batmetan[1], Gladly Caren Rorimpandey[1]*, Billy Rompas[1], Harfey Lumenta[1]

[1]Department of Vocational Technology Education, Graduate Program, Universitas Negeri Manado, Indonesia

*Corresponding author: gladlycrorimpandey@unima.ac.id

ARTICLE INFO
Article history:
Received: October 19, 2025; Received in revised form: November 27, 2025; Accepted: November 30, 2025;
Available online: December 05, 2025;

ABSTRACT

As education is rapidly changing with technology, training teachers digitally has been established as a key ingredient to their lifelong learning. The application of Ruang Guru Learning Management System (LMS) is a medium for training school teachers such as senior high vocational schools to code and artificial intelligence (AI) in all districts and municipalities in North Sulawesi. The purpose of this study is to investigate the levels of perceived ease of use, perceived usefulness, digital self-efficacy and teacher readiness in participating LMS-based training. We used a quantitative description method in which we surveyed teachers who attended the coding and AI training through Ruang Guru LMS. Four-point Likert-scale questions were used to measure four constructs: ease of use, usefulness, digital self-efficacy and readiness for digital training. Descriptive statistics were used in the analysis of data. Based on the result, teachers considered that Ruang Guru LMS was easy to use and they felt it assisted them in increasing their technological skills. Their digital self-efficacy scores were between good and very good, signifying a high level of readiness for digital training. The study also signifies a need to enhance teachers' digital skills, school infrastructure and LMS functionalities so as to ensure meaningful and sustainable digital training program.

Keywords: artificial intelligence training, coding training, digital self-efficacy, LMS, teacher readiness.

INTRODUCTION

The pacesetting evolution of instructional technology is rewriting the rulebook when it comes to what's expected, what's possible and what skills practitioners must possess. In numerous regions, across the globe, schools have started to incorporate digital devices to make lessons more efficient and engaging - as well as enforcing access to learning. As a result, teachers are now required to be digitally literate and can work in multiple technology mediated learning contexts. One key area of change is the role Learning Management Systems (LMS) play in teacher preparation and professional development.

In Indonesia, efforts to improve teachers' digital literacy and technical competencies have increased with the introduction of an AI, coding and digital creativity modules. The Ruang Guru LMS is among the platforms being utilized for digital-based training programs for educators. This platform features organized modules, video learning resources, quizzes, forums and tracking of your progress. LMS-learning has numbers of advantages like the flexibility to learn time, reviewing course contents multiple times and the self-paced learning.

Despite these benefits, teachers' ability to access and adopt LMS-based training effectively is critically dependent on the extent of ready constructedness supports, including their online skills necessary to navigate digital environment, usability perceptions towards the system used, confidence in using technology and perceived readiness for online PD. Factors such as these ultimately influence the extent to which teachers may profit from digital training programmes.

Researchers in past studies also have argued that perceived ease of use and perceived usefulness are the predictors of teacher's intention to use digital learning. Digital self-efficacy also has been demonstrated to be an essential factor, particularly in environments where teachers have different levels of previous experience with technology. Early adopter inclination to digital learning, encompassing access and motivation as well as ICT literacy, is also an important determinant of the take- up of training.

Yet, in the case of North Sulawesi Province there exist few research related to teacher readiness towards training coding and AI using an LMS. Thus, there is a research gap about the teachers' perceptions of ease to use, usefulness, digital self-efficacy and readiness in training using Ruang Guru LMS.

This is anticipated to yield valuable implications for policy-makers, training providers and online-platform developers aiming to ensure that schools can leverage the opportunities of teacher professional development in digital environments.

LITERATURE REVIEW

Learning Management System (LMS)

An LMS is an online system, or software that is used to create, manage, and deliver training content and courses, When you look for Learning Management System in Wikipedia it describes as:'A learning management system (LMS) is a software application for the administration, documentation,

tracking reporting and delivery of electronic educational technology education courses or training programs. Centralization is also provided through an LMS, which enables teachers to find learning resources, monitor progress; interact with others in their field and too get involved in virtual learning systems. Scalability in teacher professional development programs: LMS tools afford for scaled-up delivery and the integration of multimedia and flexible access in a training environment(Abror, 2020).

Studies worldwide have shown that the use of LMS by teachers can increase their learning opportunities, facilitate learning asynchronous and giving them personalized instruction. LMSs also allow the development of digital competences, which are nowadays vital to meet the new needs of pedagogical strategies.

Coding and AI Training Teacher

Coding and AI are new discipline-based content areas that 21st-century education need to offer. These skills are necessary so that teachers can then supports students in learning computational thinking, algorithmic reasoning, problem solving, and digital creativity. AI Literacy also prepares teachers to work with AI-powered tools for teaching.

Educating teachers on coding and AI can be achieved with well-organized guidance, materials for studying, and environments that allow the implementation of interactive exercises. LMS systems meet these requirements via modularization, built-in coding environments and testing with immediate feedback. In Indonesia, there's a push to upskill teachers on coding and AI that are in line with the new Merdeka Curriculum's focus which includes digital literacy and technological adaptability(Ofem et al., 2025; Yao & Wang, 2024).

Perceive Ease of Use

Perceived ease of use is when a person believes that using a particular system would be free from too much effort. If teachers find an LMS easy and user-friendly, they will be more motivated to discover the functionality of platforms, try learning modules and engage in training courses. Ease of use depends on interface and navigation design as well as clarity in the set of instructions and technical integrity.

Perceived Usefulness

Perceived usefulness is the extent to which teachers believe that using LMS will improve their performance or professional capabilities. If teachers find the LMS (Learning Management System) based training to be highly useful, they are more likely to be motivated and involved. LMS solutions provide real life values in logistics for different reasons: the L@J plan is designed based on hours availability thanks to time combination, make possible learning speed increase, and facilitates access to resources.

Digital Self-Efficacy

Teachers' belief in their ability to perform tasks using digital resources is referred as digital self-efficacy. Teachers with a high level of digital self-efficacy are more likely to have a positive acceptance towards digital learning environments, they are also less discouraged by the technical difficulties and

more prone to believe that they can learn new digital skills. High level of self-efficacy is commonly associated with better performance and positive learning results(Anwarul Islam & Khan, 2024; Arifin et al., 2023; Daher et al., 2021; Ismail et al., 2025).

Teacher Readiness for Digital Training

The preparedness for teacher iscon multidimensional that comprises psychological, technological and pedagogical preparedness. It demonstrates the readiness of teachers to accept digital learning spaces. High readiness means that teachers have access to the necessary devices, are digitally literate enough, and have motivation to be involved in online training; additionally they show a positive attitude towards technology as for professional development(Anwarul Islam & Khan, 2024; Chen & Gao, 2025; Giac et al., 2025).

METHOD

This study used a qualitative descriptive research approach in order to offer a systematic and detailed description of how the ease of use, usefulness, digital self-efficacy, and readiness for LMS-based training is perceived by teachers.

Participant

Respondents Retraining on Coding and AI by Using Learning Management System This study involved senior high and vocational schools teachers who joined the training on coding, AI with Ruang Guru LMS in North Sulawesi province. A purposive sampling was employed to select only those teachers who did use the LMS in practice for the study.

Instrument

A Likert-scale questionnaire with four sections was used to collect the data:

1. Perceived Ease of Use
2. Perceived Usefulness
3. Digital Self-Efficacy
4. Teacher Readiness

Each item was rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Instrument validation was carried out according to the standard path of content validity and reliability analysis (Sanchez-Gomez et al., 2019; Silva et al., 2025).

Data Analysis

The mean, standard deviation and interpretation categories (IC) of each variable were determined based on descriptive statistics. The purpose of the analysis was to gain an overview concerning teachers' opinions in general on the constructs measured.

RESULTS AND DISCUSSION

Perceived Ease of Use

Perceived ease of use levels were high amongst instructors. They reported that they found the Ruang Guru LMS interface user friendly, navigable, and easy to learn. The layout of material, the clarity of commands and the stability in system performance all contributed towards ease of use.

Perceived Usefulness

Participants conveyed how the LMS facilitated their learning of coding and AI concepts. They liked the fact that you can access modules at any time, I have videookde explanations pedagogical progression in the training course. Faculty found the LMS beneficial to enhance instructional skills.

Digital Self-Efficacy

The results showed high levels of digital self-efficacy in teachers. Respondents were comfortable using digital tools and features of the LMS, identifying and resolving basic IT issues, or working online autonomously. This trust was an important factor in enabling their participation to digital literacy training.

Teacher Readiness

Teacher preparedness was also found to be strong. in the technical skills, access to devices and attitudes of respondents in the use of online training for developing digital competencies.

The implication of the research is that teachers in North Sulawesi have good level for readiness to conduct digital training programs with LMS. The high perception of ease of use indicates that the Ruang Guru LMS is quite usable as a medium for training. This is in line with findings from other studies, suggesting that user-friendly platforms lead to better engagement and learning outcomes. High-Mean perceived usefulness These respondents highly value training in digital competences with the LMS. The possibility to access modular content, learn on their own speed and repeat demonstrations were perceived as useful by participants.

The importance of digital self-efficacy was a key issue in teachers' readiness for training. The version of this system I use offers professional development options and allows me to have individual accounts for the students. Teachers' general readiness profile shows a good starting point for extending LMS-based training activities. Yet the research also signals a call for standardised digital support systems, enhanced internet coverage in some areas and continued professional learning to make it sustainable.

CONCLUSION

This study concludes that Teachers found the LMS of Ruang Guru easy to learn for coding and AI training. The LMS was useful in enhancing teacher competencies. Teachers showed high levels of digital self-efficacy, which facilitated their involvement and effectiveness in online training. High

teacher preparedness toward LMS-based learning suggested a good possibility of implementation. The findings serve as evidence for the continued use of LMS facilitated professional development.

Recommendation

1) For Schools: Strengthen digital infrastructure and provide ongoing support for teachers during digital training.
2) For Teachers: Continue enhancing digital literacy to fully benefit from LMS-based training.
3) For LMS Developers: Improve interactivity, feedback mechanisms, and troubleshooting support.
4) For Future Research: Include variables such as technostress, digital divide, or organizational support to broaden empirical insights.

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